Stem Cell Patent

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Abstract: The definition of stem cell is "an unspecialized cell that gives rise to a specific specialized cell, such as a blood cell". Stem Cell is the original of life. All cells come from stem cells. Serving as a repair system for the living body, the stem cells can divide without limit to replenish other cells as long as the living body is still alive. When a stem cell divides, each new cell has the potential to either remain a stem cell situition or become another type of cell with a more specialized function, such as a muscle cell, a red blood cell, a bone cell, a nerve cell, or a brain cell. Stem cell research is a tipical and important topic of life science. This material collects some literatures on adipose stem cell.

[Mark H. **Stem Cell Patent**. 2025;16(1):1-233] ISSN: 1945-4570 (print); ISSN: 1945-4732 (online). http://www.sciencepub.net/stem. 1. doi:10.7537/marsscj160125.01

Key words: stem cell; life; gene; DNA; protein; patent

Literatures

Assmus, B., J. Honold, et al. (2006). "Transcoronary transplantation of progenitor cells after myocardial infarction." N Engl J Med **355**(12): 1222-32.

BACKGROUND: Pilot studies suggest that intracoronary transplantation of progenitor cells derived from bone marrow (BMC) or circulating blood (CPC) may improve left ventricular function after acute myocardial infarction. The effects of cell transplantation in patients with healed myocardial infarction are unknown. METHODS: After an initial pilot trial involving 17 patients, we randomly assigned, in a controlled crossover study, 75 patients with stable ischemic heart disease who had had a myocardial infarction at least 3 months previously to receive either no cell infusion (23 patients) or infusion of CPC (24 patients) or BMC (28 patients) into the patent coronary artery supplying the most dyskinetic left ventricular area. The patients in the control group were subsequently randomly assigned to receive CPC or BMC, and the patients who initially received BMC or CPC crossed over to receive CPC or BMC, respectively, at 3 months' follow-up. RESULTS: The absolute change in left ventricular ejection fraction was significantly greater among patients receiving BMC (+2.9 percentage points) than among those receiving CPC (-0.4 percentage point, P=0.003) or no infusion (-1.2 percentage points, P<0.001). The increase in global cardiac function was related to significantly enhanced regional contractility in the area targeted by intracoronary infusion of BMC. The crossover phase of the study revealed that intracoronary infusion of BMC was associated with a significant increase in global and regional left ventricular function, regardless of whether patients crossed over from control to BMC or from CPC to BMC. CONCLUSIONS: Intracoronary infusion of progenitor cells is safe and feasible in patients with healed myocardial infarction. Transplantation of BMC is associated with moderate but significant improvement in the left ventricular ejection fraction after 3 months.

Butt, A. M. and J. Dinsdale (2005). "Fibroblast growth factor 2 induces loss of adult oligodendrocytes and myelin in vivo." Exp Neurol **192**(1): 125-33.

Oligodendrocytes are the myelin-forming cells of the CNS and are lost in demyelinating diseases such as multiple sclerosis (MS). A role for fibroblast growth factor 2 (FGF2) has been proposed in the pathogenesis of demyelination and the failure of remyelination in experimental models of MS. However, the in vivo effects of FGF2 on oligodendrocytes and oligodendrocyte progenitors (OPCs) in the adult CNS had not previously been determined. To address this, FGF2 was delivered into the cerebrospinal fluid (CSF) of the IVth ventricle and its actions were examined on the anterior medullary velum (AMV), a thin tissue that partly roofs the IVth ventricle and is bathed by CSF. FGF2 was administered twice daily for 3 days and AMV were analysed using immunohistochemical labelling; saline was administered in controls. The results show that raised FGF2 induces severe disruption of mature oligodendrocytes and a marked loss of myelin. At the same time, FGF2 treatment resulted in the aberrant accumulation of immature oligodendrocytes with a premyelinating phenotype, together with NG2-expressing OPCs. Axons are patent within demyelinated lesions, and they are contacted but not ensheathed by surviving oligodendrocytes, newly formed premyelinating oligodendrocytes and OPCs. These results demonstrate that raised FGF2 induces demyelination in the adult CNS, and support a role for

FGF2 in the pathogenesis of demyelination and regulation of remyelination in MS.

Chan-Ling, T., D. S. McLeod, et al. (2004). "Astrocyte-endothelial cell relationships during human retinal vascular development." Invest Ophthalmol Vis Sci **45**(6): 2020-32.

PURPOSE: To evaluate evidence for the presence of vascular precursor cells (angioblasts) and astrocyte precursor cells (APCs) in the developing human retina and determine their relationship. METHODS: Pax-2/GFAP/CD-34 triple-label immunohistochemistry was applied to four retinas aged 12, 14, 16, and 20 weeks of gestation (WG) to label APCs, astrocytes, and patent blood vessels. APCs are Pax-2(+)/GFAP(-), whereas astrocytes are Pax-2(+)/GFAP(+). Adenosine diphosphatase (ADPase) enzyme histochemistry, which identifies endothelial cells and vascular precursors, was applied to human retinas aged 12, 16, 17, and 19 WG. Nissl stain, a nonspecific cell soma marker, was applied to 14.5-, 18-, and 21-WG retinas. Established blood vessels were visualized with CD34 and ADPase. RESULTS: Topographical analysis of the distribution of Nissl-stained spindle cells and ADPase(+) vascular cells showed that these two populations have similar distributions at corresponding ages. ADPase(+) vascular precursor cells preceded the leading edge of patent vessels by more than 1 millimeter. In contrast, Pax-2(+)/GFAP(-) APCs preceded the leading edge of CD34(+) blood vessels by a very small margin, and committed astrocytes (Pax-2(+)/GFAP(+)) were associated with formed vessels and nerve fiber bundles. Two populations of ADPase(+) cells were evident, a spindle-shaped population located superficially and a deeper spherical population. The outer limits of these populations remain static with maturation. CONCLUSIONS: A combination of Pax-2/GFAP/CD34 immunohistochemistry, Nissl staining, and ADPase histochemistry showed that the vascular precursor cells (angioblasts), identified using ADPase and Nissl, represent a population distinct from Pax-2(+)/GFAP(-) APCs in the human retina. These results lead to the conclusion that formation of the initial human retinal vasculature takes place through vasculogenesis from the prior invasion of vascular precursor cells.

Chapman, A. R. (2009). "The ethics of patenting human embryonic stem cells." Kennedy Inst Ethics J **19**(3): 261-88.

Just as human embryonic stem cell research has generated controversy about the uses of human embryos for research and therapeutic applications, human embryonic stem cell patents raise fundamental ethical issues. The United States Patent and Trademark Office has granted foundational patents, including a composition of matter (or product) patent to the Wisconsin Alumni Research Foundation (WARF), the University of Wisconsin-Madison's intellectual property office. In contrast, the European Patent Office rejected the same WARF patent application for ethical reasons. This article assesses the appropriateness of these patents placing the discussion in the context of the deontological and consequentialist ethical issues related to human embryonic stem cell patenting. It advocates for a patent system that explicitly takes ethical factors into account and explores options for new types of intellectual property arrangements consistent with ethical concerns.

Cho, S. W., O. Jeon, et al. (2006). "Preliminary experience with tissue engineering of a venous vascular patch by using bone marrow-derived cells and a hybrid biodegradable polymer scaffold." J Vasc Surg **44**(6): 1329-40.

OBJECTIVE: Currently available synthetic polymer vascular patches used in cardiovascular surgery have shown serious shortcomings, including thrombosis, calcification, infection, and lack of growth potential. These problems may be avoided by vascular patches tissue-engineered with autologous stem cells and biodegradable polymeric materials. The objective of this study was to develop a tissue-engineered vascular patch by using autologous bone marrow-derived cells (BMCs) and a hybrid biodegradable polymer scaffold. METHODS: Hybrid biodegradable polymer scaffolds were fabricated from poly(lactide-co-epsilon-caprolactone) (PLCL) copolymer reinforced with poly(glycolic acid) (PGA) fibers. Canine bone marrow mononuclear cells were induced in vitro to differentiate into vascular smooth muscle cells and endothelial cells. Tissue-engineered vascular patches (15 mm wide x 30 mm long) were fabricated by seeding vascular cells onto PGA/PLCL scaffolds and implanted into the inferior vena cava of bone marrow donor dogs. RESULTS: Compared with PLCL scaffolds, PGA/PLCL scaffolds exhibited tensile mechanical properties more similar to those of dog inferior vena cava. Eight weeks after implantation of vascular patches tissue-engineered with BMCs and PGA/PLCL scaffolds, the vascular patches remained patent with no sign of thrombosis, stenosis, or dilatation. Histological, immunohistochemical, and scanning electron microscopic analyses of the retrieved vascular patches revealed regeneration of endothelium and smooth muscle, as well as the presence of collagen. Calcium deposition on tissue-engineered vascular patches was not significantly different from that on native blood vessels. Immunofluorescent double

staining confirmed that implanted BMCs survived after implantation and contributed to regeneration of endothelium and vascular smooth muscle in the implanted vascular patches. CONCLUSIONS: This study demonstrates that vascular patches can be tissue-engineered with autologous BMCs and hybrid biodegradable polymer scaffolds.

Constantino, M., P. Christian, et al. (2001). "A comparison of techniques for detecting Invertebrate iridescent virus 6." J Virol Methods **98**(2): 109-18.

The aim of this study was to compare the sensitivity and precision of various methods for the detection and quantification of Invertebrate iridescent virus 6 (IIV-6) (Iridoviridae) isolated from a the stem-boring moth Chilo suppressalis, and to apply these techniques to the detection of covert infections in the wax moth, Galleria mellonella. The relationship between the virus concentration and absorbance at 260 nm was linear over the range of 1.6 x 10(9)-5.6 x 10(10) particles/ml. TCID(50) assays using 12 different cell lines indicated that two Drosophila lines, DL2 and DR1, had the highest susceptibility whereas cell lines from Aedes albopictus and Plutella xylostella were four orders of magnitude less sensitive. TCID(50) values for IIV-6 in Spodoptera frugiperda Sf9 cells gave the particle-infectivity ratios of 15-64 virus particles/IU. An insect bioassay involved injecting doses of 1-100 IIV-6 particles into the third instar G. mellonella larvae. The prevalence of patent infection was 20-26% at a dose of 1 particle per larva rising to 86-92% at 10 particles and 100% at doses of 50 or 100 particles. Of the insects that survived to adulthood, between 5.8 and 75% caused patent infections when injected into G. mellonella larvae, indicating that they were covertly infected. A PCR technique resulted in 95% detection at 1000 virus particles per insect. Of the insects that proved positive for covert infection by insect bioassay, 41% also proved positive by PCR analysis. It is concluded that the G. mellonella bioassay is highly reliable for detection of doses of 10 particles or more and for determining the relative activity of IIV-6 preparations at doses as low as 1 particle per insect. PCR had a slightly lower sensitivity followed by the insect cell culture assay.

Curley, D. and A. Sharples (2006). "Ethical questions to ponder in the European stem cell patent debate." J Biolaw Bus **9**(3): 12-6.

Patents may be refused in Europe on ethical grounds. Whereas in the past this issue has arisen only infrequently, recent developments in human embryonic stem cell research have given rise to conflicting opinions in Europe as to the approach that should be adopted in relation to patents. The United Kingdom Patent Office has adopted a positive policy towards inventions involving human embryonic stem cells, but the European Patent Office has to date refused to grant patent applications involving similar subject-matter. A series of legal questions on the role of ethics in granting European patents is now to be considered for clarification by the European Patent Office. The answers to these questions should eventually resolve the debate on the patenting of human embryonic stem cells throughout Europe.

Deregibus, M. C., V. Cantaluppi, et al. (2007). "Endothelial progenitor cell derived microvesicles activate an angiogenic program in endothelial cells by a horizontal transfer of mRNA." Blood **110**(7): 2440-8.

Membrane-derived microvesicles (MVs) are released from the cell surface and are implicated in cell-to-cell communication. We evaluated whether MVs derived from endothelial progenitor cells (EPCs) are able to trigger angiogenesis. We found that EPC-derived MVs were incorporated in endothelial cells by interaction with alpha4 and beta1 integrins expressed on the MV surface. In vitro, MVs promoted endothelial cell survival, proliferation, and organization in capillary-like structures. In vivo, in severe combined immunodeficient (SCID) mice, MV-stimulated human endothelial cells organized in patent vessels. When incubated with RNase, despite their internalization into endothelial cells, MVs failed to induce in vitro and in vivo angiogenic effects. mRNA transfer was shown by transduction of GFP protein in endothelial cells by MVs containing GFP-mRNA and the biologic relevance by the angiogenic effect of MV-mRNA extract delivered by lipofectamine. Microarray analysis and quantitative reverse transcription-polymerase chain reaction (RT-PCR) of MV-mRNA extract indicated that MVs were shuttling a specific subset of cellular mRNA, such as mRNA associated with the PI3K/AKT signaling pathway. Protein expression and functional studies showed that PI3K and eNOS play a critical role in the angiogenic effect of MVs. These results suggest that EPCs may activate angiogenesis in endothelial cells by releasing MVs able to trigger an angiogenic program.

Dunagan, T. T. and D. M. Miller (1986). "A review of protonephridial excretory systems in Acanthocephala." J Parasitol **72**(5): 621-32.

Our present understanding of the excretory system of Acanthocephala is largely the result of work done by 5 German scholars: Kaiser, Schepotieff, Meyer, Kilian, and von Haffner. Present studies indicate that a protonephridial system is restricted to the family Oligacanthorhynchidae. However, many members of this family have not had a protonephridial system

described. Three nephridial designs have been described: 1) dendritic type, organized as branches of a tree where each final branch terminates in a ciliated bulb; 2) capsular type, in which all ciliated bulbs empty directly into a common chamber; and 3) rudimentary type, consisting of a single cell with a patent ciliary pouch but no ducts to the outside. The first 2 types are a syncytia with 3 nuclei located in the capsule or stem wall and none in the flame bulbs. These excretory systems consist of 2 clusters of flame bulbs that empty separately into an expandable excretory bladder which in turn empties into ducts of the reproductive system. This urogenital system empties to the outside through a gonopore located at the tip of the penis in males and the posterior terminus of the vagina in females. Cilia occur in certain excretory tubes, depending on sex and species, but are unknown in the excretory bladder or ducts leading into it. The rudimentary type consists of a cell whose posterior extension terminates near the bursal lumen, but it is not known if this is significant for the discharge of material. There is no information on the physiology or biochemistry of the excretory system or its products.

Eberhard, Y., S. P. McDermott, et al. (2009). "Chelation of intracellular iron with the antifungal agent ciclopirox olamine induces cell death in leukemia and myeloma cells." Blood **114**(14): 3064-73.

Off-patent drugs with previously unrecognized anticancer activity could be rapidly repurposed for this new indication. To identify such compounds, we conducted 2 independent cell-based chemical screens and identified the antimicrobial ciclopirox olamine (CPX) in both screens. CPX decreased cell growth and viability of malignant leukemia, myeloma, and solid tumor cell lines as well as primary AML patient samples at low-micromolar concentrations that appear pharmacologically achievable. Furthermore, oral CPX decreased tumor weight and volume in 3 mouse models of leukemia by up to 65% compared with control without evidence of weight loss or gross organ toxicity. In addition, oral CPX prevented the engraftment of primary AML cells in nonobese diabetic/severe combined immunodeficiency mouse models, thereby establishing its ability to target leukemia stem cells. Mechanistically, CPX bound intracellular iron, and this intracellular iron chelation was functionally important for its cytotoxicity. By electron paramagnetic resonance, CPX inhibited the iron-dependent enzyme ribonucleotide reductase at concentrations associated with cell death. Thus, in summary, CPX has previously unrecognized anticancer activity at concentrations that are pharmacologically achievable. Therefore, CPX could be rapidly repurposed for the treatment of malignancies, including leukemia and myeloma.

Ellison, D. J., B. N. Nathwani, et al. (1989). "Interfollicular small lymphocytic lymphoma: the diagnostic significance of pseudofollicles." Hum Pathol **20**(11): 1108-18.

The pathologic, immunologic, and clinical features of 25 cases of interfollicular (IF) small lymphocytic lymphoma (SLL) characterized by pseudofollicles (PFs) in the IF region of the lymph nodes and by multiple reactive follicles (RFs) were examined. IFSLL is characterized morphologically by variable numbers and sizes of prolymphocytes (nuclei showing one centrally located prominent nucleolus) in the PFs and by small round lymphocytes in the IF region. The lymph nodes in our cases had multiple RFs (100%) and patent or partially patent sinuses (72%), with moderate expansion of the IF region (48%) and typically absent or minimal perinodal infiltration (48%). In 48% of the cases, the PFs surrounded the RFs, producing a pseudo-mantle zone pattern. Immunologic study showed the medium and large prolymphocytes to be mildly LN 1- and LN 2-positive, whereas the small prolymphocytes and lymphocytes were LN 1-negative and moderately LN 2-positive. Few cells in the IF region stained with UCHL-1 antibody. These data indicate the marked preponderance of the non-follicular center cell type of B cells in the IF areas. In all 11 cases tested, a monoclonal B cell population was found. The mean age of the patients was 62 years, with a male to female ratio of 1:1.7. B symptoms were present in 20% of the patients. Nineteen percent of the patients had clinical stage I or II disease, whereas 81% had stage IV disease. The median absolute lymphocyte count was 3,239 X 10(6), with a range of 767 to 13,770 X 10(6) cells/L. In six cases, the lymphocyte count was above 4,000 X 10(6), and in no case was it more than 15,000 X 10(6). It was difficult to distinguish these cases of IFSLL from lymphadenitis and other non-Hodgkin's lymphomas because it was difficult to recognize the subtle PF pattern in the presence of a partially preserved lymph node architecture. Because of the partially retained lymph node architecture and the expansion of the IF region by PFs, this lymphoma is thought to originate from the IF small B lymphocytes, which displayed an in situ growth pattern. Moreover, because of the predominant disease in the lymph nodes and the similarity of features in PFs and follicles, we conclude that IFSLL is a disease that is primary to the lymph nodes. IFSLL should be distinguished from mantle zone lymphoma and chronic lymphocytic leukemia.

Fischer, L. J., S. McIlhenny, et al. (2009). "Endothelial differentiation of adipose-derived stem cells: effects of

endothelial cell growth supplement and shear force." J Surg Res **152**(1): 157-66.

BACKGROUND: Adipose tissue is a readily available source of multipotent adult stem cells for use in tissue engineering/regenerative medicine. Various growth factors have been used to stimulate acquisition of endothelial characteristics by adipose-derived stem cells (ASC). Herein we study the effects of endothelial cell growth supplement (ECGS) and physiological shear force on the differentiation of ASC into endothelial cells. MATERIALS AND METHODS: Human ASC (CD13(+)29(+)90(+)31(-)45(-)) were isolated from periumbilical fat, cultured in ECGS media (for up to 3 wk), and exposed to physiological shear force (12 dynes for up to 8 d) in vitro. Endothelial phenotype was defined by cord formation on Matrigel, acetylated-low density lipoprotein (acLDL) uptake, and expression of nitric oxide synthase (eNOS), von Willebrand factor (vWF), and CD31 (platelet endothelial cell adhesion molecule, PECAM). Additionally, cell thrombogenicity was evaluated by seeding canine autologous ASC onto vascular grafts implanted within the canine arterial circulation for 2 wk. RESULTS: We found that undifferentiated ASC did not display any of the noted endothelial characteristics. After culture in ECGS, ASC formed cords in Matrigel but failed to take up acLDL or express the molecular markers. Subsequent exposure to shear resulted in stem cell realignment, acLDL uptake, and expression of CD31; eNOS and vWF expression was still not observed. Grafts seeded with cells grown in ECGS (+/- shear) remained patent (six of seven) at 2 wk but had a thin coat of fibrin along the luminal surfaces. CONCLUSIONS: This study suggests that (1) ECGS and shear promote the expression of several endothelial characteristics in human adipose-derived stem cells, but not eNOS or vWF; (2) their combined effects appear synergistic; and (3) stem cells differentiated in ECGS appear mildly thrombogenic in vitro, possibly related, in part, to insufficient eNOS expression. Thus, while the acquisition of several endothelial characteristics by adult stem cells derived from adipose tissue suggests these cells are a viable source of autologous cells for cardiovascular regeneration, further stimulation/modifications are necessary prior to using them as a true endothelial cell replacement.

George, J., I. Herz, et al. (2003). "Number and adhesive properties of circulating endothelial progenitor cells in patients with in-stent restenosis." Arterioscler Thromb Vasc Biol **23**(12): e57-60.

OBJECTIVE: Intact endothelialization machinery is essential to facilitate vessel healing after stent placement and to prevent restenosis. Circulating endothelial progenitor cells (EPC) have been demonstrated in the peripheral blood and shown to display endothelial functional properties, along with the ability to traffic to damaged vasculature. We reasoned that robust in-stent intimal growth could be partially related to impaired endothelialization resulting from reduced circulating EPC number or function. METHODS AND RESULTS: Sixteen patients with angiographically-demonstrated in-stent restenosis were compared with patients with a similar clinical presentation that exhibited patent stents (n=11). Groups were similar with respect to the use of drugs that could potentially influence EPC numbers. Circulating EPC numbers were determined by the colony-forming unit assay, and their phenotype was characterized by endothelial-cell markers. Adhesiveness of EPC from both groups to extracellular matrix and to endothelial cells was also assayed. Patients with in-stent restenosis and with patent stents displayed a similar number of circulating EPC. Fibronectin-binding was compromised in patients with in-stent restenosis as compared with their controls exhibiting patent stents. Patients with diffuse in-stent restenosis exhibited reduced numbers of EPC in comparison with subjects with focal in-stent lesions. CONCLUSIONS: Reduced numbers of circulating EPC in patients with diffuse in-stent restenosis and impaired adhesion of EPC from patients with restenosis provides a potential mechanism mediating the exuberant proliferative process. These markers, if further validated, could provide means of risk stratifying patients for likelihood of developing in-stent restenosis.

Gold, E. R. and T. A. Caulfield (2002). "The moral tollbooth: a method that makes use of the patent system to address ethical concerns in biotechnology." Lancet **359**(9325): 2268-70.

Patents granted for biotechnological innovations continue to cause social and ethical dilemmas. For example, much controversy surrounds the patenting of genes that predispose to breast-cancer, and in the USA the debate continues about whether or not stem-cell technology should be accessible to all. In this report, we argue that some of these concerns can be addressed within national patent systems. In particular, we examine the "order public or morality" clause that exists in most national patent procedures. Furthermore, we propose that patents for inventions that present social and ethical questions should be subject to suspension by an independent, transparent, and responsible tribunal made up of specialists in ethics, research, and economics. This suspension should be reversible so that, when the social or ethical concerns have been addressed in an appropriate manner, the suspension can be lifted. Although controversial, such

a flexible mechanism would assist governments and industry in enhancing public support for patents in the biotechnology area.

Haider, H. K., L. Ye, et al. (2007). "Skeletal muscle derived stem cells for myocardial repair." Recent Pat Cardiovasc Drug Discov **2**(3): 205-13.

Treatment of patients with heart failure secondary to myocardial infarction remains a therapeutic challenge. Extensive myocyte death in the heart and post-ischemic remodeling accentuate progressive expansion of the scar area and compromise left ventricular contractile function. The scarcity of resident stem cells in the heart and limited proliferative capacity of adult cardiomyocytes warrant novel strategies of outside intervention to supplement the inept intrinsic repair mechanism. Heart cell therapy using patient's own skeletal muscle derived myoblasts (SkMs) provides a relatively simple and inexpensive therapeutic option. Phase-I and II clinical trials supported by plethora of pre-clinical studies have shown the safety and effectiveness of SkMs engraftment in the treatment of infarcted heart. However, before widespread application of this approach in the clinical settings, there remain some fundamental issues including extensive donor cell death during acute phase after SkMs engraftment, failure of SkMs to adopt cardiac phenotype and transient ventricular arrhythmias subsequent to SkMs transplantation which require serious considerations. This review will provide profound analysis of merits and limitations of SkMs as the choice cells for heart cell therapy and will summarize the potential of genetic and pharmacological manipulation SkMs to enhance their therapeutic efficacy for myocardial repair. Present article also includes recent patent review coverage on this topic.

He, H., T. Shirota, et al. (2003). "Canine endothelial progenitor cell-lined hybrid vascular graft with nonthrombogenic potential." J Thorac Cardiovasc Surg **126**(2): 455-64.

OBJECTIVE: We sought to fabricate a compliant engineered vascular graft (inner diameter of approximately 4.5 mm and length of 6 cm) lined with endothelial progenitor cells derived from circulating peripheral canine blood and to verify its nonthrombogenicity potential in vivo. METHODS: Autologous circulating endothelial progenitor cells derived from the peripheral veins of 6 adult mongrel dogs were isolated by using a density gradient method. The cells were proliferated in vitro in EGM-2 culture medium, prelined on the luminal surface of in situ-formed collagen type I meshes as an extracellular matrix, and wrapped with a segmented polyurethane thin film with multiple micropores as a compliant scaffold. After canine carotid arteries were bilaterally implanted with these grafts for 1 and 3 months, microscopic observation, histologic staining, and immunochemical staining were performed to evaluate morphogenesis. RESULTS: After 33.3 +/- 10.5 days of culture in vitro, 4.2 +/- 1.2 x 10(6) endothelial progenitor cells were obtained. Eleven of the 12 engineered vascular grafts were patent. The grafts possessed smooth, glistening, and ivory-colored luminal surfaces at the predetermined observation period up to 3 months. The intimal layer was covered with confluent, cobblestone-like monolayered cells that were positively stained with factor VIIIB-related antigen. The thickness of the neoarterial walls was approximately 300 microm at 3 months after implantation. A few smooth muscle cells were observed in the medial tissue, and fibroblasts dominated the adventitial tissue. CONCLUSION: Circulating endothelial progenitor cells could be a substitute source of endothelial cells for endothelialization on small-diameter-vessel prostheses to ensure nonthrombogenicity.

Herzenberg, L. A., D. Parks, et al. (2002). "The history and future of the fluorescence activated cell sorter and flow cytometry: a view from Stanford." Clin Chem **48**(10): 1819-27.

The Fluorescence Activated Cell Sorter (FACS) was invented in the late 1960s by Bonner, Sweet, Hulett, Herzenberg, and others to do flow cytometry and cell sorting of viable cells. Becton Dickinson Immunocytometry Systems introduced the commercial machines in the early 1970s, using the Stanford patent and expertise supplied by the Herzenberg Laboratory and a Becton Dickinson engineering group under Bernie Shoor. Over the years, we have increased the number of measured FACS dimensions (parameters) and the speed of sorting to where we now simultaneously measure 12 fluorescent colors plus 2 scatter parameters. In this history, I illustrate the great utility of this state-of-the-art instrument, which allows us to simultaneously stain, analyze, and then sort cells from small samples of human blood cells from AIDS patients, infants, stem cell transplant patients, and others. I also illustrate analysis and sorting of multiple subpopulations of lymphocytes by use of 8-12 colors. In addition, I review single cell sorting used to clone and analyze hybridomas and discuss other applications of FACS developed over the past 30 years, as well as give our ideas on the future of FACS. These ideas are currently being implemented in new programs using the internet for data storage and analysis as well as developing new fluorochromes, e.g., green fluorescent protein and

tandem dyes, with applications in such areas as apoptosis, gene expression, cytokine expression, cell biochemistry, redox regulation, and AIDS. Finally, I describe new FACS methods for measuring activated kinases and phosphatases and redox active enzymes in individual cells simultaneously with cell surface phenotyping. Thus, key functions can be studied in various subsets of cells without the need for prior sorting.

Hibbert, B., Y. X. Chen, et al. (2004). "c-kit-immunopositive vascular progenitor cells populate human coronary in-stent restenosis but not primary atherosclerotic lesions." Am J Physiol Heart Circ Physiol **287**(2): H518-24.

Progress in the treatment of human in-stent restenosis (ISR) is hampered by an imprecise understanding of the nature of the cells that occlude vascular stents. Recent studies suggest that circulating vascular progenitor cells may mediate vascular repair and lesion formation. Moreover, functional endothelial progenitor cells appear to play a protective role in attenuating vascular lesion formation. Hence, we sought to answer two important questions: 1). Are primitive cells found in ISR lesions? 2). Is the abundance of cultured angiogenic cells (CACs) in patients with ISR different from that in patients with non-ISR lesions or normal controls? Human coronary atherectomy tissue from 13 ISR, 6 postangioplasty restenosis (RS), and 14 primary (PR) atherosclerotic lesions, as well as 15 postmortem coronary artery cross sections from young individuals without atherosclerosis, were studied. All 13 ISR and 4 of 6 RS tissue specimens contained cells that immunolabeled for the primitive cell marker c-kit and smooth muscle alpha-actin, whereas the intima and media of PR lesions and normal arteries were devoid of c-kit-immunopositive cells. The abundance of peripheral blood mononuclear cell-derived CACs was assessed in 10 patients with ISR, 6 patients with angiographically verified patent stents, and 6 individuals with no clinical evidence of coronary artery disease. CACs were less abundant in ISR patients than in non-ISR controls (13.9 +/- 3.1 vs. 22.3 +/- 6.7 cells/high-power field, $P < 0.05$), and both of these groups had fewer CACs than non-coronary artery disease patients (37.6 +/- 3.8, $P < 0.05$). These findings suggest a unique pathogenesis for ISR and RS lesions that involves c-kit-immunopositive smooth muscle cells. Moreover, the paucity of CACs in patients with ISR may contribute to the pathogenesis of ISR, perhaps because of attenuated reendothelialization.

Hu, H., Y. Chai, et al. (2009). "Pentagalloylglucose induces autophagy and caspase-independent programmed deaths in human PC-3 and mouse TRAMP-C2 prostate cancer cells." Mol Cancer Ther **8**(10): 2833-43.

Penta-1,2,3,4,6-O-galloyl-beta-d-glucose (PGG) suppresses the in vivo growth of human DU145 and PC-3 prostate cancer xenografts in nude mice, suggesting potential utility as a prostate cancer chemotherapeutic or chemopreventive agent. Our earlier work implicates caspase-mediated apoptosis in DU145 and LNCaP prostate cancer cells as one mechanism for the anticancer activity. We show here that, in the more aggressive PC-3 prostate cancer cell line, PGG induced programmed cell deaths lacking the typical caspase-mediated apoptotic morphology and biochemical changes. In contrast, PGG induced patent features of autophagy, including formation of autophagosomes and lipid modification of light chain 3 after 48 hours of PGG exposure. The "autophagic" responses were also observed in the murine TRAMP-C2 cells. Caspase inhibition exacerbated PGG-induced overall death. As for molecular changes, we observed a rapid inhibition of the phosphorylation of mammalian target of rapamycin-downstream targets S6K and 4EBP1 by PGG in PC-3 and TRAMP-C2 cells but not that of mammalian target of rapamycin itself, along with increased AKT phosphorylation. Whereas the inhibition of phosphatidylinositol 3-kinase increased PGG-induced apoptosis and autophagy, experiments with pharmacologic inducer or inhibitor of autophagy or by knocking down autophagy mediator Beclin-1 showed that autophagy provided survival signaling that suppressed caspase-mediated apoptosis. Knocking down of death receptor-interacting protein 1 kinase increased overall death without changing light chain 3-II or caspase activation, thus not supporting death receptor-interacting protein 1-necroptosis for PGG-induction of autophagy or other programmed cell death. Furthermore, PGG-treated PC-3 cells lost clonogenic ability. The induction by PGG of caspase-independent programmed cell death in aggressive prostate cancer cell lines supports testing its merit as a potential drug candidate for therapy of caspase-resistant recurrent prostate cancer.

Jakob, M. and T. Thum (2008). "Recent patents on cardiovascular stem cells." Recent Pat Cardiovasc Drug Discov **3**(1): 59-72.

Chronic heart failure has emerged as a leading cause of morbidity and mortality worldwide. Conceptually, replacement of akinetic scar tissue by viable myocardium and improvement of neovascularization should improve cardiac function and impede progressive left ventricular remodelling. Experimental and clinical studies suggest that transfer or mobilization of stem and progenitor cells can have a favourable impact on tissue perfusion and contractile

cardiac performance. The aim of the present review was to screen various available patent data bases to give an overview on different patent applications of cell-based and non-cell based therapies in regenerative cardiovascular medicine. The first part describes cell based methods and use of growth factors to improve cardiovascular function. Secondly, patents on methods to improve angiogenesis, re-endothelialization and vascular function are presented. Finally, we describe patents describing methods for improved differentiation of stem cells to cardiovascular cells, including the generation of cardiomyocytes from embryonic or adult stem cells. A systematic overview on the current patent situation about use of stem cells in cardiovascular medicine should facilitate future decision making in the development of novel therapeutic strategies in regenerative medicine.

Jin, S. W., D. Beis, et al. (2005). "Cellular and molecular analyses of vascular tube and lumen formation in zebrafish." Development **132**(23): 5199-209.

Tube and lumen formation are essential steps in forming a functional vasculature. Despite their significance, our understanding of these processes remains limited, especially at the cellular and molecular levels. In this study, we analyze mechanisms of angioblast coalescence in the zebrafish embryonic midline and subsequent vascular tube formation. To facilitate these studies, we generated a transgenic line where EGFP expression is controlled by the zebrafish flk1 promoter. We find that angioblasts migrate as individual cells to form a vascular cord at the midline. This transient structure is stabilized by endothelial cell-cell junctions, and subsequently undergoes lumen formation to form a fully patent vessel. Downregulating the VEGF signaling pathway, while affecting the number of angioblasts, does not appear to affect their migratory behavior. Our studies also indicate that the endoderm, a tissue previously implicated in vascular development, provides a substratum for endothelial cell migration and is involved in regulating the timing of this process, but that it is not essential for the direction of migration. In addition, the endothelial cells in endodermless embryos form properly lumenized vessels, contrary to what has been previously reported in Xenopus and avian embryos. These studies provide the tools and a cellular framework for the investigation of mutations affecting vasculogenesis in zebrafish.

Karlsson, U., J. Hyllner, et al. (2007). "Trends in the human embryonic stem cell patent field." Recent Pat Nanotechnol **1**(3): 233-7.

The successful derivation of human embryonic stem (hES) cell lines in late 1990s marks the birth of a new era in biomedical research. In the USA, this landmark invention is protected by granted composition-of-matter patents. In addition to these patents, several others have been granted on further development of hES cell research, such as on differentiated cell types and in vitro and in vivo use aspects. In Europe, there is presently no consensus pertaining to the patentability of hES cells, and all patent applications pending at the European patent office are therefore awaiting a principal decision by the Enlarged Board of Appeal. The authors argue that it will be of importance to the stem cell industry that patents are granted on inventions downstream in the value chain, e.g on specialised cell types derived from hES cells and different drug discovery applications. Patents and patent applications on such inventions for the three germ layers ectoderm/neuro, endoderm/hepato and mesoderm/cardio have been examined. The number of patents increased in the period 2001 to 2006 for all three lineages with ectoderm/neuro as the most patent intensive field. There where 9-13 times more US patent applications filed related to the three lineages compared to in Europe.

Kern, S. E. and D. Shibata (2007). "The fuzzy math of solid tumor stem cells: a perspective." Cancer Res **67**(19): 8985-8.

Apparently effective therapeutic agents very often fail to cure cancer patients. It is therefore attractive to wonder whether a specific resistant cell subset should be recognized and separately targeted. In solid tumors, such as carcinomas, a minor population of "cancer stem cells" has been proposed and sought experimentally in human tumors and isolated cell populations. It is often overlooked that the rationale and supportive data are essentially numerical and can be evaluated as such. A reevaluation of the published studies and related claims within awarded U.S. patents suggests that the mathematical support for the concept of therapeutically useful stem cells is weak and may even invalidate the foundations of these publications and patent claims. Mathematical arguments should be used more consistently, because they can serve as a guide for interpreting studies into cancer stem cells of solid tumors.

Kiatpongsan, S. (2006). "Intellectual property and patent in stem cell research era." J Med Assoc Thai **89**(11): 1984-6.

Stem cell therapy has obtained much attention, not only for its exceptional promise for curing many chronic disorders and degenerative conditions but also for its great economic potential. Apart from expenses in research laboratories and ongoing clinical trials, intellectual properties, patent of stem cell

differentiation protocols, and stem cell-derived medical products for cell and tissue therapy are of very high cost. Intellectual properties and patents are inevitably important issues for stem cell researchers. Stem cell researchers in most countries have a chance to develop affordable stem cell therapy, scientific progression, and innovations for their patients. However, for this to be done, appropriate solutions for international patent barrier must be created so that the owner of the original stem cell protocols and techniques can be acknowledge, build his reputation and reap reasonable financial benefits. International patent barriers will be a crucial step to move the whole stem cell research community forward.

Lim, S. H., S. W. Cho, et al. (2008). "Tissue-engineered blood vessels with endothelial nitric oxide synthase activity." J Biomed Mater Res B Appl Biomater **85**(2): 537-46.

Nondegradable synthetic polymer vascular grafts used in cardiovascular surgery have shown serious shortcomings, including thrombosis, calcification, infection, and lack of growth potential. Tissue engineering of vascular grafts with autologous stem cells and biodegradable polymeric materials could solve these problems. The present study is aimed to develop a tissue-engineered vascular graft (TEVG) with functional endothelium using autologous bone marrow-derived cells (BMCs) and a hybrid biodegradable polymer scaffold. Hybrid biodegradable polymer scaffolds were fabricated from poly(lactide-co-epsilon-caprolactone) (PLCL) copolymer reinforced with poly(glycolic acid) (PGA) fibers. Canine bone marrow mononuclear cells were induced in vitro to differentiate into vascular smooth muscle cells and endothelial cells. TEVGs (internal diameter: 10 mm, length: 40 mm) were fabricated by seeding vascular cells differentiated from BMCs onto PGA/PLCL scaffolds and implanted into the abdominal aorta of bone marrow donor dogs (n = 7). Eight weeks after implantation of the TEVGs, the vascular grafts remained patent. Histological and immunohistochemical analyses of the vascular grafts retrieved at 8 weeks revealed the regeneration of endothelium and smooth muscle and the presence of collagen. Western blot analysis showed that endothelial nitric oxide synthase (eNOS) was expressed in TEVGs comparable to native abdominal aortas. This study demonstrates that vascular grafts with significant eNOS activity can be tissue-engineered with autologous BMCs and hybrid biodegradable polymer scaffolds.

Martin-Rendon, E. and D. J. Blake (2007). "Patenting human genes and stem cells." Recent Pat DNA Gene Seq **1**(1): 25-34.

Cell lines and genetically modified single cell organisms have been considered patentable subjects for the last two decades. However, despite the technical patentability of genes and stem cell lines, social and legal controversy concerning their 'ownership' has surrounded stem cell research in recent years. Some granted patents on stem cells with extremely broad claims are casting a shadow over the commercialization of these cells as therapeutics. However, in spite of those early patents, the number of patent applications related to stem cells is growing exponentially. Both embryonic and adult stem cells have the ability to differentiate into several cell lineages in an organism as a result of specific genetic programs that direct their commitment and cell fate. Genes that control the pluripotency of stem cells have been recently identified and the genetic manipulation of these cells is becoming more efficient with the advance of new technologies. This review summarizes some of the recent published patents on pluripotency genes, gene transfer into stem cells and genetic reprogramming and takes the hematopoietic and embryonic stem cell as model systems.

McCloskey, K. E., M. E. Gilroy, et al. (2005). "Use of embryonic stem cell-derived endothelial cells as a cell source to generate vessel structures in vitro." Tissue Eng **11**(3-4): 497-505.

Embryonic stem (ES) cells could potentially serve as an excellent cell source for various applications in regenerative medicine and tissue engineering. Our laboratory is particularly interested in generating a reproducible endothelial cell source for the development of prevascularized materials for tissue/organ reconstruction. After developing methods to isolate highly purified (>96%) proliferating populations of endothelial cells from mouse embryonic stem cells, we tested their ability to form three-dimensional (3-D) vascular structures in vitro. The ES cell-derived endothelial cells were embedded in 3-D collagen gel constructs with rat tail collagen type I (2 mg/mL) at a concentration of 10(6) cells/mL of gel. The gels were observed daily with a phase-contrast microscope to analyze the time course for endothelial cell assembly. The first vessels were observed between days 3 and 5 after gel construct formation. The number and complexity of structures steadily increased, reaching a maximum before beginning to regress. By 2 weeks, all vessel-like structures had regressed back to single cells. Histology and fluorescent images of the vessel-like structures verified that tube structures were multicellular and could develop patent lumens. We have shown that endothelial cells derived, purified and expanded in vitro from ES cells sustain an important endothelial cell function, the ability to undergo vasculogenesis in collagen gels, indicating that

endothelial products derived in vitro from stem cells could be useful in regenerative medicine applications.

Mei, Q. L., J. Y. Yang, et al. (2008). "Effects of granulocyte colony-stimulating factor on repair of injured canine arteries." Chin Med J (Engl) **121**(2): 143-6.

BACKGROUND: Endothelial progenitor cells (EPCs) derived from bone marrow may differentiate into endothelial cells and participate in endothelial repair. These cells can be mobilized into peripheral blood by cytokines, including granulocyte colony-stimulating factor (G-CSF). In the present study, we investigated the effects of G-CSF on neointimal formation and restenosis in a canine model of arterial balloon injury. METHODS: Sixteen male beagle dogs were injected subcutaneously with 20 microg x kg(-1) x d(-1) recombinant human G-CSF (n = 8) or normal saline (n = 8) for 1 week. On the fifth day of treatment, the dogs underwent renal arterial angioplasty. At 8 weeks after arterial balloon injury, angiographic observations were made and injured arteries were processed for morphometric analysis of neointimal formation. RESULTS: Peripheral white blood cell counts were increased by 3.34-fold compared to baseline on the fifth day of administration of G-CSF. Angiographies revealed that one stenosis had occurred among the eight injured renal arteries from dogs treated with G-CSF, whereas all injured renal arteries from dogs treated with normal saline remained patent. The mean extent of stenosis among injured arteries was 18.3% +/- 17.9% in the G-CSF treated group compared to 12.5% +/- 7.6% in the saline treated control group (P = 0.10). G-CSF treatment slightly increased neointimal thickness (0.42 +/- 0.15 mm vs 0.25 +/- 0.06 mm, P = 0.08) with an intima to media ratio of 0.83 +/- 0.49 vs 0.54 +/- 0.18 (P = 0.11). CONCLUSIONS: G-CSF treatment does not attenuate neointimal hyperplasia and restenosis formation in a canine model of renal arterial injury, suggesting that the therapeutic strategy for preventing restenosis by stem cell mobilization should be investigated further.

Meier, B. (2006). "The current and future state of interventional cardiology: a critical appraisal." Cardiology **106**(3): 174-89.

After 75 years of invasive and over 50 years of interventional cardiology, cardiac catheter-based procedures have become the most frequently used interventions of modern medicine. Patients undergoing a percutaneous coronary intervention (PCI) outnumber those with coronary artery bypass surgery by a factor of 2 to 4. The default approach to PCI is the implantation of a (drug-eluting) stent, in spite of the fact that it improves the results of balloon angioplasty only in about 25% of cases. The dominance of stenting over conservative therapy or balloon angioplasty on one hand and bypass surgery on the other hand is a flagrant example of how medical research is digested an applied in real life. Apart from electrophysiological interventions, closure ot the patent foramen ovale and percutaneous replacement of the aortic valve in the elderly have the potential of becoming daily routine procedures in catheterization laboratories around the world. Stem cell regeneration of vessels or heart muscle, on the other hand, may remain a dream never to come true.

Melero-Martin, J. M., M. E. De Obaldia, et al. (2008). "Engineering robust and functional vascular networks in vivo with human adult and cord blood-derived progenitor cells." Circ Res **103**(2): 194-202.

The success of therapeutic vascularization and tissue engineering will rely on our ability to create vascular networks using human cells that can be obtained readily, can be expanded safely ex vivo, and can produce robust vasculogenic activity in vivo. Here we describe the formation of functional microvascular beds in immunodeficient mice by coimplantation of human endothelial and mesenchymal progenitor cells isolated from blood and bone marrow. Evaluation of implants after 1 week revealed an extensive network of human blood vessels containing erythrocytes, indicating the rapid formation of functional anastomoses within the host vasculature. The implanted endothelial progenitor cells were restricted to the luminal aspect of the vessels; mesenchymal progenitor cells were adjacent to lumens, confirming their role as perivascular cells. Importantly, the engineered vascular networks remained patent at 4 weeks in vivo. This rapid formation of long-lasting microvascular networks by postnatal progenitor cells obtained from noninvasive sources constitutes an important step forward in the development of clinical strategies for tissue vascularization.

Meyburg, J., F. Hoerster, et al. (2008). "Use of the middle colic vein for liver cell transplantation in infants and small children." Transplant Proc **40**(4): 936-7.

INTRODUCTION: Because it is less invasive, intraportal liver cell transplantation (LCT) is an interesting alternative to whole organ transplantation. The inferior mesenteric vein is usually chosen for portal vein access. However, anatomical variations are common in children, so we investigated catheter insertion into the middle colic vein. PATIENTS AND METHODS: Three children (3 weeks to 3 years; 3 to 14 kg) underwent LCT in our center for acute liver failure or severe neonatal urea cycle disorders. Small 4.2-French Hickman lines were surgically introduced

into the middle colic vein and advanced to the portal vein stem. The patients received repetitive infusions of liver cells over a period of 4-11 days. RESULTS: Catheter insertion was feasible and tolerated well despite the poor clinical condition of 1 patient and the metabolic instability in the other 2 patients. Blood could be drawn from all catheters, and measurement of portal vein pressure was possible in 2 children. The patient with acute liver failure died after 11 days from complications of the underlying disease. In the other 2 children, portal vein catheters stayed patent for several months. CONCLUSIONS: The middle colic vein can be recommended for placement of intraportal LCT catheters even in small and critically ill infants.

Munoz-Sanjuan, I. (2009). "Glial progenitor cell transplantation and the generation of chimeric animal models with human brain cells: implications for novel therapeutics." Expert Opin Ther Pat **19**(12): 1639-46.

BACKGROUND: The potential of exogenous stem cell or progenitor cell transplantation as a novel therapeutic strategy to address unmet medical needs is a vast and important area of investigation. A recent US patent has been issued to Goldman from the University of Rochester based on pioneering studies with human fetal and adult-derived glial progenitor cells (GPCs), covering the generation of chimeric mouse/human animals. OBJECTIVE/METHOD: In this patent and associated manuscript, extensive chimerism due to grafting of human GPCs is associated with remyelination and functional rescue of mice congenitally deficient in oligodendrocyte survival and myelination, due to a deletion in the myelin basic protein gene (the shiverer mouse). This review highlights the implications of generating human/mouse chimeric animals for the study of human brain physiology, preclinical studies and the clinical application of progenitor cells towards the development of novel therapeutics for the treatment of demyelinating disorders. CONCLUSION: The use of GPCs offers promise for remyelination disorders, and the ability of these cells to repopulate the entire rodent nervous system should allow for the investigation of the physiological properties of human glial derivatives in an in vivo context, enhancing the understanding of mechanisms with a primary effect through the modulation of human glial cell biology.

Patel, A. N., L. Geffner, et al. (2005). "Surgical treatment for congestive heart failure with autologous adult stem cell transplantation: a prospective randomized study." J Thorac Cardiovasc Surg **130**(6): 1631-8.

BACKGROUND: Autologous adult stem cell transplantation has been touted as the latest tool in regenerative medical therapy. Its potential for use in cardiovascular disease has only recently been recognized. A randomized study was conducted with a novel epicardial technique to deploy stem cells as an adjuvant to conventional revascularization therapy in patients with congestive heart failure. METHODS: After institutional review board and government approval, adult autologous stem cell transplantation (CD34+) was performed in patients with ischemic cardiomyopathy and an ejection fraction of less than 35% who were scheduled for primary off-pump coronary artery bypass grafting. Preoperatively, the patients underwent echocardiography, stress thallium imaging single photon emission computed tomography, and cardiac catheterization to identify ischemic regions of the heart and to guide in the selection of stem cell injection sites. The patients were prospectively randomized before the operative therapy was performed. Patient follow-up was 1, 3, and 6 months with echocardiography, single photon emission computed tomography, and angiography. RESULTS: There were 20 patients enrolled in the study. Ten patients had successful subepicardial transplantation of autologous stem cells into ischemic myocardium. The other 10 patients, the control group, only had off-pump coronary artery bypass grafting. There were 8 male and 2 female subjects in each group. The median number of grafts performed was 1 in both groups. On angiographic follow-up, all grafts were patent at 6 months. The ejection fractions of the off-pump coronary artery bypass grafting group versus the off-pump coronary artery bypass grafting plus stem cell transplantation group were as follows: preoperative, 30.7% +/- 2.5% versus 29.4% +/- 3.6%; 1 month, 36.4% +/- 2.6% versus 42.1% +/- 3.5%; 3 months, 36.5% +/- 3.0% versus 45.5% +/- 2.2%; and 6 months, 37.2% +/- 3.4% versus 46.1% +/- 1.9% ($P < .001$). There were no perioperative arrhythmias or neurologic or ischemic myocardial events in either group. CONCLUSIONS: Autologous stem cell transplantation led to significant improvement in cardiac function in patients undergoing off-pump coronary artery bypass grafting for ischemic cardiomyopathy. Further investigation is required to quantify the optimal timing and specific cellular effects of the therapy.

Rao, M. and M. L. Condic (2008). "Alternative sources of pluripotent stem cells: scientific solutions to an ethical dilemma." Stem Cells Dev **17**(1): 1-10.

Stem cell researchers in the United States have faced a quagmire of uncertainty due to multiple factors: the ethical divide over the use of embryos for research, the lack of clarity in federal guidelines governing this research, the restrictive patent situation surrounding the generation of new human embryonic stem (HES) cell

lines; and the limits on types of research eligible for federal funding. In this commentary, we describe how recent advances in derivation of hES cell-like lines may allow at least some of these uncertainties to be resolved. More importantly, we suggest that the derivation of hES cell-like lines by morally acceptable methods would not only avoid the corrosive effects of a protracted ethical debate over stem cell research, but would also allow U.S. researchers to access federal funds and compete on a more level international playing field.

Rao, M. S. (2006). "Mired in the quagmire of uncertainty: The "catch-22" of embryonic stem cell research." Stem Cells Dev **15**(4): 492-6.

Pluripotent human embryonic stem (ES) cells hold remarkable therapeutic potential, but their use is fraught with moral, ethical, scientific, and political concerns. In this essay, I discuss how an odd combination of patent issues, presidential policy, market uncertainties, and evolving Food and Drug Administration regulations have together hindered the progress of ES cell research in the United States of America. This coalescence of issues is unique. I suggest that these factors explain why the United States has not been a dominant player in advancing ES research. I predict that small, noncontroversial changes would go far in ameliorating many of the roadblocks that now exist. Most of these changes would not require a change in policy or even action by the U.S. government; a simple clarification and definition would suffice. The reason these changes have met solid resistance is suggested to derive from financial rather than moral, ethical, or scientific issues.

Resnik, D. B. (2002). "The commercialization of human stem cells: ethical and policy issues." Health Care Anal **10**(2): 127-54.

The first stage of the human embryonic stem (ES) cell research debate revolved around fundamental questions, such as whether the research should be done at all, what types of research may be done, who should do the research, and how the research should be funded. Now that some of these questions are being answered, we are beginning to see the next stage of the debate: the battle for property rights relating to human ES cells. The reason why property rights will be a key issue in this debate is simple and easy to understand: it costs a great deal of money to do this research, to develop new products, and to implement therapies; and private companies, researchers, and health professionals require returns on investments and reimbursements for goods and services. This paper considers arguments for and against property rights relating to ES cells defends the following points: (1) It should be legal to buy and sell ES cells and products. (2) It should be legal to patent ES cells, products, and related technologies. (3) It should not be legal to buy, sell, or patent human embryos. (4) Patents on ES cells, products, and related technologies should not be excessively broad. (5) Patents on ES cells, products, and related technologies should be granted only when applicants state definite, plausible uses for their inventions. (6) There should be a research exemption in ES cell patenting to allow academic scientists to conduct research in regenerative medicine. (7) It may be appropriate to take steps to prevent companies from using patents in ES cells, products, and related technologies only to block competitors. (8) As the field of regenerative medicine continues to develop, societies should revisit issues relating to property rights on a continuing basis in order to develop policies and develop regulations to maximize the social, medical, economic, and scientific benefits of ES cell research and product development.

Ruch, R. J. and J. E. Trosko (1999). "The role of oval cells and gap junctional intercellular communication in hepatocarcinogenesis." Anticancer Res **19**(6A): 4831-8.

The role of oval cells, and Gap Junctional Intercellular Communication (GJIC) in hepatic differentiation and neoplasia is controversial. Oval cells accumulate in great number when hepatocyte regeneration is blocked following massive hepatotoxicity or after treatment with some hepatocarcinogens. This suggests oval cells are facultative stem cells or close progeny of liver stem cells that are activated only under specific conditions. Studies with oval cell lines clearly indicate that they can differentiate into hepatocytes and that neoplastic derivatives of oval cells can produce hepatocellular and biliary neoplasms. Because hepatocytes express Cx32 and biliary cells express Cx43, the differentiation of oval cells into hepatocytes or In addition, because Cx32 hemichannels and Cx43 hemichannels cannot form heterotypic patent channels, the type of connexin expressed by the differentiating oval cell will determine whether it communicates with hepatocytes or biliary epithelial cells, respectively. This communication may be necessary for the further differentiation and regulated growth of the differentiating oval cells and impairment of this GJIC may contribute to the formation of hepatocellular and cholangiocellular neoplasms. The type of connexin expressed may also determine the susceptibility of the differentiating oval cells to the various types of rodent liver tumor promoters. Thus, three major points have been developed here. First, Cx32 or Cx43 expression and GJIC with hepatocytes or biliary epithelial cells, respectively, may determine the final differentiated fate

of oval cells. Secondly, blocked GJIC may determine whether oval cells progress to hepatocellular or cholangiocellular carcinoma. Lastly, the ability of tumor promoters to block Cx32 or Cx43-mediated GJIC in differentiating oval cells may determine whether these agents promote the formation of hepatocellular or cholangiocellular carcinomas. Thus, GJIC may be the key factor in the differentiation of oval cells and blocked GJIC may promote their neoplastic transformation in a lineage-specific manner. In this chapter, we have outlined several new hypotheses on the role of oval cells and GJIC in hepatocarcinogenesis. We hope that other investigators will consider our ideas, but realize these views will be contentious to many. Our intent, however, was to stimulate discussion and debate, even argument, because truth often arises amidst controversy and may be found in the most peculiar places.

Seandel, M., J. M. Butler, et al. (2008). "Generation of a functional and durable vascular niche by the adenoviral E4ORF1 gene." Proc Natl Acad Sci U S A **105**(49): 19288-93.

Vascular cells contribute to organogenesis and tumorigenesis by producing unknown factors. Primary endothelial cells (PECs) provide an instructive platform for identifying factors that support stem cell and tumor homeostasis. However, long-term maintenance of PECs requires stimulation with cytokines and serum, resulting in loss of their angiogenic properties. To circumvent this hurdle, we have discovered that the adenoviral E4ORF1 gene product maintains long-term survival and facilitates organ-specific purification of PECs, while preserving their vascular repertoire for months, in serum/cytokine-free cultures. Lentiviral introduction of E4ORF1 into human PECs (E4ORF1(+) ECs) increased the long-term survival of these cells in serum/cytokine-free conditions, while preserving their in vivo angiogenic potential for tubulogenesis and sprouting. Although E4ORF1, in the absence of mitogenic signals, does not induce proliferation of ECs, stimulation with VEGF-A and/or FGF-2 induced expansion of E4ORF1(+) ECs in a contact-inhibited manner. Indeed, VEGF-A-induced phospho MAPK activation of E4ORF1(+) ECs is comparable with that of naive PECs, suggesting that the VEGF receptors remain functional upon E4ORF1 introduction. E4ORF1(+) ECs inoculated in implanted Matrigel plugs formed functional, patent, humanized microvessels that connected to the murine circulation. E4ORF1(+) ECs also incorporated into neo-vessels of human tumor xenotransplants and supported serum/cytokine-free expansion of leukemic and embryonal carcinoma cells. E4ORF1 augments survival of PECs in part by maintaining FGF-2/FGF-R1 signaling and through tonic Ser-473 phosphorylation of Akt, thereby activating the mTOR and NF-kappaB pathways. Therefore, E4ORF1(+) ECs establish an Akt-dependent durable vascular niche not only for expanding stem and tumor cells but also for interrogating the roles of vascular cells in regulating organ-specific vascularization and tumor neo-angiogenesis.

Sergi, C., M. Serpi, et al. (1999). "CATCH 22 syndrome: report of 7 infants with follow-up data and review of the recent advancements in the genetic knowledge of the locus 22q11." Pathologica **91**(3): 166-72.

CATCH 22 is a medical acronym for Cardiac defects, Abnormal facies, Thymic hypoplasia, Cleft palate, and Hypocalcemia, and a variable deletion on chromosome 22. The deletion within the chromosome region of 22q11 may occur in patients with three well-described dysmorphologic+ cardiological syndromes: DiGeorge syndrome (DGS), velocardiofacial syndrome (VCFS), and conotruncal anomaly face syndrome (CTAFS). We report in detail seven infants with a deletion of the locus 22q11 showing overlapping clinical features of DGS and CTAFS with complex congenital heart defects (double outlet right ventricle, atresia or stenosis of the pulmonary valve, atrial and ventricular septal defects, patent ductus arteriosus, tetralogy of Fallot, major aortopulmonary collateral arteries, arcus aortae dexter, and persistence of the left superior vena cava). A homograft was implanted between the right ventricle and the main stem of the pulmonary artery in 2 patients, while a balloon valvuloplastic of the pulmonary valve was performed in one patient only. Pulmonary hemorrhage, acute hypoxia, and Aspergillus pneumonia were the complications. Death occurred in three out of seven patients. Recent advancements in the genetic knowledge of the locus 22q11 are described. Since the locus 22q11 is highly heterogeneous, the CATCH 22 acronym should be used and temporarily the old eponyms should be abandoned waiting for the identification of the different genes.

Shi, Q., V. Bhattacharya, et al. (2002). "Utilizing granulocyte colony-stimulating factor to enhance vascular graft endothelialization from circulating blood cells." Ann Vasc Surg **16**(3): 314-20.

Cells in the blood circulating through a vascular graft can contribute to endothelialization of its flow surface. We hypothesized that granulocyte colony-stimulating factor (G-CSF) could enhance this process by increasing circulating bone marrow progenitor cells. Ten dogs received composite grafts that were shielded from any source of

endothelialization other than the circulating blood. On the seventh postoperative day and for 7 days thereafter, five dogs were injected subcutaneously with 10 mg/kg/day of human G-CSF. The additional five dogs, used as controls, received no G-CSF. Grafts were retrieved at 4 weeks. All dogs recovered promptly postoperatively. White cell counts in G-CSF dogs increased by an average of 9.5-fold at the end of treatment, and had returned to normal before retrieval. All grafts remained patent. G-CSF grafts had significantly higher endothelialization than the controls (82.2 +/- 9.2% vs. 23.7 +/- 4.4%, p = 0.0004), with extensive flow surface neointima, covered with a single layer of endothelium verified by FVIII/vWF and CD34 staining. Control grafts had virtually no neointima and were covered with a thin layer of fibrin coagulum. Significantly more endothelial-lined microvessels were also found in the G-CSF grafts than in the controls. Dogs treated with G-CSF have increased endothelialization of synthetic vascular grafts due to increased circulating bone marrow progenitor cells.

Shyntum, Y. and E. Kalkreuter (2009). "Stem cell patents--reexamination/litigation--the last 5 years." Tissue Eng Part B Rev **15**(1): 87-90.

U.S. patents directed to stem cell technologies have generated a high degree of interest and controversy. Many patents relating to stem cell technology have faced reexamination, litigation, or both. The U.S. Patent and Trademark Office (USPTO) recently upheld three Wisconsin Alumni Research Foundation (WARF) stem cell patents after reexamination requested by a third-party challenger in 2006. StemCells, Inc., and Neuralstem, Inc., both filed suits with respect to their patents related to neural stem cells. StemCells filed a suit on July 24, 2006, alleging infringement of its patents collectively referred to as "the neural stem cell patents," by Neuralstem, Inc. Neuralstem, Inc., filed a suit against StemCells, Inc., on May 7, 2008, alleging inequitable conduct during prosecution of StemCells' U.S. Patent No. 7,361,505. Both suits are yet to be decided. Pharmastem Therapeutics, Inc., had attempted to enforce its U.S. Patent Nos. 5,192,553 and 5,004,681, which resulted in invalidation of the patents in 2007. It remains to be seen what effect (if any) the recent increases in funding of stem research and the important U.S. Supreme Court decision on KSR v. Teleflex, Inc. (making it more difficult to establish nonobviousness of patentable subject matter) will have on challenges to stem cell patents.

Spranger, T. M. (2003). "Patent protection for stem cell procedures under the law of the European Union." Med Etika Bioet **10**(1-2): 4-8.

Stem cell research shows an immense diagnostic and therapeutic potential. The procedures based on human stem cells seem to allow new medical treatments for serious diseases like Parkinson's or Alzheimer's disease, leukaemia or diabetes. However, as no company or inventor would take the risk of immense investments without an adequate legal protection of the possible benefits arising out of their work, intellectual property law plays a pivotal role for the further development of stem cell techniques. Although international patent law knows protection of inventions using biological substances and living matter for about 160 years, patents on stem cells, DNA and other parts of the human body raise specific objections. Nevertheless, from a strictly legal angle, there are no barriers to patents on stem cell procedures. In particular, Art. 6 of the "Directive 98/44/EC of the European Parliament and of the Council of the European Union of July 6, 1998 on the legal protection of biotechnological inventions" - which qualifies inventions as unpatentable where their commercial exploitation would be contrary to ordre public or morality - does not hinder patent protection for stem cell research.

Taylor, P. L. (2005). "The gap between law and ethics in human embryonic stem cell research: overcoming the effect of U.S. federal policy on research advances and public benefit." Sci Eng Ethics **11**(4): 589-616.

Key ethical issues arise in association with the conduct of stem cell research by research institutions in the United States. These ethical issues, summarized in detail, receive no adequate translation into federal laws or regulations, also described in this article. U.S. Federal policy takes a passive approach to these ethical issues, translating them simply into limitations on taxpayer funding, and foregoes scientific and ethical leadership while protecting intellectual property interests through a laissez faire approach to stem cell patents and licenses. Those patents and licenses, far from being scientifically and ethically neutral in effect, virtually prohibit commercially sponsored research that could otherwise be a realistic alternative to the federal funding gap. The lack of federal funding and related data-sharing principles, combined with the effect of U.S. patent policy, the lack of key agency guidance, and the proliferation of divergent state laws arising from the lack of Federal leadership, significantly impede ethical stem cell research in the United States, without coherently supporting any consensus ethical vision. Research institutions must themselves implement steps, described in the article, to integrate addressing ethical review with the many legal compliance issues U.S. federal and state laws create.

Then, S. N. (2004). "Stem cell technologies: regulation, patents and problems." J Law Med **12**(2): 188-204.

Human embryonic stem cell research promises to deliver in the future a whole range of therapeutic treatments, but currently governments in different jurisdictions must try to regulate this burgeoning area. Part of the problem has been, and continues to be, polarised community opinion on the use of human embryonic stem cells for research. This article compares the approaches of the Australian, United Kingdom and United States governments in regulating human embryonic stem cell research. To date, these governments have approached the issue through implementing legislation or policy to control research. Similarly, the three jurisdictions have viewed the patentability of human embryonic stem cell technologies in their own ways with different policies being adopted by the three patent offices. This article examines these different approaches and discusses the inevitable concerns that have been raised due to the lack of a universal approach in relation to the regulation of research; the patenting of stem cell technologies; and the effects patents granted are having on further human embryonic stem cell research.

Tong, H., Y. Ren, et al. (2009). "Clinicopathological study on peripheral T-cell non-Hodgkin lymphoma with bone marrow involvement: a retrospective analysis from China." Int J Hematol **90**(3): 303-10.

We reviewed 173 patients with an initial diagnosis of peripheral T-cell non-Hodgkin lymphoma (PTCL) and compared the patients with bone marrow involvement (BMI) to those without to have a better understanding of the clinical characteristics, treatments, survival and prognosis of PTCLs with BMI. We found that 40% (70/173) of the patients had BMI, and its frequency was 64% in angioimmunoblastic T-cell lymphoma (TCL), 46% in PTCL unspecified, 29% in anaplastic large T-cell lymphoma, 23% in extranodal NK/T-cell lymphoma and 13% in enteropathy-type TCL. In the BMI group, 36% of patients had lymphoma-associated hemophagocytic syndrome (LAHS), compared with 8% of the patients without BMI (8/103, $P < 0.001$). The estimated 1-year overall survival (OS) rates of patients with LAHS in the BMI and non-BMI groups were 5 and 49%, respectively. The increased levels of lactate dehydrogenase, fasting triglycerides and beta(2)-microglobulin between the BMI and non-BMI groups were not significantly different, but ferritin increased significantly and liver dysfunction-related diseases were seen more in the BMI group. As much as 51% of patients of the BMI group had anemia, compared with 27% of the patients without BMI ($P = 0.001$). The estimated 2-year OS rates in the two groups were 10 and 34%. The estimated 2-year OS rate of the 67 patients with BMI, who did not lose to follow-up, was 22%, compared with 38% in the non-BMI group. The median survival times of the 2 groups were 120 and 356 days. The estimated 2-year OS rate of patients treated by CHOP regimen was 9%, compared with 51% of those with intensive chemotherapy, with a significant difference (log rank $P = 0.0008$). The median survival time of the 14 patients subjected to chemotherapy combined with L: -asparaginase was 365 days and that of the 7 patients undergoing hemopoietic stem cell transplantation (HSCT) was 575 days. A total of 3 patients in a critical condition underwent plasmapheresis as initial therapy and achieved stable condition. We conclude that patients with PTCLs with BMI on initial diagnosis usually have hemaphagocytic syndrome and poor prognosis. BMI without lymphadenopathy is a patent clinical feature in most PTCLs. Patients with anemia on initial diagnosis in the BMI group usually have poor prognosis than those without. Intense chemotherapy, addition of L: -asparaginase in chemotherapy and HSCT are comparatively efficient treatments of PTCLs. For patients in critical conditions, plasmapheresis before chemotherapy would lower the risk and improve the tolerance to chemotherapy.

Torre, M. L., M. Faustini, et al. (2007). "Cell encapsulation in mammal reproduction." Recent Pat Drug Deliv Formul **1**(1): 81-5.

Cell encapsulation is an evolving branch of biotechnology with numerous applications including the enhancing of reproductive performance both in humans and other mammal species. Over the last twenty years male and female gametes and embryos have been encapsulated with or without somatic cells, for different purposes, such as semen controlled release, in vitro gametogenesis, embryo culture after in vitro fertilization and cell preservation. In this paper the state-of-the-art of this field (leaving aside that involving embryonic stem cells) is reviewed in terms of scientific literature and patent production. The patents and papers underline a widespread use of alginate which is a natural anionic, biocompatible, biodegradable polymer that mimics the extracellular matrix or the basal membrane and supports cell functions and metabolism. Gamete and embryo encapsulation techniques tend to fall into two main groupings: the "classical" three-step method, and the more recent one-step method. However, all of these encapsulation techniques are moving towards new, interesting applications since they can be easily tailor-made to fit a variety of cell lines.

Witek, R. (2005). "Ethics and patentability in biotechnology." Sci Eng Ethics **11**(1): 105-11.

The systems of patent rights in force in Europe today, both at the level of national law and on the regional level, contain general clauses prohibiting the patenting of inventions whose publication and exploitation would be contrary to "ordre public" or morality. Recent years have brought frequent discussion about limiting the possibility of patent protection for biotechnological inventions for ethical reasons. This is undoubtedly a result of the dynamic development in this field in the last several years. Human genome sequencing, the first successful cloning of mammals, and the progress in human stem cell research present humanity with many new questions of an ethical nature. Directive 98/44 of the European Parliament and of the Council of July 6, 1998, on the Legal Protection of Biotechnological Inventions created a new basis for patent protection in this field of technology. Based on the European experience to now, however, it must be said that patent law is not the right place to legislate the consequences of the morality of an invention.

Yang, Z., J. Tao, et al. (2006). "Shear stress contributes to t-PA mRNA expression in human endothelial progenitor cells and nonthrombogenic potential of small diameter artificial vessels." Biochem Biophys Res Commun **342**(2): 577-84.

Seeding endothelial progenitor cells (EPCs) onto the surface of vascular grafts has been proved to be a promising strategy to improve nonthrombogenic potentials of small diameter artificial vessels. Here, we investigated whether in vitro shear stress modulates the tissue-type plasminogen activator (t-PA) secretion and mRNA expression in human EPCs and improves patency of the EPC-seeded polyurethane small diameter vascular grafts implanted in the canine carotid artery in vivo. In vitro shear stress, in a dose-dependent manner, increased t-PA secretion and mRNA expression of human EPCs. The in vivo implantation of EPC-seeded vascular grafts remained highly patent in shear stress pretreatment compared with stationary condition. The present findings demonstrate for the first time that in vitro shear stress can enhance t-PA secretion and gene expression in human EPCs, which contributes to improvement in nonthrombogenic potentials of EPC-seeded small diameter artificial vessels with maintenance of in vivo highly patency rate.

Yelda, T., U. Berrin, et al. (2007). "Intracoronary stem cell infusion in heart transplant candidates." Tohoku J Exp Med **213**(2): 113-20.

The stem cell transplantation is emerging as a potential therapeutic modality for patients with heart failure. It has been demonstrated that intracoronary stem cell transplantation had beneficial effects on left ventricular perfusion and contractile functions. We hypothesized that patients with end-stage ischemic cardiomyopathy, who are candidates for heart transplantation, could also benefit from autologous intracoronary stem cell transplantation. We performed a prospective, open-labeled study in 10 patients with end-stage ischemic cardiomyopathy, who were on the waiting list for heart transplantation. Each patient received bone marrow-derived mononuclear cell infusion via balloon catheter in the target vessel, which had been revascularized by percutaneous intervention and was patent before the procedure. Clinical and laboratory evaluations, a treadmill exercise test, echocardiography, and single photon emission tomography (SPECT) were performed to the patients at baseline and 6 months after stem cell infusion. At 6-month follow-up of the eight patients who were able to complete the study, we revealed a significant increase in ejection fraction (from 30.0 +/- 6.6% to 36.2 +/- 7.3%; p = 0.001) in echocardiographic evaluation. SPECT evaluation also displayed a reduction in infarct area (50.4 +/- 16.1% to 44.1 +/- 12.5%; p = 0.003). Both myocardial oxygen consumption (p = 0.001) and metabolic equivalents (p = 0.001) were significantly increased at 6-month follow-up. These results demonstrate that intracoronary stem cell transplantation ameliorates heart failure symptoms and improves left ventricular function and perfusion. Therefore intracoronary stem cell transplantation may be used as an alternative treatment option for heart transplant candidates.

Yokota, T., H. Ichikawa, et al. (2008). "In situ tissue regeneration using a novel tissue-engineered, small-caliber vascular graft without cell seeding." J Thorac Cardiovasc Surg **136**(4): 900-7.

OBJECTIVE: Various types of natural and synthetic scaffolds with arterial tissue cells or differentiated stem cells have recently attracted interest as potential small-caliber vascular grafts. It was thought that the synthetic graft with the potential to promote autologous tissue regeneration without any seeding would be more practical than a seeded graft. In this study, we investigated in situ tissue regeneration in small-diameter arteries using a novel tissue-engineered biodegradable vascular graft that did not require ex vivo cell seeding. METHODS: Small-caliber vascular grafts (4 mm in diameter) were fabricated by compounding a collagen microsponge with a biodegradable woven polymer tube that was constructed in a plain weave pattern with a double layer of polyglycolic acid (core) and poly-L-lactic acid (sheath) fibers. We implanted these tissue-engineered vascular grafts bilaterally into the carotid arteries of mongrel dogs (body weight, 20-25 kg). No

anticoagulation regimen was used after implantation. We sacrificed the dogs 2, 4, 6, and 12 months (n = 4 in each group) after implantation and evaluated the explants histologically and biochemically. RESULTS: All of the tissue-engineered vascular grafts were patent with no signs of thrombosis or aneurysm at any time. Histologic and biochemical examinations showed excellent in situ tissue regeneration with an endothelial cell monolayer, smooth muscle cells, and a reconstructed vessel wall with elastin and collagen fibers. CONCLUSION: Our study indicated that this novel tissue-engineered vascular graft promoted in situ tissue regeneration and did not require ex vivo cell seeding, thereby conferring better patency on small-caliber vascular prostheses.

Zhang, L., J. Zhou, et al. (2008). "A novel small-diameter vascular graft: in vivo behavior of biodegradable three-layered tubular scaffolds." Biotechnol Bioeng **99**(4): 1007-15.

Small-diameter vascular grafts are potential substitutes for damaged vessels in patients, but most biodegradable grafts available now are not strong enough. The present study examined the burst strength, radial compliance, suture retention strength for a novel biodegradable tubular scaffold and investigated its behavior in vivo. The tubular scaffold (6-mm i.d., 4 cm long) has three layers including porous polylacticglycolic- acid in both inner and outer layers, a compact polyurethanes layer in midst. Bone marrow stromal cells (bMSCs) were seeded on the scaffolds and cultured for 7 days in vitro to construct tissue engineered vascular grafts which were then implanted in canine abdominal aorta. After 1, 3, 6, 12 and 24 weeks, the grafts were retrieved and evaluated histologically, angiographically and immunohistochemically. The biodegradable tubular scaffolds showed wall thickness of 0.295 mm to 0.432 mm; radial compliance of 3.80%/100 mmHg approximately 0.57%/100 mmHg, burst strength of 160 kPa approximately 183 kPa, and suture retention strength of 1959 N/cm(2) approximately 3228N/cm(2). The implanted grafts were fully patent without any signs of dilation or obstruction after 3 months' implantation. Scanning electron microscopy revealed a confluence endothelial cell layer spreading on the inner surface of the grafts. Immunohistochemistry of the retrieved grafts showed that vWF-stainin, alphaSMA-staining were positive in the inner and medium layer respectively. Masson's trichrome staining showed that amount of collagen fibers existed in the grafts wall. Overall, these novel three-layered scaffolds exhibited favourable mechanical strength, long term patency and good remodeling in vivo.

Zhu, C., D. Ying, et al. (2008). "Development of anti-atherosclerotic tissue-engineered blood vessel by A20-regulated endothelial progenitor cells seeding decellularized vascular matrix." Biomaterials **29**(17): 2628-36.

To investigate whether decellularized vascular tissues and A20-regulated endothelial progenitor cells can be used for constructing a transgenic tissue-engineered blood vessel with anti-atherosclerotic vascular stenotic properties. A20 gene-transfected endothelial progenitor cells differentiated endothelial cells and smooth muscle cells attached to and migrated into the decellularized porcine vascular scaffolding in a bioreactor. The histology of the conduits revealed viable and layered tissue. Scanning electron microscopy showed confluent, homogeneous tissue surfaces. The mechanical strength of the pulsed constructs was similar to that of the human artery. In vivo, the A20 gene-transfected tissue-engineered blood vessels were transplanted into the carotid artery of a rat for 6 months. Blood vessel xenotransplantation caused hyperacute rejection; all transplanted control blood vessels were completely rejected, but A20-transfected tissue-engineered blood vessels demonstrated good flow on implantation, and remained open for 6 months postoperatively, as assessed by Doppler. The HE stain demonstrated that the vessels were patent, without evidence of stenosis or dilatation after 6 months. These results demonstrate that transgenic tissue-engineered blood vessels have long-term patency and unique anti-stenotic properties.

Patents (1434 Stem Cell Patents)
http://www.stemcellpatents.com/patents-posts.php?order_by=created_at&direction=DESC&num_of_rows=all

Compositions and methods for generating skin

Patent Number: 7,560,275
This patent covers a mammalian cell that has properties of spores and is useful for regeneration of new skin. Its first independent claim is:A population of isolated mammalian or avian multipotent spore-like cells (MSLCs) isolated or cultured from skin tissue and which can differentiate into two or more mature skin cell type cells. wherein the MSLCs, when first isolated, are approximately...
Inventors: Vacanti; Martin P. (Westborough, MA), Vacanti; Charles A. (Uxbridge, MA)
Assignee: VBI Technologies, L.L.C. (Houston, TX)
Date of First Priority Issue: Thursday December 30th, 1999

Method for reducing neuronal degeneration so as to ameliorate the effects of injury or disease

Patent Number: 7,560,102

This patent teaches methods of stimulating nervous system regeneration by activating an immune response against the nervous system. Specifically, stimulation of immunity against antigens in the central nervous system such as myelin is associated with induction of autoimmunity, for example in the animal model of multiple sclerosis called experimental allergic...

Inventors: Eisenbach-Schwartz; Michal (Rehovot, IL), Hauben; Ehud (Rehovot, IL), Cohen; Irun R. (Rehovot, IL), Beserman; Pierre (Moshav Sitriya, IL), Monsonego; Alon (Rehovot, IL), Moalem; Gila (Petah-Tiqva, IL)

Assignee: Yeda Research and Development Co. Ltd. (Rehovot, IL)

Date of First Priority Issue: Tuesday July 21st, 1998

Human cord blood derived unrestricted somatic stem cells (USSC)

Patent Number: 7,560,280

This is the composition of matter patent for the unrestricted somatic stem cell (USSC) that was under development by Viacell. These cells appear to have pluripotent properties as listed in the examples section. The first independent claim of the patent covers:"An isolated unrestricted somatic stem cell (USSC) prepared from human umbilical cord blood or placental blood, wherein said USSC...

Inventors: Wernet; Peter (Dusseldorf, DE)

Assignee: Viacell, Inc. (Worcester, MA)

Date of First Priority Issue: Friday November 3rd, 2000

Human cord blood derived unrestricted somatic stem cells (USSC)

Patent Number: 7,556,801

An argument made in the popular media is that adult stem cells are healing people "today", whereas embryonic stem cells are a thing of the future. In priniciple this is correct, however, my stomach turns when the proponents of adult stem cells use the example of "bone marrow transplantation". Bone marrow transplantation, while it is a sort of "stem cell...

Inventors: Wernet; Peter (Dusseldorf, DE)

Assignee: Viacell, Inc. (Worcester, MA)

Date of First Priority Issue: Friday November 3rd, 2000

Stromal antigen-presenting cells and use thereof

Patent Number: 7,553,661

Mesenchymal stem cells are known to possess a variety of immune modulatory activities such as suppression of allogeneic responses, as well as induction of T regulatory cells. Mechanisms include expression of IDO and HLA-G. Mesenchymal stem cells have been demonstrated effective in patients with

Inventors: Galipeau; Jacques (Town of Mount-Royal, CA), Stagg; John (Montreal, CA)

Assignee: McGill University (Montreal, CA)

Date of First Priority Issue: Tuesday May 31st, 2005

Dedifferentiated, programmable stem cells of monocytic origin, and their production and use

Patent Number: 7,553,663

This patent is a continuation of Blasticon's #7,138,275 covering a monocyte-derived stem cell that is capable of differentiating into islets, hepatocytes, and neurons. In the current patent the use of hepatic, or hepatic-like cells derived from these monocytes is covered.The general coverage of the patent extends to generation and use of a cell capable...

Inventors: Kremer; Bernd Karl Friedrich (Kiel, DE), Fandrich; Fred (Kiel, DE), Ruhnke; Maren nee Schulze (Kiel, DE)

Assignee: Blasticon Biotechnologische Forschung GmbH (Keil, DE)

Date of First Priority Issue: Thursday March 28th, 2002

Directed in vitro differentiation of marrow stromal cells into neural cell progenitors

Patent Number: 7,547,545

This patent covers the generation of neurons from mesenchymal stem cells, or like the inventor calls them "mesenchymal stromal cells", which is the more politically correct way of naming them.Very broad claims are issued, the first one being: "A method of producing a neural progenitor cell, said method comprising contacting an isolated...

Inventors: Prockop; Darwin J. (New Orleans, LA), Deng; Weiwen (Metairie, LA)

Assignee: Not Stated

Date of First Priority Issue: Wednesday May 30th, 2001

Progenitor cells from wharton's jelly of human umbilical cord

Patent Number: 7,547,546

This patent covers methods of extracting an adherent mesenchymal-like stem cells from the Wharton's Jelly of the umbilical cord. The extracted cells are negative for MHC and are termed by the inventors human umbilical cord perivascular (HUCPV) cells. In the examples section the the cells are demonstrated to be capable of differentiating into osteocytes, chondrocytes, adipocytes, and...

Inventors: Davies; John E. (Toronto, CA), Baksh; Dolores (Mississauga, CA), Sarugaser; Rahul (Toronto,

CA), Hosseini; Morris (Braunschweig, DE), Lickorish; Antony D. S. (Toronto, CA)
Assignee: Tissue Regeneration Therapeutics Inc. (Toronto, Ontario, CA)
Date of First Priority Issue: Tuesday February 11th, 2003

Methods for identifying factors for differentiating definitive endoderm

Patent Number: 7,541,185
Continuing its tradition of IP excellence, Novocell took a very interesting angle in the current patent. Covered are tests for identifying factors that can induce stem cell differentiation into endoderm.The first independent claim is:" A method of identifying a factor that promotes the differentiation of human definitive endoderm cells, said method comprising the steps of: obtaining a...
Inventors: D'Amour; Kevin Allen (San Diego, CA), Agulnick; Alan D. (San Marcos, CA), Eliazer; Susan (San Diego, CA), Baetge; Emmanuel E. (Encinitas, CA)
Assignee: Cythera, Inc. (San Diego, CA)
Date of First Priority Issue: Tuesday December 23rd, 2003

Method of generating human retinal progenitors from embryonic stem cells

Patent Number: 7,541,186
This patent covers the generation of retinal progenitor cells from embryonic stem cells. Neural stem cells have previously been demonstrated to have ability to differentiate into retinal tissue, as well as embryonic stem cell derived cells. The current patent covers a methodology involving the generation of embryoid...
Inventors: Reh; Thomas (Seattle, WA), Lamba; Deepak (Seattle, WA)
Assignee: University of Washington (Seattle, WA)
Date of First Priority Issue: Wednesday February 22nd, 2006

Method of expanding undifferentiated hemopoietic stem cells

Patent Number: 7,534,609
Expansion of hematopoietic stem cells would, at face value, allow the possibility of curing many hematological diseases by the process of selecting non-leukemic stem cells, ex vivo expanding them, and providing them back to the patient after myeloablation has destroyed the resident malignant cells.Pluristem (Nasdaq:PSTI) is developing adult...
Inventors: Merchav; Shoshana (Haifa, IL), Meretski; Shai (Haifa, IL)
Assignee: Pluristem Life Systems Inc. (Haifa, IL)
Date of First Priority Issue: Thursday February 4th, 1999

Pregnancy-induced oligodendrocyte precursor cell proliferation regulated by prolactin

Patent Number: 7,534,765
This patent covers the use of prolactin alone or in combinations with other agents for enhancing formation of oligodendrocytes in vivo. It is assigned to the company Stem Cell Therapeutics, out of Calgary Canada, who is currently using hCG and EPO for treatment of strokes in Phase II clinical trials. Other patents owned by Stem Cell Therapeutics include #
Inventors: Gregg; Christopher (Cambridge, MA), Weiss; Samuel (Calgary, CA)
Assignee: Stem Cell Therapeutics Inc. (Calgary, Alberta, Canada)
Date of First Priority Issue: Tuesday September 27th, 2005

Growth and differentiation of adult muscle stem cells with activators or inhibitors of Wnt signaling

Patent Number: 7,541,183
Depending on extent of injury, bone marrow derived stem cells are known to mobilize and migrate in order to accelerate healing. This has been demonstrated in conditions such as heart attack, stroke, and in critical limb ischemia after administration of exogenous stem cells.Various parts of the body...
Inventors: Rudnicki; Michael (Gloucester, CA), Seale; Patrick (Brookline, MA), Polesskaya; Anna (Villejuif, FR), Fortin; Anouk (Gloucester, CA)
Assignee: Ottawa Health Research Institute (Ottawa, Ontario, CA)
Date of First Priority Issue: Wednesday June 25th, 2003

Angiogenically effective unit dose of FGF-2 and method of use

Patent Number: 7,541,333
Stimulation of therapeutic angiogenesis offers great potential, not only for the obvious conditions such as critical limb ischemia and angina, but also for other indications post-stroke recovery and liver failure. Methods of stimulating angiogenesis range from administration of
Inventors: Whitehouse; Martha Jo (San Francisco, CA)
Assignee: Novartis Vaccines and Diagnostics, Inc. (Emeryville, CA)
Date of First Priority Issue: Tuesday October 13th, 1998

Stem cells and their use in transplantation

Patent Number: 7,537,756

The problem with islet transplantation is that one needs 2-3 pancreatic donors per recipient, and even this high number of islets still end up eventually being rejected/nonfunctional. Additionally the recipient needs to be on immune suppression. These drawbacks are not only because of allogeneic issues, but also due to poor vascularization once the islets are injected via the hepatic...

Inventors: Habener; Joel E. (Newton Centre, MA), Zulewski; Hendrik (Basel, CH), Abraham; Elizabeth J. (Quincy, MA), Vallejo; Mario (Madrid, ES), Faustman; Denise L. (Weston, MA), Thomas; Melissa K. (Boston, MA)

Assignee: The General Hospital Corporation (Boston, MA)

Date of First Priority Issue: Monday December 6th, 1999

Methods of producing pancreatic hormones

Patent Number: 7,534,608

The company Novocell (merged from Cythera, BresaGen, and Novocell) has been strategically developing an IP portfolio covering numerous aspects of treating diabetes. Having IP on endoderm, as well as encapsulation technologies, the company recently was issued the current patent covering generation of insulin producing cells from embryonic stem cells. The...

Inventors: Martinson; Laura (San Diego, CA), Kroon; Evert (San Diego, CA), D'Amour; Kevin (San Diego, CA), Baetge; Emmanuel Edward (Encinitas, CA)

Assignee: Cythera, Inc. (San Diego, CA)

Date of First Priority Issue: Friday March 2nd, 2007

Compositions and methods for promoting attachment of cells of endothelial cell lineage to medical devices

Patent Number: 7,531,505

Lack of proper endothelialization of vascular grafts can cause a variety of problems such as restenosis or thrombosis. The current patent covers a coating for medical devices in which one side of the coating binds to the metallic surface of the device and the other side contains peptides that bind to endothelium or endothelial precursor cells. This patent...

Inventors: Hamilton; Paul Theodore (Cary, NC), Kenan; Daniel James (Chapel Hill, NC), Solan; Amy Katherine (Durham, NC)

Assignee: Affinergy, Inc. (Durham, NC)

Date of First Priority Issue: Wednesday January 11th, 2006

Double nuclear transfer method and results thereof

Patent Number: 7,531,715

The area of cloning is of great interest in terms of therapeutics development, not only from the perspective of generating de novo stem cell populations, but also the possibility of making transgenic animals for practical purposes such as food or protein production. Accordingly, numerous patents have been issued on all sorts of variations of the cloning process, as well as...

Inventors: Campbell; Keith H. S. (Leicestershire, GB)

Assignee: PPL Therapeutics (Scotland) (Edinburgh, GB)

Date of First Priority Issue: Wednesday January 13th, 1999

Methods of recruiting fibroblasts by administering G-CSF

Patent Number: 7,531,510

Recruitment of various progenitor cells into injured tissue is a well known phenomena. For example, after infarct, mobilization of bone marrow stem cells into the injured myocardium has been reported. The current patent uses G-CSF, a cytokine that stimulates hematopoiesis and causes mobilization

Inventors: Fukuda; Keiichi (Shinjuk-ku, JP), Fujita; Jun (Shinjuku-ku, JP)

Assignee: Chugai Seiyaku Kabushiki Kaisha (Tokyo, JP); Keio University (Tokyo, JP)

Date of First Priority Issue: Monday October 27th, 2003 1 Comment

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Neuronal progenitors from feeder-free human embryonic stem cell culture

Patent Number: 7,531,354

This patent covers methods of generating neural progenitor cells from embryonic stem cells in absence of feeder cells. Other patents exist that cover feeder-free technology, or technologies using non-mouse feeder cells. The current patent covers the generation of the neural progenitors by:a. contacting adherent primate...

Inventors: Stice; Steve (Athens, GA), Shin; Soojung (Baltimore, MD), Dhara; Sujoy (Athens, GA)

Assignee: University of Georgia Research Foundation, Inc. (Athens, GA)

Date of First Priority Issue: Tuesday October 5th, 2004

Method of stimulating stem cells

Patent Number: 7,524,500

Methods of expanding stem cells are well-known in the art. For example, #7,423,029 teaches the use of heterocyclic trialkyl ammonium-containing compounds for stimulation of bone marrow stem

cells. #7,135,459 covers use of FGF homologues for expansion of neural and chondrocytic stem cells. #
Inventors: Mueller; Susan (Milton, CA), Bell; David (Oakville, CA), Matthews; Kathryn Emma (Toronto, CA)
Assignee: Therapure Biopharma Inc. (Mississauga, Ontario, CA)
Date of First Priority Issue: Tuesday March 26th, 2002

Clusterin-mediated inhibition of apoptosis via stromal bone marrow cell delivery to a cardiac site

Patent Number: 7,524,490

Many diseases are associated with either too much apoptosis (eg ALS, Parkinson's, Liver failure, etc) or too little apoptosis (cancer). The current patent covers a method to suppress apoptosis in mammalian cells.The method consists of transfecting an isolated population bone marrow derived stromal cells (either autologous or allogeneic) with a nucleic acid encoding the clusterin...
Inventors: Geng; Yong-Jian (Pearland, TX)
Assignee: Board of Regents The University of Texas (Austin, TX)
Date of First Priority Issue: Wednesday November 10th, 2004

Blood and cell analysis using an imaging flow cytometer

Patent Number: 7,522,758

This patent covers methods of diagnosing diseases based on flow cytometric profile. Although the majority of the invention is directed towards chronic lymphocytic leukemia (CLL), the first claim is rather broad:"A method for detecting a disease condition from images collected from a population of cells, comprising the steps of: (a) spectrally dispersing light from the population of...
Inventors: Ortyn; William E. (Bainbridge Island, WA), Basiji; David A. (Seattle, WA), Morrissey; Philip (Bellevue, WA), George; Thaddeus (Seattle, WA), Hall; Brian (Seattle, WA), Zimmerman; Cathleen (Bainbridge Island, WA), Perry; David (Woodinville, WA)
Assignee: Amnis Corporation (Seattle, WA)
Date of First Priority Issue: Wednesday March 29th, 2000

Implantable cell/tissue-based biosensing device

Patent Number: 7,519,409

The current patent covers a device useful for detecting chemicals in a patient, with the device being implantable. Practically the device claimed is used for implantation into the heart and provides information via electrical signals as to the chemical environment based on changes to the "biosensing" cells. In its first claim, the patent covers "a biosensor device for...
Inventors: Yang; Zhongping (Woodbury, MN), Reinke; James D. (Maple Grove, MN)
Assignee: Medtronic, Inc. (Minneapolis, MN)
Date of First Priority Issue: Thursday December 29th, 2005

Method of isolating human neuroepithelial precursor cells from human fetal tissue

Patent Number: 7,517,521

This patent covers methods of using a type of fetal stem cell in experimental systems or in humans. It seems to be a clever claiming strategy. Essentially the patent claims a method for transplanting an isolated population of human neuroepithelial precursor cells into an animal comprising: (a) isolating human neuroepithelial precursor cells from human fetal tissue by a method which...
Inventors: Mayer-Proschel; Margot (Pittsford, NY), Rao; Mahendra S. (Salt Lake City, UT), Tresco; Patrick A. (Sandy, UT), Messina; Darin J. (Salt Lake City, UT)
Assignee: University of Utah Research Foundation (Salt Lake City, UT)
Date of First Priority Issue: Wednesday March 21st, 2001

Dedifferentiated, programmable stem cells of monocytic origin, and their production and use

Patent Number: 7,517,686

This patent is related to #7,138,275, which covers the composition of matter of a "A dedifferentiated, programmable cell of human monocytic origin, wherein said dedifferentiated, programmable cell of human monocytic origin expresses a CD14 antigen, a CD90 antigen, and a CD123 antigen."The current patent covers the process of attaining the cells...
Inventors: Kremer; Bernd Karl Friedrich (Kiel, DE), Fandrich; Fred (Kiel, DE), Ruhnke; Maren nee Schulze (Kiel, DE)
Assignee: Blasticon Biotechnologische Forschung GmbH (Kiel, DE)
Date of First Priority Issue: Thursday March 28th, 2002

1 Comment

Feeder independent extended culture of embryonic stem cells

Patent Number: 7,514,260

This patent covers methods of expanding embryonic stem cells without inducing their differentiation. It specifically teaches feeder-free systems so that exogenous cells do not need to be used.It gets away without needing a feeder by providing 2 cytokines:noggin, and a fibroblast growth factor family

member, as well as various nutrients.The first independent claim is: "A method...
Inventors: Xu; Ren-He (Madison, WI), Thomson; James A. (Madison, WI)
Assignee: WiCell Research Institute, Inc. (Madison, WI)
Date of First Priority Issue: Friday May 21st, 2004

Platelet-derived growth factor protection of cardiac myocardium

Patent Number: 7,514,261
Bone marrow has been conventionally used as a source of hematopoietic stem cells for bone marrow transplant. More recently it has been shown that bone marrow can differentiate (either its hematopoietic or mesenchymal components) into various tissues including neural, hepatic and pancreatic.The...
Inventors: Edelberg; Jay M. (New York, NY), Rafii; Shahin (Great Neck, NY), Hong; Mun K. (New York, NY)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Thursday August 9th, 2001

Isolation and transplantation of retinal stem cells

Patent Number: 7,514,259
This patent uses claim language associated with method of use, but is actually teaching what appears to be a new type of retinal stem cell. The first independent claim reads:"A method of repopulating photoreceptor cells of a mammal, said method comprising the steps of: providing neuroretina-derived retinal stem cells obtained from a neurosphere from a mammalian donor; and introducing...
Inventor: Isolation and transplantation of retinal stem cells
Assignee: Young Michael J. (Gloucester, MA); Klassen Henry J. (Pasadena, CA); Shatos Marie A. (Athol, MA); Mizumoto Keiko (Higashi, JP)
Date of First Priority Issue: Friday February 11th, 2000

Cardiac muscle regeneration using mesenchymal stem cells

Patent Number: 7,514,074
Mesenchymal stem cells (MSC) are universal donor cells capable of stimulating angiogenesis and clinically improving cardiac parameters in post infact patients.The current patent covers the use of mesenchymal stem cells in the improvement of heart functions. The one independent claim covers:"A method of improving ventricular wall...
Inventors: Pittenger; Mark F. (Severna Park, MD), Gordon; Stephen L. (Columbia, MD), Mackay; Alastair Morgan (Timonium, MD), Martin; Bradley J. (Ellicot City, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Monday July 14th, 1997

Definitive endoderm

Patent Number: 7,510,876
Continuing Novocell's domination of IP in the area of developing commercial ES-derived products, this recent patent covers composition of matter on in vitro endoderm (eg progenitor cell of the liver, pancreas, digestive tube) derived from "multipotent" cells. The broadest claim, "An in vitro cell culture comprising human cells wherein at least 15% of said human cells are...
Inventors: D'Amour; Kevin Allen (San Diego, CA), Agulnick; Alan D. (San Marcos, CA), Baetge; Emmanuel E. (Encinitas, CA)
Assignee: Cythera, Inc. (San Diego, CA)
Date of First Priority Issue: Tuesday December 23rd, 2003

Method of treating coronary artery disease by administering FGF-4

Patent Number: 7,511,019
Stimulation of angiogenesis for treatment of ischemic conditions would provide therapeutic solutions for conditions such as heart failure, peripheral artery disease, and even stroke, in which post-injury angiogenesis plays a major role. Some companies, such as Medistem, are using cells such as the Endometrial Regenerative Cells (ERC) to stimulate...
Inventors: Whitehouse; Martha J. (San Francisco, CA), Kavanaugh; W. Michael (Marin, CA)
Assignee: Novartis Vaccines and Diagnostics, Inc. (Emeryville, CA)
Date of First Priority Issue: Tuesday October 13th, 1998

Hematopoietic stem cell identification and isolation

Patent Number: 7,510,877
The hematopoietic stem cell is the most well studied stem cell, being responsible for saving hundreds of thousands of lives through allowing the procedure of bone marrow transplant to become a reality. As far back as 1984, filings on hematopoietic stem cells can be found (#4,714,680).The current patent has a new way of purifying hematopoietic stem cells...
Inventors: Yilmaz; Omer H. (Ann Arbor, MI), Kiel; Mark J. (Ann Arbor, MI), Morrison; Sean (Ann Arbor, MI), Iwashita; Toshihide (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Friday September 26th, 2003

STAT3 activated stem cell

Patent Number: 7,510,870

One of the major problems in stem cell research is how to maintain the stem cell in an undifferentiated state while allowing for it to continue proliferating. In the area of embryonic stem cells this was solved by the discovery that leukemia inhibitory factor (LIF) would maintain mouse embryonic stem cells in an undifferentiated state. For human...

Inventors: Oh; Il-Hoan (Seoul, KR)

Assignee: Industry-Academic Cooperation Foundation, (Seoul, KR); The Catholic University of Korea (Seoul, KR)

Date of First Priority Issue: Friday February 15th, 2002

Treatment of cancers

Patent Number: 7,507,766

Chemotherapy has cancer has numerous side effects. Most of the patents relating to protection of side effects of chemotherapy relate to protecting the hematopoietic stem cells. Other patents cover means of protecting hair follicle stem cells. The current patent covers means of protecting muscles from the effects of...

Inventors: Lazaro; Luis Lopez (Madrid, ES), Fernandez-Sousa; Jose Maria (Madrid, ES), Armand; Jean-Pierre (Villejuif-Cedex, FR), Raymond; Eric (Villejuif-Cedex, FR)

Assignee: Pharma Mar, S.A. (Madrid, ES)

Date of First Priority Issue: Thursday October 12th, 2000 1 Comment

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Protection of cardiac myocardium

Patent Number: 7,504,379

This patent has two sets of independent claims. The first covers "method of increasing survival of blood vessels" and the second "method of reducing myocardial necrosis". Both of these aims are achieved by "administering to the patient a therapeutically effective amount of platelet derived growth factor, angiopoietin-2, and vascular endothelial growth...

Inventors: Edelberg; Jay (New York, NY), Xaymardan; Munira (Toronto, CA)

Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)

Date of First Priority Issue: Thursday November 14th, 2002

Embryonic stem cells and neural progenitor cells derived therefrom

Patent Number: 7,504,257

This patent covers methods of generating neural progenitor cells from embryonic stem cells in vitro. In its one issued claim the inventors teach the administration of EGF and FGF-2 to serum-free media containing undifferentiated pluripotent human embryonic stem cells in order to give rise to tripotent neural progenitor cells. The neural progenitor cells are capable of...

Inventors: Reubinoff; Benjamin Eithan (Mevaseret-Zion, IL), Pera; Martin Frederick (Prahran, AU), Ben-Hur; Tamir (Ramat Sharet, IL)

Assignee: ES Cell International PTE Ltd. (Singapore, SG)

Date of First Priority Issue: Tuesday March 14th, 2000

Systems and methods for treating patients with processed lipoaspirate cells

Patent Number: 7,501,115

Adipose derived stem cells have been very useful therapeutically for a variety of indications, at least from animal studies. For example, syngeneic adipose mesenchymal stem cells have been demonstrated to improve cardiac parameters in a porcine model of heart failure. Adipose derived cells have stimulated angiogenesis in models of

Inventors: Fraser; John K. (Los Angeles, CA), Hedrick; Marc H. (Encino, CA)

Assignee: Cytori Therapeutics, Inc. (San Diego, CA)

Date of First Priority Issue: Friday December 7th, 2001

Compositions, methods and kits related to thrombin, Notch signaling and stamatogenesis and growth of stem cells

Patent Number: 7,501,281

This patent covers means of generating pluripotent stem cells out of neural stem cells or neural crest stem cells. This is accomplished through contacting the neural stem cell or neural crest stem cell with an agent chosen from the following: a) thrombin; b) soluble Jagged1; c) thrombin receptor activated peptide, or d) a combination.It appears the inventors discovered that various...

Inventors: Maciag, legal representative; Lori (Portland, ME), Kolev; Vihren (Arlington, MA), Verdi; Joseph M. (Falmouth, ME), Maciag; Thomas (Portland, ME)

Assignee: Maine Medical Center Research Institute (Portland, ME)

Date of First Priority Issue: Wednesday March 5th, 2003

Tooth progenitor cell and method for its production

Patent Number: 7,498,168

This patent covers methods of producing tooth progenitor cells from either neural stem cells or embryonic stem cells. The process covers contacting the stem cell with cells derived from the oral epithelium so as to induce expression of the genes Barx-1 and Dlx-

5.Essentially this patent is teaching markers associated with the process of differentiation, as well as progenitor associated...
Inventors: Sharpe; Paul Thomas (London, GB)
Assignee: Odontis Limited (London, GB)
Date of First Priority Issue: Friday February 18th, 2000

Modulation of stem and progenitor cell differentiation, assays, and uses thereof

Patent Number: 7,498,171
One of the areas in which regenerative medicine is heading is the use of "drugs" to modulate the stem cell compartment. For example, we have previously seen companies like Stem Cell Therapeutics performing clinical trials with EPO and hCG for stroke. Drugs already in the clinic such as Velcade, have also been...
Inventors: Hariri; Robert J. (Florham Park, NJ), Stirling; David I. (Warren, NJ), Moutouh-De Parseval; Laure A. (San Diego, CA), Chan; Kyle W. H. (San Diego, CA)
Assignee: Anthrogenesis Corporation (Warren, NJ)
Date of First Priority Issue: Friday April 12th, 2002

Compounds modulating c-kit activity

Patent Number: 7,498,342
c-kit is involved in hematopoietic stem cell self-renewal, however it is also found in other stem cells as well. For example, cardiac stem cells express c-kit. This is an exciting drug target and other companies have patents covering its inhibitors, for example, #7,211,600 by Sugen.The current patent covers composition of...
Inventors: Ibrahim; Prabha N. (Mountain View, CA), Hurt; Clarence R. (San Ramon, CA), Zhang; Chao (Moraga, CA), Zhang; Jiazhong (Oakland, CA)
Assignee: Plexxikon, Inc. (Berkeley, CA)
Date of First Priority Issue: Thursday June 17th, 2004

Mammalian megakaryocyte progenitor cell

Patent Number: 7,494,807
This patent covers methods of isolating the megakaryocytic progenitor cells through selecting for cells that are positive for CD41, CD, and CD34 and negative for expression of CD2; CD3; CD4; CD7; CD8; CD10; CD11b; CD14; CD19; CD20; CD56; and glycophorin A. Starting materials for selection of these cells include bone marrow and mobilized peripheral blood.Platelet deficiency is a major...
Inventors: Nakorn; Thanyaphong Na (Stanford, CA), Miyamoto; Toshihiro (Fukuoka, JP), Weissman; Irving L. (Redwood City, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Friday September 12th, 2003

Methods and compositions for correction of cardiac conduction disturbances

Patent Number: 7,494,644
It is known that bone marrow stem cells are mobilized after heart injury such as infarct, with presumable therapeutic effects mediated by the stem cells in terms of stimulating angiogenesis or even integrating into the damaged myocardium and transdifferentiating into de novo cardiomyocytes. One of the...
Inventors: Lee; Randall J. (San Francisco, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Thursday November 8th, 2001

Methods for altering cell fate to generate T-cells specific for an antigen of interest

Patent Number: 7,491,534
The concept of taking one cell and turning it into another cell has been reported and even patented in certain situations, however, it is still difficult to see examples of wide-spread use of such techniques. For example, patent #6,087,168 covers transdifferentiation of epidermal cells into neurons by transfection with some specific neuronal transcription...
Inventors: Collas; Philippe (Oslo, NO), Robl; James M. (Brandon, SD), Skalhegg; Bjorn Steen (Blommenholm, NO)
Assignee: Kirin Holdings Kabushiki Kaisha (Tokyo, JP)
Date of First Priority Issue: Friday December 22nd, 2000 1 Comment

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Uses of fibroblasts or supernatants from fibroblasts for the suppression of immune responses in transplantation

Patent Number: 7,491,388
We know that mesenchymal stem cells are immune modulatory through a variety of means such as secretion of HLA-G, expression of indolamine 2,3 deoxygenase, and production of immune suppressive cytokines. What is relatively understudied is the immune regulatory activities of fibroblasts. For example...
Inventors: Mc Intosh; Kevin R. (Ellicott City, MD), Mosca; Joseph D. (Ellicott City, MD), Klyushnenkova; Elena N. (Baltimore, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday November 13th, 1998

Use of glycosylceramides as adjuvants for vaccines against infections and cancer

Patent Number: 7,488,491

This patent covers the use of a novel stimulator of natural killer t (NKT) cells which are known to be involved in activation of both dendritic cells and T cells. Interestingly NKT cells are also involved in the liver and possibility development of fibrosis. The first independent claim of this patent is "A method for augmenting...

Inventors: Tsuji; Moriya (New York, NY), Gonzalez-Aseguinolaza; Gloria (Baranain, ES), Koezuka; Yasuhiko (Gunma, JP)

Assignee: New York University (New York, NY)

Date of First Priority Issue: Saturday July 21st, 2001

Wound and cutaneous injury healing with a nucleic acid encoding perlecan

Patent Number: 7,488,719

This patent covers methods of acceleration of wound healing by transfecting cells with nucleic acids encoding the extracellular molecule perlecan. Perlecan is associated with extracellular matrices in stem cell niches such as the limbic epithelial stem cell compartment (Schlotzer-Schrehardt et al. Characterization of extracellular matrix components in the limbal epithelial stem cell...

Inventors: DeCarlo; Arthur A. (Weston, FL), Whitelock; John (Sydney, AU)

Assignee: Agenta Biotechnologies, Inc. (Birmingham, AL)

Date of First Priority Issue: Monday April 22nd, 2002

PSCA: prostate stem cell antigen and uses thereof in pancreatic cancer

Patent Number: 7,485,296

The current patent covers "A method for treating a patient having pancreatic cancer by inhibiting the growth of a pancreatic cancer cell expressing the Prostate Stem Cell Antigen (PSCA) protein as shown in SEQ ID NO: 2 in the patient, comprising contacting the pancreatic cancer cell with the monoclonal antibody 1G8 (ATCC No. HB-12612), or a fragment thereof that recognizes and binds PSCA as...

Inventors: Reiter; Robert E. (Los Angeles, CA), Witte; Owen N. (Sherman Oaks, CA), Saffran; Douglas C. (Los Angeles, CA), Jakobovits; Aya (Beverly Hills, CA)

Assignee: The Regents of the University of California (Oakland, CA); Agensys, Inc. (Santa Monica, CA)

Date of First Priority Issue: Monday March 10th, 1997

Enhanced growth of adult stem cells with Dkk-1

Patent Number: 7,485,460

Although mesenchymal stem cells, or mesenchymal stromal cells (as some others call them), are in late stages of clinical development, there is still room for optimizing their therapeutic effects. For example, various groups have transfected MSC with genes such as nanog or bcl-2 or

Inventors: Prockop; Darwin (Philadelphia, PA), Sekiya; Ichiro (Tokyo, JP), Gregory; Carl (New Orleans, LA), Spees; Jeffrey (New Orleans, LA), Smith; Jason (New Orleans, PA), Pochampally; Radhika (Marrero, LA)

Assignee: Tulane University Health Sciences Center (New Orleans, LA)

Date of First Priority Issue: Wednesday May 21st, 2003

Biomaterial derived from vertebrate liver tissue

Patent Number: 7,482,025

This patent teaches the use of a decellularized liver matrix for induction of tissue growth, the tissue growth being mediated by the cells already residing in the patient, such as stem or progenitor cells. The first independent claim covers "A method for inducing the formation of endogenous tissue at a site in need of endogenous tissue growth in a warm-blooded vertebrate, the method...

Inventors: Badylak; Stephen F. (West Lafayette, IN)

Assignee: Badylak Stephen F. (West Lafayette, IN)

Date of First Priority Issue: Tuesday December 10th, 1996

Telomere-encoding synthetic DNA nanocircles, and their use for the elongation of telomere repeats

Patent Number: 7,482,332

Telomeres are repeats of the TTAGGG sequence on the ends of chromosomes that progressively get shorter with each cell division, causing eventual cell senescence. The enzyme telomerase is important in cells that need to proliferate longer, for example memory T cells, or stem cells. It is a dream of many to induce telomerase activity in cells so as to be able...

Inventors: Kool; Eric T (Stanford, CA)

Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)

Date of First Priority Issue: Friday January 4th, 2002

Method of enhancing myogenesis by electrical stimulation

Patent Number: 7,483,749

Stem cells act as part of the endogenous repair processes of the body. For example, after heart attacks specific populations of stem cells leave the bone marrow and are attracted to the heart, presumably to regenerate the injured myocardium. Interesting new

stem cell populations such as the VSEL stem cell population have...
Inventors: Leonhardt; Howard J. (Weston, FL), Chachques; Juan C. (Paris, FR)
Assignee: Bioheart, Inc. (Sunrise, FL)
Date of First Priority Issue: Wednesday June 13th, 2001

Method of judging leukemia, pre-leukemia or aleukemic malignant blood disease and diagnostic therefor

Patent Number: 7,479,371
This patent covers the use of stem cell growth factor concentrations as a means of diagnosing a leukemic condition. The main coverage of the patent is represented in the first independent claim, which covers:"A method for diagnosing leukemia, pre-leukemia or aleukemic malignant blood diseases wherein stem cell growth factor (SCGF) in an in-vivo sample is quantified, wherein the method...
Inventors: Ando; Kiyoshi (Chigasaki, JP), Hotta; Tomomitsu (Nagoya, JP), Ito; Chie (Isehara, JP), Sato; Hidenao (Tokyo, JP), Furuya; Akiko (Tokyo, JP), Shitara; Kenya (Tokyo, JP), Sugimoto; Seiji (Tokyo, JP), Kohno; Hiroaki (Sunto-gun, JP)
Assignee: Tokai University (Tokyo, JP)
Date of First Priority Issue: Tuesday April 9th, 2002

In vivo assay and molecular markers for testing the phenotypic stability of cell populations and selected cell populations for autologous transplantation

Patent Number: 7,479,367
Autologous stem cell transplantation has given positive results in cardiac, hepatic, and various ischemic conditions. The current patent addresses the use of autologous chondrocyte populations for treatment of various cartilage disorders. Cartilage destruction is often seen in conditions such...
Inventors: Luyten; Frank (Kraainem, BE), De Bari; Cosimo (Leuven, BE), Dell'Accio; Francesco (Heverlee, BE)
Assignee: Tigenex N.V. (Leuven, BE)
Date of First Priority Issue: Wednesday October 6th, 1999

Method for enhancing keratinocyte stem cells

Patent Number: 7,476,538
This patent covers methods of selecting keratinocyte stem cells and expanding them. As you can imagine, one of the major applications for keratinocyte stem cells is in the cosmetics area (assignee is L'Oreal).The patent covers A method for enriching keratinocyte stem cells (KSCs) from a sample of keratinocytes and KSCs, said KSCs having an expansion potential of at least 10.sup.9 after about...
Inventors: Hatzfeld; Jacques (Antony, FR), Fortunel; Nicolas (Breuillet, FR), Hatzfeld; Antoinette (Antony, FR)
Assignee: Centre National de la Recherche Scientifique (Paris, FR); L'Oreal (Paris, FR)
Date of First Priority Issue: Tuesday October 30th, 2001

Monoclonal antibodies to mesenchymal stem cells

Patent Number: 7,476,540
This patent covers antibodies that bind to mesenchymal stem cells. The antibodies are deposited as hybridomas under accession numbers KCLRF-BP-000123, KCLRF-BP-000124 or KCLRF-BP-000125 at the Korean Cell Line Research Foundation (Cancer Research Institute, Seoul National University, College of Medicine, 28 Yongondong, Chongno-Gu, Seoul, 110-744, Korea). The antigen appears to be about...
Inventors: Song; Yeong-Wook (Seoul, KR), Yoo; Hyun-Jung (Busan, KR), Yoon; Sung-Soo (Seoul, KR), Park; Seonyang (Seoul, KR), Park; Weon-Seo (Goyang-si, KR), Kim; Dong-Jo (Seoul, KR), Lee; Eun-Bong (Seoul, KR)
Assignee: Seoul National University Industry Foundation (Seoul, KR)
Date of First Priority Issue: Tuesday January 10th, 2006

Protocols for making hepatocytes from embryonic stem cells

Patent Number: 7,473,555
This patent covers the generation of mature hepatocytes from pluripotent stem cells (pluripotent I presume they mean to include iPS). The inventors cover a three step process by which they induce pluripotent stem cells to differentiate into endoderm cells, then induce endoderm to differentiate into hepatic progenitors, and lastly induces the hepatic progenitors to differentiate into mature...
Inventors: Mandalam; Ramkumar (Union City, CA), Faouzi; Saadia (Daly City, CA), Nadeau; Isabelle (San Francisco, CA), Pfendler-Bonham; Kristina (South San Francisco, CA), Rao; Namitha (San Jose, CA), Carpenter; Melissa K. (London, CA), Rambhatla; Lakshmi (Redwood Ci
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday April 27th, 2000

Compositions and methods for wound healing

Patent Number: 7,473,414
Many interesting angles can be used to get patents. This patent covers the use of a mouse model

for identifying factors associated with healing of wounds. These kind of patents make one wonder where exactly the limit of patentability is, and what is the purpose of actually filing the patent. The patent covers essentially what is described in the first independent claim: "A...
Inventors: Heber-Katz; Ellen (Philadelphia, PA)
Assignee: The Wistar Institute (Philadelphia, PA)
Date of First Priority Issue: Friday February 13th, 1998

Remedies for ischemic disease

Patent Number: 7,473,425
This patent essentially covers the combination of G-CSF with HGF, together with a clinically used pharmacotherapy, for the treatment of ischemic disease of a limb. Classically it has been difficult to induce therapeutically significant angiogenesis using single angiogenic compounds. Some companies are using cells as secretors of angiogenic...
Inventors: Fukuda; Keiichi (Tokyo, JP), Hisaka; Yasuyo (Tokyo, JP), Miyai; Tatsuya (Tokyo, JP), Tamura; Masahiko (Tokyo, JP)
Assignee: Fukuda Keiichi (Tokyo, JP)
Date of First Priority Issue: Thursday September 13th, 2001

Adipose-derived stem cells and lattices

Patent Number: 7,470,537
The therapeutic benefits of adipose derived stem cells have been demonstrated in animal trials and are currently undergoing several clinical trials. Although patents have been issued on methods of isolating fat derived stem cells, such as 7,390,484 held by Cytori, or 7,078,232 held by Artecel covering adipose stem cells that...
Inventors: Hedrick; Marc H. (Encino, CA), Katz; Adam J. (Charlottesville, VA), Llull; Ramon (Mallorca, Balearic Isles, ES), Futrell; J. William (Pittsburgh, PA), Benhaim; Prosper (Encino, CA), Lorenz; Hermann Peter (Belmont, CA), Zhu; Min (Los Angeles, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday March 10th, 1999

Population of undifferentiated neural, endocrine or neuroendocrine cells in a hydrogel support

Patent Number: 7,470,425
There are many patents on stem cells, or populations of stem cells, or matrices for their delivery. This patent is interesting because it is a sort of a "hybrid patent". It is neither a patent on a matrix, or a patent on a cell. This patent covers a population of cells, that the...
Inventors: Vacanti; Charles A. (Uxbridge, MA), Vacanti; Joseph P. (Winchester, MA), Vacanti; Martin P. (Manhattan, KS)
Assignee: VBI Technologies, L.L.C. (Houston, TX)
Date of First Priority Issue: Wednesday November 25th, 1998

Cell-based therapies for ischemia

Patent Number: 7,470,538
The successful use of adult stem cells for treatment of cardiac conditions such as heart failure and post infarct recovery has been documented in animal studies and clinical trials. The current patent covers the use of one type of adult stem cell, cord blood stem cells for use in increasing perfusion in the myocardium. ...
Inventors: Laughlin; Mary J. (Shaker Heights, OH), Haynesworth; Stephen (Beachwood, OH), Pompili; Vincent (Hudson, OH)
Assignee: Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Thursday December 5th, 2002

Enriched preparation of human fetal multipotential neural stem cells

Patent Number: 7,468,277
This patent essentially covers a composition of purified human fetal multipotent neural stem cells that are isolated extracted directly from the brain of a human fetus without initial epidermal growth factor expansion. Specifically, the wherein the enriched preparation is capable of: (1) generating neurons, astrocytes, and oligodendrocytes and (2) being propagated for at least 7...
Inventors: Goldman; Steven A. (South Salem, NY), Okano; Hideyuki (Osaka, JP)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Thursday December 23rd, 1999

Placental stem cells

Patent Number: 7,468,276
This patent covers stem cells obtained from the placenta, in some ways similar to Hariri's other patents in this area such as #7,255,879 Post-partum mammalian placenta, its use and placental stem cells therefrom and #7,311,905 Embryonic-like stem cells derived from post-partum mammalian placenta, and uses and methods of treatment...
Inventors: Hariri; Robert J. (Florham Park, NJ)
Assignee: Anthrogenesis Corporation (Warren, NJ); part of Celgene

Date of First Priority Issue: Wednesday December 5th, 2001

Nutritional composition against side effects of chemotherapy or radiotherapy

Patent Number: 7,468,193

We at StemCellPatents.com have been seeing an increasing interest in "nutritional" modulation of the stem cell compartment. For example, patent # 7,338,676 teaches the use pine cone extracts for inducing differentiation of progenitor cells to dendritic cells. Patent # 6,814,961 covers the composition of blue...

Inventors: Schiffrin; Eduardo (Crissier, CH), Breuille; Denis (Epalinges, CH), Blum-Sperisen; Stephanie (Mont-Pelerin, CH), Donnet-Hughes; Anne (Saint-Legier, CH), Faure; Magali (Mollie-Margot, CH), Roessle; Claudia (Morges, CH), Turini; Marco Enrico (Epalinges, CH)

Assignee: Nestec S.A. (Vevey, CH)

Date of First Priority Issue: Thursday October 16th, 2003

Method of determining cytokine dosage for improving myelosuppressive state

Patent Number: 7,465,551

Since everyone is different in general, it makes little sense that people usually are all given "standard doses" of various medicines. Ideally one would like to be able to tailor doses to the specific needs of the patient. Thats what this patent covers.The patent covers "A method of determining a dose of G-CSF to be administered to a patient before or after a...

Inventors: Blumenthal; Rosalyn D. (Belleville, NJ), Goldenberg; David M. (Mendham, NJ)

Assignee: Center For Molecular Medicine and Immunology (Belleville, NJ)

Date of First Priority Issue: Friday January 29th, 1999

1 Comment

Reduction of dermal scarring

Patent Number: 7,465,442

TGF-beta is a multi-functioning cytokine with activities in a variety of physiological processes, including suppression of inflammation, protecting the bone marrow from stress, and stimulation of fibrosis. TGF-beta is known to inhibit cell cycle progression in part by turning on p21.sup.WAF1/Cip1...

Inventors: Gu; Danling (San Diego, CA), Zepeda; Monica (San Diego, CA)

Assignee: Canji, Inc. (Palo Alto, CA)

Date of First Priority Issue: Monday November 24th, 2003

Nurr-1 induction of a dopaminergic neuronal fate in a neural stem cell or neural progenitor cell in vitro

Patent Number: 7,465,582

Various organs have regenerative capabilities, which are believed to occur as a result of endogenous stem cells or progenitor cells. This has been described in the liver, pancreas, heart, and even brain. Although there is controversy as to whether the tissue specific...

Inventors: Arenas; Ernest (Stockholm, SE), Perlmann; Thomas (Sollentuna, SE), Snyder; Evan Y. (Boston, MA), Wagner; Joseph (West Chester, PA), Akerud; Peter (Stockholm, SE)

Assignee: Neuro Therapeutics AB (Stockholm, SE)

Date of First Priority Issue: Thursday April 27th, 2000

Anti-scarring ribozymes and methods

Patent Number: 7,462,602

Bone marrow stem cells have been demonstrated to have some degree of anti-fibrotic effect. For example, after myocardial infarct, bone marrow infusion has been demonstrated to decrease non-viable myocardial scar tissue formation. Additionally, bone marrow administration has been effective in pilot trials of hepatic fibrosis

Inventors: Schultz; Gregory S. (Gainesville, FL), Lewin; Alfred S. (Gainesville, FL), Blalock; Timothy D. (Boston, MA)

Assignee: University of Florida Research Foundation, Inc. (Gainesville, FL)

Date of First Priority Issue: Thursday May 1st, 2003

Composition for treatment of articular cartilage damage

Patent Number: 7,459,307

Cord blood derived stem cells represent a potent source of young, pluripotent, cells. Although previously their use was restricted to hematological malignancies, newer studies have demonstrated cord blood cells may be useful for many regenerative purposes, such as Ethicon's patent #7,413,734 which teaches use of cord blood stem cells for treatment of...

Inventors: Ha; Chul-Won (135-785 Seoul, KR), Yang; Yoon-Sun (Seoul, KR), Yang; Sung-Eun (Seoul, KR)

Assignee: Medipost Co., Ltd (Seoul, KR)

Date of First Priority Issue: Tuesday August 14th, 2001

Matrix-targeted fusion polypeptides for tissue regeneration and wound healing

Patent Number: 7,459,541

This patent covers a series of fusion proteins that are generated with selectively to bind collagen. The inventors believe that since various forms of collagen

are exposed during injury, the specific targeting of "repair" proteins to the injuried tissue will augment the healing process. Specifically the inventors target the "repair proteins": insulin, nerve growth...
Inventors: Hall; Frederick L. (Glendale, CA), Gordon; Erlinda M. (Glendale, CA), Beart; Robert W. (Pasadena, CA), Nimni; Marcel (Santa Monica, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Wednesday July 21st, 1999

Erythropoietin administration to improve graft survival

Patent Number: 7,459,152
The non-hematological uses of erthrypoietin are very interesting. Studies have demonstrated that erythropoietin can accelerate cardiac healing after infarct, or even have a therapeutic effect on stroke. The current patent teaches that erythropoietin may be used in conjunction with transplantation of dopaminergic cells in the treatment of Parkinson's Disease. Essentially it states...
Inventors: Sortwell; Caryl E. (Chicago, IL), Collier; Timothy J. (Deerfield, IL)
Assignee: Rush University Medical Center (Chicago, IL)
Date of First Priority Issue: Wednesday April 23rd, 2003

Transgenic non-human mammals as models for human pathologies of stem cell origin

Patent Number: 7,456,333
Chronic myeloid leukemia is characterized by a chromosomal translocation resulting in production of the bcr-abl fusion protein, which is believed to be responsible for initiation of the malignancy. Vaccination against bcr-abl peptides has been associated with some clinical benefit, and small molecule targeting of this protein has...
Inventors: Garcia; Isidro Sanchez (Salamanca, ES), Losada; Jesus Perez (Salamanca, ES)
Assignee: Universidad de Salamanca (Salamanca, ES); Consejo Superior de Investigaciones (Madrid, ES)
Date of First Priority Issue: Tuesday November 27th, 2001

Medium for growing human embryonic stem cells

Patent Number: 7,455,983
One of the issues of embryonic stem cell therapeutics development is the relative lack of methods for expanding them without inducing their differentiation. Various methodologies are known in the art, for example use of different feeder layers or speciality media. The current patent is very...
Inventors: Xu; Chunhui (Palo Alto, CA), Li; Yan (Menlo Park, CA), Mandalam; Ramkumar (Union City, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Monday January 10th, 2000

Method for preparing cell fraction containing hemangioblasts

Patent Number: 7,455,962
Therapeutic angiogenesis offers the possibility of treating a variety of diseases associated with ischemia. For example, autologous bone marrow stem cells were used at Indiana University for the treatment of critical limb ischemia patients. Although several studies have used various bone marrow and bone marrow derived...
Inventors: Miyajima; Atsushi (Tokyo, JP), Hara; Takahiko (Chiba, JP)
Assignee: Toudai TLO. Ltd. (Tokyo, JP)
Date of First Priority Issue: Wednesday November 10th, 1999

Direct differentiation method for making cardiomyocytes from human embryonic stem cells

Patent Number: 7,452,718
One of the important areas of research in embryonic stem cells involves design of novel ways to upscale production of differentiated cells. Another important area is developing cells that may be used clinically. The company Novocell, for example, has developed various systems of expanding embryonic stem cells without the use of mouse feeder...
Inventors: Gold; Joseph D. (San Francisco, CA), Hassanipour; Mohammad (Danville, CA), Collins; Lila R. (Fremont, CA), Xu; Chunhui (Palo Alto, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Friday March 26th, 2004

Transluminal application of adult stem cells for body organ tissue repair

Patent Number: 7,452,532
Stem cell therapy for treatment of myocardial infarctions has demonstrated some benefit, including in double blind trials. Although the exact mechanism of action is unknown, some groups suggest that bone marrow stem cells can differentiate directly into new cardiomyocytes, whereas others believe the injected stem cells release
Inventors: Alt; Eckhard (Ottobrunn, DE)
Assignee: SciCoTec GmbH (Gruenwald, DE)
Date of First Priority Issue: Sunday September 30th, 2001 2 Comments

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Treatment of muscular dystrophy with cord blood cells

Patent Number: 7,452,529

Cord blood stem cells are currently approved only for hematopoietic reconstitution, however numerous experimental uses are being reported. Given that cord blood stem cells have been reported to possess pluripotent characteristics, a wide variety of new indications are being developed. For example...

Inventors: Brown, Jr.; Robert H. (Needham, MA), Finklestein; Seth P. (Needham, MA), Kraus; Morey (Jefferson, MA)

Assignee: Viacell, Inc. (Worchester, MA); The General Hospital Corporation (Boston, MA)

Date of First Priority Issue: Wednesday July 23rd, 2008

Method of expanding and differentiating cord blood cells by hyperthermic incubation

Patent Number: 7,452,662

The stem cell compartment is part of a physiological system that responds to various stimuli. For example, during infections, the hematopoietic stem cells produce more granulocytes to fight off the sickness, or during periods of hypoxia (such as living on a mountain), they produce more erythrocytes. Inventors have used the physiological context of stem cells to come up with new...

Inventors: Dupuis; Nicolas (Quebec, CA), Proulx; Chantal (Sainte-Foy, CA)

Assignee: Hema-Quebec (Saint-Laurent, CA)

Date of First Priority Issue: Friday April 23rd, 2004

Methods of blocking the interaction between stromal cells and hemopoietic cells with anti-VCAM-1 antibodies

Patent Number: 7,449,186

Mobilization is currently performed using agents such as G-CSF clinically, experimentally agents such as parathyroid hormone are being investigated. The current patent teaches a new way to mobilize through blocking the interaction between hematopoietic stem cells and their stromal microenvironment using antibodies to...

Inventors: Masinovsky; Boris (Bellevue, WA), Gallatin; William Michael (Mercer Island, WA), Simmons; Paul J. (Seattle, WA)

Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)

Date of First Priority Issue: Thursday August 2nd, 1990

Methods and compositions for tissue regeneration

Patent Number: 7,449,333

Numerous groups are working on means of accelerating wound healing, or wound healing with minimal fibrosis. For example, some have used mesenchymal stem cells to inhibit scar tissue formation, others have used gene therapy, such as transfection of HoxA3 and HoxD3. The current patent covers a cell preparation that can be used...

Inventors: Rolland; Eric (Divonne les bains, FR), Hunziker; Thomas (Oberhofen, CH), Mis; Beatrice (Lausanne, CH), Rinsch; Christopher (Lausanne, CH)

Assignee: DFB Pharmaceuticals, Inc. (San Antonio, TX)

Date of First Priority Issue: Friday September 6th, 2002

Compositions and methods for enrichment of neural stem cells using ceramide analogs

Patent Number: 7,445,931

There are numerous ways to maintain embryonic stem cells in culture proliferating and not to lose their differentiation ability. For example, Novocell, Geron, and WARF have issued patents on various approaches to this problem. But perhaps equally, if not more, important is the question of...

Inventors: Condie; Brian G. (Athens, GA), Bieberich; Erhard (Augusta, GA)

Assignee: Bresagen, Inc. (Athens, GA); Medical College of Georgia Research Institute (Augusta, GA)

Date of First Priority Issue: Wednesday September 25th, 2002

Methods for cell mobilization using in vivo treatment with hyaluronan (HA)

Patent Number: 7,446,100

Stem cell mobilization is important commercially/medically from several angles. Firstly, donors of hematopoietic stem cells usually prefer to have their bone marrow resident stem cells "mobilized" so as to enter the blood and be collected from blood as opposed to having holes drilled in their iliac crest. Secondly, for some types of cancer, autologous hematopoietic stem...

Inventors: Pilarski; Linda M. (Spring Lake, CA)

Assignee: Orcrist Bio, Calgary Canada

Date of First Priority Issue: Tuesday April 2nd, 1996

Culturing human embryonic stem cells in medium containing pipecholic acid and gamma amino butyric acid

Patent Number: 7,442,548

This patent covers new types of media useful for expansion of embryonic stem cells in absence of feeder cells or supernatant of other cells (conditioned media). The patent essentially covers the use of various concentrations of albumin, minerals, vitamins, amino acids, glucose, a fibroblast growth factor, gamma amino butyric acid, pipecholic acid, lithium, lipids, a transferrin or a...

Inventors: Thomson; James A. (Madison, WI), Ludwig; Tenneille (Madison, WI)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Wednesday September 8th, 2004

Combined effects of nutrients on proliferation of stem cells

Patent Number: 7,442,394
Manipulation of the stem cell compartment using nutritional supplements offers a rapid way of commercially entering the area of regenerative medicine without having to undergo full-blown FDA clinical trials. Examples of such patents include #7,338,676 which teaches extracts of pinecones can induce stem cell differentiation into dendritic cells, patent #
Inventors: Davis Sanberg; Cyndy (Spring Hill, FL), Sanberg; Paul (Spring Hill, FL), Bickford; Paula (Ruskin, FL), Shytle; R. Douglas (Lutz, FL), Tan; Jun (Tampa, FL)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Monday May 2nd, 2005

Method for enhancing engraftment of cells using mesenchymal progenitor cells

Patent Number: 7,442,390
Stem cell transplantation in the form of cord blood, mobilized peripheral blood, or bone marrow, has saved many lives. One of the limiting factors of this procedure is graft versus host disease (GVHD). The other is poor engraftment. This is particularly important in situations where...
Inventors: Seshi; Beerelli (Torrance, CA)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Monday June 5th, 2000

Cultivation of human embryonic stem cells in the absence of feeder cells or without conditioned medium

Patent Number: 7,439,064
There are problems with scalability of embryonic stem cells, as well as the fact that animal derived products are conventionally used during their culture. While fetal calf serum has previously been used, and is continued to be used in a lot of the stem cell clinical trials going on, there is always a desire to have "animal free" cells for clinical development. Companies such...
Inventors: Thomson; James A. (Madison, WI), Levenstein; Mark (Madison, WI)
Assignee: Wicell Research Institute, Inc. (Madison, WI)
Date of First Priority Issue: Thursday March 9th, 2000

Polypeptide having an activity to support proliferation or survival of hematopoietic stem or progenitor cells

Patent Number: 7,439,332
This patent covers a specific nucleic acid sequence and expressed protein thereof, for the stimulation of erythropoiesis. The inventors identified the protein through establishing stromal cell lines from the AGM (Aorta-Gonad-Mesonephros) region of a fetal mouse and screening them to see which ones support hematopoiesis, and which type of hematopoietic propensity (eg were they stimulating...
Inventors: Nishikawa; Mitsuo (Gunma, JP)
Assignee: Kirin Pharma Kabushiki Kaisha (Tokyo-To, JP)
Date of First Priority Issue: Friday April 26th, 2002

Compositions for allogeneic cell therapy

Patent Number: 7,435,592
This patent covers a composition of activated T cells, either autologous or allogeneic. It is very interesting since the way the claims issued, it covers pretty much any T cell that has been activated by ligation of CD3 and CD28 (the most common way of activating T cell cells). The first independent claim covers a composition of T cells that are contacted with antibodies to CD3...
Inventors: Har-Noy; Michael (Modi'in, IL)
Assignee: Immunovative Therapies, Ltd. (Shoham, IL)
Date of First Priority Issue: Tuesday May 13th, 2003

CXCR4 antagonist treatment of hematopoietic cells

Patent Number: 7,435,718
This is a composition of matter patent covering chemical antagonists of the receptor CXCR-4. This receptor binds to stromal derived factor (SDF-1, otherwise known as CXCL12) and maintains the hematopoietic stem cells in the bone marrow. When the receptor is antagonized the hematopoietic stem cells mobilize into circulation. This can be used for...
Inventors: Tudan; Christopher R. (Vancouver, CA), Merzouk; Ahmed (Richmond, CA), Arab; Lakhdar (Vancouver, CA), Saxena; Geeta (Vancouver, CA), Eaves; Connie J. (Vancouver, CA), Cashman; Johanne (Vancouver, CA), Richter, legal representative; Mary A. (Vancouver, CA),
Assignee: Chemokine Therapeutics Corp. (CA); The University of British Columbia (CA)
Date of First Priority Issue: Tuesday May 9th, 2000

Methods for the culture of human embryonic stem cells on human feeder cells

Patent Number: 7,432,104
Embryonic stem cells generally require feeder cells to grow on. Traditionally, mouse feeder layers where used, for example in the early work when human embryonic stem cells were patented. The importance of the feeder layer is to provide the right environment for the embryonic stem cells to be capable of proliferating without spontaneously...
Inventors: Mitalipova; Maisam (Athens, GA), Lyons; Ian (Athens, GA)
Assignee: BresGen Inc. (Athens, GA)
Date of First Priority Issue: Tuesday August 6th, 2002

Reovirus clearance of ras-mediated neoplastic cells from mixed cellular compositions

Patent Number: 7,431,932
Activation of innate immune responses is associated in some situations with anti-tumor effects. It is known that viruses activate various cells of the innate immune system such as interferon producing plasmacytoid dendritic cells and natural killer cells. In tumor immunology, it would be...
Inventors: Morris; Donald (Calgary, CA), Thompson; Bradley G. (Calgary, CA), Coffey; Matthew C. (Calgary, CA)
Assignee: Oncolytics Biotech Inc. (Calgary, Alberta, unknown)
Date of First Priority Issue: Wednesday May 3rd, 2000

Unactivated oocytes as cytoplast recipients for nonprimate mammalian and pig nuclear transfer

Patent Number: 7,432,415
This is one of Ian Wilmut's many patents on cloning animals (for example 7,321,076, 7,304,204, 6,525,243) This one covers essentially a method of preparing a nonprimate mammalian embryo capable of developing into a live-born nonprimate mammalian animal comprising: (a) culturing a diploid...
Inventors: Campbell; Keith Henry Stockman (Midlothian, GB), Wilmut; Ian (Midlothian, GB)
Assignee: Roslin Institute (Edinburgh, GB)
Date of First Priority Issue: Friday August 30th, 1996

Vasostatin as marrow protectant

Patent Number: 7,432,236
Destruction of the bone marrow by chemotherapy or radiotherapy causes significant morbidity and mortality. In fact, hematopoietic toxicity is the main limiting factor of many types of chemotherapeutic agents. Accordingly, it would be interesting if one were to develop an agent or therapeutic approach that could protect the bone marrow, or alternatively, allow bone marrow cells to...
Inventors: Tosato; Giovanna (Bethesda, MD), Pike; Sandra E. (North Bethesda, MD), Yao; Lei (Rockville, MD)
Assignee: The United States of America as represented by the Secretary of the Department of Health and Human Services (Rockville, MD)
Date of First Priority Issue: Tuesday October 6th, 1998

Parathyroid hormone receptor activation and hematopoietic progenitor cell expansion

Patent Number: 7,429,383
Mobilization of stem cells is big money. For example, the company Anormed was bought by Genzyme for more than half a billion dollars because of its late-phase compound, a CXCR4 antagonist which mobilizes study cells. Why would one be interested in mobilizing stem cells out of the bone marrow? Firstly, this is used instead of drilling holes in the...
Inventors: Scadden; David T. (Weston, MA), Calvi; Laura M. (Rochester, NY), Adams; Gregor (Boston, MA), Kronenberg; Henry (Belmont, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Thursday July 25th, 2002

Methods of controlling proliferation and differentiation of stem and progenitor cells

Patent Number: 7,429,489
In addition to their usefulness for making new blood cells, hematopoietic stem cells have been demonstrated to induce regeneration of injured liver in cirrhosis patients, possess therapeutic effects in heart failure, and possible are associated with recovery of patients after
Inventors: Peled; Tony (Mevaseret Zion, IL), Fibach; Eitan (Mevaseret Zion, IL), Treves; Avi (Mevaseret Zion, IL)
Assignee: Gamida Cell Ltd. (Jerusalem, IL); Hadasit Medical Research Services and Development Ltd. (Jerusalem, IL)
Date of First Priority Issue: Tuesday February 17th, 1998

Methods of cancer diagnosis and therapy targeted against a cancer stem line

Patent Number: 7,427,400
This patent covers the use of antibodies to Tie-1 and glypican-3 for the treatment of cancer, presumably by selective killing of cancer stem cells. Tie-1 is one of the receptors for angiopoietin, which is activates endothelial cells and is critical in formation of new blood vessels (angiogenesis). Glypican-3 is a heparan sulfate proteoglycan that is anchored to the cell membrane of...

Inventors: Bergstein; Ivan (New York, NY)
Assignee: Stemline
Date of First Priority Issue: Monday December 20th, 1999

Methods for identifying stem cells based on nuclear morphotypes

Patent Number: 7,427,502

Stem cells are usually identified based on markers such as CD34 for hematopoietic stem cells, or CD133 for cancer stem cells, or specific properties such as expression of aldehyde dehydrogenase. Interestingly, in this patent the morphological characteristics of the stem cell are covered !The first...
Inventors: Gostjeva; Elena V. (Winchester, MA), Thilly; William G. (Winchester, MA)
Assignee: Massachusetts Institute of Technology (Cambridge, MA)
Date of First Priority Issue: Thursday June 17th, 2004

Method of treating brain tissue damages

Patent Number: 7,427,597

It is known that various endogenous repair processes exist after ischemic injury to the brain. For example, in stroke patients, there is a correlation between improvement of neurological function and amount of circulating stem cells. Attempts are being made to augment endogenous repair processes by administration of agents such as
Inventors: Li; Hung (Taipei, TW), Shyu; Woei-Cherng (Taipei, TW), Lin; Shinn-Zong (Hualien, TW)
Assignee: Academia Sinica (Taipei, TW)
Date of First Priority Issue: Monday November 21st, 2005

Method of enhancing proliferation and/or hematopoietic differentiation of stem cells

Patent Number: 7,427,603

The use of hematopoietic stem cells for numerous conditions has been around for decades, originally of course in the form of allogeneic bone marrow transplant, and more recently various variations such as autologous transplantation, autologous transplantation and purging, and autologous transplantation for non-hematopoietic conditions such as cardiac infarction. One of the limiting factors...
Inventors: Zon; Leonard I. (Wellesley, MA), Davidson; Alan J. (West Roxbury, MA), Daley; George Q. (Weston, MA)
Assignee: The Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Thursday September 26th, 2002

Modulation of C-reactive protein expression

Patent Number: 7,425,545

Inflammatory mediators are known to attract stem cells in acute settings, and inhibit stem cells in chronic settings. For example, in stroke patients, there is an increase in SDF-1, which is believed to account for mobilization of stem cells from the bone marrow into systemic circulation, and from there, presumably into the brain, where they mediate trophic and...
Inventors: Crooke; Rosanne M. (Carlsbad, CA), Graham; Mark J. (San Clemente, CA)
Assignee: Isis Pharmaceuticals, Inc. (Carlsbad, CA)
Date of First Priority Issue: Monday June 2nd, 2003

Cardiomyocyte precursors from human embryonic stem cells

Patent Number: 7,425,448

Geron has taken a very strategic approach to embryonic stem cells. They inlicensed composition of matter patents on embryonic stem cells, such as #5,843,780 from the Wisconsin Alumni Research Foundation (WARF), they patented methods of culturing embryonic stem cells in serum free conditions so to allow for clinical use (#
Inventors: Xu; Chunhui (Cupertino, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday July 12th, 2001

Somatic pluripotent cells

Patent Number: 7,422,736

Numerous patents exist on various types of stem cells. For example, Osiris has overarching patents on any cell that expresses the mesenchymal stem cell markers SH2, SH3, or SH4. An example of which is US patent # 5,486,359, in which the broadest claim covers "An isolated, homogeneous population of human mesenchymal stem cells which can differentiate...
Inventors: Hwang; Shiaw-Min (Hsinchu, TW)
Assignee: Food Industry Research and Development Institute (TW)
Date of First Priority Issue: Wednesday June 26th, 2002

Compounds to promote regeneration of bone marrow

Patent Number: 7,423,029

This patent covers the use of heterocyclic trialkyl ammonium-containing compounds for stimulation of bone marrow proliferation and differentiation after myeloablation or other insults to the hematopoietic stem cell compartment. The toxicity profile of the compounds appears favorable.Data in the examples

section demonstrates protection from cyclophosphamide destruction of the bone...
Inventors: Kiss; Zoltan (Austin, MN)
Assignee: Zoltan Laboratories, LLC (Austin, MN)
Date of First Priority Issue: Friday March 23rd, 2007

Method for enhancing proliferation of bone marrow cells or spleen cells with an ethanol-insoluble extract of dioscorea

Patent Number: 7,419,690
There has been a great interest in patenting natural compounds and plant derivatives for manipulation of the stem cell compartment. For example, there is an issued patent covering seaweed extract for mobilization of stem cells, pine cone extracts for dendritic cell differentiation, and now the use of Yam extracts for...
Inventors: Yang; Ning-Sun (Taipei, TW), Su; Pei-Fen (Keelong, TW), Li; Chin-Jin (Taipei, TW), Shyur; Lie-Fen (Taipei, TW)
Assignee: Academia Sinica (Taipei, TW)
Date of First Priority Issue: Monday December 1st, 2003

Isolation of neural stem cells using gangliosides and other surface markers

Patent Number: 7,419,825
This patent covers a method of isolating neural stem cells by the surface marker CD15. This protein is found on neutrophils and other immune cells, known more for its adhesion functions and sugar-binding activity. Previously another patent (US # 7,182,946) touched upon the utility of this marker for purification of neural stem cells.The patent does...
Inventors: Klassen; Henry (Pasadena, CA), Schwartz; Michael (Garden Grove, CA), Young; Michael J. (Gloucester, MA)
Assignee: Children's Hospital of Orange County (Orange, CA)
Date of First Priority Issue: Friday April 20th, 2001

Methods for use of MPL ligands with primitive human stem cells

Patent Number: 7,416,887
Thrombopoietin, otherwise known as the mpl ligand, is a potent stimulator of platelet production. Several companies are working on clinically implimenting this agent for patients with chemotherapy associated thrombocytopenia. For example, Ligand Pharmaceuticals has a patent on a thrombopoietic mimetic.The current patent teaches how to used...
Inventors: Murray; Lesley J (San Jose, CA), Young; Judy C (San Carlos, CA)
Assignee: Novartis AG (Cambridge, MA)
Date of First Priority Issue: Monday October 30th, 1995

Mobilization of hematopoietic cells

Patent Number: 7,417,026
Mobilization of stem cells is a very hot area these days. At face value, mobilization is important for donors of hematopoietic stem cells since it alleviates the need for performing puncture of the iliac crest of healthy people who are donating bone marrow. Currently, mobilization is performed by administering to the donor G-CSF (neupogen), which activates a cascade of enzymes and...
Inventors: Williams; David A. (Cincinnati, OH), Zheng; Yi (Cincinnati, OH)
Assignee: Children's Hospital Medical Center (Cincinnati, OH)
Date of First Priority Issue: Wednesday August 13th, 2003

Feeder-free culture method for embryonic stem cells or primate primordial stem cells

Patent Number: 7,413,902
This patent covers the expansion of embryonic stem cells (referred to in the patent as primate primordial stem cells) by growing them in a media that lacks feeder cells but has the extracellular matrix of lysed fibroblast cells. It also covers growth of embryonic stem cells in extracellular matrix combined with agents such as FGF, forskolin, and various nutrients. The point of the...
Inventors: Bodnar; Andrea G. (Oshawa, CA), Chiu; Choy-Pik (Cupertino, CA), Gold; Joseph D. (San Francisco, CA), Inokuma; Margaret (San Jose, CA), Murai; James T. (San Bruno, CA), West; Michael D. (Boston, MA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday October 23rd, 1997

Treatment of retinitis pigmentosa with human umbilical cord cells

Patent Number: 7,413,734
Classically cord blood transplantation is used for the treatment of hematological disorders in which the recipient hematopoietic stem cell compartment is ablated (by chemotherapy and/or radiation) and the donor cord blood cells are used for hematopoietic rescue. However the use of cord blood in the area of regenerative medicine (non-hematopoietic purposes) does not require destruction of the...
Inventors: Mistry; Sanjay (Bedminster, NJ), Messina; Darin J. (Somerville, NJ), Harris; Ian Ross (Belle Mead, NJ), Harmon; Alexander M. (Clinton, NJ), Seyda; Agnieszka (New Brunswick, NJ), Yi; Chin-Feng (Hillsborough, NJ), Gosiewska; Anna (Skillman, NJ)

Assignee: Ethicon, Incorporated (Somerville, NJ)
Date of First Priority Issue: Friday June 27th, 2003

Methods of regulating differentiation in stem cells

Patent Number: 7,413,903
This patent covers the use of agonists of LPL receptors to inhibit differentiation of embryonic stem cells. The inhibition of embryonic stem cell differentiation is important since the innate tendency of these cells is to differentiate when grown in absence of specific feeder cells and cytokines. While companies such as Geron have patents on specific culture systems that inhibit...
Inventors: Pebay; Alice Marie (Melbourne, AU), Pera; Martin Frederick (Prahran, AU)
Assignee: ES Cell International PTE Ltd. (Victoria, AU)
Date of First Priority Issue: Friday June 6th, 2003
2 Comments

Human embryonic stem cells having genetic modifications

Patent Number: 7,413,904
This patent covers a method of generating human embryonic stem cells that are genetically modified. Specifically, it claims the methodology of: obtaining a human embryonic stem cells that are in absence of feeder cells but kept viable in an extracellular matrix composition with media conditioned by fibroblasts, inserting into the cells a polynucleotide, and maintaining the cells in an...
Inventors: Gold; Joseph D. (San Francisco, CA), Carpenter; Melissa K. (London, CA), Inokuma; Margaret S. (San Jose, CA), Xu; Chunhui (Palo Alto, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday October 23rd, 1997

Primitive and proximal hepatic stem cells

Patent Number: 7,413,897
The liver is one of the organs that has been demonstrated to respond to stem cell therapy both in animal models and in clinical trials. It is known that the liver has endogenous stem cells, but also that bone marrow stem cells can differentiate into liver cells. In fact, it is published that bone...
Inventors: Reid; Lola M. (Chapel Hill, NC), Moss; Nicholas (Carrboro, NC), Furth; Mark (Chapel Hill, NC), Ludlow; John W. (Carrboro, NC), Bruce; Andrew T. (Holly Springs, NC)
Assignee: University of North Carolina at Chapel Hill (Chapel Hill, NC); Vesta Therapeutics, Inc. (Bethesda, MD)
Date of First Priority Issue: Thursday August 14th, 2003

Culture system for rapid expansion of human embryonic stem cells

Patent Number: 7,410,798
This patent covers methods of expanding embryonic stem cells in vitro in large quantities without inducing their differentiation. Essentially the method covered is represented by the first independent claim which discloses the culture system which contains an extracellular matrix, a non-conditioned medium, and 40 nanograms per ml of FGF. The claim also states that the culture is free...
Inventors: Mandalam; Ramkumar (Union City, CA), Xu; Chunhui (Cupertino, CA), Gold; Joseph D. (San Francisco, CA), Carpenter; Melissa K. (Castro Valley, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Wednesday September 5th, 2001

Method of preparing an undifferentiated cell

Patent Number: 7,410,773
This patent is either way ahead of its time, or there are some problems in its commercialization. The patent covers a method of "dedifferentiating" mature cells in order to an immature phenotype or to increase the ability of the cells to act like stem cells. The first claim of the patent covers a means of augmenting the number of cells expressing a stem cell marker(s) in a...
Inventors: Abuljadayel; Ilham Saleh (London, GB)
Assignee: Ghazi Jaswinder Dhoot (London, DE)
Date of First Priority Issue: Thursday February 2nd, 1995

Meningeal-derived stem cells

Patent Number: 7,410,797
The current patent covers a type of multipotent stem cell derived from the meninges. This is the three layered membrane that surrounds the cerebrospinal fluid and central nervous system. The inventors have demonstrated that cells isolated from this membrane, regardless of whether they are from the dura mater, pia mater, or arachnoid mater, can be substantially expanded in vitro and...
Inventors: Ogle; Roy C. (Earlysville, VA), Tholpady; Sunil (Charlottesville, VA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday June 11th, 2002

Kits for treatment of hematologic disorders

Patent Number: 7,408,039
Hematopoietic stem cell transplantation has saved many lives of patients with hematological and

metabolic malignancies. Unfortunately, one of the major side effects of this treatment is graft versus host. The company Osiris is in advanced stages of clinical trials (Phase III) using mesenchymal stem cells to treat this condition in which lymphocytes from the donor start attacking the...
Inventors: Sykes; Megan (Boston, MA), Spitzer; Thomas R. (Andover, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Friday November 14th, 1997

Methods for introducing heterologous cells into fish to determine if the heterologous cells contain cancer cells or a pathogen

Patent Number: 7,408,095
In general it is quickly forgotten that the biggest contribution of embryonic stem cell technology to medicine has not been in the area of actually generating therapeutics, but in development of model systems for studying diseases. It was only through the generation of knockout and transgenic animals that we as biologists were able to start deciphering the in vivo relevance of the genome.That...
Inventors: Serbedzija; George N. (Woburn, MA), McGrath; Patricia (Cambridge, MA)
Assignee: Phylonix Pharmaceuticals, Inc. (Cambridge, MA)
Date of First Priority Issue: Sunday February 22nd, 1998

Cosmetic compositions

Patent Number: 7,405,195
The current patent covers a cosmetic generated using a variant of stromal derived factor (SDF-1) which the inventors termed stem cell active factor (SCAF). The natural function of SDF-1 is to call in stem cells to injured tissue, for example, after a heart attack there is a surge of SDF-1 which is involved in mediating mobilization of stem cells from the bone...
Inventors: Chen; Jidai (Bedford, MA), Cong; Yanping (Bedford, MA)
Assignee: Natural Beauty Bio-Technology Limited (Taipei, TW)
Date of First Priority Issue: Monday March 27th, 2006

1 Comment

Generation and use of dendritic cells

Patent Number: 7,405,076
Plasticity of stem cells to differentiate into various tissues is often a subject of much debate, especially in terms of bone marrow hematopoietic stem cells becoming hepatocytes or cardiac cells. While some scientists state that a hematopoietic stem cell will only differentiate into blood cells, others point to the clinical evidence that administration of, for example bone marrow cells...
Inventors: Goldman; Michel (Brussels, BE), Bartholome; Emmanuel (Wemmel, BE), Buelens; Christel (Brussels, BE), Willems; Fabienne (Linkebeek, BE)
Assignee: Universite Libre de Bruxelles (Bruxelles, BE)
Date of First Priority Issue: Tuesday November 14th, 2000

Treatment of disease by inducing cell apoptosis

Patent Number: 7,402,567
Hepatic fibrosis is associated with overproduction of collagen by stellate cells, as well as killing of hepatocytes by these cells. In some situations stem cells have demonstrated positive effects in clinical liver failure, both bone marrow stem cells, as well as mobilized peripheral blood stem cells.One mechanism by which stem...
Inventors: Chojkier; Mario (San Diego, CA), Buck; Martina (San Diego, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Friday October 27th, 2000

Longevity and PAPP-A

Patent Number: 7,402,724
Pregnancy associated plasma protein-A (PAPP-A) is a protease that cleaves insulin-like growth factor binding-protein (IGFBP-4). PAPP-A is used experimentally as a diagnostic for myocardial infarction and also is indicative of various congenital abnormalities in utero. Interestingly, if PAPP-A is knocked out or functionally inactivated in mice, there is reduced levels of IGF activity AND the mice...
Inventors: Conover; Cheryl A. (Rochester, MN)
Assignee: Mayo Foundation for Medical Education and Research (Rochester, MN)
Date of First Priority Issue: Friday January 4th, 2002

Production of a biological factor and creation of an immunologically privileged environment using genetically altered Sertoli cells

Patent Number: 7,399,751
This is a patent with priority in 1999 describing the use of genetically modified Sertoli cells for immune protection of implanted cells AND the use of the Sertoli cells themselves as the vector...genetic engineer with any gene is covered.This patent is part of the Canadian company Sernova's (CDNX:SVA.V) potent intellectual property portfolio...

Inventors: Kirkpatrick; Shaun A. (Tucson, AZ), Gores; Paul (Charlotte, NC), Halberstadt; Craig (Charlotte, NC)
Assignee: Sertoli Technologies, Inc. (Tucson, AZ)
Date of First Priority Issue: Thursday November 4th, 1999

Poly-Glu,Tyr for neuroprotective therapy

Patent Number: 7,399,740
T regulatory cells are generally seen as antiinflammatory cells that are capable of suppressing pathological immune responses. These cells have been demonstrated to inhibit inflammatory pathologies such as bone resorption and transplant rejection. The current patent takes an opposite view of...
Inventors: Eisenbach-Schwartz; Michal (Rehovot, IL), Yoles; Ester (D.N. Nahal Sorek, IL), Hauben; Ehud (Hadera, IL)
Assignee: Yeda Research and Development Co. Ltd. (Rehovot, IL)
Date of First Priority Issue: Thursday June 28th, 2001

Mesenchymal precursor cell

Patent Number: 7,399,632
Mesenchymal stem cell therapy is rapidly becoming a clinical reality. The beauty of this cell population is that it can be used in an "off the shelf" manner and does not appear to have many safety issues. Mesenchymal stem cells from the bone marrow have been patented by Osiris, whereas cells similar to mesenchymal stem cells have been found...
Inventors: Simmons; Paul (East Melbourne, AU), Zannettino; Andrew (Adelaide, AU), Gronthos; Stan (Bethesda, MD)
Assignee: Angioblast Systems, Incorporated (New York, NY)
Date of First Priority Issue: Tuesday July 15th, 2008
2 Comments

Stem cell-specific promoters and their use

Patent Number: 7,396,680
The current patent covers the nucleic acid sequences for promoters. In the claims it just states "promoters" but the specification teaches that the promoters are specific to "stem cells". The examples part of the patent teaches that they are active in CD34 and CD133 cells found from cord blood.Being able to have patents on actual promoter sequences that are active...
Inventors: Shmelkov; Sergey V. (New York, NY), Rafii; Shahin (Great Neck, NY), Lin; Jun (Forest Hills, NY)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Friday October 31st, 2003

Cell delivery patch for myocardial tissue engineering

Patent Number: 7,396,537
Various types of stem cell therapeutics are being attempted for cardiac conditions. On the one hand, it is known that infarcts induce mobilization of stem cells, and that this may be part of an endogenous regenerative response. Accordingly, the intravenous administration of mesenchymal stem cells has demonstrated a regenerative activity...
Inventors: Krupnick; Alexander (Philadelphia, PA), Kreisel; Daniel (Philadelphia, PA), Rosengard; Bruce R. (Gladwyne, PA)
Assignee: The Trustees of the University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Thursday February 28th, 2002

Method for enriching adherent monocyte populations

Patent Number: 7,393,628
Monocytes are generally known as the precursors to macrophages, cells involved in phagocytosing bacteria and injured tissue (thats why in Latin "Macrophage" apparently means "Big Eater"). However, in addition to the classical functions of monocytes, there is evidence to suggest that these cells are potent stimulators of angiogenesis, as...
Inventors: Wagner; Stephen J. (Columbia, MD), Myrup; Andrew (Silver Spring, MD), Celluzzi; Christina (Columbia, MD)
Assignee: American National Red Cross (Washington, DC)
Date of First Priority Issue: Tuesday October 8th, 2002

Prolactin induced increase in neural stem cell numbers

Patent Number: 7,393,830
We at StemCellPatents.com believe that the future of stem cell therapy will involve optimization of current therapeutic approaches that are already in clinical trials. For example, it is known that intravenous administration of mesenchymal stem cells can generate statistically significant improvement in heart function after heart attacks. It is also known...
Inventors: Shingo; Tetsuro (Okayama, JP), Weiss; Samuel (Calgary, CA)
Assignee: Stem Cell Therapeutics Inc. (Calgary, Alberta, Canada)
Date of First Priority Issue: Friday September 14th, 2001

Optimization of immunomodulatory properties of genetic vaccines

Patent Number: 7,390,619

Activation of T cells normally occurs by antigen presenting cells, of which the dendritic cell is the most potent. T cells require signals from CD80 and CD86 on the antigen presenting cell in order to activate CD28, which is required for escape from anergy. Since the T cell molecule CTLA-4 also binds CD80 and CD86, it is important to preferentially...

Inventors: Punnonen; Juha (Belmont, CA), Stemmer; Willem P. C. (Los Gatos, CA), Whalen; Robert Gerald (Foster City, CA), Howard; Russell J. (Los Altos Hills, CA)

Assignee: Maxygen, Inc. (Redwood City, CA)

Date of First Priority Issue: Wednesday February 11th, 1998

Self-contained adipose derived stem cell processing unit

Patent Number: 7,390,484

Adipose tissue is known to contain a variety of different cellular populations. For example, Medistem Inc (mdsm.ob) reported presence of immune suppressive T regulatory cells in adipose tissue that could potentially be useful for inhibiting autoimmunity. Another type of cell found in adipose tissue is endothelial precursor cells...

Inventors: Fraser; John K. (Los Angeles, CA), Hedrick; Marc H. (Encino, CA)

Assignee: Cytori Therapeutics, Inc. (San Diego, CA)

Date of First Priority Issue: Friday December 7th, 2001

1 Comment

CD8.alpha..sup.+lymphoid dendritic cell differentiated from human hematopoietic stem cell and a method for differentiation

Patent Number: 7,390,658

Dendritic cells are the most potent antigen presenting cell, capable of activating naive T cells, as well as inducing generation of suppressor T cells. Given the potent ability of dendritic cells to stimulate the immune system, they have been used as "natural adjuvants" in cancer therapy. A discussion of the tolerogenic and tolerance...

Inventors: Kim; Hyun-Soo (Suwon-si, Kyungki-do, KR), Lee; Kyung-Bock (Sacheon-si, KR), Kim; Hugh-Chul (Suwon-si, KR)

Assignee: Lifecord, Inc. (KR); FCB-Pharmicell Co., Ltd. (KR)

Date of First Priority Issue: Thursday March 29th, 2001

Cellular therapy to heal vascular tissue

Patent Number: 7,387,645

The current patent covers methods of treating/repairing aneurysms through autologous cells, including stem cells by delivering the cells into an aneurysmal site so as to repair the blood vessel. Types of cells useful for practising the invention include bone marrow stem cells, adipose derived stem cells and blood derived stem cells. Addition of various extracellular matrix components...

Inventors: Fernandes; Brian (Roseville, MN), Chu; Jack (Santa Rosa, CA), Ganesan; Prema (San Francisco, CA)

Assignee: Medtronic Vascular, Inc. (Santa Rosa, CA)

Date of First Priority Issue: Friday April 25th, 2003

Composition and method for inducing and enhancing a telomerase reverse transcriptase-reactive cytotoxic T lymphocyte response

Patent Number: 7,388,071

Telomerase is an enzymatic complex that repairs the telomeric ends of chromosomes so as to allow certain cells to escape senescence. Various stem cells, including some adult stem cells, express telomerase. Most importantly, tumors express this complex and it is what allows them to continue proliferating without undergoing senescence.A very interesting approach to the...

Inventors: Zanetti; Maurizio (La Jolla, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Tuesday February 15th, 2000

Aligned scaffolds for improved myocardial regeneration

Patent Number: 7,384,786

Stem cell therapy for cardiac indications may take a variety of forms. One of the easiest is intravenous administration of mesenchymal stem cells after a myocardial infarction. This would require the stem cells to selectively home into damaged tissue. It is known that various inflammatory agents such as IL-18 and

Inventors: Freyman; Toby (Waltham, MA), Palasis; Maria (Wellesley, MA), Ungs; Mark (Minnetonka, MN)

Assignee: Scimed Life Systems, Inc. (Maple Grove, MN)

Date of First Priority Issue: Wednesday July 16th, 2003

Compositions and methods for detecting and treating motor neuron disorders

Patent Number: 7,384,748

The issued claim in the current patent covers a method of diagnosing a motor neuron disease based on sequences associated with mutations in the neuropathy target esterase (NTE) gene. If one reads the specification, descriptions of treatments based on inhibiting expression of the mutated NTE gene using

techniques such as siRNA are disclosed. Genetic complementation using stem cells are also...
Inventors: Fink; John K. (Ann Arbor, MI), Rainer; Shirley (Sylvania, OH)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Monday December 13th, 2004

Use of cytokines and mitogens to inhibit graft versus host disease

Patent Number: 7,381,563
Hematopoietic stem cell transplantation has saved hundreds of thousands of lives of patients with hematopoietic malignancies or some metabolic disorders. Hematopoietic stem cell transplant involves administration of CD34 cells or unpurified mononuclear cells from either donor bone marrow, cord blood, or mobilized peripheral blood. Since the "graft" in this type of...
Inventors: Horwitz; David A. (Santa Monica, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Tuesday March 3rd, 1998

Enriched central nervous system stem cell and progenitor cell populations, and methods for identifying, isolating and enriching for such populations

Patent Number: 7,381,561
This patent covers methods of isolating neural stem cells using antibodies that bind CD49f. The first independent claim is very broad in that it is not restricted to originating material of adult or embryonic origin but simply covers a method of purifying a population by selecting for cells that initiate neurospheres in culture and express CD49f. CD49f is found on other types of stem cells as...
Inventors: Uchida; Nobuko (Palo Alto, CA), Capela; Alexandra (Mountain View, CA)
Assignee: StemCells California, Inc. (Palo Alto, CA)
Date of First Priority Issue: Tuesday August 27th, 2002

Transgenic pigs carrying both hHO-1 and hDAF transgenes for xenotransplantation

Patent Number: 7,378,569
Xenotransplantation offers the possibility of using animal organs either permanently as a substitute for human organs, or as a "bridge" until a suitable human organ may be found. The most significant barriers to xenotransplantation appear to be innate in nature. Specifically, the first barrier is the hyperacute rejection, which occurs because of a very high level of preformed...
Inventors: Tu; Ching-Fu (Miaoli Hsien, TW), Yang; Chi-Kai (Miaoli Hsien, TW), Liu; Ming-Shing (Miaoli Hsien, TW), Ho; Lin-Lin (Miaoli Hsien, TW), Huang; Kuei-Feng (Miaoli Hsien, TW), Lee; Chun-Jean (Miaoli Hsien, TW), Tai; Hao-Chih (Miaoli Hsien, TW)
Assignee: Animal Technology Institute Taiwan (TW)
Date of First Priority Issue: Tuesday June 1st, 2004

Telomerase promoters sequences for screening telomerase modulators

Patent Number: 7,378,244
Division of most mammalian cells is accompanied by reduction in the length of telomeres, which is responsible in part for cellular senescence and death. Some cells, particularly stem cells and cancer cells, express the enzyme telomerase and are not restricted by the "Hayflick Limit". Some data exists to support the concept that...
Inventors: Morin; Gregg B. (Vancouver, CA), Lichtsteiner; Serge (Encinitas, CA), Vasserot; Alain (Carlsbad, CA), Adams; Robert (Redwood City, CA), Andrews; William H. (Reno, NV)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Friday May 30th, 2008
1 Comment

Isolation and expansion of human marrow stromal cells

Patent Number: 7,374,937
This patent covers methods of expanding bone marrow stromal cells by culture at low concentrations. The stromal cells described in the patent are very similar in morphology and marker profile to mesenchymal stem cells that are already in clinical trials.Methods disclosed by the patent include ways of inducing proliferation of isolated human bone marrow stromal cells by culturing the cells at...
Inventors: Prockop; Darwin J. (New Orleans, LA), Colter; David (Philadelphia, PA), DiGirolamo; Carla (Milford, MA)
Assignee: Philadelphia Health and Education Corporation (Philadelphia, PA)
Date of First Priority Issue: Friday October 29th, 1999

Methods and compositions for nerve regeneration

Patent Number: 7,374,760
Stem cell therapy has successfully been used in various animal models of neurodegenerative diseases including cerebral palsy, demyelinating conditions, and ALS. Stem cells in many situations do not need to differentiate into the cell of therapeutic interest to mediate effects but may simply provide...
Inventors: Zou; Yimin (Chicago, IL)
Assignee: The University of Chicago (Chicago, IL)

Date of First Priority Issue: Thursday May 15th, 2003

In vivo synthesis of connective tissues

Patent Number: 7,375,077

The current invention teaches the generation of connective tissue in vivo. Specifically, stem cells that have been differentiated into connective tissue cells, such as fibroblasts, are placed in a scaffold, with two other scaffolds surrounding the scaffold containing the cells. The two other scaffolds on the top and the bottom of the middle scaffold contain growth factors and...

Inventors: Mao; Jeremy Jian (Chicago, IL)

Assignee: The Board of Trustees of the University of Illinois (San Diego, CA)

Date of First Priority Issue: Friday September 19th, 2003

Propagation and/or derivation of embryonic stem cells

Patent Number: 7,371,573

This patent covers methods of growing embryonic stem cells outside of the body using novel tissue culture media and media additives. Specifically, it covers the use of compounds that inhibit MEK-1 and/or MEK-2, as well as compounds that activate gp130 for use in stem cell propagation. This claim conceptually blocks anyone from using compounds known and unknown that modulate these...

Inventors: Smith; Austin Gerard (Edinburgh, GB), Burdon; Thomas Grant (Edinburgh, GB)

Assignee: University of Edinburgh (Edinburgh, GB)

Date of First Priority Issue: Friday June 8th, 2001

Nuclear transfer with porcine embryonic stem cells

Patent Number: 7,371,922

This patent covers methods of making genetically engineered pigs. This is an important area of study not only from a research perspective, but also that transgenic animals may be used for things such as: a) mass production of proteins; b) donor organs for humans; and c) agricultural purposes.The patent teaches the generation of pigs by:1. Obtaining a pig ES cell whose nucleus has...

Inventors: Wheeler; Matthew B. (Tolono, IL), White; Brett R. (Lincoln, NE)

Assignee: The Board of Trustees of the University of Illinois (Urbana, IL)

Date of First Priority Issue: Wednesday July 31st, 2002

CD56 positive human adult pancreatic endocrine progenitor cells

Patent Number: 7,371,576

The quest for a stem cell therapy for diabetes has led to the evaluation of numerous cellular sources ranging from embryonic stem cells, to bone marrow derived stem cells, to mesenchymal stem cells. One interesting method of expanding insulin producing cells is through extraction of pancreatic progenitors...

Inventors: Tsang; Wen-Ghih (Sherman Oaks, CA), Zheng; Tianli (Culver City, CA), Liu; Wei (Cypress, CA)

Assignee: Reneuron, Inc. (Santa Monica, CA)

Date of First Priority Issue: Friday September 6th, 2002

Three dimensional bioengineered smooth muscle tissue and sphincters and methods therefor

Patent Number: 7,368,279

This patent covers methods of producing artificial sphincters. Specifically, smooth muscle cells are grown on an extracellular matrix that is placed on a tissue culture vessal coated with polydimethyl siloxane and a mold made of a cylindrical shape which is coated with the same material. Examples of extracellular matrices useful for the invention include fibrin. The patent covers...

Inventors: Bitar; Khalil N. (Ann Arbor, MI), Hecker; Louise (Ann Arbor, MI), Baar; Keith (Dundee, GB), Somara; Sita (Ypsilanti, MI)

Assignee: The Regents of The University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Wednesday November 24th, 2004

Method of enhancing neural stem cell proliferation, differentiation, and survival using pituitary adenylate cyclase activating polypeptide (PACAP)

Patent Number: 7,368,115

Pharmaceutical activation of stem cells is arguably the next major revolution in medicine. The current patent is assigned to a Canadian stem cell company, Stem Cell Therapeutics (TSX-V:SSS), which already has entered Phase II clinical trials with pharmaceutical activators of endogenous stem cells for the treatment of stroke. While the ongoing clinical work of Stem Cell Therapeutics involves...

Inventors: Ohta; Shigeki (Tokyo, JP), Weiss; Samuel (Calgary, CA)

Assignee: Stem Cell Therapeutics Inc. (Calgary, Alberta, Canada)

Date of First Priority Issue: Wednesday July 31st, 2002

Multi-lineage directed induction of bone marrow stromal cell differentiation

Patent Number: 7,364,900

This patent covers a 2 step method of generating insulin producing cells. According to the first issued claim, the initial step involves obtaining what essentially appears

to be a mesenchymal stem cell (adherent cell positive for CD44, CD90 and CD71, negative for monocyte and hematopoietic markers, CD11b and CD45, respectively) and culturing them with an antioxidant in order to generate an...
Inventors: Black; Ira B. (Skillman, NJ), Woodbury; Dale (Middletown, NJ)
Assignee: University of Medicine and Dentistry of New Jersey (Somerset, NJ)
Date of First Priority Issue: Wednesday September 5th, 2001

Loop peptide and TGF.alpha. for stimulating stem cell proliferation and migration

Patent Number: 7,365,172
Stem cells need to be maintained in a quiescent state when they are not needed to make new cells. This is because if stem cells were consistently proliferating then there would be a high propability of mutations, thus leading to cancer. One of the methods that stem cells maintain themselves in a non-proliferating state is through autocrine secretion of inhibitory factors. One...
Inventors: Twardzik; Daniel R (Bainbridge Island, WA), Paskell; Stefan (Bainbridge Island, WA), Felker; Thomas S (Vashon, WA)
Assignee: Applied Protein Sciences LLC (Mountain View, CA)
Date of First Priority Issue: Monday April 26th, 1999

Methods of cancer therapy targeted against a cancer stem line

Patent Number: 7,361,336
The concept of the cancer stem cell revolves around the notion that 99% of cells making a tumor mass, while deadly, are not the ones that keep the tumor growing. The <1% of cells of a tumor, which possess unique surface markers and functional activities are the ones that continually cause the tumor to keep growing. According to this idea, drug development in cancer for the past 50...
Inventors: Bergstein; Ivan
Assignee: Stemline
Date of First Priority Issue: Tuesday September 16th, 1997

Multipotent neural stem cell compositions

Patent Number: 7,361,505
Essentially, this patent covers: a) fetal and embryonic derived neurospheres; b) purified population of multipotent neural derived from juvenile or adult mammalian CNS tissue; and c) in vitro cell culture composition derived from mammalian CNS consisting of neurospheres.Specific neurospheres include cells that resemble neuronal progenitor cells. The phenotype of these...
Inventors: Weiss; Samuel (Calgary, CA), Reynolds; Brent (Alberta, CA)
Assignee: Neurospheres Holdings Ltd. (Alberta, CA)
Date of First Priority Issue: Monday July 8th, 1991

Differentiation of specialized dermal and epidermal cells into neuronal cells

Patent Number: 7,361,506
This patent covers ways of manufacturing cells that express dopaminergic neurons for implantation. Obviously one of the uses for these cells is treatment of Parkinson's. While others have generated dopaminergic neurons from sources such as subventricular zone precursors, olfactory epithelium, and
Inventors: Fillmore; Helen (Richmond, VA), Hoover; Shelley (Richmond, VA), Broaddus; William C. (Midlothian, VA), Gillies; George (Charlottesville, VA)
Assignee: Creative Science Solutions, Inc. (Richmond, VA)
Date of First Priority Issue: Wednesday April 18th, 2001

Placental growth factor as a target for the treatment of osteoporosis

Patent Number: 7,357,929
This patent covers the inhibition of placental growth factor as a method of treating osteoporosis. The one issued claim is restricted to inhibition of placental growth factor using an antibody or fragments of the antibody.The inventor demonstrated inhibition of bone resorption in an animal model, as well as in vitro using anti-placental growth factor antibodies. Interestingly in the...
Inventors: Carmeliet; Peter (Blanden, BE), Collen; Desire (Winksele, BE), Bouillon; Roger (Winksele, BE), Carmeliet; Gertrudis (Blanden, BE)
Assignee: D. Collen Research Foundation VZW (Leuven, BE)
Date of First Priority Issue: Friday June 28th, 2002
1 Comment

Device and method for culturing cells

Patent Number: 7,358,082
This patent covers a method of culturing cells, including stem cells by providing flow conditions simular to what may be found in an in vivo system. The invention aims to meet the following goals: (1) supplying a substance uniformly to the cells to be cultured; (2) establishing a uniform flow for supplying a substance; (3) eliminating a dead space; and (4) preventing release of cell layers...

Inventors: Tsuzuki; Hirohiko (Kanagawa, JP), Toda; Satoru (Kanagawa, JP), Ichikawa; Yasunori (Kanagawa, JP), Kurahashi; Tetsuo (Kanagawa, JP), Shiraishi; Fumiko (Kanagawa, JP)
Assignee: FUJIFILM Corporation (Tokyo, JP)
Date of First Priority Issue: Wednesday July 16th, 2003

Method for rapid generation of mature dendritic cells

Patent Number: 7,354,909

Dendritic cells are the most potent stimulators of the immune system. Generally it is the dendritic cell that picks up antigens and makes the decision whether the immune system should "get mad" and go after the antigen, or whether the antigen represents no substantial danger and therefore should be ignored. In some cases the dendritic...
Inventors: Klinman; Dennis M. (Potomac, MD), Gursel; Mayda (Ankara, TR), Verthelyi; Daniela (Potomac, MD)
Assignee: The United States of America as represented by Secretary of the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Tuesday August 14th, 2001

Generating vascular smooth muscle cells in vitro from ES cells

Patent Number: 7,354,763

This patent covers the generation of vascular smooth muscle cells from embryonic stem cells through specific culture conditions. In one embodiment the differentiation is induced through exposure to the cytokines TGF, angiopoietin, and platelet derived growth factor BB. In the examples section the generation of SMA positive cells from embryonic stem cells is demonstrated, as well as...
Inventors: Gerecht-Nir; Sharon (Haifa, IL), Itskovitz-Eldor; Joseph (Haifa, IL)
Assignee: Technion Research & Development Foundation Ltd. (Haifa, IL)
Date of First Priority Issue: Friday April 5th, 2002

High-throughput stem cell assay of hematopoietic stem and progenitor cell proliferation

Patent Number: 7,354,729

This patent covers specific conditions for assessing ability of hematopoietic stem cells to proliferate or become metabolically active after exposure to a test agent in vitro. Essentially the patent is useful for the screening of small molecules using high throughput systems for identification of hematopoietic stem cell modulators.Specific hematopoietic stem cells covered in the patent...
Inventors: Rich; Ivan N. (Columbia, SC)
Assignee: HemoGenix, Inc. (Colorado Springs, CO)
Date of First Priority Issue: Monday January 29th, 2001

Musculo-skeletal implant having a bioactive gradient

Patent Number: 7,351,423

It is known that stem cells migrate towards injured tissue in response to chemotactic gradients. For example the basal SDF-1 gradient made by bone marrow stromal cells is why it is possible to achieve hematopoietic reconstitution by injecting donor cells intravenously. Similarly, SDF-1 acts as a gradient to call stem cells into damaged myocardium after a...
Inventors: Kadiyala; Sudhakar (Newton, MA), Binette; Francois (Weymouth, MA), Coleman; Cynthia Marie (Brookline, MA), Kapur; Theresa Adams (Stoughton, MA)
Assignee: Depuy Spine, Inc. (Raynham, MA)
Date of First Priority Issue: Wednesday September 1st, 2004

Efficient nuclear transfer with primordial gametes

Patent Number: 7,351,876

This patent covers a new method of cloning cows. Specifically, the patent teaches a method of making a cow blastocyst by - extracting a primordial gamete cell population from the cow fetus- using the nucleus of the primordial gamete cell as a nuclear donor for an enucleated oocyte- and activating the combination of the primordial gamete nucleus with the recipient enucleated oocyteAccording...
Inventors: Brem; Gottfried (Hilgertshause, DE), Durcova-Hills; Gabriela (Oberschlei.beta.heim, DE), Muller; Sigrid (Vienna, AT), Schernthaner; Wolfgang (Oberscheli.beta.heim, DE), Wenigerkind; Hendrik (Vienna, AT), Wolf; Eckhard (Vienna, AT), Zakhartchenko; Valeri (
Assignee: Agrobiogen GmbH Biotechnologie (Hilgertshausen, DE)
Date of First Priority Issue: Thursday September 12th, 2002 1 Comment

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Myocardial stimulation

Patent Number: 7,349,740

The positive effects of stem cells in cardiac conditions is supported by many clinical trials. Efficacy has been demonstrated by both intracoronary administration, as well as intravenous administration of bone marrow and mesenchymal stem cells, respectively.In this patent, Medronics was granted some pretty far-reaching claims. This is a representative claim "A method comprising...
Inventors: Soykan; Orhan (Shoreview, MN), Maura; Donovan G. (St. Paul, MN)
Assignee: Medtronic, Inc. (Minneapolis, MN)

Date of First Priority Issue: Monday July 28th, 2003

Methods of treatment of hematopoietic disorders

Patent Number: 7,347,999

This patent covers a "method of treating a mammal suffering from a hematopoietic disorder wherein bone marrow transplantation is required" through the administration of bone marrow cells and a bone matrix. The patent is interesting since it covers into only administration into the bone but also in sites outside of the bone. The patent covers various additives that can be used...

Inventors: Slavin; Shimon (Ein Kerem, 95744 Jerusalem, IL), Gurevitch; Olga (Jerusalem, IL), Kurkalli; Basan Gowda S. (Jerusalem, IL), Prigozhina; Tatyana (Rehovot, IL)

Assignee: Slavin Shimon (Jerusalem, IL)

Date of First Priority Issue: Monday March 5th, 2001

Antigen modified cancer cell vaccines for cancer therapy

Patent Number: 7,348,015

This patent covers a way of "controlling or inhibiting blastoma cancer cell proliferation in a mammal" by vaccinating with tumor cells that express the Streptococcus pyogenes gene emm55. The natural function of emm55 appears to be in immune evasion of the complement system. Since tumor cells have mammalian complement inhibitory proteins, maybe the approach proposed by...

Inventors: Lawman; Michael J. P. (Tampa, FL), Lawman; Patricia D. (Tampa, FL)

Assignee: Morphogenesis, Inc. (Tampa, FL)

Date of First Priority Issue: Wednesday January 14th, 1998

Method for expansion of epithelial stem cells

Patent Number: 7,347,876

Corneal transplants are performed as a result of chemical or inflammatory injury to the clear part of the eye. Efficacy of corneal transplantation is decreased when the limbal stem cells which produce corneal epithelium are damaged or defective. Accordingly, transplantation of limbal stem cells has been performed clinically. A report in 1999 documented...

Inventors: Tsai; Ray Jui-Fang (Taipei, TW)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday April 25th, 2001 1 Comment

Sirtuin modulating compounds

Patent Number: 7,345,178

This patent covers the composition of matter for novel compounds that are useful for modulation of sirtuins. Sirtuins are a class of proteins that act as histone deacetylase inhibitors. Why there is great interest in modulating these enzymes is because the SIR2 members of this family have been demonstrated to play a critical role in life extension associated with caloric restriction. This...

Inventors: Nunes; Joseph J. (Andover, MA), Milne; Jill (Brookline, MA), Bemis; Jean (Arlington, MA), Xie; Roger (Southborough, MA), Vu; Chi B. (Arlington, MA), Ng; Pui Yee (Boston, MA), Disch; Jeremy S. (Natick, MA)

Assignee: Sirtris Pharmaceuticals, Inc. (Cambridge, MA)

Date of First Priority Issue: Thursday August 4th, 2005

Methods of expanding stem and progenitor cells and expanded cell populations obtained thereby

Patent Number: 7,344,881

This patent covers methods of expanding hematopoietic stem cells and their progenitors. The methods induce expansion but not differentiation of the cells. Essentially the patent teachs that expansion can be achieved by culture in media containing an "effective amount of TEPA-Cu chelate". TEPA stands for tetraethylenepentamine, which is a potent copper chelator. The inventors have...

Inventors: Peled; Tony (Mevaseret Zion, IL), Treves; Avi (Mevaseret Zion, IL), Rosen; Oren (Jerusalem, IL)

Assignee: Gamida Cell Ltd. (Jerusalem, IL)

Date of First Priority Issue: Friday January 25th, 2002

Myoblast therapy for cosmetic treatment

Patent Number: 7,341,719

One of the regenerative cells of the muscle is the myoblast. These cells essentially act as muscle stem cells, having the ability to multiply after injury and form muscle by fusing with other myoblasts. Myoblasts are very practical for cell therapy since they may be easily extracted from autologous sources and grown in vitro. Additionally, there is some evidence that myoblasts, upon fusing to...

Inventors: Law; Peter K. (Memphis, TN)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday December 13th, 1994

Anti-CD33 antibodies and method for treatment of acute myeloid leukemia using the same

Patent Number: 7,342,110

One of the major technological advances that allowed for the characterization and use of stem cells was the development of defined monoclonal antibodies that

repeatedly attached to markers on stem cells. For example, the patents covering the original hematopoietic stem cells used monoclonal antibodies to actually identify the cell...
Inventors: Hoffee; Mary G. (Brookline, MA), Tavares; Daniel (Natick, MA), Lutz; Robert J. (Wayland, MA)
Assignee: Immunogen Inc. (Cambridge, MA)
Date of First Priority Issue: Wednesday November 5th, 2003

Pine cone extracts and uses thereof

Patent Number: 7,338,676
Dendritic cells are the most potent stimulators of the immune system, having the unique ability to activate naive T cells. Thus dendritic cells are of great interest in terms of immune stimulatory approaches for treatment of cancer and viral diseases. On the flip side of the coin, dendritic cells are known to have the ability of...
Inventors: Tanaka; Akiko (St. Petersburg, FL), Bradley; William Guy (St. Petersburg, FL)
Assignee: Tampa Bay Research Institute (St. Petersburg, FL)
Date of First Priority Issue: Wednesday September 26th, 2001

Methods for treating a patient undergoing chemotherapy

Patent Number: 7,338,938
The current patent covers the use of a peptide derived from angiotensin I for stimulation of hematopoiesis after insult to the blood making system of a host. Specifically, the patent addresses the hematopoietic insult of chemotherapy. Since many types of chemotherapeutic agents kill proliferating cells, the hematopoietic system is often injured as a consequence of administration of these agents...
Inventors: Rodgers; Kathleen (Long Beach, CA), diZerega; Gere (Los Angeles, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Friday January 23rd, 1998

Connective tissue substitutes, method of preparation and uses thereof

Patent Number: 7,335,230
One of the areas in which regenerative medicine has caused the most advancement is in repair of connective tissue injuries. The current patent addresses this area. Specifically, the patent covers an object that can be implanted and used as a substitute for a connective tissue. The objected is made with a pair of bone anchors, with at least one filament connecting the bone achors at their...
Inventors: Goulet; Francine (Sainte-Foy, CA), Rancourt; Denis (Levis, CA), Cloutier; Rejean (Sillery, CA), Tremblay; Julie (Beauport, CA), Auger; Francois A. (Sillery, CA), Normand; Albert (Sainte-Foy, CA), German; Lucie (St-Augustin, CA), Lamontagne; Jean (St-Augus
Assignee: Universite de Montreal (Montreal, CA)
Date of First Priority Issue: Friday November 24th, 2000

Method for stimulating hair follicle cell proliferation

Patent Number: 7,335,641
The current patent covers ways of induce proliferation of hair follicle cells through administration of a specific protein or variants of it. The protein is called "hair follicle growth factor" or "HFGF". HFGF is considered to be an allelic form of keratinocyte growth factor-2 (KGF-2) wherein HFGF has a glutamic acid residue (Glu) at position 87, whereas KGF-2 has a lysine residue (Lys) at this...
Inventors: Kim; Soogyun (Chungdam-dong, Gangnam-gu, Seoul, KR), Jang; Hyun-Jun (Youngdeungpo-du, Seoul, KR)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday May 24th, 2001

Use of erythropoietin for the preventive or curative treatment of cardiac failure

Patent Number: 7,335,490
The use of erythropoietin for non-hematopoietic purposes has been increasing in the last couple of years. One obvious example is the Canadian company Stem Cell Therapeutics (sss.v) which is using erythropoietin together with human chorionic gonadotropin for treatment of patients post-stroke. Other uses of erthrypoietin include direct
Inventors: Van Gilst; Wiekert Hendrikus (Haren, NL), Brus; Ronald Hendrik Peter (Voorschoten, NL), Van Veldhuisen; Dirk Jan (Paterswolde, NL), Henning; Robert Henk (Loppersum, NL), De Boer; Rudolf Allert (Boston, MA)
Assignee: Crucell Holland B.V. (Leiden, NL); Stichting Klinische Farmacologie Groningen (Groningen, NL)
Date of First Priority Issue: Wednesday January 9th, 2002

Compositions and treatments for myelosuppression by ex vivo activated immune cells

Patent Number: 7,332,158
Failure/suppression of the hematopoietic can be a deadly consequence of over-aggressive administration of chemotherapeutics/radiotherapy. The global market

for agents that stimulate hematopoiesis, particularly granulopoiesis is in the billions of dollars per year, as witnessed by the success of Amgen's Neuopgen and Neulasta products. The current patent teaches a novel, and arguably more...
Inventors: Yang; Demao (Mountain View, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday May 29th, 2002

Hematopoietic stem cells treated by in vitro fucosylation and methods of use

Patent Number: 7,332,334
On of the interesting methods of manipulating stem cells is to increase their ability to "go where they are suppose to". For example, it is known that when bone marrow or cord blood hematopoietic stem cells are injected intravenously into an irradiated recipient, the cells selectively home to the bone marrow and if enough cells migrate appropriately, hematopoietic reconstitution occurs. Some...
Inventors: Xia; Lijun (Edmond, OK), McEver; Rodger P. (Oklahoma City, OK)
Assignee: Oklahoma Medical Research Foundation (Oklahoma City, OK)
Date of First Priority Issue: Friday April 18th, 2003

Methods for inducing differentiation of pluripotent cells

Patent Number: 7,332,336
Mesenchymal stem cells are originally thought of as bone marrow derived, adherent cells, that have the ability to differentiate into a variety of tissues. Initial studies demonstrated that mesenchymal stem cells can differentiate into bone, cartilage, fat and muscle. These cells possess a very strong possibility for commercialization and therapeutics development since they can be administered to...
Inventors: Ochiya; Takahiro (Chuo-ku, JP), Teratani; Takumi (Matsudo, JP)
Assignee: Effector Cell Institute, Inc. (Meguro-Ku, JP)
Date of First Priority Issue: Saturday April 19th, 2003

Fish produced by nuclear transfer from cultured cells

Patent Number: 7,332,647
One may notice that many of the patents in the StemCellPatents.com database direct their claims towards "mammals" here is one exception. The current patent is directed towards cloning of fish. The inventors state that nuclear transfer in fish was actually performed since the 1960s, however despite much work in the area, this is the first time that cultured cells are used as nucleus donors. This...
Inventors: Lin; Shuo (Los Angeles, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Tuesday June 11th, 2002

N-phenyl-3-pyrimidine-amine derivatives

Patent Number: 7,329,661
This patent covers the treatment of a "proliferative disorder" using a family of compounds which include N-[4-methyl-3-(4-pyridin-3-yl-pyrimidin-2-ylamino)-phenyl]-4-piperazin-1-- ylmethyl-benzamide methanesulfonate. These agents inhibit stem cell factor signalling, as well as signalling of PDGF.
Inventors: Buerger; Hans Michael (Allschwil, CH), Caravatti; Giorgio (Bottmingen, CH), Zimmerman; Juerg (Binningen, CH), Manley; Paul William (Arlesheim, CH), Breitenstein; Werner (Basel, CH), Cudd; Margaret Amelia (Munchenstein, CH)
Assignee: Novartis AG (Basel, CH)
Date of First Priority Issue: Tuesday September 11th, 2001 1 Comment

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Buffy coat tube and float system and method

Patent Number: 7,329,534
This patent covers a device that is capable of separating various cellular populations, or populations of particulate matter. Essentially, the device addresses the need for an easy to use, effective, and rapid method of collecting the "buffy coat" from a blood population, as well as cells within the buffy coat. The device purifies the cells using axial expansion of blood fluid components layered...
Inventors: Haubert; Thomas D. (Columbus, OH), Wardlaw; Stephen C. (Lyme, CT)
Assignee: Battelle Memorial Institute (Columbus, OH)
Date of First Priority Issue: Thursday October 3rd, 2002

Modulation of cell fates and activities by phthalazinediones

Patent Number: 7,326,690
This patent covers a pharmaceutical agent, and numerous derivatives thereof, for manipulation of cellular and stem cell activity. The family of compounds covered are called phthalazinediones, and they have previously been described to possess various anti-inflammatory activities. The patent claims include methods of treatment for metabolic diseases and methods of decreasing metabolic...
Inventors: Henry; Mark O. (North Andover, MA), Lynn; William S. (Hillsborough, NC)
Assignee: Bach Pharma, Inc. (North Andover, MA)
Date of First Priority Issue: Wednesday October 30th, 2002

Decellularized bone marrow extracellular matrix

Patent Number: 7,326,571

Numerous patents have been filed on de-cellularized tissues for use as matrices. For example, patent # 6,696,074 teaches that various fetal tissues may be de-cellularized and used as scaffolds. Such scaffolds may be seeded with various differentiated or stem cells, such as

Inventors: Freyman; Toby (Watertown, MA)

Assignee: Boston Scientific Scimed, Inc. (Maple Grove, MN)

Date of First Priority Issue: Thursday July 17th, 2003

Endoderm cells from human embryonic stem cells

Patent Number: 7,326,572

This is one of Geron's numerous patents covering not only composition of matter for various stem cells (licensed from WARF) but also methods of actually differentiating the cells into different other cells that are useful either potentially for therapy or for research use. The current patent covers generation of endoderm through culturing of ES cells with Activin A and/or sodium butyrate.

Inventors: Fisk; Gregory J. (Fremont, CA), Inokuma; Margaret S. (San Jose, CA)

Assignee: Geron Corporation (Menlo Park, CA)

Date of First Priority Issue: Friday December 7th, 2001

Methods and compositions for healing and repair of articular cartilage

Patent Number: 7,323,445

This patent covers the regeneration of articular cartilage by administering an osteochondral graft together with purified bone morphogenetic protein (BMP) selected from the group consisting of BMP-2, 4, 5, 6, and 7 and one protein which induces the formation of tendon or ligament tissue selected from the group consisting of BMP-12, BMP-13, and MP52. This patent is very important since 2 members...

Inventors: Zhang; Renwen (Rutherford, NJ), Peluso; Diane (Marshfield, MA), Morris; Elisabeth (Sherborn, MA)

Assignee: Genetics Institute, LLC (Cambridge, MA)

Date of First Priority Issue: Monday February 1st, 1999

Gene transfer into primate embryonic stem cells using VSV-G pseudotyped simian immunodeficiency virus vectors

Patent Number: 7,323,337

This patent covers methods of transfecting embryonic stem cells. Specifically, it claims the use of SIV genetically engineered so that the nucleic acid which is being transfected is packaged into an SIV virion. Specific proteins and strains of SIV are covered that are useful for transfection. Numerous techniques for genetic modification of hematopoietic stem cells has previously been patented, for...

Inventors: Hanazono; Yutaka (Tochigi, JP), Ueda; Yasuji (Ibaraki, JP), Kondo; Yasushi (Kyoto, JP), Suzuki; Yutaka (Hyogo, JP)

Assignee: DNAVEC Research Inc. (Ibaraki, JP); Tanabe Seiyaku Co., Ltd. (Osaka, JP)

Date of First Priority Issue: Friday June 8th, 2001

Cell delivery system comprising a fibrous matrix and cells

Patent Number: 7,323,190

The current patent covers the delivery of cells using a matrix that is fibrous and the fibers are between 10 nanometers to 1 micrometer in diameter. The fibers are made in such a manner so that they are in contact with the cells. In some of the claims the fibers are comprised of polymers, one type of polymer covered is a linear aliphatic polyester. A specific type of linear aliphatic...

Inventors: Chu; Benjamin (Setauket, NY), Hsiao; Benjamin S. (Setauket, NY), Hadjiargyrou; Michael (Coram, NY), Fang; Dufei (Painted Post, NY), Zong; Xinhua (Centereach, NY), Kim; Kwangsok (Setauket, NY)

Assignee: The Research Foundation at State University of New York (Stony Brook, NY)

Date of First Priority Issue: Friday September 14th, 2001

Production of pancreatic islet cells and delivery of insulin

Patent Number: 7,323,165

Numerous approaches have been patented on the treatment of diabetes through regeneration. These range from bone marrow stem cell modification and administration, to generation of islets from embryonic stem cells, to creation of differentiated proliferating

Inventors: German; Michael S. (Daly City, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Tuesday April 6th, 1999

Unactivated ungulate oocytes to produce a cloned ungulate by nuclear transfer

Patent Number: 7,321,076

This patent is of the same family as the original patents on cloning by Dr Wilmut's group. Essentially the patent's overall main claim is represented in the first independent claim which states: Cloning an ungulate comprising: (i) fusing a diploid, ungulate differentiated cell with an unactivated, enucleated metaphase II-arrested oocyte of the same species to reconstruct an embryo; (ii...

Inventors: Campbell; Keith Henry Stockman (Midlothian, GB), Wilmut; Ian (Midlothian, GB)
Assignee: Roslin Institute (Midlothian, GB)
Date of First Priority Issue: Friday August 30th, 1996

Serial nuclear transfer of ungulate embryos

Patent Number: 7,321,075

This patent covers a method of cloning in which the nucleus is transferred across generations. The first claim exemplifies the basis of what is covered, which is essentially "serial nuclear transfer" by a) taking a transgenic nucleus b) culturing the nucleus in an embryo c) splitting the embryoin into cells d) taking the nucleus from the cells and using it to insert into oocytes in order...

Inventors: Campbell; Keith Henry Stockman (Midlothian, GB), Wilmut; Ian (Midlothian, GB)
Assignee: Roslin Institute (Edinburgh) (Midlothian, GB)
Date of First Priority Issue: Thursday August 31st, 1995

Ependymal neural stem cells and method for their isolation

Patent Number: 7,320,872

Glia are the non-neuronal cells of the central nervous system. There are several types of glia. For example, microglia are generally hematopoietically derived cells similar to macrophages that are capable of phagocytosis and clearing local debris. Astrocytes are responsible for physically connecting the neurons to the vasculature feeding them. Astrocytes also regulate the ionic environment, as...

Inventors: Janson; Ann Marie (Stockholm, SE), Frisen; Jonas (Stockholm, SE), Johansson; Clas (Stockholm, SE), Momma; Stefan (Spinga, SE), Clarke; Diana (Cambridge, MA), Zhao; Ming (Solna, SE), Lendahl; Urban (Stockholm, SE), Delfani; Kioumars (Solna, SE)
Assignee: NeuroNova AB (Stockholm, SE)
Date of First Priority Issue: Thursday June 24th, 1999

Biological scaffolding material

Patent Number: 7,319,035

There are numerous patents issued on generation of scaffolds for the implantation of cells into a host in need of therapy. For example, Ethicon's patent 7,091,191 teaches the generation of hydrophobic polymers of hyaluronic acid that are superior to previous hyaluronic acid compositions since the the hydrophobicity extends the half-life...

Inventors: Vacanti; Martin P. (Westborough, MA), Vacanti; Charles A. (Uxbridge, MA)
Assignee: VBI Technologies, L.L.C. (Houston, TX)
Date of First Priority Issue: Tuesday September 17th, 2002

Conformable tissue repair implant capable of injection delivery

Patent Number: 7,316,822

This patent covers an implantable matrix that includes: a) the matrix itself; b) live cells; and c) tissue fragments. The matrix itself is made of granules which are resorbable and bear a specific size. The tissue fragments include cartilage, meniscus, tendon, ligament, dermis, bone, fat, and combinations thereof. The overall mixture may be injected for treatment of a variety of degenerative...

Inventors: Binette; Francois (Weymouth, MA), Hammer; Joseph J. (Bridgewater, NJ), Mukhopadhyay; Krish (Bridgewater, NJ), Rosenblatt; Joel (Watchung, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Sunday November 23rd, 2003

Cardiac stimulation system with delivery of conductive agent

Patent Number: 7,317,950

This patent covers a device that stimulates conductivity of electrical signals in the heart. Amongst the uses of the invention is to ensure proper biventricular septal pacing. The invention claims the use of various cells, including stem cells, for increasing certain conductivity connections.

Inventors: Lee; Randall J. (Hillsborough, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Saturday November 16th, 2002

Polynucleotides encoding stem cell growth factor-like polypeptides

Patent Number: 7,317,099

This patent covers the composition for matter of a polypeptide capable of acting as a growth fractor for stem cells. Although the claims are primarily limited to composition of matter, the specification describes numerous uses including: 1). Gene therapy, 2). Transgenic animals, 3). Nutritional uses, 4). Stimulation of hematopoiesis, 5). Stimulation of tissue growth, 6). Immune modulation, 7...

Inventors: Labat; Ivan (Mountain View, CA), Tang; Y. Tom (San Jose, CA), Drmanac; Radoje T. (Palo Alto, CA), Liu; Chenghua (San Jose, CA), Lee; Juhi (Fremont, CA), Mize; Nancy K. (Mountain View, CA), Childs; John (Sunnyvale, CA), Chao; Cheng-Chi (Cupertino, CA)
Assignee: Kirin Pharma Kabushiki Kaisha (Tokyo, JP)

Date of First Priority Issue: Thursday December 23rd, 1999

Amino thiol compounds and compositions for use in conjunction with cancer therapy

Patent Number: 7,314,959

One of the important areas of drug development is protecting stem cells and healthy tissue from the damaging effects of cytotoxic chemotherapy and radiation therapy. In fact, a "stem cell therapy" that has become a multi-billion dollar product is the use of G-CSF to stimulate hematopoietic recovery after cancer therapy or bone marrow transplantation. In fact, numerous patents have been filed for...

Inventors: Fahl; William E. (Madison, WI), Peebles; Daniel D. (Fond du Lac, WI), Copp; Richard C. (Oregon, WI)

Assignee: Wisconsin Alumni Research Foundation (Madison, WI)

Date of First Priority Issue: Thursday August 7th, 2003

Cysteine variants of erythropoietin

Patent Number: 7,314,921

This patent covers the composition of matter for specific variants of erythropoietin, the renal secreted hormone responsible for generation of erythrocyte differentiation from bone marrow hematopoietic stem cells. Specifically, the patent covers variants of the erythropoietin molecule in which the amino acid cysteine is substituted for amino acids that are not essential for erythropoietin binding...

Inventors: Cox, III; George N. (Louisville, CO)

Assignee: Bolder Biotechnology, Inc. (Louisville, CO)

Date of First Priority Issue: Monday July 14th, 1997

Insulin-secreting immortalized liver cell line modified by glucose sensitivity

Patent Number: 7,312,077

It has previously been demonstrated that rat hepatic cells can be coaxed into producing insulin by isolating the hepatic cells from an animal that was first primed with a hepatoxin, and subsequently exposing the isolated hepatic cells to high glucose concentrations. In the current patent a hepatic cell line that has been immortalized...

Inventors: Kobayashi; Naoya (Okayama-shi, Okayama, JP), Tanaka; Noriaki (Asakuchi-gun, Okayama, JP), Okitsu; Teru (Okayama-shi, Okayama, JP), Yoon; Ji-Won (Calgary, Alberta, CA), Jun; Hee-Sook (Calgary, Alberta, CA), Shin; Seungjin (Calgary, Alberta, CA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday October 2nd, 2002

Tissue matrices comprising placental stem cells, and methods of making the same

Patent Number: 7,311,904

The use of decellularized tissue as a scaffold onto which stem cells may be seeded has previously been patented. In the current patent the unique approach is taken that embryonic-like stem cells, as described in patent 7,311,905 are utilized to seed the decellularized...

Inventors: Hariri; Robert J. (Florham Park, NJ)

Assignee: Anthrogenesis Corporation (Summit, NJ)

Date of First Priority Issue: Wednesday February 14th, 2001

Embryonic-like stem cells derived from post-partum mammalian placenta, and uses and methods of treatment using said cells

Patent Number: 7,311,905

Stem cell populations are known from the cord blood as well as the placental matrix. In the current patent a stem cell population from the placenta is covered that possesses markers of adult stem cells as well as embryonic stem cells. For example, the first claim covers "A...

Inventors: Hariri; Robert J. (Florham Park, NJ)

Assignee: Anthrogenesis Corporation (Summit, NJ)

Date of First Priority Issue: Wednesday February 13th, 2002 2 Comments

Methods of controlling proliferation and differentiation of stem and progenitor cells

Patent Number: 7,312,078

Homing of hematopoietic stem cells to their endosteal niche in the bone marrow is dependent in part on expression of the calcium sensing receptor. Since various chelating agents are known to modify calcium levels systemically, one interesting question is whether such chelating agents can be used to modulate stem cell expansion or differentiation ability. The...

Inventors: Peled; Tony (Mevaseret Zion, IL), Fibach; Eitan (Mevaseret Zion, IL), Treves; Avi (Mevaseret Zion, IL)

Assignee: Gamida Cell Ltd. (Savyon, IL); Hadasit Medical Research Services and Development, Ltd. (Jerusalem, IL)

Date of First Priority Issue: Tuesday February 17th, 1998

Method of treating mood disorders and/or anxiety disorders by brain stimulation

Patent Number: 7,313,442

While studies have already demonstrated the ability of adult stem cells and embryonic stem cells to

differentiate into neurons, the possibility of modulating new neurons to integrate into existing neurons, as well as enhance activity, is the philosophical "next...
Inventors: Velasco; Francisco (Mexico City, MX), Jimenez; Fiacro (Col. Roma, MX), Velasco; Marcos (Mexico City, MX), Lozano; Andres M. (Toronto, CA)
Assignee: Advanced Neuromodulation Systems, Inc. (Plano, TX)
Date of First Priority Issue: Friday April 30th, 2004

Methods for treating dental conditions using tissue scaffolds

Patent Number: 7,309,232
This patent covers a method of forming new dentin (the calcified tissue of the body of the tooth, underneath the enamel) in teeth through administration of a tissue scaffold which stem cells can grow on and regenerate the dentin. Some of the stem cells covered include stem cells from the dental pulp. Indeed it is quite interesting...
Inventors: Rutherford; Bruce (Seattle, WA), Somogyi; Christopher (Woodinville, WA), White; Clinton (Raleigh, NC), Rabins; Erick (Seattle, WA)
Assignee: Dentigenix Inc. (Seattle, WA)
Date of First Priority Issue: Friday October 10th, 2003

Method for treatment of depression

Patent Number: 7,309,348
The use of various types of energies to manipulate stem cells or to modulate the specific niche in which stem cells are placed is an exciting area of development. Photothera is a San Diego based company that has been clinically developing an area called "photoceuticals" for the past several years, primarily in relation to...
Inventors: Streeter; Jackson (Reno, NV), De Taboada; Luis (Carlsbad, CA)
Assignee: Photothera, Inc. (Carlsbad, CA)
Date of First Priority Issue: Friday January 24th, 2003

Keratinocytes useful for the treatment of wounds

Patent Number: 7,306,943
Although the patent describes a keratinocyte population, the fact that the cells claimed can proliferate past the Hayflick limit, stimulated us to discuss this patent. The use of allogeneic cells for covering burns and other types of wounds has been widely known in the art, however in the current patent a type of keratinocyte with immense proliferative potential is described. The patent...
Inventors: Eberhardt; Petra (Bad Schussenried, DE), Noe; Wolfgang (San Diego, CA), Reif; Katharina (Stadtbergen, DE)
Assignee: Boehringer Ingelheim Pharma GmbH & Co. KG (Ingelheim, DE)
Date of First Priority Issue: Thursday October 10th, 2002

Methods and compositions for identifying morphogen analogs

Patent Number: 7,306,903
One of the interesting methods of building up a patent portfolio is to cover not only therapeutic candidates, but also methods of identifying therapeutic candidates. In the current patent, the company Curis covers ways of identifying compounds that have morphogen activity. Specifically the patent covers methods of identifying compounds with similar biological effects as the morphogens OP-1...
Inventors: Sampath; Kuber T. (Holliston, MA), Harada; Shun-ichi (North Wales, PA), Rodan; Gideon A. (Bryn Mawr, PA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Wednesday July 26th, 1995

Oxpurine nucleosides and their congeners, and acyl, derivatives thereof, for improvement of hematopoiesis

Patent Number: 7,307,166
This patent covers the composition of matter for several compounds and family of compounds that increase hematopoiesis. The compounds which are oxpurine nucleosides and their congeners, and acyl derivatives are demonstrated to accelerate hematopoietic reconstitution in both chemotherapy and irradiation induced suppression mouse models. In total the patent has over 70 examples. The compounds...
Inventors: von Borstel; Reid W. (Potomac, MD), Bamat; Michael K. (Potomac, MD), Hiltbrand; Bradley M. (Columbia, MD), Butler; James C. (Gaithersburg, MD), Shirali; Shyam (Gaithersburg, MD)
Assignee: Wellstat Therapeutics Corporation (Gaithersburg, MD)
Date of First Priority Issue: Wednesday October 28th, 1987

Herbal composition for treating CD33+ acute and chronic myeloid leukemia and a method thereof

Patent Number: 7,306,817
Myeloid leukemias are known as conventional "stem cell malignancies" in that there is unequivocal evidence that the cell causing the propagation of the neoplasia is a transformed stem cell. This was what led to the discovery of tumor stem cells in solid tumors many years after. In the current patent a method of treating AML and CML...
Inventors: Bandyopadhyay; Santu (Calcutta, IN), Roy; Keshab Chandra (Calcutta, IN), Ray; Mitali (Calcutta, IN), Banerjee; Goutam (Calcutta, IN), Pal; Bikash

Chandra (Calcutta, IN), Biswas; Tanusree (Calcutta, IN), Bhattacharya; Samir (Calcutta, IN)
Assignee: Council of Scientific and Industrial Research (New Delhi, IN)
Date of First Priority Issue: Tuesday January 30th, 2001

Cultures of GFAP nestin cells that differentiate to neurons

Patent Number: 7,303,912
This patent covers, in its broadest issued claim, a type of stem cell that is useful for the generation of neurons. The cell population covered is a culture of cells expressing glial fibrillary acidic protein and nestin. In some dependent claims the cells may be extracted from the medial ganglionic eminence (MGE) and lateral ganglionic eminence (LGE). This patent is useful if the allogeneic...
Inventors: Wahlberg; Lars (Asnaes, DK), Campbell; Kenneth (Cincinnati, OH), Skogh; Charlotta (Malmo, SE), Eriksson; Cecilia (Falsterbo, SE), Wictorin; Klas (Lund, SE)
Assignee: NsGene A/S (Ballerup, DK)
Date of First Priority Issue: Monday October 25th, 1999

Ungulates produced by nuclear transfer of G1 cells

Patent Number: 7,304,204
This patent is one of Ian Wilmut's family of patents covering various aspects of the cloning procedure. In this particular patent cloning of an ungulate (e.g. pigs, horses, sheep, or goats) is covered through the use of nuclear transfer in which the donor nucleus is in the G1 phase of the cell cycle and the recipient oocyte is blocked in the metaphase II phase and enucleated.
Inventors: Campbell; Keith Henry Stockman (Midlothian, GB), Wilmut; Ian (Midlothian, GB)
Assignee: Roslin Institute (Midlothian, GB)
Date of First Priority Issue: Thursday August 31st, 1995

Methods for assisting recovery of damaged brain and spinal cord using arrays of X-Ray microplanar beams

Patent Number: 7,305,064
It has always been the belief of StemCellPatents.com that the future of stem cell therapeutics is not only in the development and use of stem cell types, but the integration of stem cells with other modalities to attain synergy. For example, while FDA/EMEA development of cellular product candidates takes years and hundreds of millions of dollars, the same, or very similar stem cell products are...
Inventors: Dilmanian; F. Avraham (Yaphank, NY), McDonald, III; John W. (Baltimore, MD)
Assignee: Brookhaven Science Associates, LLC (Upton, NY)
Date of First Priority Issue: Thursday February 10th, 2005

Method for purifying pluri-differentiated mesenchymal progenitor cells

Patent Number: 7,303,769
This patent covers the extraction/purification of a type of mesenchymal stem cell. Specifically the invention claims removing macrophages from a Dexter culture, fractionating cells, and collecting from the factionated cells a stem cell population. The fractionation procedure may be performed by percoll gradient (a type of density gradient). The stem cells that are purified are called...
Inventors: Seshi; Beerelli (Tampa, FL)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Monday June 5th, 2000

Peptides that stimulate cell survival and axon regeneration

Patent Number: 7,304,129
This patent covers the composition of matter for several peptides as well as their utility for "stimulating the survival of, or neurite outgrowth in, cultured mammalian neuron, oligodendrocyte or fibroblast cells." The peptides are derived from the fibronectin domain of NCAM and have the ability to bind and activate the FGF2 receptor. Additionally, the inventors have demonstrated ability...
Inventors: Saffell; Jane Louise (London, GB)
Assignee: Imperial Innovations Limited (London, GB); King's College Innovations (London, GB)
Date of First Priority Issue: Friday June 16th, 2000

Mammalian myeloid progenitor cell subsets

Patent Number: 7,300,760
This patent covers a method of extracting or substantially purifying for cells having myeloid stem cell potential. The method covers the selection of cells that are Thy-1 negative, interleukin-7 negative, and lineage negative. By lineage negative the claim means the cells not expressing CD2; CD3; CD4; CD7; CD8; CD10; CD11b; CD14; CD19; CD20; CD56; and glycophorin A (GPA).
Inventors: Weissman; Irving L. (Redwood City, CA), Traver; David Jeffrey (West Roxbury, MA), Akashi; Koichi (Boston, MA), Manz; Markus Gabriel (Palo Alto, CA), Miyamoto; Toshihiro (Menlo Park, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Tuesday June 29th, 1999

Scaffold and method for implanting cells

Patent Number: 7,299,805

As more and more becomes known regarding stem cell extraction, differentiation, and manipulation, the value of scaffolding and delivery technologies will increase. The current patent addresses a new way of inserting stem cells into a host through the use of scaffolds derived from bacterial biofilm. Essentially the patent covers various polysaccharide biofilms for generation of structures that...

Inventors: Bonutti; Peter M. (Effingham, IL)
Assignee: MarcTec, LLC (Effingham, IL)
Date of First Priority Issue: Sunday July 7th, 2002

Method of testing myelotoxicity with the use of flow cytometer

Patent Number: 7,300,763

Development of chemotherapeutic drugs is dependent on proper animal preclinical toxicology systems. These systems are very important since chemotherapeutic drugs usually have a very small margin in which tumor toxicity is achieved but healthy tissue is not completely destroyed. One of the first body systems to go during chemotherapeutic dose escalation is the hematopoietic system. This is why...

Inventors: Miura; Daishiro (Tokyo, JP), Ogata; Shoko (Tokyo, JP), Koike; Yukiya (Tokyo, JP)
Assignee: Teijin Limited (Osaka, JP)
Date of First Priority Issue: Friday June 8th, 2001

Use of osteopontin for the treatment and/or prevention of neurologic diseases

Patent Number: 7,297,099

Osteopontin is a cytokine molecule that is involved in tumor metastasis and various immune functions. In the current invention, osteopontin is used to treat chemotherapy-induced neurotoxicity. This is essentially a next step from the previous work of the same inventors who previously patented the use of osteopontin for...

Inventors: Boschert; Ursula (Troinex, CH), Feger; Georg (Thoiry, FR), Selvaraju; Raghuram (Vandoeuvres, CH), Bernasconi; Lilia (Perly, CH), Papoian; Ruben (Cincinnati, OH)
Assignee: Laboratoires Serono SA (Coinsins, Vaud, CH)
Date of First Priority Issue: Thursday May 17th, 2001

Mammalian common lymphoid progenitor cell

Patent Number: 7,297,329

This patent covers "transplantation of lymphopoietic activity" into a mammal by the transfer of cells possessing "common lymphoid progenitor" activity. Essentially the claims state that this "common lymphoid progenitor" activity correlates with cells that are express low levels of c-kit, high levels of the alpha receptor for interleukin-7 and are lineage negative. This makes sense that it...

Inventors: Akashi; Koichi (Chestnut Hill, MA), Weissman; Irving L. (Redwood City, CA), Kondo; Motonari (Redwood City, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Friday August 15th, 1997

Methods of generating tissue using devitalized, acellular scaffold matrices derived from micro-organs

Patent Number: 7,297,540

In the area of stem cell biology many say that "microenvironment is everything". In the current patent, the inventors take this literally. They developed a method of taking tissue, decellularizing it, and using it as a scaffold for new stem cells to grow on. The invention covers such an approach for the generation of "mini-organs" or "micro-organs" including, small subsets of skin, lung...

Inventors: Mitrani; Eduardo N. (Jerusalem, IL)
Assignee: Yissum Research Development Company of the Hebrew University of Jerusalem (Jerusalem, IL)
Date of First Priority Issue: Monday January 15th, 2001

Medium for growing human embryonic stem cells

Patent Number: 7,297,539

One of the restrictions of tissue culture in general has been the need for fetal calf serum. No one has yet figured out what is the "magical mixture" of proteins and growth factors that allows fetal calf serum its properties to all for such effective growth of cells outside of the body. In fact, some other groups use horse serum, or cord...

Inventors: Mandalam; Ramkumar (Union City, CA), Xu; Chunhui (Cupertino, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Tuesday January 11th, 2000

Process for producing nerve stem cells, motor neurons, and GABAergic neurons from embryonic stem cells

Patent Number: 7,294,510

This patent covers the generation of neurons through inducing embryonic stem cells to differentiate using the noggin protein and combinations of noggin with other factors. Noggin is an antagonist of bone morphogenic proteins and has been demonstrated to regulate numerous stem cell activities in vivo. The patent

essentially teaches the use of noggin and ES cells for: -forming embryoid...
Inventors: Okano; Hideyuki (Tokyo, JP), Shimazaki; Takuya (Tokyo, JP)
Assignee: Japan Science and Technology Corporation (Kawaguchi-shi, JP)
Date of First Priority Issue: Friday March 30th, 2001

Isolation of inner cell mass for the establishment of human embryonic stem cell (hESC) lines

Patent Number: 7,294,508
Although the WARF/Geron patents have attracted much attention in recent history, many forget about the large embryonic stem cell patent portfolios that are being issued to institutions in countries such as Israel and India. The current patent, issued to the Indian stem cell giant Reliance, covers a method of generating embryonic stem cells that is significantly different then those covered by...
Inventors: Parikh; Firuza Rajesh (Mumbai, IN), Totey; Satish Mahadoerao (Mumbai, IN), Saxena; Shailaja Anupam (Mumbai, IN)
Assignee: Reliance Life Sciences Pvt. Ltd. (Mumbai, IN)
Date of First Priority Issue: Thursday August 23rd, 2001

Methods and compositions to treat myocardial conditions

Patent Number: 7,294,334
Myocardial infarctions cause massive lose of cardiac muscle, as well as cause numerous electrophysiological dysfunctions that can immediately or in the long-term lead to death. The current patent has 2 independent claims that deal with this. The first one teaches the application of a pacing therapy in the infarct area together with the percutaneous administration of porcine "donor cells...
Inventors: Michal; Eugene T. (San Francisco, CA), Ross; Jeffrey (Roseville, MN)
Assignee: Advanced Cardiovascular Systems, Inc. (Santa Clara, CA)
Date of First Priority Issue: Tuesday April 15th, 2003

Methods of using flt3-ligand in hematopoietic cell transplantation

Patent Number: 7,294,331
Flt3 ligand is a potent stimulator of hematopoietic stem cell proliferation. This cytokine has other effects as well, such as increasing the number of dendritic cells, particularly of the lyphoid phenotype. The current patent covers the use of Flt3 ligand in transplantation of hematopoietic stem cells. Particularly the administration of Flt3 ligand before introduction of hematopoietic...
Inventors: Lyman; Stewart D. (Seattle, WA), Beckmann; M. Patricia (Poulsbo, WA)
Assignee: Immunex Corporation (Thousand Oaks, CA)
Date of First Priority Issue: Monday March 7th, 1994

Genetic modification of male germ cells for generation of transgenic species and genetic therapies

Patent Number: 7,294,755
Usually transgenic animals are generated by ex vivo modification of female genetic materials and implantantion into a receptive recipient. In the current patent a different approach is taken to generation of transgenic or genetically modified animals. The patent covers the in vivo genetic modification of male gametes and subsequent mixture of the male genetic material with an unmodified female egg...
Inventors: Readhead; Carol W. (Pasadena, CA), Winston; Robert (London, GB)
Assignee: Cedars-Sinai Medical Center (Los Angeles, CA); Imperial College Innovations Ltd. (London, GB)
Date of First Priority Issue: Friday November 14th, 1997

Telomerase reverse transcriptase fragments and uses thereof

Patent Number: 7,294,708
Telomerase reverse transcriptase is an enzyme that transcribes the telomerase RNA component into telomeric DNA in order to replenish telomeric loss associated with cellular proliferation. The activity of telomerase is absent in most adult cells with the exception of stem cells and tumor cells. Accordingly, one possible method of blocking tumor cells is to inhibit their telomerase activity. Various...
Inventors: Huang; Jun Jian (Beijing, CN), Huang; Cui-Fen (Beijing, CN), Lin; Marie C. M. (Hong Kong, CN), Kung; Hsiang-Fu (Hong Kong, CN)
Assignee: Beijing Institute of Biotechnology (Beijing, CN); The University of Hong Kong (Hong Kong, CN)
Date of First Priority Issue: Friday May 31st, 2002

Growth factor therapy mobilization of stem cells into the peripheral blood

Patent Number: 7,291,597
This patent covers the use of inhalation therapy of cytokines (FGF-1,2 and VEGF) for mobilization of stem cells. The patent is similar to patent 7,288,521 which was discussed last week.
Inventors: Franco; Wayne P. (Rocky Hill, CT)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 4th, 2000

Preparation of a cell concentrate from a physiological solution

Patent Number: 7,291,450

The use of bone marrow mononuclear cells as a source of stem cells has been widely described in numerous medical procedures ranging from stimulation of angiogenesis in patients with peripheral artery disease to treatment of terminal liver failure, to treatment of heart disease. Unfortunately the use of...

Inventors: Sowemimo-Coker; Samuel O. (Dix Hills, NY), Scott; Marcus Lee (Memphis, TN), Long; Marc (Memphis, TN), Margerrison; Ed (Germantown, TN), Cooper; Michael B. (Memphis, TN)

Assignee: Smith & Nephew, Inc. (Memphis, TN); Pall Corporation (East Hills, NY)

Date of First Priority Issue: Wednesday December 10th, 2003

Cloning pigs using non-quiescent differentiated donor cells or nuclei

Patent Number: 7,291,764

Cloning and genetic manipulation of pigs is desirable not only for research uses but also for potential pharmaceuticals (ie generation of proteins in transgenic pig seminal fluid) as well as xenotransplantation of genetically modified pig organs into humans. Unfortunately cloning of pigs is more difficult than cloning of other species. In this patent methods of cloning pigs are provided...

Inventors: Stice; Steven L. (Belchertown, MA), Cibelli; Jose (Amherst, MA), Robl; James (Belchertown, MA), Golueke; Paul (Belchertown, MA)

Assignee: University of Massachusetts, a Public Institution of Higher Education of the Commonwealth of Massachusetts, as Represented by its Amherst Campus, Office of Vice Chancellor for Research at Amherst (Amherst, MA)

Date of First Priority Issue: Friday January 10th, 1997

Prevention of immunoreactivity by depleting or inhibiting antigen presenting cells

Patent Number: 7,288,255

Graft versus host disease occurs after administration of allogeneic hematopoietic stem cell grafts. Essentially, graft versus host represents contaminating T cells from the graft attacking various tissues of the recipient. In some cases graft versus host disease is lethal. In fact, graft versus host disease is one of the largest causes of hematopoietic stem cell transplant associated...

Inventors: Shlomchik; Warren D. (Stratford, CT), Shlomchik; Mark Jay (Woodbridge, CT), Emerson; Stephen G. (Wayne, PA)

Assignee: Yale University (New Haven, CT)

Date of First Priority Issue: Wednesday November 12th, 1997 1 Comment

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Growth factor therapy mobilization of stem cells into the peripheral blood

Patent Number: 7,288,521

This patent covers a new way of mobilizing stem cells. Stem cell mobilization is usually performed on the donor of a hematopoietic graft so that instead of needing to puncture the donor bones to get bone marrow, the stem cells are "forced" into circulation by administration of a growth factor. Conventionally mobilization of stem cells is performed by systemic administration of G-CSF. In the...

Inventors: Franco; Wayne P. (Rocky Hill, CT)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday April 6th, 2000

Antibody to stem cell factor

Patent Number: 7,285,640

This is a composition of matter patent on an antibody to stem cell factor. Since stem cell factor is involved in asthma, this is one of the proposed uses in the specification. Given that stem cell factor is also involved in numerous malignancies such as GIST, this patent may have many uses.

Inventors: Takeuchi; Toshihiko (Oakland, CA), Tomkinson; Adrian (Kensington, CA), Neben; Steven (Walnut Creek, CA)

Assignee: Bayer Corporation (Berkeley, CA)

Date of First Priority Issue: Monday December 17th, 2001

Medicament comprising HGF gene

Patent Number: 7,285,540

Stimulation of angiogenesis is a method of treating numerous diseases associated with lack of oxygen, or ischemia. While numerous methods of inducing angiogenesis have been attempted (FGF injection, VEGF gene therapy, etc), there is still a need in the art for methods of reproducibly stimulating formation of new blood vessel development for conditions such as myocardial ischemia and peripheral...

Inventors: Morishita; Ryuichi (Osaka, JP), Ogihara; Toshio (Mino, JP), Nakamura; Toshikazu (Takatsuki, JP), Tomita; Tetsuya (Toyonaka, JP), Ochi; Takahiro (Kobe, JP)

Assignee: AnGes MG, Inc. (Osaka, JP)

Date of First Priority Issue: Thursday August 22nd, 1996

Oligodendrocytes derived from human embryonic stem cells for remyelination and treatment of spinal cord injury

Patent Number: 7,285,415

The central nervous system is comprised of neurons and glia, with approximately ten times more glial cells than neurons. The function of glial cells is primarly to provide insulation(ie generation of myelin by oligodendrocytes), destroy pathogens/clear debris (microglia), provide structural support to neurons, as well as providing nutrients and growth factors. Astrocytes are the most...

Inventors: Keirstead; Hans S. (Irvine, CA), Nistor; Gabriel I. (Placentia, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Thursday July 11th, 2002

Isolation tool for viable c-kit expressing cells

Patent Number: 7,285,413

CD-117, otherwise known as c-kit, is the receptor for stem cell factor, a cytokine involved in stimulating a variety of stem cells to cycle. Although c-kit was originally described on hematopoietic stem cells, this receptor has recently been found on numerous stem cell types ranging from liver oval cells to pancreatic duct stem cells. Additionally, c-kit has been found on tumor stem...

Inventors: Wouters; Mira Maria Willy (Ham, BE), Smans; Karine Alfonsine Astrid (Hove, BE), Vanderwinden; Jean-Marie (Brussels, BE)

Assignee: Janssen Pharmaceutica N.V. (BE)

Date of First Priority Issue: Wednesday December 12th, 2001

Methods of promoting the growth or differentiation of hematopoietic stem or progenitor cells by non-muscle type cofilin

Patent Number: 7,282,201

One of the biggest payoffs in biotechnology has been development of therapeutics that modulate the hematopoietic stem cells. For example, agents such as EPO or G-CSF have become block-buster drugs for stimulation of erythropoiesis or granulopoiesis respectively. The current patent teaches a new way to stimulate hematopoiesis through administration of cofilin and sequences thereof. Cofilin...

Inventors: Miura; Kenju (Osaka, JP), Haruyama; Munetada (Hyogo, JP), Kodama; Shiho (Osaka, JP)

Assignee: Asubio Pharma Co., Ltd. (JP)

Date of First Priority Issue: Friday December 28th, 2001

Methods and compositions for directing cells to target organs

Patent Number: 7,282,222

This patent covers the use of various carbohydrate presenting molecules for increasing amount of stem cell homing to tissue where stem cell migration is desired. Specific molecules that attract the stem cells which are covered include asialoorosomucoid and orosomucoid. This patent could be used to not only augment currented CD34 stem cell therapy efficacy but also in combination with stem...

Inventors: Phillips; Catherine (Amarillo, TX)

Assignee: The United States of America as Represented by the Department of Veterans Affairs (Washington, DC)

Date of First Priority Issue: Friday March 15th, 2002

Hepatocytes for therapy and drug screening made from embryonic stem cells

Patent Number: 7,282,366

Medical advances of embryonic stem cells may indeed come initially from their use as research reagents before actually being developed as therapeutics. For example, few member of the public realize that practically all molecular biology was made possible by the mouse embryonic stem cell, which allowed for development of knockout and transgenic mice. In the current patent Geron covers methods...

Inventors: Rambhatla; Lakshmi (Redwood City, CA), Carpenter; Melissa K. (Castro Valley, CA)

Assignee: Geron Corporation (Menlo Park, CA)

Date of First Priority Issue: Thursday April 27th, 2000

22 Comments

Method of evaluating myelosuppressive state

Patent Number: 7,279,289

In the spirit of Labcorp v Metabolite this patent covers methods of assessing a phenomena and based on this assessment intervening appropriately. If you read the case you will see where we are going with this. The patent covers the monitoring of various hematopoietic cytokines in order to assess myelosuppression...

Inventors: Blumenthal; Rosalyn D. (West Orange, NJ), Goldenberg; David M. (Mendham, NJ)

Assignee: Center for Molecular Medicine and Immunology (Belleville, NJ)

Date of First Priority Issue: Friday January 29th, 1999

Methods and compositions for modulating telomerase reverse transcriptase (TERT) expression

Patent Number: 7,279,328

This patent covers a screening system for assaying small molecule libraries for telomerase stimulating activity. Specifically, the inventors have found that telomerase reverse transcriptase (TERT) activity can be modulated by agents that alter the binding interaction of the GC-Box 5 repressor site with a repressor protein

(or protein complex including the same). Using this system the inventors...
Inventors: Andrews; William H. (Reno, NV), Foster; Christopher A. (Carmichael, CA), Fraser; Stephanie (Sparks, NV), Mohammadpour; Hamid (Reno, NV), Briggs; Laura (Reno, NV)
Assignee: Sierra Sciences, Inc. (Reno, NV)
Date of First Priority Issue: Monday September 30th, 2002

Differentiation of bone marrow cells into neuronal cells and uses therefor

Patent Number: 7,279,331
This patent covers the differentiation of bone marrow stromal stem cells into neurons through the addition of antioxidants. The patent is limited to in vitro differentiation. Specific antioxidants that the inventors cover for the in vitro generation of neurons include beta-mercaptoethanol, dimethylsulfoxide, butylated hydroxytoluene, butylated hydroxyanisole, ascorbic acid, dimethylfumarate...
Inventors: Black; Ira B. (Skillman, NJ), Woodbury; Dale L. (Piscataway, NJ), Prockop; Darwin J. (New Orleans, LA), Schwarz; Emily (Chapel Hill, NC)
Assignee: Philadelphia Health and Education Corporation (Philadelphia, PA)
Date of First Priority Issue: Friday February 11th, 2000

Method of isolating ependymal neural stem cells

Patent Number: 7,279,332
It is believed that neural stem cells are found in large quantities in the ependyma (the thin epithelial membrane lining the ventricular system of the brain and the spinal cord canal). The ependyma is one of 4 types of neuroglia and its primary function is the production of cerebrospinal fluid. The current patent covers the assessment of test compounds for modulation of...
Inventors: Frisen; Jonas (Stockholm, SE), Janson; Ann Marie (Stockholm, SE), Johansson; Clas (Stockholm, SE), Momma; Stefan (Sp{dot over (a)}nga, SE), Clarke; Diana (Stockholm, SE), Zhao; Ming (Solna, SE), Lendahl; Urban (Sundbyberg, SE), Delfani; Kioumars (Solna, S
Assignee: NeuroNova AB (Stockholm, SE)
Date of First Priority Issue: Thursday June 25th, 1998

Osteogenesis-promotion enhancer and method of screening the same

Patent Number: 7,276,525
This patent covers 2 main concepts. The first is acceleration of osteogenesis through administration of a bone morphogenic protein together with an inhibitor of TGF-beta. The claims also go on to cover a specific chemical entitiy that inhibits TGF-beta. The second main part of the patent is claim 3 in which the screening of compounds that inhibit TGF-beta and thereby promote BMP-induced...
Inventors: Miyazono; Kohei (Shiki, JP), Imamura; Takeshi (Tokyo, JP), Maeda; Shingo (Tokyo, JP)
Assignee: Nippon Shinyaku Co. Ltd. (Kyoto, JP)
Date of First Priority Issue: Thursday June 5th, 2003

Stimulation of hematopoietic cells in vitro

Patent Number: 7,276,371
Ex vivo expansion of CD34 hematopoietic stem cells is a highly desired goal. If it was possible to effectively expand these cells, then not only would autologous hematopoietic stem cell transplants be more clinically successful, but also numerous ex vivo cellular therapies would be possible. Unfortunately, many companies have developed numerous ex vivo cell expansion methodologies for CD34 cells...
Inventors: Bachovchin; William (Melrose, MA), Wallner; Barbara P. (Cohasset, MA)
Assignee: Point Therapeutics, Inc. (Wellesley Hills, MA)
Date of First Priority Issue: Monday September 29th, 1997

Compositions and methods for inducing osteogenesis

Patent Number: 7,273,864
This is a composition of matter patent on a series of compounds capable of inducing generation of bone tissue by inducing maturation of bone precursor cells and/or inducing transdifferentiation. The examples section shows that treating mesenchymal stem cells in vitro with the compounds induces formation of osteocytes, as well as synergy with certain members of the bone morphogenic protein...
Inventors: Wu; Xu (San Diego, CA), Ding; Sheng (San Diego, CA), Gray; Nathanael S. (San Diego, CA)
Assignee: The Scripps Research Institute (La Jolla, CA)
Date of First Priority Issue: Tuesday October 15th, 2002

Human and mammalian stem cell-derived neuron survival factors

Patent Number: 7,273,725
This is a composition of matter patent covering polypeptide sequences for "Stem cell-Derived Neuron Survival Factors" (SDNSF). The polypeptides appear to be secretory and to represent natural factors that induce neural stem cell self-renewal and differentiation. In the examples section the inventors treated neurospheres with SDNSF and demonstrated increased number of cells expressing the...

Inventors: Honjo; Tasuku (Kyoto-shi, Kyoto, JP), Tashiro; Kei (Kyoto, JP), Takahashi; Jun (Kyoto, JP), Toda; Hiroki (Palo Alto, CA)
Assignee: Ono Pharmaceuticals Co., Ltd. (Osaka, JP); Honjo Tasuku (Kyoto, JP)
Date of First Priority Issue: Tuesday October 23rd, 2001

Industrial production of meat using cell culture methods

Patent Number: 7,270,829
This patent teaches what a friend of mine used to call the notion of "biobeef". The concept of generating edible meat through tissue culture. The patent has one independent claim which essentially covers the use of cultured cells to generate a three dimensional tissue that can be eaten that does not require "deboning, removal of offal and/or tendon and/or gristle and/or fat". This patent...
Inventors: Van Eelen; Willem Frederik (Amsterdam, NL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday December 18th, 1997 1 Comment

Method of concentrating and separating dopaminergic neurons

Patent Number: 7,270,998
Selection of cells with specific phenotypes is a critical part of the development of stem cell therapeutics. Several patents are issued on methods of selecting differentiated cells with a specific phenotype from a heterogenous population. In the current patent 5 independent claims are issued covering the isolation of dopamine producing cells by the selection of cells which have an active...
Inventors: Okano; Hideyuki (Osaka, JP), Sawamoto; Kazunobu (Osaka, JP), Kobayashi; Kazuto (Fukushima, JP), Matsushita; Natsuki (Fukushima, JP)
Assignee: Japan Science and Technology Corporation (Saitama, JP)
Date of First Priority Issue: Thursday December 7th, 2000

Compositions and methods for promoting tissue regeneration

Patent Number: 7,271,187
This patent has one issued claim covering treatment of bone marrow cells with a compound (N-[4-[4-fluorophenyl)sulfonyl]phenyl]acetamide) and subsequent administration of the treated cells as a remedy for spinal cord injury.
Inventors: Neuberger; Timothy J (Dobbs Ferry, NY), Herzberg; Uri (Guilford, CT), Mallon; Veronica (New City, NY)
Assignee: Assigned to inventors
Date of First Priority Issue: Thursday April 6th, 2000

Promoting cardiac cell differentiation

Patent Number: 7,271,254
This patent covers the composition of matter for the myofibrillogenesis-inducing RNA (MIR) molecule. MIR appears to be important for myofibrillogenesis (a stage in cardiogenesis) in a type of salamander called the Mexican axolotl. Since the claims cover composition of matter for a molecule found on a non-human species, it will be interesting to see how commercialization of this patent will be...
Inventors: Lemanski; Larry F. (Boynton Beach, FL), Zhang; Chi (Pompano Beach, FL)
Assignee: Florida Atlantic University (Boca Raton, FL)
Date of First Priority Issue: Thursday April 10th, 2003

Agents for preventing and treating thrombocytopenia

Patent Number: 7,268,110
Parathyroid hormone is a polypeptide secreted by the parathyroid gland in order to regulate calcium concentrations in the blood. Low calcium levels stimulate secretion of parathyroid hormone which in turn activates osteoclasts to release calcium deposits from bone. The use of parathyroid hormone to modulate stem cells has been demonstrated clinically by Ballen et al who showed that
Inventors: Tamura; Masahiko (Shizuoka-ken, JP), Oda; Yasuhiro (Nagano-ken, JP)
Assignee: Chugai Seiyaku Kabushiki Kaisha (Tokyo, JP)
Date of First Priority Issue: Thursday February 1st, 1996

Methods of promoting osteogenesis

Patent Number: 7,268,139
This patent covers the composition of matter for a small molecule inhibitor of p38 MAP kinase, as well as the use of these compounds for stimulation/acceleration of bone healing. Presumably since p38 is involved in inflammatory signaling, the inhibition of this pathway allows for regenerative activities to prevail, thus allowing healing unimpeded by inflammation. Indeed one of the claims does...
Inventors: Protter; Andrew A. (Palo Alto, CA), Liu; David Y. (Palo Alto, CA), O'Connor; Patrick (Farnwood, NJ)
Assignee: Scios, Inc. (Fremont, CA)
Date of First Priority Issue: Thursday August 29th, 2002

Human foreskin fibroblasts for culturing ES cells

Patent Number: 7,267,981

Human embryonic stem cells were classically grown on mouse feeder layers. Unfortunately these cells can not be clinically used since numerous adventitious viruses and infectious agents exist that theoretically can infect humans. The current patent teaches the use of human foreskin fibroblasts as feeder layers for growing embryonic stem cells. Foreskin fibroblasts are conventionally used for...

Inventors: Amit; Michal (Misgav, IL), Itskovitz-Eldor; Joseph (Haifa, IL)

Assignee: Technion Research & Development Foundation Ltd. (Haifa, IL)

Date of First Priority Issue: Monday October 7th, 2002

Treatment for wounds

Patent Number: 7,262,174

The use of epithelial cells (such as fibroblasts) transfected with telomerase for acceleration of wound healing is covered by this patent. This invention is conceptually attractive, however the possible effects of telomerase transfection in terms of immortalization of cells showed be consided. Since wounds already express inflammatory mediators such as free radicals (which damage DNA), would not...

Inventors: Jiang; Xu-Rong (Mountain View, CA), Chiu; Choy-Pik (Cupertino, CA), Harley; Calvin B. (Palo Alto, CA)

Assignee: Geron Corporation (Menlo Park, CA)

Date of First Priority Issue: Wednesday May 9th, 2001

Synthetic oligonucleotides as inducers of erythroid differentiation

Patent Number: 7,262,175

This patent covers synthetic oligonucleotides (composition of matter) derived from promoter of gamma globulin, which stimulate erthrocytic differentiation. The patent is useful for treatment of patients post chemotherapy increase hemoglobin counts, and also for development of in vitro erythrocyte culture systems. The mechanism by which these oligonucleotides work appears unclear.

Inventors: Bianchi; Nicoletta (Mezzogoro, IT), Feriotto; Giordana (Occhiobello, IT), Gambari; Roberto (Bologna, IT), Mischiati; Carlo (Occhiobello, IT)

Assignee: Universita' Degli Studi Di Ferrara (Ferrara, IT)

Date of First Priority Issue: Saturday May 13th, 2000

Numb protein expression inhibitors by Musashi

Patent Number: 7,264,793

Musashi is a protein found on stem cells of the neural lineage. This patent covers the administration of Musashi to increase proliferation of neural stem cells. The patent also covers the use of Musashi to inhibit the repressor of Notch signalling Numb and thereby sensitize neural stem cells to proliferative/expansionive signals.

Inventors: Imai; Takao (Tokyo, JP), Tokunaga; Akinori (Tokyo, JP), Yoshida; Tetsu (Tokyo, JP), Mikoshiba; Katsuhiko (Tokyo, JP), Nakafuku; Masato (Tokyo, JP), Okano; Hideyuki (Tokyo, JP)

Assignee: Japan Science and Technology Corporation (Kawaguchi-shi, JP)

Date of First Priority Issue: Thursday May 31st, 2001

Method of inducing and maintaining neuronal cells

Patent Number: 7,264,968

This patent covers methods of generating cells with a neuronal phenotype from cells that possess the activin receptor. Specifically, the invention provides the finding that ectodermal tissue can be induced to differentiate into neuronal tissues by inhibiting signaling of the activin receptor. This patent has very broad reaching consequences since conceptually it covers activin receptor...

Inventors: Melton; Douglas A. (Lexington, MA), Hemmati-Brivanlou; Ali (New York, NY)

Assignee: President and Fellows of Harvard College (Cambridge, MA)

Date of First Priority Issue: Tuesday October 14th, 2003

Telomerizing nuclear donor cells and improving the efficiency on nuclear transfer

Patent Number: 7,265,262

This patent covers methods of generating transgenic animals through the use of donor cells that express the telomerase reverse transcriptase. The expression of telomerase in the donor cell apparently increases the efficacy of cloning. There are 4 independent claims in the patent, all covering "a method for generating transgenic non-primate mammals by nuclear transfer", and all containing...

Inventors: Clark; A. John (Midlothian, GB), Cui; Wei (Midlothian, GB), Denning; Chris (Loughborough, GB), Zhao; Debbiao (Midlothian, GB)

Assignee: Roslin Institute (Edinburgh) (Roslin, Midlothian, GB)

Date of First Priority Issue: Wednesday March 21st, 2001

Pluripotent adult stem cells

Patent Number: 7,259,011

This patent covers a stem cell that is positive for expression of CD13, CD34, CD56 and CD117, negative for CD10. Dependent claims further cover the

phenotype of CD2, CD5, CD14, CD19, CD33, CD45, and DRII negative, CD13,CD34, CD56, CD90, CD117 positive, and CD2, CD3, CD10, CD14, CD16, CD31, CD33, CD45 and CD64 negative. The stem cell can be derived from the muscle or bone marrow. The...
Inventors: Lucas; Paul (Poughkeepsie, NY), Schultz; Sherri (Katonah, NY), Pine; Sharon P. (Montgomery Village, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday May 20th, 2004

Neuroprotective peptides

Patent Number: 7,259,146
This patent covers specific peptides derived from erythropoietin, as well as from other molecules, that have ability to increase neurite outgrowth in cell culture. Specifically, the claims appear to be restricted only to a method of increasing neurite outgrowth in cell culture. The neuroprotective roles of erythropoietin have been known for many years and have been assessed and are being...
Inventors: Smith-Swintosky; Virginia (Hatfield, PA), Renzi; Michael (Harleysville, PA), Plata-Salaman; Carlos (Ambler, PA), Jolliffe; Linda (Belle Mead, PA), Farrell; Francis (Doylestown, PA), Johnson; Dana (Upper Black Eddy, PA)
Assignee: Ortho-McNeil Pharmaceutical, Inc. (Raritan, NJ)
Date of First Priority Issue: Friday May 26th, 2000

Isolation, selection and propagation of animal transgenic stem cells

Patent Number: 7,256,041
This patent covers the use of genetic markers to "fish out" stem cells from a heterogeneous population. Essentially, the patent teaches: 1. Culturing mammalian cells with a construct in which a selectable marker is turned on by a promoter which is only active in stem cells. 2. Isolating stem cells based on the selectable marker. This is a very broad patent !!
Inventors: Smith; Austin Gerard (Edinburgh, GB), Mountford; Peter Scott (Melbourne, AU)
Assignee: The University of Edinburgh (Edinburgh, GB)
Date of First Priority Issue: Wednesday April 21st, 1993

Post-partum mammalian placenta, its use and placental stem cells therefrom

Patent Number: 7,255,879
This patent covers a mesenchymal-like stem cell obtained by first flushing a placenta so that cord blood is substantially cleared, and subsequently perfusing the placenta to collect cells that are CD34 negative and have stem cell properties. The cell type covered appears to be: positive for one or more of the following markers: SH2, SH3, SH4, CD10, CD29, CD44, CD54, CD90, and OCT-4, AND...
Inventors: Hariri; Robert J. (Florham Park, NJ)
Assignee: Anthrogenesis Corporation (Cedar Knolls, NJ)
Date of First Priority Issue: Wednesday December 6th, 2000

Methods for cloning non-human mammals using reprogrammed donor chromatin or donor cells

Patent Number: 7,253,334
This patent covers the use of epigenetically reprogramming a donor nucleus prior to cloning. Essentially Collas uses methods he previously described as able to induce dedifferentiation of adult cells. In previous papers, Collas demonstrated that tranfering cytoplasm from a T cell into a fibroblast (through temporarily permeabilizing the fibroblast), will allow the fibroblast to express T cell...
Inventors: Collas; Philippe (Oslo, NO), Robl; James M. (Belchertown, MA), Sullivan; Eddie (Manhattan, KS), Kasinathan; Poothappillai (Brandon, SD)
Assignee: Aurox, LLC (Westport, CT)
Date of First Priority Issue: Friday December 21st, 2001

Oral compositions for white blood cell activation and proliferation

Patent Number: 7,256,026
This patent covers an "activated yeast" preparation that is useful for stimulating production of white blood cells. The activation of the yeast cells is described using various electromagnetic fields. Interestingly, the yeast may be orally administered for augmentation of white blood cell number and activity. This is particularly useful for the treatment of immune suppressed patients either...
Inventors: Cheung; Ling Yuk (Hong Kong, HK)
Assignee: Ultra Biotech Limited (Douglas, IM)
Date of First Priority Issue: Friday June 28th, 2002

Process for making hepatocytes from pluripotent stem cells

Patent Number: 7,256,042
This patent covers methods of differentiating embryonic stem cells into hepatocytes. Hepatocytes are very attractive since they can be used as a single cell therapy for restoring cirrhotic livers. The patent covers the use of the differentiation agents:sodium butyrate, n-butyric acid, trichosratin A, propionic acid, isobutyric acid, and isovaleric acid for generating hepatocytes. The patent...

Inventors: Rambhatla; Lakshmi (Redwood City, CA), Carpenter; Melissa K. (Castro Valley, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday April 27th, 2000

2 Comments

Method of generating neurons from stem cells and medium for culturing stem cells

Patent Number: 7,252,995

This patent covers the use of medium obtained from the supernatant of cultured hippocampal neurons for use in the induction of neural differentiation of stem cells. The stem cells that can be differentiated into neurons by culture in the media include: - Embryonic stem cells - Embryonic germ cells - Embryonic carcinoma - Bone marrow stromal cells - Bone marrow hematopoietic cells...

Inventors: Fu; Yu-Show (Taipei, TW), Cheng; Henrich (Taipei, TW)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday December 13th, 2002

1 Comment

Quantitative RT-PCR to AC133 to diagnose cancer and monitor angiogenic activity in a cell sample

Patent Number: 7,252,976

Based on the title, one would think that this patent covers global use of PCR amplifying for CD133 transcripts in order to detect angiogenic propensity in a host. If this were the case, then the patent indeed would be very strong. The patent, however, is restricted to covering the diagnosis of colorectal cancer using PCR amplification of CD133 transcripts in peripheral blood. This...

Inventors: Lin; Edward H. (Houston, TX), Wu; Xifeng (Pearland, TX), Xie; Keping (Pearland, TX)
Assignee: Board of Regents the University of Texas System (Austin, TX)
Date of First Priority Issue: Wednesday August 28th, 2002

Screening small molecule drugs using neural cells differentiated from human embryonic stem cells

Patent Number: 7,250,294

When people wonder why Geron's valuation is so high (half a billion) even though they are far from the clinic...well the answer is strong IP such as the current patent. This patent blocks anyone from differentiating neurons from embryonic stem cells and using them to screen compounds for: 1. toxicity 2. viability in culture 3. induction of alterations in neurotransmitter synthesis...

Inventors: Carpenter; Melissa K. (Castro Valley, CA), Denham; Jerrod J. (San Francisco, CA), Inokuma; Margaret S. (San Jose, CA), Thies; R. Scott (Pleasanton, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Wednesday May 17th, 2000

Methods for identifying compounds which modulate hematopoiesis

Patent Number: 7,250,262

This patent covers the monitoring of numerous genes as a marker of hematopoietic stem cells proliferation, differentiation, and/or induction into apoptosis. This patent is useful for screening of compounds for potential hematopoietic modulatory activity, as well as in vivo assessment of drugs. Particularly, in clinical trials it is better if some of these "biomarkers" can be prognostic of upcoming...

Inventors: Carroll; Joseph M. (Cambridge, MA), Healy; Aileen (Medford, MA), Weich; Nadine S. (Brookline, MA), Kelly; Louise M. (Brookline, MA)
Assignee: Bayerhealth Care AG (Leverkusen, DE)
Date of First Priority Issue: Monday February 4th, 2002

Genes with ES cell-specific expression

Patent Number: 7,250,255

Genes associated with pluripotency, or "stemness" are very important not only from a scientific research perspective, but also from the perspective of clinically developing stem cell therapeutics. Specifically, during clinical development of any biological, it is important to possess numerous quality control assays. The current patent covers a novel gene whose expression seems to be...

Inventors: Yamanaka; Shinya (Osaka-shi 543-0033, JP)
Assignee: Yamanaka Shinya (Osaka, JP); Dainippon Sumitomo Pharma Co., Ltd. (Osaka, JP)
Date of First Priority Issue: Thursday May 31st, 2001

Antibody recognizing a small subset of human hematopoietic cells

Patent Number: 7,247,718

This patent covers an antibody that binds CD34 cells called MG-1. This is a useful patent for people trying to circumvent Baxter's CD34 patent or Miltenyi's CD133.

Inventors: Lawman; Michael J. P. (Chipley, FL), Lawman; Patricia (Chipley, FL)
Assignee: Morphogenesis, Inc. (Oldsmar, FL)
Date of First Priority Issue: Wednesday November 13th, 1996

Method for producing dendritic cells

Patent Number: 7,247,480

Dendritic cells are one of the most important cells of the immune system, having the unique ability to stimulate naive T cells. Additionally, under specific conditions, dendritic cells can give rise to T regulatory cells and dampen immune responses. The current patent teaches ways of generating dendritic cells from embryonic stem cells by culturing embryoid bodies with IL-3 and/or GM-CSF.

Inventors: Waldmann; Herman (Oxford, GB), Fairchild; Paul J. (Oxford, GB), Gardner; Richard (Oxford, GB), Brook; Frances (Oxford, GB)

Assignee: ISIS Innovation Limited (Oxford, GB)

Date of First Priority Issue: Thursday November 5th, 1998

Pigment epithelial cell of the eye, its production and use in therapy of an eye or CNS disease

Patent Number: 7,247,479

This patent covers a method for producing a pigment epithelial cell of the eye through in vivo transfection of therapeutic genes such as neurotrophic factors, antiangiogenic factors, antioxidative factors, lysosomal factors, and/or vasodilating factors.

Inventors: Kochanek; Stefan (Koln, DE), Schraermeyer; Ulrich (Neuss, DE), Thumann; Gabriele (Koln, DE)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday February 21st, 2001

Methods for the in-vitro identification, isolation and differentiation of vasculogenic progenitor cells

Patent Number: 7,247,477

The patent covers generation of angiogenic cells from embryonic stem cells using a novel method. Specifically the patent covers a way to generate such angiogenic cells by: 1) culturing individual ES cells in an unaggregated state under conditions that induce differentiation into vasculagenic progenitors (the claim is not limited by what those conditions are!) 2) isolating cells smaller...

Inventors: Itskovitz-Eldor; Joseph (Haifa, IL), Gerecht-Nir; Sharon (Haifa, IL)

Assignee: Technion Research & Development Foundation Ltd. (Haifa, IL)

Date of First Priority Issue: Tuesday April 16th, 2002

Treatment of brain damage

Patent Number: 7,247,298

This patent covers the use of neuroepithelial stem cells for treating brain damage. The claims specifically encompass conditionally immortalized cells and their administration into areas contra-lateral to the region where brain damage as occured. The point the the cells have activity when administered in the contralateral region is very interesting. The patent specifically defines...

Inventors: Hodges; Helen (London, GB)

Assignee: ReNeuron Limited (GB)

Date of First Priority Issue: Monday March 29th, 1999

Recombinant human albumin fusion proteins with long-lasting biological effects

Patent Number: 7,244,833

This patent covers novel vectors for generating fusion proteins comprising one or more regions of the human albumin protein. The patent covers specific nucleotide sequences and most notable albumin-G-CSF fusions that have 5 times longer self life as compared to unmodified G-CSF and at least 3 fold longer half life in plasma. This patent is useful for entities seeking the generate recombinant...

Inventors: Yu; Zailin (Baltimore, MD), Fu; Yan (Baltimore, MD)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Sunday July 1st, 2001

Valve treatment catheter and methods

Patent Number: 7,244,242

This patent covers a deliver catheter for treatment of various heart conditions, especially valvular degeneration. The catheter is designed in such a method that stem cell administration can be performed with it.

Inventors: Freyman; Toby (Watertown, MA)

Assignee: Boston Scientific Scimed, Inc. (Maple Grove, MN)

Date of First Priority Issue: Monday December 30th, 2002

Regulation of cytotrophoblast cell differentiation and cell migration

Patent Number: 7,244,707

Although this patent describes modulation of stem cell migration in the specification, the claims are restricted to the regulation of placental size. Specifically, the patent claims the use of IGF-2 to augment "placental growth, placental function, placental development and placental differentiation" in a mammal. The inventors appear to be the first to discover that IGF-2 outcompetes latent...

Inventors: Roberts; Claire (Adelaide, AU), Owens; Phillip (Cheongju, KR)

Assignee: Adelaide Research & Innovation Pty Ltd (South Australia, AU)

Date of First Priority Issue: Friday August 30th, 2002

Thrombopoietin mimetics

Patent Number: 7,241,783

Thrombopenia, induced by chemotherapy, malignancy or radiotherapy is a substantial clinical problem. Protein therapeutics such as G-CSF have been developed and clinically implimented to deal with leukopenia. Similarly, thrombopoietin is under development as a treatment for thrombopenia. Unfortunately, various characteristics of the whole protein make it not an optimal treatment. The current patent...

Inventors: Duffy; Kevin J. (Collegeville, PA), Luengo; Juan I. (Collegeville, PA), Miller; Stephen G. (San Diego, CA), Jenkins; Julian (Collegeville, PA), Price; Alan T. (Collegeville, PA), Shaw; Antony N. (Collegeville, PA)

Assignee: SmithKline Beecham Corporation (Philadelphia, PA); Ligand Pharmaceutical (San Diego, CA)

Date of First Priority Issue: Tuesday December 19th, 2000

Methods and compositions for modulating sphingosine-1-phosphate (S1P) receptor activity

Patent Number: 7,241,812

It is known that Sphingosine-1-phosphate mediates migration of mesenchymal stem cells. However, there are numerous receptors by which the effects of sphingosine-1-phosphate are mediated. While the sphingosine-1-phosphate receptor 1 is associated with migration, other activation of other receptors (such as sphingosine-1-phosphate receptors...

Inventors: Saha; Ashis K. (Stow, MA), Kavarana; Malcolm J. (Burlington, MA), Evindar; Ghotas (Waltham, MA), Satz; Alexander L. (Needham, MA), Morgan; Barry (Franklin, MA)

Assignee: Praecis Pharmaceuticals, Inc. (Waltham, MA)

Date of First Priority Issue: Friday August 13th, 2004

Polypeptides that induce cell proliferation or induce fetal hemoglobin

Patent Number: 7,241,862

This patent covers several amino acid and nucleotide sequences which are useful for modificatin of cellular differentiation and expansion. The claims refer to several sequence IDs, whereas the specification describes what appears to be numerous disjointed compositions of matter, uses, and formulations. For example, the patent specification talks about cadherins, then IL-17, then semaphorins...

Inventors: Eaton; Dan L. (San Rafael, CA), Goddard; Audrey (San Francisco, CA), Godowski; Paul J. (Hillsborough, CA), Gurney; Austin L. (Belmont, CA), Pan; James (Belmont, CA), Watanabe; Colin K. (Moraga, CA), Wood; William I. (Hillsborough, CA)

Assignee: Genentech, Inc. (South San Francisco, CA)

Date of First Priority Issue: Tuesday April 27th, 1999

Assessing the condition of a joint and devising treatment

Patent Number: 7,239,908

In stem cell therapy it is not only important to have the right types of stem cells, but it is just as important to know the proper indication and stage of the progression of the indication when intervention is most likely to yeild benefit. This is what the current patent is covering in the area of joint degeneration. The patent covers very interesting methodologies for convering MRI and other...

Inventors: Alexander; Eugene J. (Palo Alto, CA), Andriacchi; Thomas P. (Los Altos Hills, CA), Lang; Philipp (Redwood City, CA), Steines; Daniel (Palo Alto, CA)

Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)

Date of First Priority Issue: Wednesday December 16th, 1998 1 Comment

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Cationic liposome delivery of taxanes to angiogenic blood vessels

Patent Number: 7,238,369

Tumors are highly dependent on angiogenesis. The stem cell compartment is believed to supply circulating angioblasts which leave the bone marrow and home into tumors to support formation of new blood vessels. This patent covers a unique method of specifically targeting chemotherapeutic taxanes to areas of angioblast mediated angiogenesis through the use of cationic lipids. The patent is...

Inventors: McDonald; Donald M. (San Francisco, CA), McLean; John W. (Redwood City, CA), Thurston; O. Gavin (San Francisco, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Wednesday March 12th, 1997

Methods and compositions for diagnosing and monitoring transplant rejection

Patent Number: 7,235,358

As science progresses to the point of inducing specific differentiation of cellular products from embryonic stem cells, the issue of allogeneic rejection will have to be dealt with. This specific patent provides various inflammatory markers that are useful for knowing when a rejection episode will occur. By identifying when a transplanted cellular product starts undergoing rejection, it is...

Inventors: Wohlgemuth; Jay (Palo Alto, CA), Fry; Kirk (Palo Alto, CA), Woodward; Robert (Pleasanton, CA),

Ly; Ngoc (Albany, CA), Prentice; James (San Francisco, TX)
Assignee: Expression Diagnostics, Inc. (South San Francisco, CA)
Date of First Priority Issue: Friday June 8th, 2001

Brain cell or nerve cell-protecting agents comprising medicinal ginseng

Patent Number: 7,235,267

Numerous people believe that natural remedies are not patentable. This is not correct. In this specific patent, the use of ginsenoside Rb1 for acceleration of post CNS-infarct healing is covered. While numerous ginseng components have been known to have neuroprotective activities, this patent overcomes obviousness challenges by claiming only specific chemical structures and dosing...
Inventors: Sakanaka; Masahiro (Ehime, JP), Maeda; Nobuji (Ehime, JP), Tanaka; Junya (Ehime, JP), Nakata; Kimihiko (Ehime, JP)
Assignee: Japan Science and Technology Corporation (Saitama, JP)
Date of First Priority Issue: Monday August 30th, 1999

Cloning ungulates from a quiescent donor cell

Patent Number: 7,232,938

This is one of the original cloning patents from the inventor of Dolly the sheep :) It covers a method of cloning an ungulate comprising: (i) providing a quiescent ungulate cell as a diploid donor cell; (ii) fusing the diploid donor cell to an enucleated oocyte recipient of the same species as the donor cell, thereby obtaining a reconstituted cell; (iii) activating the oocyte...
Inventors: Campbell; Keith Henry Stockman (Midlothian, GB), Wilmut; Ian (Midlothian, GB)
Assignee: Roslin Institute (Midlothian, GB)
Date of First Priority Issue: Thursday August 31st, 1995

Neuroprotection and neuroegenisis by administering cyclic prolyl glycine

Patent Number: 7,232,798

This invention relates to the discovery of the functions of cyclic Propyl Glycine as a novel antagonist that either blocks the AMPA and/or the NMDA receptors. Since agonism of these receptors is associated with excitotoxic neuronal death, the invention covers the use of cyclic propyl glycine as a neuroprotectant in a variety of settings including stroke and neurodegenerative diseases. The...
Inventors: Tran; Loi H. (Elk Grove, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday November 13th, 2001

Process for ex vivo formation of mammalian bone and uses thereof

Patent Number: 7,229,826

This patent covers a method of identifying genes associated with generation of bone tissue. The one issued claim covers the growth of a bone progenitor cell in media containing one or more members of the TGF family, and then assessing gene expression modification as the bone progenitor cells are differentiating into bone.
Inventors: Kale; Sujata (Boston, MA), Long; Michael W. (Northville, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Tuesday December 28th, 1999

Method for differentiating mesenchymal stem cells into neural cells

Patent Number: 7,229,827

Mesenchymal stem cells are currently in Phase III of clinical trials by companies such as Osiris. Additionally, numerous academic institutions are conducting clinical trials for mesenchymal stem cells. The current patent covers the differentiation of mesenchymal stem cells into neurons by culture with FGF-2, HGF, and EGF. This...
Inventors: Kim; Hyun-Soo (Suwon, KR), Yoon; Hee-Hoon (Incheon, KR)
Assignee: FCB-Pharmicell Co., Ltd. (KR); LifeCord International Co., Ltd. (KR)
Date of First Priority Issue: Thursday April 19th, 2001

Methods of using deacetylase inhibitors to promote cell differentiation and regeneration

Patent Number: 7,229,963

The use of histone deacetylase inhibitors for inducing new gene expression of genes that are developmentally silenced is a very exciting method of "reactivating" stem cells. For example, the histone deacetylase inhibitor valproic acid is a clinically used agent that stimulates stem cell expansion. The current patent teaches ways of...
Inventors: Sartorelli; Vittorio (Bethesda, MD), Puri; Pier Lorenzo (San Diego, CA)
Assignee: United States of America as represented by the Secretary of the Department of of Health Services, National Institutes of Health (Washington, DC)
Date of First Priority Issue: Thursday October 18th, 2001

Use of VEGF and homologues to treat neuron disorders

Patent Number: 7,226,908

ALS is a neurodegenerative motor disease for which no curative therapies exist. Additionally, little is known as to what even causes this condition. Although in familial ALS (accounts for 10% of cases) about 20% of patients have a mutation in the enzyme superoxide dismutase, the meaning of this is relatively unknown. The current...

Inventors: Carmeliet; Peter (Landen, BE), Collen; Dee (Winksele, BE), Oosthuyse; Bert (Horml, BE)

Assignee: Vlaams Interuniversitair Instituut Voor Biotechnologie VZW (Ghent, BE)

Date of First Priority Issue: Thursday April 12th, 2001

Cell surface expressed marker of pluripotency

Patent Number: 7,226,994

This patent covers the composition of matter for two markers that are widely used for detecting germ cells. The markers being Fragilis and Stella. These are found also in embryonic stem cells and primordial germ cells. The patent is useful for development of laboratory reagents, as well as clinically developing methods of isolating specific cell populations.

Inventors: Saitou; Mitinori (Cambridge, GB), Surani; Azim (Cambridge, GB)

Assignee: Cambridge University Technical Services Limited (GB)

Date of First Priority Issue: Thursday January 18th, 2001

Use of vascular endothelial growth factor to treat photoreceptor cells

Patent Number: 7,223,724

Macular degeneration and various other types of ocular pathology are usually associated with uncontrolled proliferation of blood vessels near the retina. The covering of nerves by new blood vessels usually causes dysfunction of the nerves and in some cases blindness. It is known that the compound VEGF is associated with pathological angiogenesis, and accordingly, the prior art would teach away...

Inventors: Alderson; Ralph (Gaithersburg, MD), Melder; Robert (Boyds, MD), Roschke; Viktor (Rockville, MD), Ruben; Steven M. (Olney, MD), Rosen; Craig A. (Laytonsville, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Monday February 8th, 1999

Inhibitors of proteasomal activity for stimulating hair growth

Patent Number: 7,223,554

This patent covers the composition of matter for several inhibitors of proteasomal activity including inhibitors of the chymotrypsin-like activity, and NF-KB inhibitors that stimulate hair growth. The invention has demonstrated efficacy in several animal models and is currently being developed by the San Francisco company Neosil. One wonders whether inhibition of inflammation-associated...

Inventors: Garrett; I. Ross (San Antonio, TX), Rossini; Jorge Gianny (San Antonio, TX), Gutierrez; Gloria (San Antonio, TX)

Assignee: Osteoscreen, Ltd. (San Antonio, TX)

Date of First Priority Issue: Friday July 10th, 1998

Silica-calcium phosphate bioactive composite for improved synthetic graft resorbability and tissue regeneration

Patent Number: 7,223,414

Delivery of growth factors along with stem cells is an important component of therapeutic regeneration. The current patent describes new resorbable silica-calcium phosphate bioactive composites that are useful for delayed release of various pharmaceuticals, including growth factors. Potential growth factors useful with this invention include administration of G-CSF with stem cells locally to...

Inventors: El-Ghannam; Ahmed (Lexington, KY)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday May 3rd, 2002

Compositions for identification and isolation of stem cells

Patent Number: 7,223,549

This patent covers several antibodies that specifically bind ectodermally-derived stem cell but have weaker affinity for stem cells of mesodermal and endodermal origin. The antibodies seem to bind prostate and liver stem cells but not dermal stem cells. The antibodies are deposited with ATTC and are commercially available. Unfortunately, the ligand for the antibodies was not...

Inventors: Makarovskiy; Andrew N. (Mendon, MA)

Assignee: Marakovskiy Andrew N. (Mendon, MA)

Date of First Priority Issue: Monday May 22nd, 2000

Compositions for controlling hair growth

Patent Number: 7,223,562

This patent covers a novel protein called follicular papilla-1 (FP-1), that is selectively expressed in follicular papilla but not in dermal fibroblasts. The patent covers the FP-1 composition of matter, as well as vectors expressing it, cells expressing it, and specific sequences. FP-1 is essential for hair growth has demonstrated by siRNA and antibody inhibition experiments. Additionally...

Inventors: Sun; Tung-Tien (Dobbs Ferry, NY), Cao; Qiong (Boston, MA)

Assignee: New York University (New York, NY)

Date of First Priority Issue: Monday March 31st, 2003

Method of making embryoid bodies from primate embryonic stem cells

Patent Number: 7,220,584

This patent is an example of how a good patent strategy is executed. WARF has filed originally patents on the actual embryonic stem cells and their composition of matter. One of the best ways of differentiating cells from embryonic stem cells involves growing the embryonic stem cells as embryoid bodies, then subsequently digesting the embryoid body and collecting the cells you need. Optionally...

Inventors: Thomson; James A (Madison, WI), Marshall; Vivienne S. (Madison, WI), Swiergiel; Jennifer J. (Roscoe, IL)

Assignee: Wisconsin Alumni Research Foundation (Madison, WI)

Date of First Priority Issue: Monday February 21st, 2000

Stem cells that transform to beating cardiomyocytes

Patent Number: 7,220,582

Inventors: Epstein; Neal D. (Chevy Chase, MD), Gopal; Thiru V. (North Potomac, MD), Winitsky; Steve O. (Bethesda, MD), Hassanzadeh; Shahin (Fairfax, VA)

Assignee: United States of America as represented by the Secretary of the Department of Health and Human Services (Washington, DC)

Date of First Priority Issue: Monday October 22nd, 2001

Method of preparing an undifferentiated cell

Patent Number: 7,220,412

This patent covers the use of anti-MHC antibodies to induce "retrodifferentiation" of peripheral blood cells into CD34 hematopoietic stem cells. If there is even a shred of evidence that the concepts put forth in this patent are real, then the inventors are sitting on a gold mine. However, with exception to publications in very very low impact journals only by the authors of the patent, we...

Inventors: Abuljadayel; Ilham Saleh (London, GB)

Assignee: Ghazi Jaswinder Dhoot (London, GB)

Date of First Priority Issue: Wednesday January 31st, 1996

G-CSF therapy as an adjunct to reperfusion therapy in the treatment of acute myocardial infarction

Patent Number: 7,220,407

Subsequent to myocardial infarction, cells of the injured myocardium release a variety of cytokines and mediators that are involved in mobilizing endogenous bone marrow stem cells and inducing their migration to the area of myocardial injury. One cytokine released is G-CSF, which in addition to possessing hematopoietic functions also is a great mobilizer of stem cells. In the current...

Inventors: Mehta; Jayesh (Chicago, IL), Singhal; Seema (Chicago, IL), Davidson; Charles (Winnetka, IL), Beohar; Nirat (Chicago, IL), Bonow; Robert (Glencoe, IL)

Assignee: Amgen Inc. (Thousand Oaks, CA)

Date of First Priority Issue: Monday October 27th, 2003

Enriched central nervous system stem cell and progenitor cell populations, and methods for identifying, isolating and enriching for such populations

Patent Number: 7,217,565

This patent covers the isolation of neural stem cells, primarily from human fetal origin. These stem cells are purified by 2 steps. First the fetal cells are bound to the antibody 8G1 and then they are further purified for expression of AC133 and 5E12. This patent is similar to several others from the same family such as Patent...

Inventors: Buck; David W. (Eugene, OR), Uchida; Nobuko (Palo Alto, CA), Weissman; Irving (Redwood City, CA)

Assignee: StemCells California, Inc. (Palo Alto, CA)

Date of First Priority Issue: Friday February 12th, 1999

Methods of identifying and isolating stem cells and cancer stem cells

Patent Number: 7,217,568

This patent teaches that tumor stem cells can be extracted population of non-stem cells by selecting for the cells which have activation of the transcription factor LEF/TCF and/or the beta.-catenin pathway. This patent essentially takes a pathway that is known to be activated in non-malignant sttem cells and simply applies it to malignant stem cells. Some may argue that in light of KSR v...

Inventors: Jamieson; Catriona Helen M. (Palo Alto, CA), Ailles; Laurie Elizabeth (Stanford, CA), Reya; Tannishtha (Mountain View, CA), Weissman; Irving L. (Redwood City, CA)

Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)

Date of First Priority Issue: Friday May 30th, 2003

Clonal cultures of primate embryonic stem cells

Patent Number: 7,217,569

This patent covers ways to generate "clonal" embryonic stem cell lines. At face value this specification does not seem to offer anything new in comparison to the previous WARF patents.

Inventors: Thomson; James A (Madison, WI)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday March 9th, 2000

Use of osteopontin for the treatment and/or prevention of neurologic diseases

Patent Number: 7,217,687

Osteopontin, is a protein also called cytokine Eta-1, which contains Arg-Gly-Asp-Ser (RGDS) cell-binding sequences. Osteopontin is associated with cancer metastasis, as well as inflammatory immune cell migration, it interacts with alpha(v)beta1, alpha(v)beta3 and alpha(v)beta5 integrins and CD44 receptors. The current patent covers the use of osteopontin and various derivatives for treatment...

Inventors: Boschert; Ursula (Troinex, CH), Feger; Georg (Thoiry, FR), Selvaraju; Raghuram (Vandoeuvres, CH), Bernasconi; Lilia (Perly, CH), Papoian; Ruben (Cincinnati, OH)
Assignee: Applied Research Systems ARS Holding N.V. (Curacao, AN)
Date of First Priority Issue: Thursday May 17th, 2001

Acellular matrix implants for treatment of articular cartilage, bone or osteochondral defects and injuries and method for use thereof

Patent Number: 7,217,294

This patent covers a method of inducing articular cartilage healing/regeneration through the implantation of acellular matrices that can be used for either delivery of cells or growth factors. The patent is written as one independent claim covering essentially: a)the scaffold; b) a sealant that protects the scaffold from debris; c) the implantation of the scaffold; and d) the deposition of...

Inventors: Kusanagi; Akihiko (Brookline, MA), Tarrant; Laurence J. B. (Northampton, MA), Schmidt; Mary Beth (Pomfret Center, CT)
Assignee: Histogenics Corp. (Northampton, MA)
Date of First Priority Issue: Wednesday August 20th, 2003

Tissue engineered biografts for repair of damaged myocardium

Patent Number: 7,214,371

This patent covers various matrices that are seeded with cells in vitro and implanted in vivo into myocardial tissue so as to allow regeneration or healing. The patent uses a porous polysaccharide composition for shaping the matrics since it allows optimal cell viability and differentiation in vitro. The patent also covers embedding of various growth factors and cytokines in the matrix so as...

Inventors: Cohen; Smadar (Beer Sheva, IL), Dar; Ayelet (Rehovot, IL), Etzion; Sharon (Beer Shevea, IL), Perets; Anat (Bet-Shemesh, IL), Shaprut; Sigalit (Beer Sheva, IL), Leor; Jonathan (Gane' Tikva, IL)
Assignee: Ben-Gurion University of the Negev Research & Development Authority (Beer-Sheva, IL)
Date of First Priority Issue: Friday September 1st, 2000

Methods using lineage restricted glial precursors from the central nervous system

Patent Number: 7,214,372

Neurodegenerative diseases such as multiple sclerosis cause pathology, in part, through demyelination. Since the myelin sheath acts as an insulator of nerves, when the nerves are demyelinated, they cease proper function. The current patent covers the use of glial restricted precursors, as well as oligodendrocyte differentiated glial restricted precursors, for remyelination of nerves. These...

Inventors: Rao; Mahendra S. (Salt Lake City, UT), Noble; Mark (Brighton, NY), Mayer-Proschel; Margot (Pittsford, NY)
Assignee: University of Utah Research Foundation (Salt Lake City, UT)
Date of First Priority Issue: Saturday November 29th, 1997

Liver engrafting cells, assays, and uses thereof

Patent Number: 7,211,404

Hepatic diseases are a major scourge on our society. Currently great progress has been made through the use of autologous bone marrow stem cells for treatment of these diseases. In the current patent, a cell that is capable of engrafting in the liver is disclosed. the cell is of hepatic origin and is positive for 5E12 and/or Ep-Cam and/or CD49f and/or E-Cadherin and/or lacking or haveing...

Inventors: Lagasse; Eric (Palo Alto, CA), Austin; Timothy (Morgan Hill, CA)
Assignee: Stem Cells, Inc. (Palo Alto, CA)
Date of First Priority Issue: Thursday June 21st, 2001

Methods of modulating c-kit tyrosine protein kinase function with indolinone compounds

Patent Number: 7,211,600

It is known that tumor stem cells share many properties with non-malignant stem cells, such as expression of CD133. The receptor for stem cell factor, c-kit, is found on numerous types of normal stem cells in addition to hematopoietic stem cells, where it was originally discovered. This current patent discloses a variety of compounds...

Inventors: Lipson; Ken (San Mateo, CA), McMahon; Gerald (Kenwood, CA)
Assignee: Sugen Inc. (South San Francisco, CA)

Date of First Priority Issue: Wednesday December 22nd, 1999

Primitive neural stem cells and method for differentiation of stem cells to neural cells

Patent Number: 7,211,434

Generation of neurons and neuronal committed cells from embryonic stem cells has been extensively documented by separation of cells from embryoid bodies. However the generation of embryoid bodies from embryonic stem cells is subject to US patent #"6602711":http://www.stemcellpatents.com/patents-show-373 which is owned by WARF and licensed to Geron. So while the whole world is trying to...

Inventors: Van Der Kooy; Derek (Toronto, Ontario, CA), Tropepe; Vincent (Boston, MA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday September 29th, 2000

Resorbable extracellular matrix for reconstruction of cartilage

Patent Number: 7,208,177

The current patent covers a matrix that is useful for treatment of cartilage injuries. The matrix disclosed is resorbable at a controlled rate and contains collagen II either from autologous, allogeneic, or xenogeneic sources. Specific pore sizes and additives are claimed. The patent is useful for parties seeking methods of introducing cells or growth factors to accelerate cartilage healing...

Inventors: Geistlich; Peter (Stansstad, CH), Schloesser; Lothar (Darmstadt, DE)

Assignee: Ed. Geistlich Soehne AG fuer Chemische Industrie (Wolhusen, CH)

Date of First Priority Issue: Wednesday February 22nd, 1995

Methods for treating disease and forming a supplemented fibrin matrix

Patent Number: 7,208,179

The current patent covers various compositions of matter for manufacturing tissue sealants. The sealants covered contain various growth factors, either recombinantly produced and added, or added through activation of cells. The sealants described are potentially synergistic with stem cells for acceleration of wound healing.

Inventors: Drohan; William N. (Springfield, VA), MacPhee; Martin James (Gaithersburg, MD), Hollinger; Jeffrey O. (Gibsonia, PA)

Assignee: The American National Red Cross (Rockville, MD)

Date of First Priority Issue: Tuesday November 27th, 1990

Nucleic acids and protein variants of hG-CSF with granulopoietic activity

Patent Number: 7,208,473

This patent covers a strange modified G-CSF protein that is not G-CSF but possesses properties of G-CSF. It seems really interesting for easy commercialization...especially for "biogeneric" G-CSF.

Inventors: Dahiyat; Bassil I. (Alta Dena, CA), Luo; Peizhi (Sunnyvale, CA)

Assignee: Xencor, Inc. (Monrovia, CA)

Date of First Priority Issue: Wednesday January 6th, 1999

Genome mutation by intron insertion into an embryonic stem cell genome

Patent Number: 7,205,148

Genetic manipulation of ES cells provides a powerful method for developing unique cell line models of various human diseases. More clinically applicable is the possibility of specifically producing mutations in genes that elicit rejection of ES cells, so as to generate "universal donor" stem cells. This patent teaches ways of generating mutations in exons of genes in ES cells by introduction...

Inventors: Economides; Aris N. (Tarrytown, NY), Valenzuela; David M. (Yorktown Heights, NY), Davis; Samuel (New York, NY), Yancopoulos; George (Yorktown Heights, NY)

Assignee: Regeneron Pharmaceuticals, Inc. (Tarrytown, NY)

Date of First Priority Issue: Thursday June 10th, 2004

Generation of hematopoietic cells from multipotent neural stem cells

Patent Number: 7,204,979

The concept of cellular transdifferentiation has come under much attack in the last few years. For example, some authors believe that transdifferentiation can be explained by cellular fusion in in vivo systems, and by non-physiological, contrived, in vitro systems. This patent covers the generation of hematopoietic stem cells from multipotent neural stem cells by the administration of the...

Inventors: Bjornson; Christopher R. (Seattle, WA), Rietze; Rod L. (Brunswick, AU), Reynolds; Brent A. (Saltspring, CA), Vescovi; Angelo L. (Milan, IT)

Assignee: Neurospheres Holdings Ltd. (Alberta, CA)

Date of First Priority Issue: Monday September 29th, 1997

Substituted 5-alkynyl pyrimidines having neurotrophic activity

Patent Number: 7,205,297

This patent discloses a series of companies that are substituted 5-alkynyl pyrimidines with nerve growth factor-like (NGF) activity for treatment of neurological disorders. Essentially, the data the inventors disclosed in the patent is that these compounds they generated can induce promotion of neurite outgrowth and elevation of choline acetyltransferase in the PC12 cell line. The...

Inventors: Beauchamp; Lilia M. (Raleigh, NC), Krenitsky; Thomas A. (Chapel Hill, NC), Kelley; James L. (Raleigh, NC)

Assignee: Krenitsky Pharmaceuticals, Inc. (Durham, NC)

Date of First Priority Issue: Monday July 24th, 2000

Method for transdifferentiation of non-pancreatic stem cells to the pancreatic differentiation pathway

Patent Number: 7,202,080

This patent teaches methods of generating pancreatic-like cells for either hematopoietic stem cells or mesenchymal stem cells. The patent covers the use of specific tissue culture cocktail which contains various growth factors, for inducing expression of pancreatic genes in cells of CD34 or mesenchymal lineage. The patent does not document in vivo activity of the cells generated by these...

Inventors: Ramiya; Vijaykumar (Gainesville, FL), Clark; Amy (Gainesville, FL)

Assignee: Ixion Biotechnology, Inc. (Alachua, FL)

Date of First Priority Issue: Thursday March 29th, 2001

Materials and methods for management of hyperacute rejection in human xenotransplantation

Patent Number: 7,201,899

Xenogeneic transplants from lower animals to humans are prevented in part by the hyper-rejection phenomena which ensues as a result of preformed antibodies against alpha-gal epitopes. Alpha-gal epiptopes are generated as a result of activity of the enzyme alpha.-1,3 galactosyltransferase. This patent covers cells, including ES cells, for generation of knockout pigs or organs which lack the...

Inventors: d'Apice; Anthony J. F. (Balwyn, AU), Pearse; Martin J. (Mordialloc, AU), Robins; Allan J. (Waterloo Corner, AU), Crawford; Robert J. (West Lake Shores, AU), Rathjen; Peter D. (Blackwood, AU)

Assignee: BresaGen Limited (Thebarton SA, AU)

Date of First Priority Issue: Thursday January 27th, 1994

Compositions, systems and methods for treatment of defects in blood vessels

Patent Number: 7,201,918

Vascular aneurysms are thinning of blood vessel walls, which is usually associated with vessel trauma, non-specific degeneration, atherosclerosis, or infection. The term "aneurysm" comes from the Latin "aneurysma" which means "dilation". Aneurysms are hazardous because of the potential to burst. They are usually prevelant in the aorta or cerebral arteries. The current patent provides methods...

Inventors: Cruise; Gregory M. (Rancho Santa Margarita, CA)

Assignee: Microvention, Inc. (Aliso Viejo, CA)

Date of First Priority Issue: Tuesday November 16th, 2004

Scaffolds for tissue engineered hair

Patent Number: 7,198,641

This patent covers scaffolds that are useful for hair replacement. Essentially the patent has claims around a scaffold that is made of: - a bioabsorbable polymer - hair follicle progenitor cells The scaffold having the shape approximately to the shape of a hair follicle. The assignee company, Aderans Research Institute, Inc., is extensively involved in both making wigs, as well as...

Inventors: Barrows; Thomas H. (Austell, GA)

Assignee: Aderans Research Institute, Inc. (Beverly Hills, CA)

Date of First Priority Issue: Tuesday August 8th, 2000

Methods and devices for promoting endothelial morphogenesis

Patent Number: 7,198,798

In the manufacture of various implantable medical devices it is important that the said device be able to endothelialize so that it integrates successfully with the host. When this doesn't happen various problems may arise such as restenosis, or inflammation at the site of device implantation. The current patent teaches that coating of devices with osteoprotegerin can be used to cause...

Inventors: Malyankar; Uriel M. (North Branford, CT), Scatena; Marta (Seattle, WA), Giachelli; Cecilia M. (Mill Creek, WA)

Assignee: University of Washington (Seattle, WA)

Date of First Priority Issue: Thursday May 10th, 2001

Myeloid precursor cell useful for gene therapy and for modulation of immune responses

Patent Number: 7,198,909

Myeloid progenitor cells are known to be responsible for producing polymorphonuclear leukocytes as well as monocytes in the blood. Besides their well-known function in the classical hematopoietic system, myeloid progenitor cells ahve been reported by various groups

to have immune modulatory function, specifically, the ability to inhibit immune responses through factors such as TGF, PGE, and other...
Inventors: Ron; Yacov (East Brunswick, NJ), Dougherty; Joseph P. (Hampton, NJ), Chen; Chiann-Chyi (East Brunswick, NJ)
Assignee: University of Medicine & Dentistry of New Jersey (New Brunswick, NJ)
Date of First Priority Issue: Saturday October 31st, 1998

Methods and compositions for obtaining mature dendritic cells

Patent Number: 7,198,948
Dendritic cells are the most potent antigen presenting cell of the immune system. Essentially, they "tell" T cells what to attack and what not to attack. The first inventor of the current patent, Ralph Steinman is considered the discoverer of the dendritic cells. The patent covers a method of making dendritic cells from stem cells. According to the claims, the method involves culturing...
Inventors: Steinman; Ralph M. (Westport, CT), Bhardwaj; Nina (Montclair, NJ), Schuler; Gerold (Spardorf, DE)
Assignee: The Rockefeller University (New York, NY); Argos Therapeutics, Inc. (Durham, NC)
Date of First Priority Issue: Wednesday February 12th, 1992

Use of treosulfan for patient conditioning before bone marrow or blood stem cell transplantation

Patent Number: 7,199,162
During bone marrow or peripheral blood stem cell transplant, it is typical to perform preconditioning of the recipient. This is done in order to wipe out host derived hematopoiesis, and to "make room" for the donor stem cells. Additionally, in conditions of hematological neoplasia, recipient conditioning is performed with the idea of eradicating cancer cells. Numerous protocols and procedures...
Inventors: Baumgart; Joachim (Appen, DE)
Assignee: Medac Gesellschaft fur Klinische Spezialpraparate mbH (Hamburg, DE)
Date of First Priority Issue: Friday November 5th, 1999

Mammalian cells that have increased proliferative capacity

Patent Number: 7,195,911
This patent covers the expansion of telomeres in a wide variety of human cells using the telomerase reverse transcriptase. This patent belongs to a family of earlier Geron patents covering the overcoming of telomere shortening through induction of "telomerase" activity into cells. The IP field of telomerase is pretty crowded and this patent has to be read carefully by those interested in...
Inventors: Cech; Thomas R. (Potomac, MD), Lingner; Joachim (Epalinges, CH), Nakamura; Toru (San Diego, CA), Chapman; Karen B. (Southborough, MA), Morin; Gregg B. (Oakville, CA), Harley; Calvin B. (Palo Alto, CA), Andrews; William H. (Reno, NV)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Tuesday October 1st, 1996

Protein-induced morphogenesis of kidney tissue

Patent Number: 7,196,056
This patent has three main areas covered in its claims: 1. Induction of new kidney tissue growth. 2. Induction of kidney morphogenesis. 3. Repair of kidney tissue. These are performed by administration of appropriate concentrations of the following proteins: OP-1, OP-2, BMP-2, BMP-4, BMP-5, BMP-6, Vg1, Vgr-1, DPP, 60A, or GDF-1. This patent may be very important since numerous...
Inventors: Cohen; Charles M. (Weston, MA), Sampath; Kuber T. (Hollison, MA), Pang; Roy H. L. (Etna, NH), Oppermann; Hermann (Medway, MA), Rueger; David C. (Hopkington, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Monday March 10th, 2003

Method to enhance hematopoiesis

Patent Number: 7,196,060
This patent teaches the use of a composition of matter called T-4 immune stimulating factor (TISF). This peptide was patented previously as a 50 kDa molecule in US patent # 5,616,554 as being useful for stimulation of CD4 T cell responses. The composition is derived from thymic cell lines and appears to be primarily immunostimulatory. In the current patent the use of TISF is claimed for...
Inventors: Beardsley; Terry Raymond (Escondido, CA), Maida, III; Anthony E. (Danville, CA)
Assignee: S-Cell Biosciences, Inc. (Murrieta, CA)
Date of First Priority Issue: Wednesday September 10th, 2003

Implantable biodegradable devices for musculoskeletal repair or regeneration

Patent Number: 7,192,604
The current patent covers methods of producing biodegradable scaffolds for implantation of stem cells, committed progenitors, or differentiated cells into a host primarily for the purposes of healing or regenerating musculoskeletal tissue. Covered is an implantable device made of fibers with varying degrees

of biodegradability designed so that scaffold degradation is coordinated with...
Inventors: Brown; Kelly R. (Hillsborough, NJ), Chun; Iksoo (Flemington, NJ), Hammer; Joseph J. (Bridgewater, NJ), Janas; Victor F. (Monroe Township, NJ), Mandanas; Jennifer (Painted Post, NY), Melican; Mora C (Bridgewater, NJ), Rezania; Alireza (Hillsborough, NJ), Z
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Friday December 22nd, 2000

Lymphoid tissue-specific cell production from hematopoietic progenitor cells in three-dimensional devices

Patent Number: 7,192,769
The current invention teaches methods of generating 3-dimensional culture conditions for the expansion of lymphocytes out of hematopoietic stem cells. The invention specifically covers the production of T cells through the culture of a hematopoietic stem cell together with a lymphoid stromal element in the presence of an antigen presenting cell. Lymphoid stromal elements may be allogeneic...
Inventors: Pykett; Mark J. (Boxford, MA), Rosenzweig; Michael (Boston, MA), Scadden; David T. (Weston, MA), Poznansky; Mark C. (Charlestown, MA)
Assignee: Cytomatrix, LLC (Chelmsford, MA)
Date of First Priority Issue: Thursday November 12th, 1998

Treatment and diagnosis of alzheimer's disease

Patent Number: 7,189,703
This patent covers the treatment of Alzheimer's disease by antibiotic therapy. Covered include various macrolides such as azithromycin, clarithromycin, dirithromycin, erythromycin and troleandomycin. The rationale is that Alzheimer's disease patients are infected with C. pneumoniae, which is demonstrated in the examples section. The inventor of the patent also published that C...
Inventors: Balin; Brian J. (Paoli, PA), Abrams; J. Todd (Merion, PA), Hudson; Alan P. (Novi, MI), Whittum-Hudson; Judith A. (Novi, MI)
Assignee: Intracell, LLC (Merion, PA)
Date of First Priority Issue: Friday January 9th, 1998

Methods for promoting wound healing

Patent Number: 7,189,746
The stimulation of healing processes after injury involves a neurological component. The inventors of the patent clearly demonstrate through several prior art examples that wound repair requires innervation of the peripheral tissue, and that damage to the surrounding nerves results in inhibition of wound repair. For example, the inventor describes a paper (Huang et al. Influence of cutaneous...
Inventors: Weinstein; David E. (Dobbs Ferry, NY)
Assignee: GliaMed, Inc. (New York, NY)
Date of First Priority Issue: Friday November 8th, 2002

Neural stem cells and use thereof for brain tumor therapy

Patent Number: 7,186,409
The current patent teaches that exogenous neural stem cells can migrate to the area of various brain cancers. The patent covers the use of neural stem cells as a trojan horse to carry enzymes that activate prodrugs into active drugs in proximity to a tumor in order to induce cancer cell death.
Inventors: Snyder; Evan Y. (Jamaica Plain, MA), Breakefield; Xandra O. (Newton Center, MA), Aboody; Karen S. (Needham, MA), Herrlinger; Ulrich (Tuebingen, DE), Lynch; William P. (Ravenna, OH)
Assignee: The Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Friday August 14th, 1998

Methods of producing neurons

Patent Number: 7,186,557
The current patent teaches methods of inducing differentiation of various adult stem cells into neuronal-like cells through culture on a blood clot alone or in the presence of various other cells and/or growth factors. It is known that various components released during the blood clotting process are mitogenic to stem cells, compoenents such as PDGF and FGF-2. This patent is useful for the...
Inventors: Marko; Olga (Houston, TX)
Assignee: Isolagen Technologies, Inc. (Houston, TX)
Date of First Priority Issue: Friday June 13th, 2003

Keratinocytes obtained from embryonic stem cells of mammals

Patent Number: 7,186,558
The current patent is useful for parties interested in generation of keratinocytes from embryonic stem cells. The patent covers the induction of differentiation of embryonic stem cells into keratinocytes through exposure of embryonic stem cells to various extracellular matrices obtained from a mammal. Specific ECM proteins include laminin-5, type IV collage, type I collagen or fibronectins.
Inventors: Aberdam; Daniel (Nice, FR), Coraux; Christelle (Nice, FR)
Assignee: INSERM (Paris, FR)
Date of First Priority Issue: Thursday May 31st, 2001

Methods of stimulating angiogenesis in a patient by administering vascular endothelial growth factor 2

Patent Number: 7,186,688

VEGF (vascular endothelial growth factor) is a potent endothelial cell mitogen that has previously been used in clinical trials for therapeutic angiogenesis. The current patent covers the use of specific fragments of VEGF for the stimulation of angiogenesis and the treatment of various conditions. Specific conditions for treatment include limb ischemia, cardiovascular disease and acceleration of...

Inventors: Hu; Jing-Shan (Sunnyvale, CA), Rosen; Craig A. (Laytonsville, MD), Cao; Liang (Hong Kong, CN)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Tuesday March 8th, 1994

In vitro propagation of embryonic stem cells

Patent Number: 7,186,883

Murine embryonic stem cell lines have revolutionized molecular biology by allowing the generation of transgenic and knockout mice. This technology allows for in vivo understanding of specific genes through either inducing over expression or complete silencing in a live animal. This patent covers methods of generating murine embryonic stem cells.

Inventors: Williams; Robert Lindsay (Warrandyte, AU), Gough; Nicholas Martin (North Balwyn, AU), Hilton; Douglas James (Warrandyte, AU)

Assignee: Zenyth Operations Pty Ltd. (Victoria, AU)

Date of First Priority Issue: Thursday May 31st, 1990

NK-2 homeobox transcription factor

Patent Number: 7,183,397

The NK-2 homeobox transcription factor family are responsible for tissue specification and are found in a variety of stem cells. The ability to modulate such transcription factors has numerous applications in the area of stem cells since such modulation could be used to guide differentiation into specific tissues. The current patent claims the composition of matter for one such family member...

Inventors: Wilm; Claudia (Darmstadt, DE)

Assignee: Merck Patent GmbH (Darmstadt, DE)

Date of First Priority Issue: Wednesday December 1st, 1999

Vaccine immunotherapy for immune suppressed patients

Patent Number: 7,182,942

Cancer vaccines have had a checkered past. This is primarily because numerous experimental approaches that demonstrated animal efficacy could not be translated into humans. Since numerous animal models are in-bred and involve carcinogenesis that is unnaturally “fast” (e.g. either a cell line is injected or huge amounts of carcinogens are administered) it is likely that these models do not...

Inventors: Hadden; John W. (Cold Spring Harbor, NY)

Assignee: IRx Therapeutics, Inc. (New York, NY)

Date of First Priority Issue: Friday October 27th, 2000

Antibodies isolating and/or identifying neuronal stem cells and method for isolating and/or identifying neuronal progenitor cells

Patent Number: 7,182,946

Methods of purifying stem cells, as well as progenitor cell populations are well known in the art. Unfortunately, some of these methods have certain limitations, and as a result, there is always a great need to identify new ways of sometimes doing the same thing. For example, it is known that CD34 is a useful marker for hematopoietic stem cells. However, since the patent on CD34 has a limited...

Inventors: Buehring; Hans-Joerg (Tuebingen, DE), Vogel; Wichard (Tuebingen, DE)

Assignee: Eberhard-Karls-Universitaet Tuebingen Universitaetsklinikum (Tuebingen, DE)

Date of First Priority Issue: Monday September 9th, 2002

Method of suppressing differentiation by administering a human serrate-1 polypeptide

Patent Number: 7,179,622

This patent covers composition of matter and use for polypeptides derived from Notch agonists. The particular Notch agonist is Serrate, which is involved in maintaining an undifferentiated state in stem cells. The invention is useful for expanding hematopoietic stem cells without inducing their differentiation. The inventors provided some evidence of CD34 self renewal without...

Inventors: Sakano; Seiji (Fuji, JP), Itoh; Akira (Fuji, JP)

Assignee: Asahi Kasei Kabushiki Kaisha (Osaka, JP)

Date of First Priority Issue: Friday November 17th, 1995

Device and a process for expansion of haemopoeitic stem cells for therapeutic use

Patent Number: 7,179,643

The problem with cord blood as a source of stem cells is that not many cells can be harvested. Although enough cells are usually present to treat a pediatric patient, in cases of adults, expansion of stem cells from the cord blood is desirable. The current patent provides a portable bioreactor for expansion of cord blod stem

cells. Essentially, the invention is designed so as to be able to be...
Inventors: Rao; Sreemushnan Gopalkrishna Anando (Mumbai, IN), Tipnis; Shabari Pradeep (Mumbai, IN)
Assignee: Reliance Life Sciences Pvt. Ltd. (Maharashtra, IN)
Date of First Priority Issue: Thursday June 14th, 2001

Methods for regeneration of a mammalian lens

Patent Number: 7,176,189
This patent covers the induction of dedifferentiation, followed by transdifferentiation for regenerating mammalian lens. The patent covers the steps of inducing dedifferentiation in an eye lens using a surgical procedure, followed by inducing the transdifferentation through administration of guanosine, and then "fixing" the transdifferentiated effect through abministration of...
Inventors: Baranowitz; Steven (Madison, NJ)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday May 1st, 2001

Biocompatible crosslinked composition

Patent Number: 7,176,256
Surgical adhesions cause excess fibrosis in an area that has been surgically manipulated. Adhesions are a major cause of post operative morbidity. In this patent biodegradable polymers are disclosed that are useful for covering post surgical areas in order to inhibit formation of adhesions. Essentially, the patent covers crosslinked polymer compositions in which the first synthetic polymer...
Inventors: Rhee; Woonza M. (Palo Alto, CA), DeLustro; Frank A. (Belmont, CA), Berg; Richard A. (Los Altos, CA)
Assignee: Angiotech Pharmaceuticals, Inc. (North Bend, WA)
Date of First Priority Issue: Monday December 18th, 1995

Antisense oligonucleotides to type I procollagen

Patent Number: 7,173,122
One of the potential problems with stem cell therapy is the propensity of certain cell types to contribute to scar formation. For example, during embryonic healing, scars are not formed on injured tissues, however, adult injured tissue is prone to scarring. Formation of scars is especially relevant in the post-myocardial infarct situation in which the non-functional scar tissue replaces...
Inventors: Beri; Rajinder (Loughborough, GB)
Assignee: Nath Rahul Kumar (Houston, TX)
Date of First Priority Issue: Wednesday December 15th, 1999

Inhibitors of proteasomal activity for stimulating hair growth

Patent Number: 7,175,994
Stimulation of dermal papillary cells for hair regrowth is an area of intense scientific interest. In the current patent, the use of proteosomal inhibition in general is claimed, along with several growth factors for stimulation of hair growth. Specifically covered growth factors are EGF, FGF, PDGF, TGF, IGF, LIF, and parathyroid hormone. This patent also covers the use of specific compositions...
Inventors: Garrett; I. Ross (San Antonio, TX), Rossini; Jorge Gianny (San Antonio, TX), Gutierrez; Gloria (San Antonio, TX)
Assignee: Osteoscreen IP, LLC (San Antonio, TX)
Date of First Priority Issue: Friday July 10th, 1998

Aryl-containing 5-acylindolinones, the preparation thereof and their use as medicaments

Patent Number: 7,176,231
Although much effort in stem cell therapeutic development is being focused on administration of exogenous stem cells, one area that is generally being overlooked is methods of activating/expanding endogenous stem cells. It was recently published that the in vivo inhibition of the enzyme GSK-3 promotes hematopoietic stem cell self renewal (Trowbridge et al. Glycogen synthase kinase-3 is an in vivo...
Inventors: Heckel; Armin (Biberach, DE), Roth; Gerald Juergen (Biberach, DE), Kley; Joerg (Mittelbiberach, DE), Hoerer; Stefan (Ochsenhausen, DE), Uphues; Ingo (Ummendorf, DE)
Assignee: Boehringer Ingelheim International GmbH (Ingelheim, DE)
Date of First Priority Issue: Friday March 12th, 2004

CaR receptor as a mediator of migratory cell chemotaxis and/or chemokinesis

Patent Number: 7,176,243
The area of stem cell mobilization is very exciting not only from the perspective of allowing for efficient harvest of peripheral blood stem cells, but also from the perspective of one day being able to mobilize endogenous stem cells to accelerate healing of various organs. In this patent a novel method of inducing mobilization of stem cells from the bone marrow, as well as inhibiting migration...
Inventors: Poznansky; Mark C. (Charlestown, MA), Scadden; David T. (Weston, MA), Olszak; Ivona T. (Charlestown, MA), Brown; Edward M. (Milton, MA)

Assignee: The General Hospital Corporation (Boston, MA); The Brigham and Women's Hospital, Inc. (Boston, MA)
Date of First Priority Issue: Monday May 1st, 2000

Endothelial cells derived from primate embryonic stem cells

Patent Number: 7,176,023

It is known that endothelial cell dysfunction is one of the major causes of morbidity and mortality in the Western world. For example, if endothelium could properly respond to the hypoxic conditions associated with cardiac angina and form new blood vessels, then heart disease would take such a heavy toll on today's society. This is just a limited example, atherosclerosis, various tissue...

Inventors: Kaufman; Dan S. (Woodbury, MN), Lewis; Rachel (Madsion, WI), Auerbach; Robert (Middleton, WI)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Thursday November 1st, 2001

Endothelialization of vascular surfaces

Patent Number: 7,172,758

Endothelial injury may be induced by numerous means. One clinically relevant situation is endothelial injury caused by balloon injury during percutaneous transluminal coronary balloon angioplasty. This injury causes restenosis, which eventually requires re-intervention. This patent teaches ways of accelerating the healing of the injured tissue by essentially "sticking" the endothelial...

Inventors: Colb; A. Mark (West Roxbury, MA), Gold; Herman K. (Brookline, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday January 29th, 2002

Method for regulating neuron development and maintenance

Patent Number: 7,173,001

Leukemia inhibitory factor (LIF) is a member of the IL-6 family of cytokines that was originally identified based on its ability to induce differentiation of myeloid leukemia cells. Its homology ciliary neurotrophic factor (CNTF) has been shown to support the resistance to apoptosis of numerous types of peripheral and central nervous system neurons, as well as induce new neurite formation after...

Inventors: Bartlett; Perry (North Carlton, AU), Murphy; Mark (Fitzroy, AU)
Assignee: Zenyth Operations Pty Ltd. (Richmond, AU)
Date of First Priority Issue: Thursday November 19th, 1992

Composition and method for treating graft-versus-host disease

Patent Number: 7,173,016

Graft versus host disease (GVHD) is one of the major limitations of bone marrow, or for that matter, any type of allogeneic hematopoietic stem cell transplant. Essentially, GVHD is the result of donor derived T cells attacking the allogeneic recipient. Previously attempts were made to reduce GVHD by "purging" the stem cell graft of T cells using various antibodies or tissue culture...

Inventors: DiMartino; Jorge (San Carlos, CA), Nelson; John Tippett (Danville, CA)
Assignee: Mayne Pharma (USA); Inc. (Paramus, NJ)
Date of First Priority Issue: Friday October 12th, 2001

Methods to mobilize progenitor/stem cells

Patent Number: 7,169,750

The reason why bone marrow cells home into the bone after intravenous administration is because a continuous production of Stromal Derived Factor-1 (SDF-1) by the bone marrow stromal compartments. The gradient of SDF-1 is also retains the early CD34+ bone marrow hematopoietic stem cells in the bone marrow. The current patent covers compositions of matter that inhibit the interaction...

Inventors: Bridger; Gary (Bellingham, WA), Abrams; Michael J. (Custer, WA), Henson; Geoffrey W. (Ferndale, WA), MacFarland; Ronald T. (Vancouver, CA), Calandra; Gary B. (Cresco, PA)
Assignee: Anormed, Inc. (Langley, CA)
Date of First Priority Issue: Sunday February 4th, 2007

Serum-free media for chondrocytes and methods of use thereof

Patent Number: 7,169,610

This patent discloses methods of expanding chondrocyte precursors and differentiated chondrocytes ex vivo without the use of animal derived tissue culture components. The patent teaches the use of growth factors such as platelet derived growth factor, together with specific lipids, such as stearic acid, myristic acid, oleic acid, linoleic acid, palmitic acid, palmitoleic acid, arachidonic...

Inventors: Brown; Liesbeth Maria E. (West Newton, MA)
Assignee: Genzyme Corporation (Cambridge, MA)
Date of First Priority Issue: Friday January 25th, 2002

Bone marrow cell differentiation

Patent Number: 7,169,608

The patent describes a simple method of inducing differentiation of bone marrow into islets by a simple two step culture approach involving an initial culture in low concentration of glucose (at least 3 days) followed by a subsequent culture in high concentration of glucose (at least 7 days). The resulting cells generate insulin in response to sugar, and are capable of preventing diabetes...

Inventors: Petersen; Bryon E. (Gainesville, FL), Oh; Seh-hoon (Gainesville, FL)

Assignee: University of Florida Research Foundation, Inc. (Gainesville, FL)

Date of First Priority Issue: Friday October 18th, 2002

Methods of controlling proliferation and differentiation of stem and progenitor cells

Patent Number: 7,169,605

Ex vivo expansion of stem cells offers the possibility of using autologous cells for the treatment of diseases ranging from hematopoietic disorders to post myocardial infarction cardiac regeneration. Stem cell therapy with adult cells is often limited by the fact that it is difficult to obtain high enough numbers of cells for performing repeated administration. Additionally, stem cells from...

Inventors: Peled; Tony (Mevaseret Zion, IL), Fibach; Eitan (Mevaseret Zion, IL), Treves; Avi (Mevaseret Zion, IL)

Assignee: Gamida Cell Ltd. (Jerusalem, IL)

Date of First Priority Issue: Tuesday February 17th, 1998

High concentration white blood cells as a therapeutic product

Patent Number: 7,169,547

This patent covers methods of preserving cord blood mononuclear cells. The approach taken here is focused on the collection and preservation of white blood cells from cord blood as a "therapeutic product". The cells appear to be stored in plasma from the same source as the donor and this may be one of the reasons why this patent was issued in light of the pre-existing

Inventors: Rubinstein; Pablo (New Rochelle, NY), Coelho; Philip Henry (El Dorado Hills, CA), Stevens; Cladd E. (New York, NY)

Assignee: New York Blood Center, Inc. (New York, NY)

Date of First Priority Issue: Monday December 5th, 1994

Combination growth factor therapy and cell therapy for treatment of acute and chronic heart disease

Patent Number: 7,166,280

Heart failure has been one of the main areas of stem cell research. Specifically, stem cells have previously been used clinically both for treatment of immediate post myocardial infarction (primarily to inhibit scar tissue and subsequent remodelling), as well as in patients with cardiac degeneration in absense of a myocardial infarct. The current patent is very interesting since it claims...

Inventors: Franco; Wayne P. (Rocky Hill, CT)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday April 6th, 2000

Method of culturing cells to produce a tissue sheet

Patent Number: 7,166,464

The ability to generate monolayers of cells is important for a variety of tissue engineering applications. Most notably is the need to generate monolayers that can be placed on medical devices such as stents in order to allow increased compatibility and decreased rates of restenosis. The current patent teaches ways of culturing cells, including stem cells, in a monolayer and methods of...

Inventors: McAllister; Todd N. (Novato, CA), L'Heureux; Nicolas (Corte Madera, CA)

Assignee: Cytograft Tissue Engineering, Inc. (Novato, CA)

Date of First Priority Issue: Tuesday December 11th, 2001

Devices and methods for treating defects in the tissue of a living being

Patent Number: 7,166,133

Non-healing bone injuries pose a significant burden on our medical system. This new patent owned by the Kensey Nash Corporation provides a novel method for accelerating bone healing through providing an implantable matrix that contains collagen and "osteoinductive" factors. These factors may be proteins or cells according to the invention. The first independent claim of the patent covers an...

Inventors: Evans; Douglas G. (Downingtown, PA), Goldman; Scott M. (Paoli, PA), Kronengold; Russell T. (Lansdale, PA)

Assignee: Kensey Nash Corporation (Exton, PA)

Date of First Priority Issue: Sunday January 13th, 2002

Remyelination of neurons using multipotent neural stem cell progeny

Patent Number: 7,166,277

This patent is useful for the cell therapy of diseases associated with demyelination such as multiple sclerosis. The patent covers the use of neural stem cells expanded ex vivo for the purpose of remyelinating

neurons in vitro and in vivo. Specifically the patent covers use of nestin positive progenitors purified from CNS tissue treated with various differentiation factors such EGF and FGF...
Inventors: Weiss; Samuel (Alberta, CA), Reynolds; Brent (Alberta, CA), Hammang; Joseph P. (Barrington, RI)
Assignee: Neurospheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday July 8th, 1991

Artery smooth muscle- and vein smooth muscle-specific proteins and uses therefor

Patent Number: 7,163,808
The use of stem cells for stimulation of angiogenesis is of great interest to current researchers. The ability of stem cells to stimulate angiogenesis is dependent not only on differentiation of stem cells into endothelial cells, but also by virtue of stem cell secreted growth factors that promote localized tissue remodeling and proliferation of endogenous endothelial precursors. The current...
Inventors: Anderson; David J. (Altadena, CA), Garcia-Cardena; Guillermo (Boston, MA), Gimbrone, Jr.; Michael A. (Plain, MA), Wang; Hai U. (Eldorado Hills, CA)
Assignee: California Institute of Technology (Pasadena, CA); The Brigham and Women's Hospital, Inc. (Boston, MA)
Date of First Priority Issue: Monday November 20th, 2000

Versican and epithelial-mesenchymal interaction

Patent Number: 7,163,679
Versican is a chondroitin sulfate proteoglycan that is considered part of the extracellular matrix. Various isoforms of Versican exist, some associated with specific stages of development. In this patent the inventors found that versican-expressing dermal papilla (DP) cells have the ability to induce hair generation. Accordingly, the patent aims at screening agents that may be used to induce...
Inventors: Kishimoto; Jiro (Yokohama, JP), Burgeson; Robert (Marblehead, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Thursday May 6th, 1999

Peptide with osteogenic activity

Patent Number: 7,163,920
This patent discloses a novel peptide that is capable of inducing osteoblast proliferation and induction of bone synthesis. The peptide disclosed may be used as part of an implantable composition of cells and biodegradable matrices for the treatment of bone fractures. The patent covers numerous methods of making the peptide, as well as chemical derivatives and methods of administration...
Inventors: Dhanaraj; Sridevi (Raritan, NJ), Gosiewska; Anna (Skillman, NJ), Rezania; Ali (Hillsborough, NJ), Heavner; George A. (Malvern, PA), Lin; Xuanhan (Bridgewater, NJ), Yi; Chin-Feng (Hillsborough, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Tuesday September 30th, 2003

Bioartificial liver system

Patent Number: 7,160,719
This patent covers the use of spheroid hepatocytes and hepatocyte progenitors in liquid culture, in such a manner that they may function as a bioartificial liver. Specifically, the patent teaches that previous artificial liver approaches had certain limitations that did not allow maximal growth and function of hepatocytes ex vivo. The current invention provides various medical device...
Inventors: Nyberg; Scott L. (Rochester, MN)
Assignee: Mayo Foundation for Medical Education and Research (Rochester, MN)
Date of First Priority Issue: Friday June 7th, 2002

Human cord blood as a source of neural tissue for repair of the brain and spinal cord

Patent Number: 7,160,724
There is currently great interest in the use of cord blood stem cells for neuroregenerative purposes. This patent covers the ex vivo growth of cord blood cells in EGF, FGF2, NGF, and retinoic acid in order to generate a population of cells that contain neuronal-like properties. Evidence of activity of these neural precursors is provided in the examples section which describes post-CNS injury...
Inventors: Sanberg; Paul (Spring Hill, FL), Sanchez-Ramos; Juan (Tampa, FL), Willing; Alison (Tampa, FL), Richard; Daniel D. (Sedona, AZ)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Thursday March 9th, 2000

Hedgehog signaling promotes the formation of three dimensional cartilage matrices

Patent Number: 7,160,725
It is known that hedgehog proteins are involved in pattern specification during embryogenesis. The possibility of modulating the hedgehog signalling pathway for regulation of stem cell activity was previously patented for hematopoietic stem cells, neural stem cells and

Inventors: Warzecha; Joerg (Frankfurt, DE)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Tuesday November 13th, 2001

Cultured cells from pancreatic islets

Patent Number: 7,157,278

The possibility of ex vivo expansion of islets has been a goal of cell therapy researchers for decades. This patent teaches methods of isolating beta precursor cells from pancreatic islets, expansion ex vivo through culture in serum-free growth factors, and the possible use for replacement therapy in diabetics. Identification of islet precursors is performed by assessment of nestin and pdx1...
Inventors: Jin; Jianjian (Quincy, MA)
Assignee: Organogenesis, Inc. (Canton, MA)
Date of First Priority Issue: Wednesday December 4th, 2002

Methods for assisting recovery of damaged brain and spinal cord using arrays of X-ray microplanar beams

Patent Number: 7,158,607

One of the problems with cell therapy after injury is the possibility of accelerating scar tissue formation. The current patent teaches the use of X-rays, administered by parallel micro-beams at doseages that are sufficient to remove inhibitors of regeneration. The patent also discloses the use of exogenous stem cells in combination with the X-rays in order to accelerate healing.
Inventors: Dilmanian; F. Avraham (Yaphank, NY), McDonald, III; John W. (Baltimore, MD)
Assignee: Brookhaven Science Associates, LLC (Upton, NY)
Date of First Priority Issue: Thursday February 10th, 2005

Marker system for preparing and characterizing high-quality human embryonic stem cells

Patent Number: 7,153,650

This patent covers the use of the gastrin related peptide receptor (GRP receptor) as a marker of embryonic stem cell differentiation. Essentially when embryonic stem cells differentiate they start to downregulate expression of GRP receptor. This assay is useful for knowing the state of differentiation of embryonic stem cells. Since Geron is anticipating to enter clinical trials shortly, the...
Inventors: Stanton; Lawrence W. (Singapore, SG), Brandenberger; Ralph (Menlo Park, CA), Gold; Joseph D. (San Francisco, CA), Irving; John M. (San Mateo, CA), Mandalam; Ramkumar (Union City, CA), Mok; Michael (Palo Alto, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday March 13th, 2003

Interventions to mimic the effects of calorie restriction

Patent Number: RE39,436

Caloric restriction is the only sure way to increase life span. This patent covers the use of a screening systems so as to be able to identify compounds that mimic the effects of caloric restriction so that people don't have to starve themselves to live longer. The patent covers assessing gene expression, mRNA levels, and protein expression from people (or animals) that have been calorically...
Inventors: Spindler; Stephen R. (Riverside, CA), Dhahbi; Joseph M. (Alameda, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Thursday December 23rd, 1999

Hematopoietic stem cells and methods of treatment of neovascular eye diseases therewith

Patent Number: 7,153,501

It is known that various hematopoietic cells are involved in the ocular injury caused by uncontrolled angiogenesis. This occurs, for example, in wet macular degeneration, a disease in which antiangiogeneic agents are clinically used successfully. Since hematopoietic lineage cells are known to enter the ocular areas and assist in angiogenesis, the inventors asked why not use these cells as a...
Inventors: Friedlander; Martin (Del Mar, CA), Otani; Atsushi (San Diego, CA), Da Silva; Karen (Irvine, CA)
Assignee: The Scripps Research Institute (La Jolla, CA)
Date of First Priority Issue: Thursday July 25th, 2002

Pluripotential embryonic stem cells and methods of making same

Patent Number: 7,153,684

This patent covers ways of generating human embryonic stem cells. Some of the claims have priority to the WARF patents. Essentially the patent teaches that embryonic stem cells can be generated by culture of primordial germ cells in agents such as bFGF, SF and LIF. The cells described in the patent appear to have all the features...
Inventors: Hogan; Brigid L. M. (Brentwood, TN)
Assignee: Vanderbilt University (Nashville, TN)
Date of First Priority Issue: Thursday October 8th, 1992 1 Comment

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Production of megakaryocytes by the use of human mesenchymal stem cells

Patent Number: 7,153,500
This patent covers a method of increasing megakaryocytes (precursors of platelets) to patients that are deficient in these cells. Specifically, there are two claims to the patent. The first covers the increasing of megakaryocyte numbers by administration of mesenchymal stem cells. The second covers a method of increasing megakaryocyte numbers through administration of CD34 stem cells together...
Inventors: Qasba; Pankaj (Columbia, MD), Thiede; Mark A. (Forest Hill, MD)
Assignee: Osiris Therapeutics (Baltimore, MD)
Date of First Priority Issue: Friday May 22nd, 1998

Telomerase immortalized neural progenitor cells

Patent Number: 7,150,989
Telemerase is critical for maintain telomere length and preventing senescence once cells have reached the Hayflick limit. This patent teaches the use of transfection with telomerase reverse transcriptase in order to generate neural progenitors that are immortal. The patent covers a wide variety of neural progenitors and sources of neural progenitors, including, dopaminergic, cholinergic, and...
Inventors: Goldman; Steven A. (South Salem, NY), Roy; Neeta Singh (New York, NY)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Friday August 10th, 2001

Compositions of enriched central nervous system stem cell and progenitor cell populations

Patent Number: 7,153,686
This patent covers a "Neurosphere Initiating Cell" isolated by its expression of the marker CD133. CD133 is expressed in a variety of stem cells and was recently shown to be found on cancer stem cells as well. Essentially, neurospheres are aggregates of neural cells that are grown in tissue culture. Generally neurospheres are generated...
Inventors: Uchida; Nobuko (Palo Alto, CA), Buck; David W. (Santa Clara, CA), Weissman; Irving (Redwood City, CA)
Assignee: Stemcells California, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday February 12th, 1999

Injectable hyaluronic acid derivative with pharmaceuticals/cells

Patent Number: 7,157,080
This patent covers specific types of hyaluronic acid derivatives that are useful for administering cells into a soft tissue that is injured. Specifically, the patent is useful for treatment of intra-articular injuries by providing a means to administer cells so that the cells will be able to take the particular in vivo shape that is unique to the patient being treated. The patent has 2...
Inventors: Radice; Marco (Modena, IT), Pastorello; Andrea (Abano Terme, IT), Pavesio; Alessandra (Padua, IT), Callergaro; Lanfranco (Thiene, IT)
Assignee: Fidia Advanced Biopolymers, SRL. (Abano Terme, IT)
Date of First Priority Issue: Saturday January 6th, 2007

Cord blood and placenta collection kit

Patent Number: 7,147,626
Celgene, through its wholly owned subsiduary Anthrogenesis (now called Celgene Cellular Therapeutics) has been active in the cord blood IP area, through patents covering innovative methods of extracting stem cells from the placental matrix itself . In the current patent, Celgene covers a kit for collecting not only the umbilical...
Inventors: Goodman; Chris B. (Green Brook, NJ), Robinson; Wayne Malcolm (Hampton, NJ), Feingold; Barnett Dov (New York, NY)
Assignee: Celgene Corporation (Summit, NJ)
Date of First Priority Issue: Thursday September 23rd, 2004 5 Comments

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Method for generating primate trophoblasts

Patent Number: 7,148,062
It is known that embryonic stem cells can be differentiated into a wide variety of tissues in vitro. In this patent, methods are disclosed for generating trophoblasts from ES cells through culture in BMP2, BMP4, BMP7, and GDF5. Although the patent teaches uses of the trophoblasts generated for research purposes, a very interesting possibility is to use them as a source of tumour antigens given...
Inventors: Xu; Ren-He (Madison, WI), Thomson; James A. (Madison, WI)
Assignee: WiCell Research Institute, Inc. (Madison, WI)
Date of First Priority Issue: Friday March 15th, 2002

Cysteine variants of granulocyte-macrophage colony-stimulating factor

Patent Number: 7,148,333
G-CSF is a potent hematopoietic stem cell growth factor used clinically under the name Neupogen, made by Amgen, for accelerating granulopoiesis. One of the disadvantages of protein therapeutics in general is poor bioavailability and short half life. The current patent discloses methods of modifying G-CSF so as to allow for site-specific conjugation with polyethylene glycol which is generally...
Inventors: Cox, III; George N. (Louisville, CO)

Assignee: Bolder Biotechnology, Inc. (Boulder, CO)
Date of First Priority Issue: Monday July 14th, 1997

Composition and method for the repair and regeneration of cartilage and other tissues

Patent Number: 7,148,209

Repair of cartilage is an area of active investigation using a wide variety of approaches, including bone marrow mesenchymal stem cells and various progenitor cell types. In this patent, methods of inducing cartilage regeneration are disclosed through administration of a solution that contains a mixture of various blood components and polymers. In certain embodiments the polymers are liquid...

Inventors: Hoemann; Caroline D. (Montreal, CA), Buschmann; Michael D. (Montreal, CA), McKee; Marc D. (Westmount, CA)
Assignee: Ecole Polytechnique (Montreal, CA)
Date of First Priority Issue: Thursday June 29th, 2000

Methods and compositions for tissue regeneration

Patent Number: 7,144,729

This patent covers a novel method of treating wounds through "spraying" allogeneic cells, together with fibrinogen and thrombin, in order to secrete various growth factors, including factors that stimulate stem cells, so as to accelerate wound healing. Systems for inducing tissue regeneration, as well as kits are provided. Basically, the independent claim covers a two part administration of a...

Inventors: Rolland; Eric (Divonne les bains, FR), Hunziker; Thomas (Oberhofen, CH), Mis; Beatrice (Lausanne, CH), Rinsch; Christopher (Lausanne, CH)
Assignee: DFB Pharmaceuticals, Inc. (Fort Worth, TX)
Date of First Priority Issue: Friday September 1st, 2000

SCF antibody compositions and methods of using the same

Patent Number: 7,144,731

Amgen has developed a strong patent portfolio covering the hematopoietic stimulating cytokine called Stem Cell Factor. Subsequently it was demonstrated that stem cell factor is capable of stimulating a variety of other stem cells in addition to hematopoietic stem cells. As part of its IP portfolio covering stem cell factor, Amgen has patented antibodies to the cytokine. This current patent...

Inventors: Zsebo; Krisztina M. (Thousand Oaks, CA), Bosselman; Robert A. (Thousand Oaks, CA), Suggs; Sidney V. (Newbury Park, CA), Martin; Francis H. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Monday October 16th, 2006

Vertebrate embryonic patterning-inducing proteins, compositions and uses related therto

Patent Number: 7,144,997

This patent covers the use of hedgehog proteins and various analogues for maintaining neuron and neuronal stem cell viability. The claims cover specific compositions of matter, whereas the specification teaches various means of using the compositions of matter for protecting dopaminergic neurons from cell death. The basis of this patent is described in another

Inventors: Miao; Ningning (Cambridge, MA), Wang; Monica (Marblehead, MA), Mahanthappa; Nagesh K. (Cambridge, MA), Pang; Kevin (Belmont, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Thursday July 24th, 1997

Method of producing a mouse suitable for the engraftment, differentiation and proliferation of heterologous cells, mouse produced by this method and use of the mouse

Patent Number: 7,145,055

The use of immunodeficient animals in stem cell research is very important since most researchers are interested in the in vivo activities of human stem cells without having to actually perform clinical trials. The solution to this has been the use of animal strains that are either genetically immune deficient, or induced to be immune deficient. Previously the NOD-SCID mouse was used to...

Inventors: Method of producing a mouse suitable for the engraftment, differentiation and proliferation of heterolIto; Mamoru (Kanagawa, JP), Kobayashi; Kimio (Kanagawa, JP), Nakahata; Tatsutoshi (Kyoto, JP), Tsuji; Koichiro (Tokyo, JP), Habu; Sonoko (Tokyo, JP), Koy
Assignee: Central Institute for Experimental Animals (Kanagawa, JP)
Date of First Priority Issue: Friday December 1st, 2000

Chimeric bird from embryonic stem cells

Patent Number: 7,145,057

Trangenic animals have been very useful in the basic sciences in terms of elucidating biological activities of specific proteins in an in vivo situation. In terms of developing therapeutics, transgenic animals are useful for a wide variety of practical purposes ranging from in vivo production of recombinant proteins for human use, to serving as bioincubators for tissue and three-dimensional...

Inventors: Van de Lavoir; Marie-Cecile (San Francisco, CA), Etches; Robert J. (San Mateo, CA), Heyer; Babette (Menlo Park, CA), Diamond; Jennifer (Millbrae, CA), Mather; Christine (Millbrae, CA),

Beemer; Kathleen (Pacifica, CA), Myers; Heather (Danville, CA)
Assignee: Origen Therapeutics, Inc. (Burlingame, CA)
Date of First Priority Issue: Friday February 1st, 2002

1 Comment

Methods for making and delivering rho-antagonist tissue adhesive formulations to the injured mammalian central and peripheral nervous systems and uses thereof

Patent Number: 7,141,428

Stem cells are increasingly seen as a source for the generation of new neurons. In this patent, ways of protecting neurons and stimulating axon regrowth are thought. Specifically, the patent deals with two GTPases called Rho and Rac. Rac activation causes axon spreading, while Rho activation causes axon retraction. In many neurodegenerative diseases, axons are retracted and important neural...
Inventors: McKerracher; Lisa (Ile des Soeurs, Quebec, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday November 2nd, 2000

1 Comment

Wound and cutaneous injury healing with a nucleic acid encoding perlecan

Patent Number: 7,141,551

Perlecan is a proteoglycan (A molecule that contains both protein and glycosaminoglycans, which are a type of polysaccharide) that is found in the basement membrane. Upregulation of perlecan expression is observed during wound healing, as well as VEGF-mediated tumor angiogenesis. It is known that perlcan binds to numerous growth factors including FGF family members. It is also known that...
Inventors: DeCarlo; Arthur A. (Weston, FL), Whitelock; John (Homebush 2140, Sydney, AU)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 22nd, 2003

Purposeful movement of human migratory cells away from an agent source

Patent Number: 7,141,363

Chemotactic gradients are critically important in stem cell function. This is demonstrated not only in the fact that the bone marrow constitutively secretes SDF-1 in order to allow systemically infused stem cells to home back to the bone marrow, but also in regenerative medicine where injured tissue releases chemokines to attract endogenous stem cells. The current patent deals with the...
Inventors: Poznansky; Mark C. (Charlestown, MA), Luster; Andrew D. (Wellesley, MA), Scadden; David T. (Weston, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Thursday April 8th, 1999

Dedifferentiated, programmable stem cells of monocytic origin, and their production and use

Patent Number: 7,138,275

This patent is highly interesting in that the inventors claim to have devised a simple and easy to implement methodology for generation of autologous stem cells. Essentially, the invention teaches that culturing of peripheral blood monocytes in the presence of IL-3 and M-CSF for approximately 6 days, somehow induces a program of de-differentiation in the monocytes to endow them with stem cell...
Inventors: Kremer; Bernd Karl Friedrich (Kiel, DE), Fandrich; Fred (Kiel, DE), Ruhnke; Maren ne (Kiel, DE)
Assignee: Blasticon Biotechnologische Forschung GmbH (Keil, DE)
Date of First Priority Issue: Thursday March 28th, 2002

8 Comments

Differentiation-suppressive polypeptide serrate-2 and methods of use

Patent Number: 7,138,276

Notch is a receptor for Delta and Serrate that is found in Drosophila and involved in controlling nerve cell differentiation during development. The human equivalent of Notch is called TAN-1, and is expressed on hematopoietic stem cells. Other patents have used Notch ligand homologues to stimulate fetal hemoglobin synthesis as...
Inventors: Sakano; Seiji (Shizuoka, JP), Itoh; Akira (Shizuoka, JP)
Assignee: Asahi Kasei Kabushiki Kaisha (Osaka, JP)
Date of First Priority Issue: Tuesday July 16th, 1996

Method of treating dopaminergic and GABA-nergic disorders

Patent Number: 7,138,492

It is known that hedgehog proteins are important in specifying what cells give rise to what tissues during development. Others have patented using hedgehog proteins for stimulating insulin production. In this patent the inventors found a new use for hedgehog proteins besides their known role in embryogenesis. Initially, the potential...
Inventors: Miao; Ningning (Palo Alto, CA), Wang; Monica (Marblehead, MA), Mahanthappa; Nagesh K.

(Cambridge, MA), Jin; Ping (Boston, MA), Pang; Kevin (Belmont, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Thursday July 24th, 1997

Use of Xenopus laevis oocytes a microincubators

Patent Number: 7,135,336
The concept of "de-differentiation" of cells is very attractive from a therapeutic perspective since it offers the possibility of generating autologous stem cells from somatic tissue. If one could devise a method for generating even minute numbers of totipotent stem cells from autologous tissue, these cells could be expanded and used to treat almost any illness. The use of nuclear transfer for...
Inventors: Paylian; Sergei (Knoxville, TN)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Wednesday April 21st, 2004

Endothelial precursor cells for enhancing and restoring vascular function

Patent Number: 7,135,171
Numerous ways exist of augmenting angiogenesis. These range from administration of cytokines such as FGF (US Patent #6451303) to administration of cells (US Patent 5980887). The current patent teaches the administration of endothelial progenitor cells, not some much for...
Inventors: Edelberg; Jay (New York, NY), Rafii; Shahin (Great Neck, NY), Hong; Mun (New York, NY), Lanza; Robert P. (Clinton, MA), West; Michael D. (Southborough, MA)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Thursday August 9th, 2001

Bucky paper as a support membrane in retinal cell transplantation

Patent Number: 7,135,172
Retinal degeneration is a major cause of blindness, percipitated by numerous conditions, including adult macular degeneration. While numerous companies are currently seeking ways of blocking angiogenesis and thereby blocking the retinal degeneration process, when this process has already occurred, there are no options for treatment. Intensive research is being carried out on ways of using stem...
Inventors: Loftus; David J. (Palo Alto, CA), Leng; Theodore (Mountain View, CA), Huie; Philip (Cupertino, CA), Fishman; Harvey (Menlo Park, CA)
Assignee: The United States of America as represented by the Administrator of the National Aeronautics and Space Administration (Washington, DC)
Date of First Priority Issue: Wednesday September 4th, 2002 1 Comment

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Methods of use of FGF homologs

Patent Number: 7,135,459
This patent covers the use of zFGF-5 (currently known as FGF-18) for expansion in vitro and in vivo of chondrocytes and neural stem cells. According to the Zymogenetics website, FGF-18 is out-licensed to Serono for use in cartilage repair and stroke. The product is in preclinical phases of testing. While the specification provides numerous uses for FGF-18, the claims are restricted to one...
Inventors: Deisher; Theresa A. (Seattle, WA), Conklin; Darrell C. (Seattle, WA)
Assignee: ZymoGenetics, Inc. (Seattle, WA)
Date of First Priority Issue: Monday October 16th, 2006

Method for neural stem cell differentiation using valproate

Patent Number: 7,132,286
This patent covers the use of valproic acid for inducing differentiation of neurons from neural stem cells. This patent seems to be restricted in the claims to the in vitro differentiation of neurons. What is interesting is whether the concentrations claimed in the patent are actually achievable in vivo. Since valproic acid is clinically used as an anticonvulsant, it is interesting to...
Inventors: Laeng; Pascal (Washington, DC), Mallon; Barbara (Gaithersburg, MD), Pitts; Lee (Falls Church, VA)
Assignee: Psychiatric Genomics, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Monday June 18th, 2001

Method for neural stem cell differentiation using 5HT-1A agonists

Patent Number: 7,132,287
This patent teaches that culture of neuronal stem cells in the presence of an 5HT1A agonist (for example serotonin) will induce differentation into neurons.
Inventors: Rajan; Prithi (Rockville, MD), Altar; C. Anthony (Garrett Park, MD)
Assignee: Psychiatric Genomics, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Monday June 18th, 2001

Differentiation of whole bone marrow

Patent Number: 7,129,034
This patent teaches the generation of neurons from culturing of whole bone marrow in basic fibroblast growth factor and epidermal growth factor. This patent

may be useful as a simple and easy to generate source of cells for therapy of neurodegenerative diseases.
Inventors: Yu; John S. (Los Angeles, CA), Kabos; Peter (Los Angeles, CA), Ehtesham; Moneeb (Nashville, TN)
Assignee: Cedars-Sinai Medical Center (Los Angeles, CA)
Date of First Priority Issue: Thursday October 25th, 2001

Animal tissue with carbohydrate antigens compatible for human transplantation

Patent Number: 7,126,039
This patent teaches ways of inactivating xenogeneic carbohydrate antigens and replacing them with non-immunogenic antigens so that various porcine and animal tissue may be transplanted into humans without the fear of hyperacute rejection. Since the problem of allogeneic rejection is still an issue, the clinical translation of this technology will most likely be long-term. Specifically, if it...
Inventors: Denning; Chris (Loughborough, GB), Clark; A. John (Midlothian, GB), Schiff; J. Michael (Menlo Park, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Sunday March 11th, 2001

Progenitor cell materials and methods

Patent Number: 7,125,714
This patent covers a stem cell that expresses both CD34 and VEGFR-3. What is nice about this patent is that it covers cells with CD34 and VEGFR-3 from ANY source.
Inventors: Alitalo; Kari (Helsinki, FI), Joukov; Vladimir (Boston, MA)
Assignee: Licentia Ltd. (Helsinki, FI); Ludwig Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Wednesday February 5th, 1997

Method for promoting hematopoietic and mesenchymal cell proliferation and differentiation

Patent Number: 7,118,748
This patent covers the use of angiogensinogen I, II and specific derivatives for stimulation of hematopoietic and stem cell proliferation.
Inventors: Rodgers; Kathleen E. (Long Beach, CA), diZerega; Gere S. (Pasadena, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Thursday May 8th, 1997

Vitro engineered, regenerated urinary tract tissue compositions and methods for producing same

Patent Number: 7,122,200
This patent covers ways of generating an artificial urinary tract through tissues engineering and culture of stem cells.
Inventors: Kropp; Bradley P. (Edmond, OK), Cheng; Earl Y. (Edmond, OK), Zhang; Yuan Yuan (Edmond, OK), Cowan; Rick (Oklahoma City, OK), Moore; Peter (Perry, OK)
Assignee: The Board of Regents of the University of Oklahoma (Norman, OK)
Date of First Priority Issue: Friday December 8th, 2000

Conditioned cell culture medium compositions and methods of use

Patent Number: 7,118,746
This patent covers protection of keratinocytes from a variety of stresses by administration of conditioned media from a variety of stem cell sources. This patent is useful for cosmetics and also for skin regeneration.
Inventors: Naughton; Gail K. (Del Mar, CA), Horwitz; David L. (San Diego, CA), Applegate; Mark A. (San Diego, CA), Zeltinger; Joan (San Diego, CA), Mansbridge; Jonathan N. (La Jolla, CA), Kern; Andreas (San Diego, CA), Landeen; Lee K. (San Diego, CA), Ratcliffe; Ant
Assignee: SkinMedica, Inc. (Carlsbad, CA)
Date of First Priority Issue: Friday May 12th, 2000

Preparation and xenotransplantation of porcine islets

Patent Number: 7,122,177
This patent covers the use of xenogeneic islet cells derived from fetal or neonatal pigs -20 to +10 days after birth, treating the cells with nicotinamide, lignocaine and a quinolone antibiotic, in order to generate a population of cells that may be encapsulated and used for treatment of diabetes in a human.
Inventors: Elliott; Robert Bartlett (Auckland, NZ), Calafiore; Riccardo (Perugia, IT), Basta; Gusseppe (Perugia, IT)
Assignee: Diabcell PTY Ltd. (Parkside, AU)
Date of First Priority Issue: Thursday January 20th, 2000

Mesenchymal precursor cell

Patent Number: 7,122,178
This patent covers a progenitor cell that gives rise to mesenchymal stem cells. The population appears to be highly expressing the marker STRO-1, capable of differentiating into fibroblasts, and have at least one of the following markers: THY-1, VCAM-1, STRO-2, and CD146. These cells are claimed in this patent for

augmentation of hematopoiesis. It will be interesting to compare this patent...
Inventors: Simmons; Paul (Kew, AU), Zannettino; Andrew (Highbury, AU), Gronthos; Stan (Bethesda, MD)
Assignee: Angioblast Systems, Incorporated (New York, NY)
Date of First Priority Issue: Wednesday July 7th, 1999

Composition and method for preserving progenitor cells

Patent Number: 7,112,653
This patent covers peptides that inhibit hematopoietic stem cell proliferation, thereby allowing protection of these cells from chemotherapy or radiotherapy. This patent may conceptually be applicable to selectively inhibiting healthy stem cells while allowing leukemic stem cells to proliferate so that chemotherapy or radiotherapy may selectively kill the proliferating leukemic cells.
Inventors: Moore; Jeffrey G. (Kennebunkport, ME)
Assignee: Inclone Systems, Incorporated (New York, NY)
Date of First Priority Issue: Monday December 9th, 1996

Small organic molecule regulators of cell proliferation

Patent Number: 7,115,653
This is a composition of matter patent on compounds that modulate hedgehog signalling. Since hedgehog is important not only in stem cell proliferation, but also in cancer, this patent has uses both in regeneration and cancer control.
Inventors: Baxter; Anthony David (Hertfordshire, GB), Boyd; Edward Andrew (Oxfordshire, GB), Frank-Kamenetsky; Maria (Brookline, MA), Guicherit; Oivin (Belmont, MA), Porter; Jeffery (Lexington, MA), Price; Stephen (Hartford, GB), Rubin; Lee L. (Wellesley, MA), Stibb
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Thursday March 30th, 2000

HoxD3 and HoxA3 compositions and methods for improved wound healing

Patent Number: 7,115,582
This patent covers the use of HoxA3, and peptides, and nucleic acids derived from it for tissue regeneration. One particular use is the acceleration of wound healing, particularly for diabetes.
Inventors: Boudreau; Nancy (San Francisco, CA), Young; David M. (Larkspur, CA), Myers; Cornelia (San Francisco, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Thursday June 21st, 2001

Retro-inverso peptides derived from interleukin-3

Patent Number: 7,115,571
IL-3 is a potent expander of hematopoietic stem cells. Unfortunately administration of proteins is associated with poor pharmacokinetics and the need to develop special formulations that can systemically deliver the protein. This patent covers peptide derivatives of IL-3 which have improved activity and pharmacological activity compared to administration of the whole protein. This patent is...
Inventors: Wright; David E. (Ramona, CA), Parks; D. Elliott (Del Mar, CA)
Assignee: Myelos Corporation (Iselin, NJ)
Date of First Priority Issue: Friday June 16th, 2000

Methods of proliferating undifferentiated neural cells

Patent Number: 7,115,418
This patent teaches ways of expanding neural stem cells without inducing loss of replicative ability. Specifically, this involves culture with one or more growth factors selected from a group comprising of EGF, amphiregulin, FGF-1, FGF-2 and TGF-beta.
Inventors: Weiss; Samuel (Alberta, CA), Reynolds; Brent (Alberta, CA), Hammang; Joseph P. (Barrington, RI), Baetge; E. Edward (Barrington, RI)
Assignee: Neurospheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday July 8th, 1991

Soft tissue and bone augmentation and bulking utilizing muscle-derived progenito compositions, and treatments thereof

Patent Number:
http://www.stemcellpatents.com/patents-show-1033
This patent covers the extraction and use of a muscle derived stem cell that is positive for the markers desmin, CD34, flk-1 and M-Cadherin, but does not express the hematopoietic marker CD45 nor c-kit. This cell type is useful for treatment of a variety of disorders associated with muscle degeneration. Although the inventors state that the cell is different than mesenchymal stem cells, in...
Inventors: Chancellor; Michael B. (Pittsburg, PA), Huard; Johnny (Pittsburgh, PA), Capelli; Christopher C. (Kenosha, WI), Qu; Zhuqing (Pittsburgh, PA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday May 1st, 1998

Isolation and use of solid tumor stem cells

Patent Number: 7,115,360
The cancer stem cell is very important since there is numerous investigators in the field that believe the

majority of cancer cells making up a tumor mass are only the products of a specific cell subpopulation with high repopulating potential. What this means is that usually the drugs developed for cancer are developed to kill not the stem cell of the tumor, but actually the progeny of the...
Inventors: Clarke; Michael F. (Ann Arbor, MI), Morrison; Sean J. (Ann Arbor, MI), Wicha; Max S. (Ann Arbor, MI), al-Hajj; Muhammad (La Jolla, CA)
Assignee: Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday August 3rd, 2000

Stimulator of stem cell division

Patent Number: 7,115,267
This patent covers various hemaglobin beta chain derived sequences of peptides, as well as their use in combination with opioids for augmentation of hematopoiesis, as well as for antiviral and anticancer activities. The products claimed by the patent appear easy to generate and are potentially useful for other regenerative applications besides stimulation of hematopoiesis.
Inventors: Wolpe; Stephen D. (Rockville, MD), Tsyrlova; Irena (Gaithersburg, MD)
Assignee: Wellstat Therapeutics Corporation (Gaithersburg, MD)
Date of First Priority Issue: Wednesday April 3rd, 1996

Methods of culturing embryonic stem cells and controlled differentiation

Patent Number: 7,112,437
This patent covers ways of generating human neural stem cells, or committed stem cells, from embryonic stem cells. The patent has 2 independent claims. The first teaches culturing of the embryonic stem cells with an agent that inhibits a bone morphogenic protein "default pathway" so that the differentiated cell that is produced loses at least one marker of the embryonic stem cell. This...
Inventors: Pera; Martin Frederick (Prahran, AU)
Assignee: ES Cell International Pte Ltd. (Singapore, SG)
Date of First Priority Issue: Tuesday June 20th, 2000

Retro-inverso peptides derived from leukemia inhibitory factor

Patent Number: 7,109,168
Leukemia inhibitory factor (LIF) is classically known for its ability to maintain murine embryonic stem cells in an undifferentiated state. Various types of non-embryonic stem cells also respond to LIF. For example, LIF supplementation to human fetal cortical cells increases telomerase activity and endows increased self-renewal potential (Wright et al. Human progenitor cells isolated from the...
Inventors: Wright; David E. (Ramona, CA), Parks; D. Elliott (Del Mar, CA)
Assignee: Myelos Corporation (Iselin, NJ)
Date of First Priority Issue: Sunday July 16th, 2000

Serum-free medium for mesenchymal stem cells

Patent Number: 7,109,032
This patent covers a tissue culture media composition that dose not require the addition of exogenous sera. The tissue culture composition is suitable for expanding mesenchymal stem cells and alleviates the need for serum through addition of the following proteins which are known to stimulate various types of stem cells: basic fibroblast growth factor, leukemia inhibitory factor, and stem cell...
Inventors: Cancedda; Ranieri (Genoa, IT), Dozin; Beatrice (Rapallo, IT)
Assignee: Consorzio per la Gestione del Centro di Biotecnologie Avanzate (Genoa, IT)
Date of First Priority Issue: Monday November 9th, 1998

Methods of therapy and diagnosis using insulin-like growth factor binding protein-like polypeptides and polynucleotides

Patent Number: 7,109,030
This is a composition of matter patent on polypeptides homologous to insulin like growth factor binding protein (IGFBP). Various members of the IGFBP family, such as IGFBP-3, stimulate hematopoietic cell proliferation (Liu et al. Functional cloning of IGFBP-3 from human microvascular endothelial cells reveals its novel role in promoting proliferation of primitive CD34+CD38- hematopoietic cells in...
Inventors: Dedera; Douglas A. (Castro Valley, CA), Yamazaki; Victoria (Redwood Shores, CA), Asundi; Vinod (Foster City, CA), Liu; Chenghua (San Jose, CA), Tang; Y. Tom (San Jose, CA), Drmanac; Radoje T. (Palo Alto, CA)
Assignee: Nuvelo, Inc. (San Carlos, CA)
Date of First Priority Issue: Friday March 31st, 2000

Myocardial grafts and cellular compositions

Patent Number: RE37,978
This patent is useful for anyone who is performing embryonic stem cell differentiation applications and desires a method of purifying unique differentiated cells from the embryonic stem cell. Since embryonic stem cells spontaneously differentiate into various lineages depending on culture conditions, this patent provides means of "fishing out" cells based on activation of cell-specific...

Inventor: Field, Loren J. (Indianapolis, IN)
Assignee: Advanced Research & Technology Institute (Indianapolis, IN)
Date of First Priority Issue: Tuesday November 16th, 1993

Electroactive materials for stimulation of biological activity of bone marrow stromal cells

Patent Number: 6,190,893
This patent is useful for parties interested in altering the biological activity of stromal cells of the bone marrow, particularly in the area of bioengineering. The invention has 5 independent claims. The first covers a method for stimulating biological activities (gene expression, growth, differentiation, transduction, and combo) in bone marrow stromal cells by contacting with an electroactive...
Inventors: Shastri, Venkatram R. (Allston, MA); Rahman, Nahid (Cambridge, MA); Martin, Ivan (Cambridge, MA); Langer, Jr., Robert S. (Newton, MA)
Assignee: Massachusetts Institute of Technology (Cambridge, MA)
Date of First Priority Issue: Friday September 18th, 1998

Hematopoietic cell composition for use in transplantation

Patent Number: 7101708
This patent is useful for parties looking to increase bone marrow stem cell homing to areas of need. In normal bone marrow transplants, stem cells from the donor are introduced intravenously and find their way to the bone marrow by virtue of bone marrow-secreted stromal derived factor-1 (SDF-1). It was more recently discovered that following tissue injury (for example stroke and myocardial...
Inventors: Lapidot, Tsvee (Nes-Ziona, IL); Peled, Amnon (Tel-Aviv, IL)
Assignee: Yeda Research and Development Co. Ltd. (Rehovot, IL)
Date of First Priority Issue: Tuesday July 20th, 1999

Two-stage culture protocol for isolating mesenchymal stem cells from amniotic fluid

Patent Number: 7101710
This patent useful for parties looking for methodologies to purify mesenchymal stem cells from amniotic fluid. The patent has 3 independent claims. Essentially all three are directed towards a two step culture process where amniotic fluid cells are first grown in a vessel, subsequently non-adherent cells are isolated, and allowed to expand. The difference between the claims is the media used...
Inventors: Tsai, Ming-Song (Taipei, TW); Hwang, Shiaw-min (Hsinchu 300, TW)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday February 12th, 2003

Methods of isolating hepatic progenitors

Patent Number: 7109028
This patent is useful for parties seeking to purify hepatic progenitor cells, or hepatic stem cells. The patent has one independent claim that essentially teaches how to "negatively deplete" a single cell suspension of hepatocytes for all cells except hepatic stem cells. The patent also claims the marker OC3 as expressed on hepatic stem cells. A publication that appears to relate to the...
Inventors: Reid, Lola M. (Chapel Hill, NC); Sigal, Samuel H. (Riverdale, NY); Brill, Shlomo (Ramat-Gan, IL); Holst, Patricia A. (Ossining, NY)
Assignee: Albert Einstein College of Medicine of Yeshiva University (Bronx, NY)
Date of First Priority Issue: Monday July 8th, 1991
2 Comments

Serum-free medium for mesenchymal stem cells

Patent Number: 7109032
This patent is useful for parties seeking to expand mesenchymal stem cells, particularly for clinical applications. The invention generally teaches tissue culture media and techniques that alleviate the need for using serum. Since serum is usually from animal origin (fetal calf serum) or in some cases of human origin, there exists possibilities of contaminating cellular sources. The invention...
Inventors: Cancedda, Ranieri (Genoa, IT); Dozin, Beatrice (Rapallo, IT)
Assignee: Consorzio per la Gestione del Centro di Biotecnologie Avanzate (Genoa, IT); Istituto Nazionale per la Ricerca Sul Cancro (Genoa, IT)
Date of First Priority Issue: Thursday September 10th, 1998

Antigen presenting mesenchymal stem cells

Patent Number: 7101704
This patent covers mesenchymal and adipocyte lineage cells that have been induced to present exogenous antigen. The patent is useful for companies that are interested in stimulating an immune response through having the mesenchymal or adipocyte-lineage cell to act as an antigen presenting cell. The patent has 2 independent claims. The first covers mesenchymal stem cells that have been treated...
Inventor: Mosca, Joseph (Ellicott City, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Saturday September 20th, 1997

In situ maturation of cultured pancreatic stem cells having a specified, intermediate stage of development

Patent Number: 7101546
This invention is useful for treatment of diabetes using encapsulated cells. The invention consists of one independent claim that appears to cover a method for treating diabetes by administration of encapsulated cells that have a specific set of biological and physical properties. The cells appear to be a type of intermediatery cell, or a progenitor cell that is capable of expansion.
Inventors: Tsang, Wen-Ghih (Sherman Oaks, CA); Zheng, Tianli (Culver City, CA); Wang, Yanping (Los Angeles, CA)
Assignee: AmCyte, Inc. (Santa Monica, CA)
Date of First Priority Issue: Wednesday November 21st, 2001

Use of LP82 to treat hematopoietic disorders

Patent Number: 7101539
This invention covers the newly discovered cytokine IL-20 and its use in stimulation of proliferation of early, but not differentiated hematopoietic progenitors. The patent is similar to a paper published by one of the authors (Liu L et al. 2003 Nov 1;102(9):3206-9.) The patent has 4 independent claims all directed to use of IL-20 and polypeptides derived from it. The first covers a method of...
Inventors: Heuer, Josef Georg (Indianapolis, IN); Liu, Ling (Carmel, IN); Noblitt, Timothy W. (Fishers, IN)
Assignee: Eli Lilly and Company (Indianapolis, IN)
Date of First Priority Issue: Wednesday February 28th, 2001

Recombinant human alpha-fetoprotein as a cell proliferative agent

Patent Number: 7101837
Alpha-fetoprotein (AFP) is a 65-kDa oncofetal glycoprotein found in fetal and maternal fluids during pregnancy and is produced by various types of cancers. This patent is useful for parties seeking methods of inducing proliferation of bone marrow cells. Particularly, AFP may be used to stimulate hematopoiesis in patients, as well as potentially for regenerative applications such as...
Inventor: Murgita, Robert A. (Montreal, CA)
Assignee: Martinex R & D Inc. (Montreal, CA)
Date of First Priority Issue: Tuesday January 24th, 1995

Regulators of the hedgehog pathway, compositions and uses related thereto

Patent Number: 7098196
This patent is useful for parties seeking to inhibit signal transduction pathways in stem cells, pathways such as the smoothened-dependent pathway. The patent is primarily important for the treatment of cancer, where one tries to inhibit stem cells that give rise to other tumor cells, although numerous uses in regenerative medicine are also possible. The patent has 5 independent claims, all...
Inventors: Beachy, Philip A. (Ruxton, MD); Chen, James K. (Baltimore, MD); Taipale, Anssi J. (Baltimore, MD)
Assignee: Johns Hopkins University School of Medicine (Baltimore, MD)
Date of First Priority Issue: Wednesday October 13th, 1999

Method for remyelinating a demyelinized lesion due to injury in the brain or spinal cord

Patent Number: 7098027
This patent is useful for inducing remyelination using autologous bone marrow stem cells. Demyelination is a pathology associated with numerous neuronal degenerative diseases such as multiple sclerosis or Krabbe Disease. The patent has 1 independent claim which covers the methodology of extracting bone marrow mononuclear cells from the autologous patient and injecting into the lesion of...
Inventors: Honmou, Osamu (Hokkaido, JP); Hashi, Kazuo (Hokkaido, JP); Uede, Teiji (Hokkaido, JP)
Assignee: Renomedix Institute, Inc. (Hokkaido, JP); Aska Pharmaceutical Co., Ltd. (Tokyo, JP); Mitsui Sumitomo Insurance Care Network Co., Ltd. (Tokyo, JP); Hitachi Ltd. (Tokyo, JP)
Date of First Priority Issue: Tuesday June 26th, 2001

Human desert hedgehog protein

Patent Number: 7098026
This is a composition of matter patent covering the human desert hedgehog protein which is critically involved in various stages of development. The hedgehog proteins have applications in stem cell proliferation and differentiation. This patent is critical for anyone looking to use the desert hedgehog protein as a therapeutic. Potential areas of therapeutics include regeneration of epithelial...
Inventors: Ariyasu, Toshio (Okayama, JP); Nakamura, Shuji (Okayama, JP); Orita, Kunzo (Okayama, JP)
Assignee: Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo (Okayama, JP)

Date of First Priority Issue: Wednesday April 22nd, 1998

Selected cell delivery for heart failure

Patent Number: 7097833

This patent is relevant for parties seeking to induce regeneration of cardiac tissue, or other tissue. Although the specification teaches the use of a variety of various peripheral blood and bone marrow stem cell sources for implantation into diseased, damaged, or otherwise subfunctional cardiac tissue, the issued claims only appear to cover the use of autologous, naturally residing cardiac...

Inventor: Freyman, Toby (Watertown, MA)

Assignee: Boston Scientific Scimed, Inc. (Maple Grove, MN)

Date of First Priority Issue: Friday July 19th, 2002

Intramyocardial injection of autologous bone marrow

Patent Number: 7097832

This patent is useful for the induction of collateral blood vessel formation (for example angiogenesis) in ischemic tissue. There are numerous conditions that may benefit from induction of said collateral blood vessel formation. For example ischemia of the various organs may be treated using this patent. The patent overall teaches the use of autologous bone marrow cells, either ex vivo...

Inventors: Kornowski, Ran (Ramat hasharon, IL); Fuchs, Shmuel (Rockville, MD); Epstein, Stephen E. (Rockville, MD); Leon, Martin B. (New York, NY)

Assignee: Myocardial Therapeutics, Inc. (San Diego, CA)

Date of First Priority Issue: Tuesday March 30th, 1999

Growth factor which acts through erb b-4 rtk

Patent Number: 7094882

This patent is useful for the manipulation of stem cell expansion through interfering with Neuregulin-4 signaling by antibody. Specifically, the patent has 2 independent claims that cover an antibody capable of binding to sequences which appear to be those of Neuregulin-4 or its active portions.

Inventors: Harari, Daniel (Rehovot, IL); Yarden, Yosef (Rehovot, IL)

Assignee: Yeda Research And Development Co. Ltd. (Rechovot, IL)

Date of First Priority Issue: Friday April 21st, 2000

Cationic lipid compositions targeting angiogenic endothelial cells

Patent Number: 7094424

This patent teaches ways of selectively targeting a compound to endothelial cells. This could be used to administer stem cell stimulators in order to increase angiogenesis. The patent has one independent claim,that is "A method for selectively labeling angiogenic endothelial cells in vivo, the method comprising administering to a mammal a liposomal complex comprising cationic lipids and a...

Inventors: McDonald, Donald M. (San Francisco, CA); McLean, John (Redwood City, CA); Thurston, O. Gavin (San Francisco, CA); Baluk, Peter (San Francisco, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Wednesday March 12th, 1997

Microinjection of cryoprotectants for preservation of cells

Patent Number: 7094601

This patent is useful for cryopreservation of extremely sensitive cells such as oocytes and stem cells. Particularly, the patent deals with microinjection of various agents that protect cells during cryopreservation. The patent has 2 independent claims. The first covers the culture of oocytes (the concept that "culture" will be frozen) such that a cryopreservation agent is injected into...

Inventors: Toner, Mehmet (Wellesley, MA); Eroglu, Ali (Augusta, GA); Toth, Thomas (Sudbury, MA)

Assignee: The General Hospital Corporation (Boston, MA)

Date of First Priority Issue: Tuesday May 16th, 2000

Hair follicle growth factor proteins

Patent Number: 7094569

This patent is useful for induction of hair growth through use of hair follicle growth factor (HFGF) proteins. Essentially, the HFGF proteins described in the application appear to be allelic variants of keratinocyte growth factor-2 (also known as FGF-10). There are both composition of matter, use, and delivery claims issued. One of the authors of the patent published a paper describing...

Inventors: Kim, Soogyun (Seoul, KR); Jang, Hyun-Jun (Seoul, KR

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday May 24th, 2001

IL-3 variant hematopoiesis fusion protein

Patent Number: 7091319

This patent covers fusion proteins of IL-3, that are useful for the growth, expansion, and in vivo expansion of stem cells. Although IL-3 and its fused partners are primarily important for hematopoietic stem cell

expansion, the fusion proteins may have numerous other uses, including expanding hematopoietic-like stem cells that may be used for regenerative applications. The patent has numerous...
Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Marie Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday November 24th, 1992

Chemokine analogs for the treatment of human disease

Patent Number: 7,091,310
This patent is useful for stem cell mobilization, stem cell homing, as well as a variety of other applications involving various chemokines. Specifically, the invention covers peptides that antagonize or agonize receptors for IL-8, IP-10, MIP-1 alpha., MCP-1, RANTES, I-309, and CCL28. IL-8 is known to be associated with inflammation and in terms of stem cells is known to be associated with...
Inventors: Merzouk, Ahmed (Richmond, CA); Wong, Donald (Vancouver, CA); Salari, Hassan (Delta, CA)
Assignee: Chemokine Therapeutics Corporation (Vancouver, CA)
Date of First Priority Issue: Friday September 13th, 2002

Modified hyaluronic acid for use in musculoskeletal tissue repair

Patent Number: 7091191
This patent is useful for making scaffolds onto which stem cells, progenitor cells, or other type of cells can be seeded, and the scaffold together with the seeded cells are implanted in vivo. Previous scaffold technologies using hyaluronic acid have the drawback of very rapid resorption in the body, not giving the cells enough time to integrate and function properly. This patent uses a novel...
Inventors: Laredo, Walter R. (Hillsborough, NJ); Rezania, Alireza (Hillsborough, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Friday December 19th, 2003 1 Comment

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Methods and compositions for screening for altered cellular phenotypes

Patent Number: 7056687
This patent is useful for drug development. It teaches ways of inducing gene expression in cells (including stem cells) and using the specifically modified cells for screening of drug libraries. The invention itself is not specific to stem cells, so therefore we will not describe it in detail. The patent has 3 independent claims. Specifically: "A method of screening for cells having an...
Inventors: Lorens, James (Portola Valley, CA); Kinsella, Todd M. (Fayetteville, NC); Masuda, Esteban (Menlo Park, CA); Hitoshi, Yasumichi (Mountain View, CA); Liao, X. Charlene (Palo Alto, CA); Pearsall, Denise (Belmont, CA); Freiro, Annabelle (South San Francisco,
Assignee: Rigel Pharmaceuticals, Inc. (South San Francisco, CA)
Date of First Priority Issue: Tuesday May 12th, 1998

Cell culturing and storage systems, devices and methods

Patent Number: 7091035
This invention is important for entities looking to expand various stem cells in vitro. The inventors noted that stem cells can differentiated into various types of other cells, and that a "dynamic" method of growing stem cells is relevant to what type of cells can be produced. The invention essentially covers ways of watching and manipulating stem cells and their progeny in culture as...
Inventors: Ravin, Rea (Rockville, MD); Sullivan, James V. (Bowie, MD); McKay, Ronald D. (Bethesda, MD)
Assignee: The United States of America as represented by the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Monday December 30th, 2002

Adipose tissue-derived adult stem or stromal cells for the repair of articular cartilage fractures and uses thereof

Patent Number: 7078232
Repair of articular cartilage is a substantial problem. The patent is useful for entities interested in providing a solution to this problem through the administration of cellular therapy containing adipose-derived stem cells in a biocompatible matrix or delivery system. The patent specifically has 4 independent claims. The first claim covers a composition of matter that is useful for treatment...
Inventors: Konkle, Jon (Durham, NC); Gimble, Jeffrey M. (Baton Rouge, LA)
Assignee: Artecel, Inc.
Date of First Priority Issue: Thursday August 19th, 1999

Human pancreatic epithelial progenitor cells and methods of isolation and use thereof

Patent Number: 7078231

This patent deals with the problem that the majority of pancreatic progenitor cells known at the time of filing are only capable of differentiating into islets but not other cells in the pancreas. Specifically, the patent cites patents 5,888,705 (Compositions and method of stimulating the proliferation and differentiation of human fetal and adult pancreatic cells ex vivo) and 5,834,308 (In vitro...

Inventors: Roberts, Penelope E (Millbrae, CA); Mather, Jennie Powell (Millbrae, CA)

Assignee: Raven biothechnologies, inc. (South San Francisco, CA)

Date of First Priority Issue: Wednesday October 4th, 2000

Adipose tissue-derived stromal cell that expresses characteristics of a neuronal cell

Patent Number: 7078230

This patent is useful for entities interested in neurodegeneration and sources of neural-like cells. The patent is a composition of matter patent on adipose tissue derived cells that are endowed with neural characteristics. The patent has 2 independent claims, the first covers an adipose tissue derived stromal cell that is differentiated to express neuronal phenotypic markers. The second claim...

Inventors: Wilkison, William O. (Bahama, NC); Gimble, Jeffrey (Chapel Hill, NC)

Assignee: Artecel, Inc. (Baltimore, MD)

Date of First Priority Issue: Saturday February 26th, 2000

Method for enhancing proliferation or differentiation of a cell using ob protein

Patent Number: 7074397

This patent is useful for treatment of neutropenias and other conditions where expansion of bone marrow is required. The patent teaches the use of WSX ligands in stimulation of hematopoiesis. One such ligand is leptin. The patent has 2 independent claims. The first covers enhancing proliferation or differentiation a cell of the hematopoietic lineage through administration of the OB protein...

Inventor: Matthews, William (Woodside, CA)

Assignee: Genentech, Inc. (South San Francisco, CA)

Date of First Priority Issue: Thursday August 1st, 1996

Resorbable posterior spinal fusion system

Patent Number: 7074239

This invention is useful for entities interested in inducing spinal fusion, primarily for patients with lower back pain. The invention covers a medical implant that can be used to deliver various stem cell and progenitor cell chemoattractants, as well as morphogens, in order to accelerate healing and efficient fusion of vertebrae.

Inventors: Cornwall, G. Bryan (San Diego, CA); Sohngen, Gary (San Pedro, CA); Lane, Joseph M. (New York, NY); Tomin, Emre A. (New York, NY)

Assignee: Cytori Therapeutics, Inc. (San Diego, CA)

Date of First Priority Issue: Wednesday April 25th, 2001

Production of cultured human mast cells and basophils for high throughput small molecule drug discovery

Patent Number: 7070996

This is a patent covering the use of CD34+ generated mast cells for drug screening. Since technologies for generating mast cells existed in the prior art (for example, as early as 1991 it was known that CD34+ cells can differentiate into mast cells: Kirshenbaum AS, et al. Demonstration of the origin of human mast cells from CD34+ bone marrow progenitor cells. J Immunol. 1991 Mar 1;146(5):1410-5...

Inventor: Rossi, Alexander B. (San Francisco, CA)

Assignee: Rigel Pharmaceuticals, Inc. (South San Francisco, CA)

Date of First Priority Issue: Friday August 31st, 2001

Method for cloning animals with targetted genetic alterations by transfer of long-term cultured male or female somatic cell nuclei, comprising artificially-induced genetic alterations, to enucleated recipient cells

Patent Number: 7071372

Although numerous technologies exist for cloning of animals, it appears from the current patent, that one of the limitations is that the donor cell usually has to be freshly isolated, or cultured for a short period of time. This does not allow for manipulation of the donor cell at a genetic level before nuclear transfer. The current patent teaches methods of long-term culture of donor cells so...

Inventors: Yang, Xiangzhong (Storrs, CT); Kubota, Chikara (Kagoshima, JP)

Assignee: University of Connecticut (Farmington, CT); The Governor of Kagoshima Prefecture (JP)

Date of First Priority Issue: Saturday April 1st, 2000

Escherichia coli strain secreting human granulocyte colony stimulating factor (G-CSF)

Patent Number: 7070989

This patent is important for entities seeking to use the hematopoietic stem cell stimulatory/differentiation factor, granulocyte colony stimulating factor (G-CSF) that is produced in E. coli. The patent has 2 independent

claims, the first to a vector encoding human G-CSF, and the second to a method of producing human G-CSF.
Inventors: Lee, Sang-Yup (Taejon, KR); Jeong, Ki-Jun (Taejon, KR)
Assignee: Korea Advanced Institute of Science and Technology (KR)
Date of First Priority Issue: Friday March 31st, 2000

Injection devices that provide reduced outflow of therapeutic agents and methods of delivering therapeutic agents

Patent Number: 7070582
This patent is a medical device useful for administration of therapeutic agents into a host, through a unique 2 catheter approach that can simultaneously deliver various agents including stem cells. The device if very interesting since it does not require a needle, but includes alternative delivery methods for implatnation of therapeutic solutions and cells into tissue in a localized area.
Inventors: Freyman, Toby (Watertown, MA); Naimark, Wendy (Cambridge, MA); Mickley, Tim (Elk River, MN); Epstein, Samuel J. (Newton, MA)
Assignee: Boston Scientific Scimed, Inc. (Maple Grove, MN)
Date of First Priority Issue: Sunday September 8th, 2002

Hematopoietic stimulation

Patent Number: 7067489
The invention is useful for stimulating hematopoiesis, preventing low levels of hematopoietic cells and producing increased numbers of hematopoietic and mature blood cells which can be used both in vivo and in vitro. It appears that CD26 is a peptidase that cleaves certain proteins, including hematopoietic growth factors. Additionally, CD26 cleaves SDF-1 the chemotactic signal that calls in...
Inventors: Wallner, Barbara P. (Cohasset, MA); Jones, Barry (Cambridge, MA); Miller, Glenn T. (Merrimac, MA); Adams, Sharlene (Waltham, MA)
Assignee: Point Therapeutics, Inc. (Boston, MA)
Date of First Priority Issue: Monday May 4th, 1998

Methods and devices for the long-term culture of hematopoietic progenitor cells

Patent Number: 7067316
This patent is useful for the long term, in vitroculture of hematopoietic progenitor cells in the absence of exogenously added hematopoietic growth factors. It appears that the inventors developed a system that replicates the bone marrow structure but does not require addition of cytokines or other growth factors, or serum. The invention has 2 independent claims. The first covers a porous...
Inventors: Pykett, Mark J. (Boxford, MA); Rosenzweig, Michael (Boston, MA); Kaplan, Richard B. (Beverly Hills, CA)
Assignee: Cytomatrix, LLC (Woburn, MA)
Date of First Priority Issue: Thursday September 25th, 1997

Bioartificial device for the storage, cultivation and/or multiplication of cells

Patent Number: 7067307
This invention is useful for generating artificial tissue, particularly, but not limited to hepatocytes using a flow-through bioreactor that has the following advantages over the existing technologies: a) Cells can be cultivated; b) Cell growth is under extremely low shear forces and turbulences; c) A continuous supply of oxygen-saturated nutrient medium is provided; and d) Continuous assessment...
Inventors: Hochleitner, Boris-Wolfgang (Graz, AT); Hengster, Paul (Innsbruck, AT)
Assignee: Raimung Margreiter (Seefeld, AT)
Date of First Priority Issue: Saturday November 2nd, 2002

Methods of using mutant flt3-ligand polypeptides to induce cellular expansion

Patent Number: 7067118
This invention teaches ways of generating active portions of the stem cell expanding protein flt-3L and using these active portions. The assignee is the same company, (Immunex) that developed the original flt-3L. The patent has 4 independent claims. The first covers expanding stem cells, the second covers in vivo expansion, the third covers transplanting cells and expanding them in vivo, the...
Inventors: Graddis, Thomas J. (Cupertino, CA); McGrew, Jeffrey T. (Seattle, WA)
Assignee: Immunex Corporation (Seattle, WA)
Date of First Priority Issue: Saturday February 7th, 1998

Process for reconstructing a non-human mammalian embryo by nuclear transfer using a heat treated donor nucleus and preparaing a non-human mammal

Patent Number: 7064245
One of the issues associated with cloning of animals is that the donor nucleus has to be reprogrammed by the recipient oocyte. Reprogramming involves unraveling of the densely packed DNA chromatin structures which is performed by the oocyte cytoplasmic machinery. In this invention, heat treatment of donor cell or

constituents thereof us used to increase the rate of proper reprogramming. The...
Inventors: Loi, Pasqualino (Sassari, IT); Cappai, Pietro (Sassari, IT)
Assignee: Istituto Zootecnico E Caseario per La Sardegna (Sasari, IT)
Date of First Priority Issue: Friday June 4th, 1999

Cytokine zcytor17 ligand

Patent Number: 7064186

This is a composition of matter patent covering the cytokine zcytor17 ligand, which is involved in various immune and stem cell activities. The patent has 3 independent claims, all covering composition of matter. The email of the senior author is dillons@zgi.com
Inventors: Sprecher, Cindy A. (Sierra Vista, AZ); Kuijper, Joseph L. (Kenmore, WA); Dasovich, Maria M. (Seattle, WA); Grant, Francis J. (Seattle, WA); Hammond, Angela K. (Kirkland, WA); Novak, Julia E. (Suquamish, WA); Gross, Jane A. (Seattle, WA); Dillon, Stacey R.
Assignee: ZymoGenetics, Inc. (Seattle, WA)
Date of First Priority Issue: Friday January 18th, 2002

Compounds and methods for inhibiting the interaction between .alpha.-catenin and .beta.-catenin

Patent Number: 7063842

The catenins are involved in numerous cell to cell interactions. This patent covers ways of inhibiting alpha and beta catenin interactions using a chemical composition. Specifically, the patent has 3 independent claims. The first is for modulating the interaction between alpha and beta catenin with specific peptides and antibodies. The second is for a pharmaceutical composition. The third...
Inventors: Blaschuk, Orest W (Westmount, CA); Gour, Barbara J (Kemptville, CA)
Assignee: McGill University (Montreal, CA)
Date of First Priority Issue: Saturday October 4th, 1997

Growth of human Mesenchymal Stem Cells (hMSC) using umbilical cord blood serum and the method for the preparation thereof

Patent Number: 7060494

This patent is useful for expansion and maintaining mesenchymal stem cells through the uniquely discovered property of cord blood serum to be able to substitute for other sources of serum such as fetal calf serum. The patent has 3 independent claims. The first is directed towards growing mesenchymal stem cells, and the second at third are directed towards isolating mesenchymal stem cells by...
Inventor: Bhat, Aravind Venkatrao (Mumnai, IN)
Assignee: Reliance Life Sciences Pvt. Ltd. (Maharashtra, IN)
Date of First Priority Issue: Wednesday September 4th, 2002

Fibroblast growth factor and nucleic acids encoding same

Patent Number: 7056885

The invention covers a novel type of fibroblast growth factor called FGF-CX, which is useful for differentiation and expansion of various stem cells. The patent has 2 independent claims: 1 for the composition of matter itself, and the second for the composition of matter together with a pharmaceutically applicable carrier.
Inventors: Jeffers, Michael (Branford, CT); Shimkets, Richard A. (West Haven, CT); Prayaga, Sudhirdas K. (East Haven, CT); Boldog, Ferenc L. (North Haven, CT); Yang, Meijia (East Lyme, CT); Burgess, Catherine (Wethersfield, CT); Fernandes, Elma (Branford, CT); Herrm
Assignee: CuraGen Corporation (Branford, CT)
Date of First Priority Issue: Tuesday July 27th, 1999

Early stage multipotential stem cells in colonies of bone marrow stromal cells

Patent Number: 7056738

This is a composition of matter patent on a type of bone marrow derived stem cell. The authors state that marrow stromal cells (MSCS) are adult stem cells from bone marrow that can differentiate into multiple non-hematopoietic cell lineages. The authors identified that colonies of human MSCs contain both small, rapidly self-renewing stem cells (RS cells) and large, more mature cells (mMSCs...
Inventors: Prockop, Darwin J. (New Orleans, LA); Colter, David C. (Philadelphia, PA); Sekiya, Ichiro (New Orleans, LA)
Assignee: Tulane University (New Orleans, LA); Philadelphia Heath and Education Corporation (Philadelphia, PA)
Date of First Priority Issue: Friday March 23rd, 2001

Differentiation of non-insulin producing cells into insulin producing cells by GLP-1 or exendin-4 and uses thereof

Patent Number: 7056734

This patent is useful for entities seeking to treat diabetes or other pancreatic abnormalities. The patent has very broad claims, all centered around the ability of GLP and Exendin-4 to induce differentiation of cells into insulin produce or amylase producing cells. The patent has 8 independent claims. The first four claims are directed towards use of GLP-1 or related molecules to make either...

Inventors: Egan, Josephine (Baltimore, MD); Perfetti, Riccardo (Washington, DC); Passaniti, Antonino (White Hall, MD); Greig, Nigel (Silver Spring, MD); Holloway, Harold (Middle River, MD); Habener, Joel (Newton Centre, MA); Stoffers, Doris (Moorestown, NJ)
Assignee: The United States of America as represented by the Department of Health and Human Services, NIH
Date of First Priority Issue: Friday October 8th, 1999

Nuclear reprogramming using IWSI and related chromatin remodeling ATPases

Patent Number: 7053264

This patent is useful for parties seeking to perform cloning or generate stem cells through cloning. During nuclear transfer mediated cloning, one of the difficulties is that the donor nucleus has DNA packed tightly into chromatin. During usual nuclear transfer it is the role of the recipient oocyte to unravel the DNA and to perform the necessary "cleaning of the slate" so that the...
Inventors: Wolffe, legal representative, Elizabeth (Orinda, CA); Wolffe, deceased, Alan P. (Orinda, CA)
Assignee: Sangamo Biosciences, Inc. (Richmond, CA)
Date of First Priority Issue: Thursday September 28th, 2000

Preventives/remedies for proliferative organ diseases chronic arthritic diseases, hypertrophic scar or keloid

Patent Number: 7053050

This patent is useful for treatment of proliferative diseases, including cancer. It is known that erythropoietin has functions on numerous stem cells in addition to hematopoietic ones. In this patent the inventors demonstrated that inhibition of EPO receptor signalling can have a useful anti-proliferative effect. The 2 independent claims cover use of the receptor antagonist and use of the...
Inventors: Yasuda, Yoshiko (Kyoto, JP); Nakamura, Yukio (Higashimurayama, JP); Fujita, Yoshihiko (Sakai, JP)
Assignee: Yoshiko Yasuda (Kyoto, JP)
Date of First Priority Issue: Sunday February 11th, 2001

Adult human dental pulp stem cells in vitro and in vivo

Patent Number: 7052907

This patent covers a new type of stem cell derived from the dental pulp, it is useful for entities seeking to generate articial teeth, or dendin/pulp tissue. However, given that the patent actually claims a tooth stem cell, it may also be considered a composition of matter patent (although phenotype is somewhat ill defined in the claims). The patent has 3 independent claims. The first covers...
Inventors: Shi, Songtao (Gaithersburg, MD); Gronthos, Stan (Rockville, MD); Robey, Pamela Gehron (Bethesda, MD)
Assignee: The United States of America as represented by the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Friday July 21st, 2000
1 Comment

Resorbable structure for treating and healing of tissue defects

Patent Number: 7049348

Porous medical implants are covered by this patent that can be used to administer either stem cells, stem cell activating compositions of matter, or also just administered directly to allow for tissue re-growth on an injured area. The patent has one independent claim that covers the "porous polymeric device". The assignee, Kensey Nash corporation has a variety of implants/medical...
Inventors: Evans, Douglas G (Downingtown, PA); Kelly, Jeffrey C (Wilmington, DE); DeWitt, Todd M (Pottstown, PA)
Assignee: Kensey Nash Corporation (Exton, PA)
Date of First Priority Issue: Friday June 7th, 2002

Use of collagenase in the preparation of neural stem cell cultures

Patent Number: 7049141

When growing neural stem cell cultures, at a certain point in culture they need to be passaged. According to the background in the patent, before the invention, scientists would dissociate neurospheres by mechanical means, which as one could expect causes a loss in cell viability. This patent covers the use of collagenase in dissociating neurospheres when passaging them. This patent is...
Inventor: Uchida, Nobuko (Palo Alto, CA)
Assignee: StemCells California, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday February 26th, 1999

Method for growth of human conjunctival tissue equivalents for research, clinical ocular surface transplantation and tissue engineering

Patent Number: 7049139

There are two types of stem cells associated with the outside part of the eye…the limbal stem cells and the conjunctival stem cells. This patent teaches ways of culturing conjunctival stem cells, using various ex vivo tissue culture scenarious, including specialized culture conditions. There is one independent claim, which covers the basic aspects of these conditions. The patent is useful for...

Inventors: Tan, Donald (Singapore, SG); Ang, Leonard (Singapore, SG); Beuerman, Roger (New Orleans, LA)
Assignee: Singapore Eye Research Institute (Singapore, SG)
Date of First Priority Issue: Friday March 29th, 2002

Tissue engineered uterus

Patent Number: 7049057

This invention teaches methods of generating an in vitro uterus using various scaffolds and cell compositions. The patent has 1 independent claim which covers a multilayered implantable uterus comprising of a biologically compatible matrix holding together uterine epithelial cell population that are attached to smooth muscle cell populations. This is an artificial organ patent, from the same...
Inventors: Atala, Anthony (Weston, MA); Yoo, James J. (Brookline, MA)
Assignee: Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Saturday November 16th, 2002

Gene expression analysis of pluri-differentiated mesenchymal progenitor cells and methods for diagnosing a leukemic disease state

Patent Number: 7049072

It is known from the literature that the non-tumor stroma surrounding the tumor plays an important role in the growth of the tumor by facilitating angiogenesis, providing growth factors, etc. In hematological malignancies, the fact that donor-derived leukemic relapse occurs in some individuals suggests that stromal elements may be responsible, or associated with leukemic transformation. This...
Inventor: Seshi, Beerelli (Torrance, CA)
Assignee: University of South Florida (Tampa, unknown)
Date of First Priority Issue: Monday June 5th, 2000

Combined regulation of neural cell production

Patent Number: 7048934

This patent teaches ways of treating neurological disease such as Alzheimer's disease, multiple sclerosis (MS), Huntington's disease, amyotrophic lateral sclerosis, and Parkinson's disease through administration of several compounds that are already in the clinic such as prolactin and EPO. The patent applies to selectively producing neural cells, including neurons or glial cells (cells that...
Inventors: Thompson, Bradley G. (Calgary, CA); Weiss, Samuel (Calgary, CA); Shingo, Tetsuro (Aoe, JP)
Assignee: Stem Cell Therapeutics Inc. (Calgary, unknown)
Date of First Priority Issue: Thursday August 30th, 2001

Stimulation of hematopoiesis by ex vivo activated immune cells

Patent Number: 7048922

This patent covers a clinically applicable method of increasing hematopoiesis through administration of activated peripheral blood mononuclear cells. The ability of these cells to secrete hematopoietic stimulatory cytokines is well established, however the inventor is actually claiming a method of using such ex vivo activated cells for treatment of a patient. The patent has 1 independent claim...
Inventor: Yang, Demao (Mountain View, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday May 29th, 2002

Neural transplantation using pluripotent neuroepithelial cells

Patent Number: 7048921

This patent covers ways of treating neurological deficiencies or damage through transplantation of specific types of stem cells, or progenitor cells. Specifically, the patent has 3 independent claims. The first independent claim covers the intracerebrally transplantation of pluripotent, nestin-positive, neuroepithelial cells that have been conditionally immortalized through genetic manipulation...
Inventors: Sinden, John (London, GB); Gray, Jeffrey A. (London, GB); Hodges, Helen (London, GB); Kershaw, Timothy (London, GB); Rashid-Doubell, Fiza (Oxford, GB)
Assignee: ReNeuron Limited (GB)
Date of First Priority Issue: Saturday December 9th, 1995

Directed differentiation of human embryonic cells

Patent Number: 7045353

This is basically the patent that covers how to generate neurons from embryonic stem cells. Of course the various composition of matter patents on embryonic stem cells (5,843,780, 6,200,806, 7,029,913) have to be in-licensed to use this invention. The invention has one broad independent claim which covers a method of differentiating human embryonic stem cells into neurons. The method basically...
Inventor: Benvenisty, Nissim (Jerusalem, IL)
Assignee: Yissum Research Development Company of The Hebrew University of Jerusalem (Jerusalem, IL)
Date of First Priority Issue: Saturday January 8th, 2000

Method of collecting placental stem cells

Patent Number: 7045148

This patent is useful for entities seeking to extract additional CD34 stem cells from placenta than can be normally gathered by just letting the blood drip and collecting cord blood. This patent has one independent claim that covers, essentially perfusing the placenta with an anticoagulated solution after the cord blood has dripped out.

Inventor: Hariri, Robert J. (Florham Park, NJ)

Assignee: Anthrogenesis Corporation (Cedar Knolls, NJ)

Date of First Priority Issue: Monday June 12th, 2000

Therapeutic cellular stent

Patent Number: 7044965

This patent covers a type of stent that contains cells and is useful not only for maintaining open a blood vessel, but also for delivery of cells that secrete various agents useful for the body. The patent has two independent claims, the first covering a stent containing cells, the second covering a method of administering cells into an organism. Stents have been covered with many agents in...

Inventor: Spielberg, Theodore E. (Wellesley, MA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday December 13th, 2002

Transdiffentiation of transfected epidermal basal cells into neural progenitor cells, neuronal cells and/or glial cells

Patent Number: 7041507

This invention teaches how to generate neurons from skin. Essentially, the inventors found that through the process of isolating epidermal stem cells (basal cells), transfected said basal cells with genes encoding neurogenic transcription factors, suppressing transcription factors that maintain a differentiated phenotype (by for example antisense), and then culturing the cells with exogenous...

Inventors: Levesque, Michel F. (Beverly Hills, CA); Neuman, Toomas (Santa Monica, CA)

Assignee: Cedars-Sinai Medical Center (Los Angeles, CA)

Date of First Priority Issue: Wednesday January 20th, 1999

Use of human embryonic stem cells for drug screening and toxicity testing

Patent Number: 7041438

This is a very broad patent that essentially covers all drug screening using a specific type of stem cells. The inventors describe these stem cells as "primate Pluripotent Stem cells" (pPS cells), thus including pre-embryonic, embryonic, or fetal tissue-derived cells that can be induced to differentiated into progeny of the three germinal layers: endoderm, mesoderm, and ectoderm. This of...

Inventors: Carpenter, Melissa K. (London, CA); Inokuma, Margaret S. (San Jose, CA); Xu, Chunhui (Palo Alto, CA)

Assignee: Geron Corporation (Menlo Park, CA)

Date of First Priority Issue: Thursday June 22nd, 2000

Spinal fusion using an HMG-CoA reductase inhibitor

Patent Number: 7041309

HMG-CoA reductase inhibitors ("Statins" for the purpose of our discussion) have been known to increase endothelial stem cell mobilization, as well as possess other interesting functions such as suppressing disease in the mouse model of multiple sclerosis. In this patent, the use of statins for promoting spinal fusion is thought. Specifically, the patent claims that it is not anticipated...

Inventors: Remington, Benjamin J. (Modesto, CA); Bearss, David J. (Tucson, AZ); Shahi, Kavian (Granite Bay, CA)

Assignee: NeuroPro Technologies, Inc. (Modesto, CA)

Date of First Priority Issue: Monday May 13th, 2002

Methods of using immunophilin binding drugs to improve integration and survival of neuronal cell transplants

Patent Number: 7041283

This patent teaches the use of immunophilin binding agents for culturing of neuronal cells so as to use for cellular therapy. The patent has 2 independent claims, both covering a method of treatment of a neurodegenerative illness by administration of cells that have been cultured with immunophilin binding agents. This patent is very interesting, not from the perspective of cell therapy per se...

Inventors: Achim, Cristian L. (Allison Park, PA); Avramut, Mihaela (Pittsburgh, PA); Zeevi, Adriana (Pittsburgh, PA)

Assignee: University of Pittsburgh-Of the Commonwealth System of Higher Education (Pittsburgh, PA)

Date of First Priority Issue: Friday February 16th, 2001

Hematopoietic stem cell proliferating agents

Patent Number: 7037892

Stimulation of hematopoiesis in patients who are neutropenic after chemo, or radiation is a major goal of medicine. This is particularly important due to infectious disease complications that arise in patients that have been myeloablated. This patent teaches the

use of insulin like growth factor as an adjuvant to several of the major stimulators of hematopoiesis that are already in the...
Inventors: Saito, Yoshimasa (Kawanishi, JP); Ueda, Yoshiko (Osaka, JP); Tamura, Kouichi (Kobe, JP); Takata, Yoko (Osaka, JP); Yamada, Hisashi (Sanda, JP); Yamashita, Tatsuo (Kobe, JP); Kobayashi, Masakazu (Takarazuka, JP)
Assignee: Astellas Pharma Inc. (Tokyo, JP)
Date of First Priority Issue: Monday December 8th, 1997

Neuroepithelial stem cells and glial-restricted intermediate precursors

Patent Number: 7037720
This patent appears to cover a progenitor cell of neuronal lineage. Specifically the patent has 2 independent claims. The first covers a population of neuroepithelial stem cells derived from embryonic sources which are dependent of FGF for proliferation and can differentiate into CNS neuronal cells and CNS glial cells, The second covers a population restricted to the glial lineage but can...
Inventors: Rao, Mahendra S. (Salt Lake City, UT); Mayer-Proschel, Margot (Sandy, UT)
Assignee: University of Utah Reseach Foundation (Salt Lake City, UT)
Date of First Priority Issue: Saturday July 5th, 1997

Enriched central nervous system stem cell and progenitor cell populations, and methods for identifying, isolating and enriching for such populations

Patent Number: 7037719
This patent teaches how to isolate neuronal stem cells from human fetal brain. The stem cells, or I guess more appropriately, "progenitor cells", are isolated based on positive expression of AC133, binding to the antibody 5E12 (don't know what that is), and negative for CD34 and CD45. The patent has 6 independent claims which cover the population of CD34-, CD45-, AC133+, 5E12+ cells. In...
Inventors: Buck, David W. (Heathfield, GB); Uchida, Nobuko (Palo Alto, CA); Weissman, Irving (Redwood City, CA))
Assignee: StemCells California, Inc. (Palo Alto, CA
Date of First Priority Issue: Thursday December 2nd, 1999

Method of inducing neuronal production in the brain and spinal cord

Patent Number: 7037493
This patent has 2 independent claims. The first covers a method of addition of medium spiny neurons in an adult brain through local lateral wall administration of a nucleotide expressing BDNF, as well as noggin. The second independent claim covers generation of medium spiny neurons in a patient with Huntington's disease. Medium spiny neurons are inhibitory neurons that comprise about 75% of the...
Inventors: Goldman, Steven A. (South Salem, NY); Benraiss, Abdellatif (Astoria, NY)
Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)
Date of First Priority Issue: Wednesday January 5th, 2000

Islet cells from human embryonic stem cells

Patent Number: 7033831
This patent covers a method of generating insulin producing cells from human embryonic stem cells through the process of first incubating the human embryonic stem cells with Activin A, and then subsequently incubating the cells with nicotinamide. Activin is a peptide involved in wound healing and morphogenesis, wherease nicotinamide is a type of vitamine B3 and improves beta cell functions...
Inventors: Fisk, Gregory J. (Fremont, CA); Inokuma, Margaret S. (San Jose, CA)
Assignee: Geron Corporation (Menlo Park, CA
Date of First Priority Issue: Thursday July 12th, 2001

Drug releasing biodegradable fiber for delivery of therapeutics

Patent Number: 7033603
This patent relates to ways of delivering drugs (for example stem cell stimulating agents) to specific anatomical areas using an implantable, biodegradible approach. Specifically, the patent has 4 independent claims, the first 3 cover a delivery composition, and the 4th covers a scaffold.
Inventors: Nelson, Kevin D. (Arlington, TX); Crow, Brent B. (Fort Worth, TX)
Assignee: Board of Regents The University of Texas (Austin, TX)
Date of First Priority Issue: Tuesday June 8th, 1999

Use of adipose tissue-derived stromal cells for chondrocyte differentiation and cartilage repair

Patent Number: 7033587
This patent teaches ways to make artificial cartilage patches using adipose stem cells as starting material. These patches may be useful for people having injuries in which cartilage is damaged. The patent has 1 independent claim which essentially covers producing such an artifical patch through taking out adipose stem cells, culturing the cells to become chondrocytes, allowing the...

Inventors: Halvorsen, Yuan-Di C. (Holly Springs, NC); Wilkison, William O. (Bahama, NC); Gimble, Jeffrey Martin (Chapel Hill, NC)
Assignee: Artecel Sciences, Inc. (Durham, NC)
Date of First Priority Issue: Thursday August 19th, 1999

Deflectable microimplant delivery system

Patent Number: 7033345

This invention covers a medical device that can be used for administration of a variety of drugs and/or cellular therapeutics. The patent essentially describes a "deflectable microimplant delivery system" that can be used for relatively non-invasive introduction of cells or agents into areas of need. The patent has numerous independent claims covering the various mechanical aspects of...

Inventors: Lee, Michael J. (Santa Rosa, CA); Kristoffersen, Kristian P. (Santa Rosa, CA)
Assignee: Advanced Cardiovascular Systems, Inc. (Santa Clara, CA)
Date of First Priority Issue: Tuesday May 21st, 2002

Method and system for myocardial infarction repair

Patent Number: 7031775

This patent covers and implantable system made of cells, genes, other agents, together wtih a device that elecronically stimulates the cells. Specifically, the patent has 1 independent claim which covers a method of repairing the patient's myocardium through administration of a "cell repopulating source" and an "electrical stimulation device".

Inventors: Soykan, Orhan (Shoreview, MN); Donovan, Maura G. (St. Paul, MN)
Assignee: Medtronic, Inc. (Minneapolis, MN)
Date of First Priority Issue: Friday July 11th, 1997

Method for producing a population of homozygous stem cells having a pre-selected immunotype and/or genotype, cells suitable for transplant derived therefrom, and materials and methods using same

Patent Number: 7030292

This invention teaches how to generate a "cell bank" of embryonic stem cells that are homozygous at HLA. Theoretically, the inventors suggest..."that a few hundred stem cell lines that are homozygous for different haplotypes will be sufficient to match a majority of the human population. This number is tremendously smaller in contrast to the number of haplotypes needed to maintain a...

Inventors: Yan, Wen Liang (Potomac, MD); Huang, Steve Chien-Wen (Germantown, MD); Nguyen, Minh-Thanh (Rockville, MD); Lin, Huan (Helen) (N. Potomac, MD); Lei, Jingqi (Gaithersburg, MD); Khanna, Ruchi (Germantown, MD)
Assignee: Stemron, Inc. (Myersville, MD)
Date of First Priority Issue: Thursday February 1st, 2001

Method for differentiating rat hepatic stem cells to insulin-producing cells

Patent Number: 7029915

The invention teaches how to make liver stem cells into cells that resemble pancreatic endocrine cells (ie islets). The patent has 1 independent claim, basically covering a method of endowing hepatic stem cells with an endocrine pancreatic characteristic by first isolating hepatic stem cells from 2-acetylamino-fluorene-treated adult rats and then growing the cells in a medium made of >5.5 mM...

Inventor: Yang, Lijun (Gainesville, FL)
Assignee: University of Florida Research Foundation, Inc. (Gainesville, FL)
Date of First Priority Issue: Friday February 22nd, 2002

Uses for non-autologous mesenchymal stem cells

Patent Number: 7029666

This patent teaches therapeutic uses of mesenchymal stem cells that are NOT MHC matched. Two specific uses seem to be covered: connective tissue regeneration, and muscle regeneration. The patent has two independent claims, the first covers a method of promoting muscle growth in a human by administration of non-MHC matched mesenchymal stem cells, whereas the second covers a method of promoting...

Inventors: Bruder, Scott P. (Waltham, MA); McIntosh, Kevin R. (Ellicott City, MD); Marshak, Daniel R. (Lutherville, MD); Mosca, Joseph D. (Ellicott City, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday March 13th, 1998

Method of inducing formation of kidney epithelia from mesenchymal precursors

Patent Number: 7022666

This patent seems to cover the preservation of a kidney, despite its title. It may be that preservation is achieved through endogenous stem cell differentiation of kidney epithelium. The patent has one claim covering a method of preserving a kidney by contacting the kidney with a ligand for gp130 receptor (ie LIF, a cardiotrophin, a ciliary neuronotrophic factor, an interleukin-6), and a...

Inventors: Barasch, Jonathan M. (New York, NY); Oliver, Juan A. (New York, NY); Yang, Jun (New York, NY)

Assignee: The Trustees of Columbia University in the City of New York (New York, NY)
Date of First Priority Issue: Tuesday May 4th, 1999

Use of marrow-derived glial progenitor cells as gene delivery vehicles into the central nervous system

Patent Number: 7022321
This patent capitalizes on the ability of bone marrow cells to migrate into the brain and cause repairative function. The patent uses bone marrow cells as a "vector" in order to deliver glial cell line-derived neurotrophic factor (GDNF) to the area of need. The patent has 2 independent claims both covering "A method of treating Parkinson's disease, ". The first covers administration of bone...
Inventors: Eglitis, Martin A. (Indianapolis, IN); Mezey, Eva (Rockville, MD); Mouradian, Mary Maral (Bethesda, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Saturday October 4th, 1997

Method of detecting hematopoietic progenitor cells

Patent Number: RE39,006
This patent appears to cover a new method of detecting hematopoietic stem cells, without needing to use stem cell-specific markers. The patent seems to use some light and physical properties of the cells to distinguish between stem cells and non-stem cells. The patent has one issued claim which is: "A method for detecting or counting or both detecting and counting hematopoietic progenitor...
Inventors: Houwen, Berend (Redlands, CA); Tsujino, Yukio (Hyogo-ken, JP); Morikawa, Takashi (Hyogo-ken, JP); Ikeuchi, Yoshiro (Hyogo-ken, JP); Hamaguchi, Yukio (Hyogo-ken, JP); Wang, Fu-sheng (Hyogo, JP); Hirai, Kojiro (Hyogo, JP)
Assignee: Sysmex Corporation (Kobe, JP)
Date of First Priority Issue: Saturday March 1st, 1997

Multiponent adult stem cells and methods for isolation

Patent Number: 7015037
This patent describes a bone marrow stem cell population that is multipotent and capable of differentiating into various lineages besides hematopoietic ones. Specifically, the patent has 5 independent claims, all covering a stem cell isolated from bone marrow. The first covers a CD49c and CD90 postive cell that doubles around every 36 hours. The second covers a cell of similar phenotype that...
Inventors: Furcht, Leo T. (Minneapolis, MN); Verfaillie, Catherine M. (St. Paul, MN); Reyes, Morayma (Minneapolis, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN); MCL/LLC (Minneapolis, MN)
Date of First Priority Issue: Saturday May 8th, 1999

Implanting neural progenitor cells derived for human embryonic stem cells

Patent Number: 7011828
This patent is a owned by the embryonic stem cell powerhouse, ES International from Singapore. The patent covers a method of administration of embryonic stem cells that have been differentiated into neuron-like cells. The invention contains one independent claim, specifically covering: "a method of administration of stem cell derived neural progenitors" but the neural progenitors are...
Inventors: Reubinoff, Benjamin Eithan (Elsternwick, AU); Pera, Martin Frederick (Prahran, AU); Ben-Hur, Tamir (Jerusalem, IL)
Assignee: ES Cell International Pte. Ltd. (Singapore, SG)
Date of First Priority Issue: Wednesday March 14th, 2001

Compositions and methods for producing and using homogenous neuronal cell transplants

Patent Number: 7011827
This patent covers the use of the human NT2N neurons for treatment of brain injury. Essentially, the NT2N cells are a cell line derived from a human teratocarcinoma which have neuronal properties., specifically, the cells are post-mitotic since the original teratocarcinoma cell is induced to differentiate into neurons which retinoic acid...this way tumors are not suppose to form in the...
Inventors: Lee, Virginia M.-Y. (Philadelphia, PA); Trojanowski, John Q. (Philadelphia, PA)
Assignee: Trustees of the University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Saturday September 11th, 1993

System and method for processing bone marrow

Patent Number: 7008394
Bone marrow transplants, as well as other bone marrow applications represent by far the largest use of stem cells in medicine. The process of harvesting bone marrow may be complicated and prone to contamination. Since bone marrow harvest is a painful and almost traumatic procedure, contamination of a bone marrow graft during harvest could be disasterous. The current invention teaches the use of...
Inventors: Geise, Russell D. (Allentown, PA); Chapolini, Robert J. (Phoenix, MD)

Assignee: BioAccess, Inc. (Baltimore, MD)
Date of First Priority Issue: Thursday March 29th, 2001

Serum free cultivation of primate embryonic stem cells

Patent Number: 7005252

The use of serum in stem cell cultures impedes clinical translation since serum has batch to batch variability, as well as possibility of eliciting allergic responses, especially when fetal calf serum is used. The invention teaches how to grow embryonic stem cells without serum. Essentially the claims of the invention all cover compositions of albumin, amino acids, vitamins, minerals, at least...

Inventor: Thomson, James A (Madison, WI)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Sunday September 3rd, 2000

Active retinoic acid-free culture medium for avian totipotent embryonic stem cells

Patent Number: 6998266

This patent is directed towards the culture of avian embryonic stem cells. The patent has two independent claims. The first is a culture medium for avian embryonic stem cells comprising of FGF-2, IGF-1; at least one cytokine selected from LIF, IL-11, IL-6, CNTF, and oncostatin M (OSM)) and c-kit ligand (either mouse or avian. The second independent claim covers a method of culturing the avian...

Inventors: Samarut, Jacques (Lyons, FR); Pain, Bertrand (Lyons, FR)
Assignee: Institute National de la Recherche Agronomique (Paris, FR); Centre National de la Recherche Scientifique (CNRS) (Paris, FR); Ecole Normale Superieur de Lyon (Lyons, FR)
Date of First Priority Issue: Friday October 21st, 1994

Synergistic composition and methods for treating neoplastic or cancerous growths and for restoring or boosting hematopoiesis

Patent Number: 6998125

Despite its title, the patent doesn't really deal with stimulation of hematopoiesis. It covers a method of immunizing a cancer pateint with tumor antigens and concurrenly inhibiting TGF-beta. It is known that TGF-beta is an immunosuppressive agent released by cancer cells. It may be that since TGF-b inhibits hematopoiesis, the inhibition of TGF-b would not only derepress the immune system in...

Inventors: Hanna, Nabil (Olivenhain, CA); Braslawsky, Gary R. (San Diego, CA); Hariharan, Kandasamy (San Diego, CA)
Assignee: Biogen IDEC Inc. (Cambridge, MA)
Date of First Priority Issue: Thursday September 18th, 1997

Propagation of human hepatocytes in non-human animals

Patent Number: 6995299

This patent teaches ways of growing human hepatocytes in xenogenic hosts. This patent would be useful for using animals as "bioincubators" in order to grow organs or cells for human use. Specifically the patent has two independent claims. The first covers a model of hepatitis C in which a mammal is injected with human hepatocytes when it is in the fetal stage, thus becoming tolerized...

Inventors: Wu, George Y. (Avon, CT); Wu, Catherine H. (Avon, CT)
Assignee: University of Connecticut (Farmington, CT)
Date of First Priority Issue: Thursday February 11th, 1999

Cell-scaffold composition containing five layers

Patent Number: 6995013

This invention is a 5-layer scaffold that is useful for growing cells in a bioreactor, or in vivo to produce functional vascularized organ tissue. The invention primarily deals with generation of bone tissue, but other types of tissues and organs can be generated using this scaffold. The patent has 1 independent claim which covers the composition of the scaffold. The assignee, Biomed...

Inventors: Connelly, Patrick R. (Rochester, NY); Babalola, Omotunde M. (Long Island, NY)
Assignee: BioMed Solutions, LLC (West Henrietta, NY)
Date of First Priority Issue: Wednesday August 7th, 2002

Method of isolating stem cells

Patent Number: 6991897

This and patent #5,876,956 are licensed to the company Aldagen (2810 Meridian Parkway Suite 148 Durham, NC 27713 919-484-2571) that is actually purifying stem cells using this method for clinical trials (for example: Intramyocardial Injection of Autologous Aldehyde Dehydrogenase-Bright Stem Cells for Therapeutic Angiogenesis at Texas Heart: Oct 5, 2006). The patent covers purifying stem cells...

Inventors: Smith, Clayton A. (Tampa, FL); Colvin, Michael (Chapel Hill, NC); Storms, Robert W. (Durham, NC); Ludeman, Susan M. (Durham, NC)
Assignee: Duke University (Durham, NC)
Date of First Priority Issue: Sunday July 12th, 1998

Physiological tissue repair and functional organ regeneration by cultivation of regenerative stem cells in vivo and in situ

Patent Number: 6991813

This patent covers a way of stimulating healing by treatment with a neutraceutical. Specifically the patent has 1 independent claim covering a method for regenerating skin through administration of a composition on a wound having beeswax a fatty acid-containing oil and a sterol compound. The patent claim is directed toward stimulation of proliferation of keratinocytes that express...

Inventor: Xu, Rongxiang (Arcadia, CA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Sunday January 28th, 2001

Progenitor cell preservation factors and methods for and products of their use

Patent Number: 6991794

This patent is directed to the stimulation of hematopoietic stem cell proliferation by use of a lectin called FRIL. The patent has 2 independent claims. The first is directed towards a pharmaceutical composition claiming some distinct sequences that bind glycosylated flt-3. The second is directed towards treatment, using the same sequences. There is a paper published by the authors that...

Inventors: Colucci, M. Gabriella (La Jolla, CA); Chrispeels, Maarten J. (La Jolla, CA); Moore, Jeffrey G. (Kennebunkport, ME)

Assignee: ImClone Systems Incorporated (New York, NY); The Regents of the University of California (La Jolla, CA)

Date of First Priority Issue: Tuesday June 24th, 1997

Methods of preparing bone marrow stromal cells for use in gene therapy

Patent Number: 6991787

This patent involves using gene-transfected bone marrow cells as a way of delivering the gene of interest to a tissue that needs it. For example, lets take stroke patients. Conceptually one could administer a therapeutic gene directly into the area of cell death, or in proximity to it, in order to prevent further cell death or to induce regeneration of neurons. This approach is complex since...

Inventors: Greenberger, Joel S. (Sewickley, PA); Hurwitz, David R. (Acton, MA)

Assignee: ALG Company (Marlborough, MA)

Date of First Priority Issue: Friday December 29th, 1995

Schwann cells originating in myeloid interstitial cells

Patent Number: 6989271

Schwann cells generate myelin (insulates neuronal electrical signals [amognst other things]) and are essential for the proper function of neuronal tissue. Various neurological diseases would benefit from the ability to introduce Schwann Cells that are properly functioning. The current patent teaches ways of using bone marrow stromal cells as a source of Schwann Cells. Specifically the patent...

Inventors: Dezawa, Mari (Yokosuka, JP); Sawada, Hajime (Yokohama, JP); Takano, Masahiko (Yokohama, JP) Assignee: Sanbio, Inc. (Mountain View, CA)

Assignee: Sanbio, Inc. (Mountain View, CA)

Date of First Priority Issue: Friday June 22nd, 2001

Methods to mobilize progenitor/stem cells

Patent Number: 6987102

Hematopoietic stem cells stay in the bone marrow due in part to secretion of SDF-1 by bone marrow stromal cells. The chemotactic gradient of SDF-1 is also what causes hematopoietic stem cells to home to the bone marrow of the recipient after a bone marrow transplant. This invention covers some antagonists of the receptor for SDF-1, CXCR-4 which when administered cause the stem cell cells to...

Inventors: Bridger, Gary J. (Bellingham, WA); Abrams, Michael J. (Custer, WA); Henson, Geoffrey W. (Ferndale, WA); MacFarland, Ronald Trevor (Vancouver, CA); Calandra, Gary B. (Cresco, PA); Broxmeyer, Hal E. (Indianapolis, IN); Dale, David C. (Seattle, WA)

Assignee: Anormed, Inc. (Langley, CA)

Date of First Priority Issue: Tuesday July 31st, 2001

Human ovarian mesothelial cells and methods of isolation and uses thereof

Patent Number: 6987024

This patent covers a new type of ovarian progenitor cell. Specifically, the patent has 1 independent claim covering a cell population that can differentiate into overian epithelium or granulosa cells. Two other claims that appear to be of high importance are the use of this cell for production of proteins, and the use of this cell for bioassays.

Inventors: Li, Rong-hao (La Jolla, CA); Bald, Laura (Los Altos, CA); Mather, Jennie Powell (Millbrae, CA)

Assignee: Raven Biotechnologies, Inc. (South San Francisco, CA)

Date of First Priority Issue: Wednesday October 4th, 2000

Universal stem cells

Patent Number: 6986887

This patent teaches how to make stem cells less immunogenic by modification of the human leukocyte antigen content. Specifically the patent has 2 independent claims. The first covers modification of HLA-B and HLA-C, whereas the second covers modification of HLA-DR. Essentially the generation of "universal donor" stem cells can be made in such a manner by making the cells more compatible...

Inventors: Lawman, Patricia (Chipley, FL); Lawman, Michael J. P. (Chipley, FL)

Assignee: Morphogenesis, Inc. (Oldsmar, FL)

Date of First Priority Issue: Tuesday March 25th, 1997

Isolation and use of solid tumor stem cells

Patent Number: 6984522

In the cancer patient it is believed that tumors are actually a heterogeneous population of cells, and that not all the tumor cells have equal proliferative capability. This concept of the "tumor stem cell" maintaining the bulk of the tumor population is very important since many believe that the cells targeted by conventional therapies are not the actual tumor stem cell but derivatives thereof...

Inventors: Clarke, Michael F. (Ann Arbor, MI); Morrison, Sean J. (Ann Arbor, MI); Wicha, Max S. (Ann Arbor, MI); Al-Hajj, Muhammad (Ann Arbor, MI)

Assignee: Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Wednesday March 8th, 2000

Gene therapy by administration of genetically engineered CD34.sup.+ cells obtained from cord blood

Patent Number: 6984379

This patent covers the use of autologous cord blood CD34 cells transfected with the adenosine deaminase gene for the treatment of severe combined immunodeficiency (SCID). The patent has 3 independent claims, the first covering a method of expressing a therapeutic agent in a human (but specifically restricted to adenosine deaminase), the second a method of treating a human with SCID, and the...

Inventors: Kohn, Donald B. (Tarzana, CA); Blaese, R. Michael (Rockville, MD); Mullen, Craig A. (Sugar Land, TX); Moen, Robert C. (Mountain View, CA)

Assignee: Children's Hospital of LosAngeles (LosAngeles, CA); The United States of America as represented by the Department of Health and Human Services

Date of First Priority Issue: Thursday August 4th, 1994

Bone marrow aspiration system

Patent Number: 6981948

As mentioned in our discussion about patent # 7008394, bone marrow harvesting is a relatively invasive procedure. This is also very relavant for regenerative uses of bone marrow where patients with a heart attack or stroke are harvested. Accordingly there is a need to develop less invasive and increasingly sterile means of harvesting. The current patent has two independent claims covering a...

Inventors: Pellegrino, Richard C. (Mendon, MA); Voellmicke, John C. (Cumberland, RI)

Assignee: DePuy Spine, Inc. (Raynham, MA)

Date of First Priority Issue: Monday November 18th, 2002

Isolated stromal cells and methods of using the same

Patent Number: 6974571

The invention covers a way of introducing stem cells into a host in such a manner that the cells can be killed off if desired through administration of an agent that induces expression of a suicide gene. This is important since in some situations it is desired to have the exogenous stem cells in the body only for a limited period of time. Specifically, the invention has 2 independent claims...

Inventors: Prockop, Darwin J. (Philadelphia, PA); Pereira, Ruth F. (Lansdowne, PA); Leeper, Dennis B. (Wynnewood, PA); O'Hara, Michael D. (Wyncote, PA); Kulkosky, Joseph (Philadelphia, PA); Phinney, Donald (Maple Glen, PA); Laptev, Alexey (Philadelphia, PA)

Assignee: Thomas Jefferson University (Philadelphia, PA)

Date of First Priority Issue: Tuesday March 28th, 1995

Composition and method for culturing potentially regenerative cells and functional tissue-organs in vitro

Patent Number: 6972195

This patent teaches the composition of a culture media that is shown in the EXAMPLES section useful for growing: Human Intestinal Cells, Mouse Intestinal Mucosal Villi, Mouse Bone Marrow Tissue , Rat Nerve Tissue, Mouse Pancreatic Cells, Mouse Renal Cells, Human Hair Follicles, Rat Cardiomuscular Cells, Rat Thymocytes , and Rat Hepatocytes. The examples also show activity of the media in...

Inventor: Xu, Rongxiang (Arcadia, CA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday December 31st, 2002

Materials and methods for nerve grafting, selection of nerve grafts, and in vitro nerve tissue culture

Patent Number: 6972168
This patent teaches ways of generating an plethora of compounds which are useful for regeneration of damaged nervous system tissue. Specifically, the patent has 2 independent claims. The first covers growing nerves in conditions that are not associated with degeneration, then killing the nerves, harvesting the material, and introducing the material into an area where damaged neurons are present...
Inventor: Muir, David F. (Gainesville, FL))
Assignee: University of Florida Research Foundation, Incorporated (Gainesville, FL
Date of First Priority Issue: Monday August 13th, 2001

Compounds and methods for increasing neurogenesis

Patent Number: 6969702
This patent deals with administration of compounds, some which I believe are already in the clinic, for stimulation of neurogenesis in a patient suffering from a neurodegenerative condition. The patent has 2 independent claims, the first covers the administration of calcitonin, or exendin or analogues thereof that intracellular cAMP levels. The second independent claim covers administration of...
Inventors: Bertilsson, Goran (Vasterhaninge, SE); Erlandsson, Rikard (Sundyberg, SE); Frisen, Jonas (Stockholm, SE); Haegerstrand, Anders (Danderyd, SE); Heidrich, Jessica (.ANG.rsta, SE); Hellstrom, Nina (Sodertalje, SE); Haggblad, Johan (Vastgotagrand, SE); Jansso
Assignee: NeuroNova AB (Stockholm, SE)
Date of First Priority Issue: Wednesday November 20th, 2002 1 Comment

Pharmaceuticals containing multipotential precursor cells from tissues containing sensory receptors

Patent Number: 6969608
This patent covers the use of a type of stem cell composition derived from tissues having sensory receptors such as olfactor epithelium. The patent contains 1 independent claims. The first covers a composition of neural stem cells and a carrier, the neural stem cells being isolated from tissue containing sensory receptors, expressing nestin, proliferate in absence of EGF, can differentiate...
Inventors: Miller, Freda (Montreal, CA); Gloster, Andrew (Saskatoon, CA)
Assignee: McGill University (Montreal, CA)
Date of First Priority Issue: Monday August 26th, 1996

Nitric oxide manipulation of muscle satellite cell activation

Patent Number: 6967102
This patent sounds (from its title) like it covers use of nitric oxide for activation of muscle stem cells. Given the inventor described a role for nitric oxide in this context (Anderson JE A role for nitric oxide in muscle repair: nitric oxide-mediated activation of muscle satellite cells. Mol Biol Cell. 2000 May;11(5):1859-74 janders@ms.umanitoba.ca), one would anticipate the claims to...
Inventor: Anderson, Judy E. (Winnipeg, CA)
Assignee: University of Manitoba (Winnipeg, CA)
Date of First Priority Issue: Wednesday November 3rd, 1999

Pancreatic islet cell growth factors

Patent Number: 6967100
This patent teaches how to generate islet-like cells from fetal progenitors by culturing in the presence of one of the bone morphogenic proteins together with laminin or a laminin-like extracellular matrix. The patent has 3 independent claims all covering essentially the same process. The first one covers induction of growth and proliferation of "mammalian pancreatic epithelial cells into...
Inventors: Harrison, Leonard C. (St Kilda West, AU); Jiang, Fang-Xu (North Melbourne, AU); Stanley, Edouard Guy (Ascot Vale, AU); Gonez, Leonel Jorge (Chadstone, AU)
Assignee: The Walter and Eliza Hall Institute of Medical Research (Victoria, AU)
Date of First Priority Issue: Friday February 18th, 2000

Method for increasing hematopoietic progenitor cells by stem cell factor

Patent Number: 6967029
This patent has 2 independent claims both covering the use of stem cell factor for stimulation of hematopoiesis. The first independent claim covers its use in vivo, whereas the second covers its use ex vivo.
Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Parks, CA); Martin, Francis H. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Monday October 16th, 1989

Production of pancreatic islet cells and delivery of insulin

Patent Number: 6967019
This patent teaches ways of making gastrointestinal organ cells and pancreatic cells express insulin in vitro, conceptually for introduction in vivo. The patent essentially teaches that introduction of a neuroendocrine class B basic helix-loop-helix (bHLH) transcription factor gene or the neurogenin3 (Ngn3)

gene into gastrointestinal organ cells or pancreatic cells, respectively, endows ability...
Inventor: German, Michael S. (Daly City, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Friday June 4th, 1999

Methods of controlling proliferation and differentiation of stem and progenitor cells

Patent Number: 6962698

This patent essentially teaches that reducing the copper content in a hematopoietic culture increases efficiency of the culture. The patent has 2 independent claims, the first covering "A method of transplanting expanded undifferentiated hematopoietic cells " and the second covering "A method of adoptive immunotherapy ". The idea that reducing copper content expands ability of...
Inventor: Assignee: Gamida Cell Ltd. (Jerusalem, IL) Hadasit Medical Research Services and Development, Ltd. (Jerusalem, IL)
Assignee: Peled, Tony (Mevaseret Zion, IL); Fibach, Eitan (Mevaseret Zion, IL); Treves, Avi (Mevaseret Zion, IL)
Date of First Priority Issue: Tuesday February 17th, 1998

In vitro mass production of human erythroid cells from the blood of normal donors and thalassemic patients

Patent Number: 6960473

This patent teaches how to generate large quantities of erythroid cells in vitro. This is useful for nuclear disasters or situations where large quantities of red blood cells are needed for transfusion purposes. This is a very interesting invention since it uses as the starting population blood cells and not bone marrow. The invention has 1 independent claim covering the method of generating...
Inventors: Migliaccio, Giovanni (Rome, IT); Franco, Anna Rita (Rome, IT)
Assignee: Istituto Superiore di Sanita (Rome, IT)
Date of First Priority Issue: Saturday February 26th, 2005

Method for isolating cells expressing flk-2

Patent Number: 6960446

fetal liver kinase 2 (flk-2) is expressed on numerous types of stem cells. This patent covers isolation of cells expressing this marker using either a monoclonal or polyclonal antibody. The patent has 1 independent claim which essentially covers the subject matter previously mentioned. The importance of flk-2 on hematopoietic stem cells was published by the author (Matthews W, et al. A receptor...
Inventor: Lemischka, Ihor R. (Princeton, NJ)
Assignee: The Trustees of Princeton University (Princeton, NJ)
Date of First Priority Issue: Monday February 4th, 1991

Process for producing a vascularized bioartificial tissue and an experimental reactor for carrying out the process

Patent Number: 6960427

At face value this patent seems to be extremely broad. The issued claims, which have one independent claim, cover pretty much any type of vascularized bioengineered tissue. The claim is not restricted to type of tissue or method of generating the tissue. It covers the introduction of at least one blood vessel into either a tissue or a matrix which has cells in it, growing of the tissue in...
Inventors: Haverich, Axel (Isernhagen, DE); Kofidis, Theo (Hannover, DE)
Assignee: Artiss GmbH (Hannover, DE)
Date of First Priority Issue: Monday April 3rd, 2000

Implantable biocompatible immunoisolatory vehicle for delivery of selected therapeutic products

Patent Number: 6960351

One of the main drawbacks of stem cell therapy, or any cell therapy for that matter is that it is important to avoid the issue of immunological rejection. This is why numerous scientists are using autologous stem cells. Unfortunately, there is no such thing as autologous embryonic stem cells. Additionally, the ability to use allogeneic stem cells without rejection would allow for the widespread...
Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Scharp, David W. (St. Louis, MO); Lacy, Paul E
Assignee: Brown University Research Foundation (Providence, RI)
Date of First Priority Issue: Thursday April 25th, 1991

Agents for preventing and treating thrombocytopenia

Patent Number: 6956022

This patent teaches the use of an existing pharmaceutical, parathyroid hormone (or agonists of the parathyroid hormone receptor) for stimulation of platelet production. The patent has one issued claim which covers essentially what was just mentioned. This is an interesting patent because in a publication it states that "Between 1958 and the late 1970s it was learned that PTH (the parathyroid...

Inventors: Tamura, Masahiko (Shizuoka-ken, JP); Oda, Yasuhiro (Nagano-ken, JP)
Assignee: Chugai Seiyaku Kabushiki Kaisha (Tokyo, JP)
Date of First Priority Issue: Tuesday January 2nd, 1996

Targeting pharmaceutical agents to injured tissues

Patent Number: 6955898

This patent teaches was of targeting damaged tissue with genes that stimulate angiogenesis. Conceptually the technology could be modified to introduce agents which actually stimulate stem cell proliferation at the site of injury. The patent has one issued claim that covers a fusion polypeptide, with one end having a collagen binding domain which binds exposed vascular collagen (ie during...

Inventors: Hall, Frederick L. (Glendale, CA); Gordon, Erlinda M. (Glendale, CA); Starnes, Vaughn A. (Pasadena, CA); Anderson, W. French (San Marino, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Friday July 31st, 1998

Modulation of cell fates and activities by diketo phthalazines

Patent Number: 6953799

This patent teaches ways of modulating "stress" in cells through administration of "therapeutically effective amount of a phthalazine dione" in its one independent claim. The Assignee company, Bach Pharma, Inc is currently practicing the patent in the form of a registered drug (in Russia), Galavit® whose chemically active substance is Monosodium 5-Amino...

Inventors: Henry, Mark O. (North Andover, MA); Lynn, William S. (Hillsborough, NC)
Assignee: Bach Pharma, Inc. (North Andover, MA)
Date of First Priority Issue: Wednesday October 30th, 2002

Methods and compositions for the diagnosis and treatment of hematological disorders using 2777

Patent Number: 6953778

This patent is a demonstration of creative patent writing, with positive results of claim issuance. Essentially, the inventors found a novel gene called 2777 which is significantly expressed in erythroid cells both in vitro and in vivo. 2777 is also expressed in erythroid progenitor (BFU-E) cells and Glycophorin A positive-lo (GPA-lo) cells in vivo. Since 2777 appears at a structural level to...

Inventor: Carroll, Joseph M. (Cambridge, MA)
Assignee: Millennium Pharmaceuticals, Inc. (Cambridge, MA)
Date of First Priority Issue: Wednesday October 31st, 2001

Instrument for regenerating living organism tissue or organ

Patent Number: 6953482

Essentially the invention is a scaffold with a tube-like feature in which cells may be grown outside of the body to form an organ or tissue, and then will be used for implantation into the host. The tube-like features of the scaffold allow for growth of neurons, blood vessels, trachea, and other bodily parts. The patent has 2 independent claims. The first covers general features of the scaffold...

Inventors: Doi, Nobutoshi (Osaka, JP); Matsuda, Kazuhisa (Osaka, JP); Hata, Ken-ichiro (Kariya, JP); Sakai, Kensuke (Aichi, JP)
Assignee: Nipro Corporation (Osaka, JP); Ueda, Minoru (Nisshin, JP)
Date of First Priority Issue: Thursday April 26th, 2001

Hydrogels formed by non-covalent linkages

Patent Number: 6949590

Hydrogels are very useful for adminstration of cells into localized tissues. One of the problems is that polymerization of hydrogels often uses catalysts, which add problems to medical implimentation due to adverse effects of catalysts. This invention teaches ways of making hydrogels so that they do not require catalysts. The invention has 3 independent claims. The first covers "...

Inventors: Ratner, Buddy D. (Seattle, WA); Nair, Prabha D. (Kerala, IN); Boeckl, Maximiliane Silvia (Seattle, WA); Leber, Elizabeth Reeves (Seattle, WA)
Assignee: University of Washington (Seattle, WA)
Date of First Priority Issue: Tuesday October 1st, 2002

Transdifferentiation of epidermal basal cells into neural progenitor cells, neuronal cells and/or glial cells

Patent Number: 6949380

This invention is similar to patent 7041507, which was filed by the same inventors. The current invention teaches generation of neuronal-like cells through the transdifferentiation of epidermal basal cells. The invention has 3 independent claims covering, "An in vitro method of transdifferentiating an epidermal basal cell ", "A kit for transdifferentiating, in vitro, an epidermal...

Inventors: Levesque, Michel F. (Beverly Hills, CA); Neuman, Toomas (Santa Monica, CA)
Assignee: Cedars-Sinai Medical Center (Los Angeles, CA)
Date of First Priority Issue: Wednesday January 20th, 1999

Porous .beta.-tricalcium phosphate granules for regeneration of bone tissue

Patent Number: 6949251

The invention is a composition of matter useful for treatment of bone defects and regeneration of bone. The composition is a porous ceramic material (beta.-tricalcium phosphate) of various pore sizes, porosity and granule size which is biocompatible with human tissue and supports the development of new bone throughout its structural form. The composition may be admixed with cells, cytokines...

Inventors: Dalal, Paresh S. (Shrewsbury, MA); Dimaano, Godofredo R. (Edison, NJ); Toth, Carol Ann (Sharon, MA); Kulkarni, Shailesh C. (Natick, MA)

Assignee: Stryker Corporation (Kalamazoo, MI)

Date of First Priority Issue: Saturday February 3rd, 2001

Progenitor cells, methods and uses related thereto

Patent Number: 6946293

This patent teachs ways of expanding a certain type of pancreatic progenitor cell through the steps of first extracting pancreatic or ductal cells; second, treating the cells with a preparation comprising epidermal growth factor, a cAMP elevating agent, and a steroid or corticosteroid; and , third harvesting a non-adherent population. The first and second independent claims essentially cover the...

Inventors: Lu, Kuanghui (Brookline, MA); Pang, Kevin (Belmont, MA); Rubin, Lee (Wellesley, MA)

Assignee: ES Cell International Pte Ltd. (

Date of First Priority Issue: Saturday October 2nd, 1999

Human adult astrocytes, their preparation and uses thereof

Patent Number: 6943016

This invention teaches how to obtain a population of astrocytes that is free of microglial cells from a fresh biopsy specimen. The invention has one independent claim covering the process of explanting a tissue that contains both astrocytes and microglial cells, culturing the cells in vitro under conditions that selectively promote adherence of the astrocytes to the culture vessel, and after about...

Inventors: Ridet, Jean-Luc (Lausanne, CH); Mallet, Jacques (Paris, FR)

Assignee: Aventis Pharma S.A. (Antony, FR)

Date of First Priority Issue: Saturday May 1st, 1999

Methods of creating constructs useful for introducing sequences into embryonic stem cells

Patent Number: 6942995

This invention relates to the generation of knock-out animals Through genetically ablating a specific gene sequence in embryonic stem cells of an animal, it is possible to develop animals, called"knock-outs" which lack the specific sequences throughout all cells of the body. The patent has two independent claims directed towards unique gene-targeting constructs that through homologous...

Inventors: Klein, Robert D. (Palo Alto, CA); Brennan, Thomas J. (South San Francisco, CA)

Assignee: Deltagen, Inc. (San Carlos, CA)

Date of First Priority Issue: Monday November 17th, 1997

Bioartificial filtration device for filtering blood to mimic kidney function

Patent Number: 6942879

This patent is for a bioartificial kidney suitable for a variety of uses, including in patients with renal failure. The patent has one independent claim covering a filtration device which contains a layer of non-immortalized renal endothelial cells, non-immortalized renal epithelial cells, or a mixture thereof, and (ii) pericytes, vascular smooth muscle cells. This approach is currently in Phase...

Inventor: Humes, H. David (Ann Arbor, MI)

Assignee: The Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Monday September 30th, 1996

Hematopoietic growth factor inducible neurokinin-1 gene

Patent Number: 6939955

This is a composition of matter patent for a receptor that seems to be involved in hematopoietic stem cell expansion. The invention discloses a novel gene, HGFIN, which encodes a protein receptor that is involved in the regulation of hematopoietic proliferation and differentiation, and may act as a negative regulator of the Id2 protein. The invention has 2 independent claims. The first covers...

Inventor: Rameshwar, Pranela (Maplewood, NJ)

Assignee: University of Medicine and Dentistry of New Jersey (New Brunswick, NJ)

Date of First Priority Issue: Friday October 20th, 2000

Human mesenchymal progenitor cell

Patent Number: 6936281

This is a composition of matter patent for mesenchymal stem cell progenitors. The first three independent claims of this patent are restricted to generation of these cells from a Dexter type culture system (a specific type

of long term culture in which adherent cells are allowed to form a layer and the hematopoietic cells rely on their support). The forth independent claim is not restricted...
Inventor: Seshi, Beerelli (Tampa, FL)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Wednesday March 21st, 2001

Method of inducing fetal hemoglobin synthesis

Patent Number: 6936254
This patent covers induction of fetal hemoglobin gene expression by treatment of cells with specific polypeptides. The utility of inducing fetal hemoglobin is for diseases in which adult hemoglobin is defective in carrying oxygen. This invention is useful for the treatment of diseases like sickle cell anemia. The patent has 2 independent claims that essentially cover: a) Induction of adult to...
Inventors: Baker, Kevin P. (Darnestown, MD); Botstein, David (Belmont, CA); Eaton, Dan L. (San Rafael, CA); Ferrara, Napoleone (San Francisco, CA); Filvaroff, Ellen (San Francisco, CA); Gerritsen, Mary E. (San Mateo, CA); Goddard, Audrey (San Francisco, CA); Godowsk
Assignee: Genentech, Inc. (South San Francisco, CA)
Date of First Priority Issue: Wednesday December 3rd, 1997

Therapeutic delivery compositions and methods of use thereof

Patent Number: 6933286
The introduction of nucleic acids into cells is a difficult task that has significantly hampered gene therapy. This patent discloses a novel method of getting nucleic acids into cells. The patent has 2 independent claims. The first covers a composition of nucleic acid sequences or one or more triplex DNA compounds, and a nonionic block copolymer. The second covers the method of introducing a...
Inventors: Emanuele, R. Martin (Alpharetta, GA); Newman, Mark (Carlsbad, CA); Kousoulas, Konstantin G. (Baton Rouge, LA); Allaudeen, Hameedsulthan S. (Durham, NC)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday March 19th, 1991

Molecules that home to various selected organs or tissues

Patent Number: 6933281
This patent teaches the use of peptides that have the ability to home to specific tissues. Such homing peptides may be used to deliver drugs or therapeutic agents, as well as (conceptually) to administer activators of stem cells. The patent has 4 independent claims: - A lymph node homing peptide which is PTCAYGWCA (SEQ ID NO: 336). - A conjugate, comprising the peptide which is...
Inventors: Ruoslahti, Erkki (Rancho Santa Fe, CA); Pasqualini, Renata (Solana Beach, CA)
Assignee: The Burnham Institute (San Diego, CA)
Date of First Priority Issue: Friday March 13th, 1998

Relationship of ABC transport proteins with hematopoietic stem cells and methods of use thereof

Patent Number: 6933150
This patent seems to cover methods of purifying and expanding hematopoietic stem cells by transfecting said stem cells with a drug efflux pump. It is not clear if the patent calls for administration of a cytotoxic agent to selectively kill non-stem cells, or if it is inherently the property of the efflux pumps to increase stem cell viability. The patent has 2 independent claims: A method of...
Inventors: Sorrentino, Brian (Memphis, TN); Bunting, Kevin (Columbus, MD); Schuetz, John (Memphis, TN); Nakauchi, Hiromitsu (Kukizaki-machi, JP)
Assignee: St. Jude Children's Research Hospital (Memphis, TN)
Date of First Priority Issue: Thursday May 28th, 1998

Lineage specific cells and progenitor cells

Patent Number: 6929948
This patent teaches ways of extracting cells with a neural phenotype from a population of stem cells that are differentiated along the neural lineage through selecting cells that express a marker under control of a promoter which is active only in neural cells. Specifically, the patent claims the use the Sox gene promoter. One way to use this patent would be to insert GFP under control of Sox...
Inventors: Smith, Austin G. (Edinburgh, GB); Li, Meng (Edinburgh, GB)
Assignee: The University Court of the University of Edinburgh (GB)
Date of First Priority Issue: Wednesday April 14th, 1999

Hypoxia-mediated neurogenesis assay

Patent Number: 6924142
This patent teaches the induction of differentiation of neural stem cells, the use of hypoxia for enhancing function, and the subsequent use of the cells obtained for drug screening. The patent has one independent claim that covers: A method for screening the effects of drugs or other agents on neuronal cells, comprising: a) preparing a cell culture comprising a cell population enriched in...

Inventors: Weiss, Samuel (Calgary, CA); Sorokan, S. Todd (Victoria, CA)
Assignee: Neuro Spheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Friday October 24th, 1997

Human ovarian mesothelial cells and methods of isolation and uses thereof

Patent Number: 6927061

This paper teaches the isolation of bi-potent overian stem cells that can differentiate either into overian epithelium, or granulosa cells. The cell type claimed can be used for many purposes, including: a) generation of antibodies; b) cell therapy; c) bioassays; d) drug screening. The patent has two independent claims that cover: A method of isolating a substantially pure population of...

Inventors: Li, Rong-hao (Millbrae, CA); Bald, Laura (Los Altos, CA); Mather, Jennie Powell (Millbrae, CA)
Assignee: Raven Biotechnologies, Inc. (South San Francisco, CA)
Date of First Priority Issue: Monday April 10th, 2000

Methods to prepare and use epidermal stem cells

Patent Number: 6927060

This is a method of isolating stem cells by dye exclusion and applying the principle to epidermal stem cells. It is well known in the art that stem cells are the property to exclude various dyes. This is what causes the existance of the "side population cells" which were known since 1996 (Goodell MA, Brose K, Paradis G, Conner AS, Mulligan RC. Isolation and functional properties of murine...

Inventors: Bickenbach, Jackie R. (Iowa City, IA); Dunnwald, Martine (Iowa City, IA)
Assignee: University of Iowa Research Foundation (Iowa City, IA)
Date of First Priority Issue: Tuesday March 28th, 2000

Human embryonic stem cells derived from frozen-thawed embryo

Patent Number: 6921632

This patent covers a new way of extracting embryonic stem cells from human blastocyst embryos that have been frozed. The patent is assigned to a Korean Infertility Clinic. It appears that some of the ES cell lines made by this clinic are on the NIH list. The patent has 2 independent claims: A process for making undifferentiated human embryonic stem cells, comprising the steps of: (a...

Inventors: Lim, Jin-Ho (Seoul, KR); Park, Se-Pill (Seoul, KR); Kim, Eun-Young (Seoul, KR)
Assignee: Maria Biotech Co., Ltd. (Seoul, KR)
Date of First Priority Issue: Sunday April 30th, 2000

Method of genetically modifying very primitive quiescent human hematopoietic stem cells

Patent Number: 6919209

Gene therapy is limited by ability to transfect quiescent cells. Since the very primitive hematopoietic stem cells reside in a quiescent state, it is difficult to transfect them. This patent demonstrates transfection of early hematopoietic stem cells using an adeno-associated vector. The patent has one independent claim that covers: A method for stably transferring DNA into multi-potential...

Inventors: Chatterjee, Saswati (Sierra Madre, CA); Wong, Jr., Kamehameha K. (Sierra Madre, CA); Wong, Christie (Pasadena, CA); Fisher-Adams, Grace (La Canada, CA)
Assignee: City of Hope (Duarte, CA)
Date of First Priority Issue: Friday December 4th, 1998

Medium containing flt3 ligand for culturing hematophoietic cells

Patent Number: 6919206

This patent covers the use of flt-3 ligand for expanding hematopoietic stem cells in vitro. The importance of expansion techniques is seen in that numerous groups have tried and are still trying to identify ways of generating large populations of autologous stem cells. The patent is pretty straight-forward and has 2 independent claims: A hematopoietic cell expansion medium, comprising a...

Inventors: Lyman, Stewart D. (Seattle, WA); Beckmann, M. Patricia (Poulsbo, WA)
Assignee: Immunex Corporation (Thousand Oaks, CA)
Date of First Priority Issue: Monday March 7th, 1994

Isolating cells expressing secreted proteins

Patent Number: 6919183

This patent teaches ways of extracting cells from a population based on expression of markers that were either introduced or naturally expressed in the cell. The patent may be useful for pulling out differentiated cells from stem cell heterogenous populations. A method of detecting and/or isolating a eukaryotic cell that produces a secreted protein of interest (POI), comprising: (a...

Inventors: Fandl, James P. (LaGrangeville, NY); Stahl, Neil (Carmel, NY); Chen, Gang (Yorktown Heights, NY); Yancopoulos, George D. (Yorktown Heights, NY)
Assignee: Regeneron Pharmaceuticals, Inc. (Tarrytown, NY)
Date of First Priority Issue: Tuesday January 16th, 2001

System for administering a combination of therapies to a body lumen

Patent Number: 6918869

This patent teaches ways of administering agents into the lumen of a body, agents including stem cell therapy. The patent seems to cover methods of administering agents in a manner that does not induce restenosis. The patent has 3 independent claims, which are: A system for delivering a biologically active material to a surface of a body lumen exposed to a radioactive source comprising: (a...

Inventors: Shaw, William J. (Cambridge, MA); Barry, James (Marlborough, MA); Goll, Paul J. (Woodinville, WA); Palasis, Maria (Wellesley, MA)

Assignee: SciMed Life Systems (Maple Grove, MN)

Date of First Priority Issue: Monday December 2nd, 2002

Method for vocal cord reconstruction

Patent Number: 6918396

This invention is useful for repairing injuries to head and neck tissue through use of vertebrate-derived submucosa or basement membrane matrices as a graft for the regeneration and repair of said head and neck soft tissues. Specifically, it is known that a) The naturally-occurring extracellular matrix (ECM) of the small intestinal submucosa, as well as other vertebrate sources of...

Inventors: Badylak, Stephen F. (West Lafayette, IN); Spievack, Alan R. (Cambridge, MA)

Assignee: Purdue Research Foundation (West Lafayette, IN); Clarian Health Partners, Inc. (Indianapolis, IN)

Date of First Priority Issue: Tuesday December 1st, 1998

Cultured skin and method of manufacturing the same

Patent Number: 6916655

This patent is useful for generation of skin cells and skin-like cells from umbilical cords. Since cord blood is extracted from the cord and the cord is usually disposed of, this patent may be of particular importance. The only disadvantage of this patent is that its 1 issued claim seems to cover only a certain method of culturing the cells in a specific media. A method of culturing umbilical...

Inventors: Yasumoto, Shigeru (Kanazawa-ken, JP); Takeuchi, Masakatsu (Osaka, JP)

Assignee: Nipro Corporation (Osaka, JP)

Date of First Priority Issue: Thursday November 22nd, 2001

Universal donor cells

Patent Number: 6916654

This patent covers the modification of cells to make them "universal donors" and thus not be rejected by the immune system. Not only is it next to impossible to completely inhibit expression of all immunogenic MHC molecules, but even if this is accomplished, the influence of the NK cells which kill tissue not expressing MHC must also be overcome. This patent is an interesting idea but of very...

Inventors: Sims, Peter J. (Mequon, WI); Bothwell, Alfred L. M. (Guilford, CT); Elliot, Eileen A. (New Haven, CT); Flavell, Richard A. (Killingworth, CT); Madri, Joseph (North Branford, CT); Rollins, Scott (Monroe, CT); Bell, Leonard (Woodbridge, CT); Squinto, Stephe

Assignee: Oklahoma Medical Research Foundation (Oklahoma City, OK); Yale University (New Haven, CT)

Date of First Priority Issue: Monday June 29th, 1992

Methods for use of mpl ligands with primitive human stem cells

Patent Number: 6916470

The mpl ligand, also known as thrombopoietin, is important for stimulation of platelet production from hematopoietic stem cells. Thrombopoietin, in addition to shifting differentiation towards the megakaryocytic lineage, also has some ability to induce proliferation of early hematopoietic stem cells. This patent uses the ability of thrombopoietin to stimulate stem cell proliferation in order...

Inventors: Murray, Lesley J. (San Jose, CA); Young, Judy C. (Mountain View, CA)

Assignee: Novartis AG (Basel, CH)

Date of First Priority Issue: Monday October 30th, 1995

Pancreatic progenitor 1 gene and its uses

Patent Number: 6911533

PP1 is a protein marker of a type of tissue stem cells or progenitor cells. The PP1 protein is made of 221 amino acids and contains two cysteine-rich domains. PP1 is expressed in the ducts of the regenerating pancreas in regions where new islets are developing. In addition, PP1 is expressed in embryonic foregut, stomach and duodenum, but not in developing pancreas or mature pancreas, The PP1...

Inventors: Sarvetnick, Nora (San Diego, CA); Fox, Howard (San Diego, CA)

Assignee: The Scripps Research Institute (La Jolla, CA)

Date of First Priority Issue: Wednesday April 26th, 2000

Method of treating leukopenia with adenosine

Patent Number: 6911435

Lack of leukocyte production, leukopenia, is a major

morbidity and mortality factor in patients recieving high dose chemotherapy, as well as after bone marrow transplant. This patent is very useful since it teaches how to expand hematopoietic stem cell production of leukocytes through administration of adenosine, a compound that is already clinically used. The patent has two independent...
Inventors: Cohn, Ilan (Herzlia, IL); Fishman, Pnina (Herzlia, IL)
Assignee: Can-Fite Biopharma Ltd. (Petach Tikva, IL)
Date of First Priority Issue: Thursday July 10th, 1997

Compositions and methods for treating cellular response to injury and other proliferating cell disorders regulated by hyaladherin and hyaluronans

Patent Number: 6911429
Tissue injury is associated with increased concentrations of hyaluronan (hyaluronic acid, HA). HA modifies cell behavior, including causing fibrosis and inflammation through interaction with cell-associated receptors such as receptor for HA-mediated motility (RHAMM, CD168). The present invention provides compounds that bind to HA and thereby inhibit the binding of HA to RHAMM Thus this...
Inventors: Cruz, Tony (Toronto, CA); Pastrak, Aleksandra (Tornto, CA); Turley, Eva A. (Toronto, CA)
Assignee: Transition Therapeutics Inc. (Toronto, CA)
Date of First Priority Issue: Thursday April 1st, 1999

Allogeneic and xenogeneic transplantation

Patent Number: 6911220
This patent is for a very interesting idea. The induction of tolerance by ablating recipient T cells and recipient thymus, introducting a donor fetal or neonatal thymus, and allowing recipient T cells to mature with the donor thymus. This is based on the whole concept of inducing negative selection so that the recipient T cells will not kill the donor graft...but instead recognize it as...
Inventor: Sachs, David H. (Newton, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Wednesday February 19th, 1992

Method of producing undifferentiated hemopoietic stem cells using a stationary phase plug-flow bioreactor

Patent Number: 6911201
One of the limiting factors to clinical use of autologous hematopoietic stem cells, as well as cord blood cells, is the limited ways of expanding them. This patent addresses this issue by providing a novel system for such expansion that appears to be more "in vivo-like". Essentially, the patent has 2 independent claims covering: A method of expanding undifferentiated hemopoietic stem...
Inventors: Merchav, Shoshana (Haifa, IL); Meretzki, Shai (Nesher, IL)
Assignee: Technion Research & Development Foundation Ltd. (Haifa, IL)
Date of First Priority Issue: Thursday February 4th, 1999

Methuselah gene, compositions and methods of use

Patent Number: 6906181
The Methuselah gene mutation is associated with enhanced longevity. Specifically, flies with methuselah (mth) have approximately a 35 percent increase in average life-span and enhanced resistance to various forms of stress, including starvation, high temperature, and dietary paraquat, a free-radical generator (Lin YJ, et al. Extended life-span and stress resistance in the Drosophila mutant...
Inventors: Lin, Yi-Jyun (Arcadia, CA); Benzer, Seymour (San Marino, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Tuesday July 7th, 1998

Mammalian common lymphoid progenitor cell

Patent Number: 6908763
The stem cell identified in this patent is a type of progenitor cell that can differentiate only along the lymphoid, but not myeloid lineage. These cells are useful for situations in which lymphopoiesis is desired, for example, after lymphodepletion of a cancer patient in protocols used for homeostatic induced antitumor immunity. The patent essentially covers a cell type that expresses...
Inventors: Akashi, Koichi (Chestnut Hill, MA); Kondo, Motonari (Redwood City, CA); Weissman, Irving L. (Redwood City, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Friday August 22nd, 1997

Compounds and methods for regulating cell differentiation

Patent Number: 6908732
The use of various bile extracts for treatment of cancer is known in the art. The Canadian company Lorus Therapeutics developed a drug called Virulizing from cow bile extracts. This patent teaches the use of bilins for treatment of cancer through induction of cellular differentiation. The advantage of inducing cancer cell differentiation is the possibility of a less toxic approach in contrast...
Inventor: Falchuk, Kenneth H. (Newton, MA)

Assignee: President & Fellows of Harvard College (Cambridge, MA)
Date of First Priority Issue: Friday October 13th, 2000

Generation of viable cell active biomaterial patterns by laser transfer

Patent Number: 6905738
This patent was included the 3d culture/scaffold section since it doesnt really seem to fit anywhere else. Essentially the patent teachs how to write on cells (including stem cells) using laser light. The patent has 1 independent claim, which is: A method for laser deposition comprising the steps of; providing one or more sources of laser energy that produce laser energy; providing...
Inventors: Ringeisen, Bradley R. (Alexandria, VA); Chrisey, Douglas B. (Bowie, MD); Pique, Alberto (Crofton, MD); McGill, R. Andrew (Lorton, VA)
Assignee: The United States of America as represented by the Secretary of the Navy (Washington, DC)
Date of First Priority Issue: Tuesday May 25th, 1999

Methods to stimulate insulin production by pancreatic beta-cells

Patent Number: 6903073
Hedgehog proteins are involved in development and other biological functions through activation of their receptor called "patched". Hedgehog signalling is inhibited by cyclopamine. Since the authors of the patent originally found that inhibiting hedgehog signalling reduces insulin production, and transfection with hedgehog increases insulin production, (Thomas MK, Rastalsky N, Lee JH, Habener...
Inventors: Habener, Joel F. (Newton Centre, MA); Thomas, Melissa K. (Boston, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Friday December 10th, 1999

Compounds and methods for regulating cell differentiation

Patent Number: 6902881
This patent teaches the use of a bilin for treating cancer through induction of differentiation. It is a very promising idea since differentiation therapy is relatively non-toxic. The question is what concentrations of these bilins are needed to actually see an in vivo effect. The 2 independent claims of the patent are: A method for promoting cell differentiation, comprising treating a...
Inventor: Falchuk, Kenneth H. (Newton, MA)
Assignee: President and Fellows of Harvard College (Cambridge, MA)
Date of First Priority Issue: Friday October 13th, 2000

Inhibitors of proteasomal activity for stimulating bone growth

Patent Number: 6902721
This patent teaches that proteosome inhibitors stimulate the growth of bone, in part through inhibition of the inflammatory-associated transcription factor NF-kB. It is unclear if the stimulation of bone growth works via activation of stem cells, or other mechanisms. The patent also discloses use for stimulation of hair growth, but that is not in the claims. The one independent claim is: A...
Inventors: Mundy, Gregory R. (San Antonio, TX); Garrett, I. Ross (San Antonio, TX); Rossini, Jorge G. (San Antonio, TX)
Assignee: OsteoScreen, Inc. (San Antonio, TX)
Date of First Priority Issue: Friday July 10th, 1998

Lineage restricted glial precursors from the central nervous system

Patent Number: 6900054
Glial cells performed numerous functions in the nervous system including providing support, nutrition, and form myelin for neurons. They represent 90% of the cells in the central nervous system. The ability to generate glial cells ex vivo is critical not only for the potential of administering such cells to damaged areas, but also for using these cells are vectors to carry genes in order to...
Inventors: Rao, Mahendra S. (Salt Lake City, UT); Noble, Mark (Brighton, NY); Mayer-Proschel, Margot (Pittsford, NY)
Assignee: University of Utah Research Foundation (Salt Lake City, UT)
Date of First Priority Issue: Saturday November 29th, 1997

Human hematopoietic growth regulatory gene and uses

Patent Number: 6900017
HIWI is the human homologue of PIWI a gene found in fruitfly embryonic germline stem cells. HIWI is found in CD34 hematopoietic cells and appears to act as a negative regulator in that its transfection causes apoptosis in hematopoietic cell lines (Sharma AK, et al. Human CD34 stem cells express the hiwi gene, a human homologue of the Drosophila gene piwi. Blood. 2001 Jan 15;97(2):426-34...
Inventors: Sharma, Arun (Oak Park, IL); Hoffman, Ronald (Chicago, IL)
Assignee: The Board of Trustees of the University of Illinois (Urbana, IL)
Date of First Priority Issue: Thursday January 10th, 2002

Methods and compositions for culturing a biological tooth

Patent Number: 6899915
Inventors: Yelick, Pamela C. (Concord, MA); Bartlett, John D. (Acton, MA); Vacanti, Joseph P. (Winchester, MA); Olsen, Bjorn R. (Milton, MA); Stashenko, Phillip (Medfield, MA)
Assignee: President and Fellows of Harvard College (Cambridge, MA); General Hospital Corporation (Boston, MA); Forsyth Dental Infirmary for Children, Inc. (Boston, MA)
Date of First Priority Issue: Wednesday November 29th, 2000

Transdifferentiation of glial cells

Patent Number: 6897061
This patent teaches how to make astrocytes into neurons and/or oligodendrocytes. The ability to perform this in large scale would allow for cell replacement therapy for a variety of neural degenerative conditions. The independent claims are: An in vitro method to produce a population that includes neurons and/or oligodendrocytes, the method comprising: (a) obtaining and/or isolating a...
Inventor: Salin-Nordstrom, Tuija Helina (Santa Monica, CA)
Assignee: Spinal Cord Society (Fergus Falls, MN)
Date of First Priority Issue: Friday June 16th, 2000

Composition comprising multipotent neural stem cells for generation of hematopoietic cells

Patent Number: 6897060
Inventors: Bjornson, Christopher R. (Seattle, WA); Rietze, Rod L. (Brunswick, AU); Reynolds, Brent A. (Saltspring, CA); Vescovi, Angelo L. (Milan, IT)
Assignee: NeuroSpheres Holdings, Ltd. (Calgary, CA)
Date of First Priority Issue: Monday September 29th, 1997

Human ovarian mesothelial cells and methods of isolation and uses thereof

Patent Number: 6893871
This is a patent covering an ovarian stem cell that can become either overian epithelial tissue, as well as granulosa tissue. The three independent claims are: A method of providing a source of immunogen to a heterologous recipient, comprising administering a plurality of ovarian mesothelial cells in an amount effective to induce an immune response in said recipient, wherein said ovarian...
Inventors: Li, Rong-hao (Millbrae, CA); Bald, Laura (Los Altos, CA); Mather, Jennie Powell (Millbrae, CA)
Assignee: Raven Biotechnologies, Inc. (South San Francisco, CA)
Date of First Priority Issue: Tuesday April 10th, 2001

Use of a melanoma inhibiting activity factor (MIA) for cartilage and bone repair

Patent Number: 6890897
This patent teaches the novel use of melanoma inhibitory factor to induce stem cell differentiation into bone and cartilage. It may be used for in vitro generation of stem cells or for acceleration of in vivo healing. The independent claims of the patent are: A method for inducing chondro-/ostrogenic lineage and promoting of cartilage or bone formation in a person comprising administering a...
Inventors: Dony, Carola (Munchen, DE); Proetzel, Gabriele (Schwanfeld, DE); Leser-Reiff, Ulrike (Penzberg, DE)
Assignee: Scil Technology GmbH (Martinsried, DE)
Date of First Priority Issue: Thursday January 28th, 1999

Methods and compositions for neural progenitor cells

Patent Number: 6890724
This patent teaches how to extract neural precursor cells by expression of a protein called RET. RET is orphan receptor tyrosine kinase essential for enteric neurogenesis The patent has two independent claims. That are: A method for the enrichment of neural progenitor cells comprising RET protein, said method comprising: a) combining a mixed population of cells comprising neural-crest...
Inventors: Anderson, David J. (Altadena, CA); Lo, Li-Ching (Arcadia, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Friday September 6th, 1996

Method of in vitro differentiation of transplantable neural precursor cells from primate embryonic stem cells

Patent Number: 6887706
This patent is from the same group that originally patented embryonic stem cells of human. In the current patent there is one independent claim that covers the differentiation of human embryonic stem cells into neural progenitor cells. The method claims involves culturing so that embryoid bodies are formed from the embryonic stem cells through incubation with FGF-2, as well as standard culture...
Inventors: Zhang, Su-Chun (Middleton, WI); Thomson, James A. (Madison, WI); Duncan, Ian David (Madison, WI)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Wednesday October 3rd, 2001

Methods of controlling proliferation and differentiation of stem and progenitor cells

Patent Number: 6887704

This patent teaches the ex vivo expansion of stem cells of the hematopoietic lineage through culture in conditions having reduced copper content. The patent is useful for expanding CD34 stem cells for treatment of a variety of diseases and conditions in which CD34 numbers and/or activity may be beneficial. The fact that copper chelation is practiced as alternative medicine may have something...

Inventors: Peled, Tony (Mevaseret Zion, IL); Fibach, Eitan (Mevaseret Zion, IL); Treves, Avi (Mevaseret Zion, IL)

Assignee: Gamida Cell Ltd. (Jerusalem, IL)

Date of First Priority Issue: Tuesday February 17th, 1998

Method for fabricating cell-containing implants

Patent Number: 6886568

This patent teaches the generation of cells with implantable biodegradable material through culture in vitro with materials of various compositions. The patent may be used for generation of artificial tissue, or for creating clusters of cells that may be implantable for treatment of disease. The patent is particularly aimed at inducing generation of chondrocytes ex vivo or in vitro for...

Inventors: Frondoza, Carmelita G. (Woodstock, MD); Fink, David J. (Baltimore, MD); Hungerford, David S. (Cockeysville, MD); Shikani, Alan H. (Ruxton, MD)

Assignee: The Johns Hopkins University (Baltimore, MD); Chrondros, Inc. (Baltimore, MD)

Date of First Priority Issue: Thursday April 9th, 1998

Inhibitors of proteasomal activity for stimulating hair growth

Patent Number: 6884769

Proteosomes are becoming important biological targets in drug discovery. For example pathways associated with numerous diseases, such as NF-kB are dependent on proteosomal activation. In the case of NF-kB the proteosomal degradation of phosphorylated IKB is what allows translocation of NF-kB into the nucleus. In this patent inhibition of the chymotrypsin-like activity proteasomes is claimed...

Inventors: Mundy, Gregory R. (San Antonio, TX); Garrett, I. Ross (San Antonio, TX); Rossini, Jorge Gianny (San Antonio, TX))

Assignee: OsteoScreen, Inc. (San Antonio, TX

Date of First Priority Issue: Friday July 10th, 1998

Use of reinforced foam implants with enhanced integrity for soft tissue repair and regeneration

Patent Number: 6884428

This patent covers scaffolds that may be administered in vivo so that stem cells and progenitor cells attach to the scaffold and form functional tissue. Alternatively, the patent teaches that such scaffolds may be used in vitro so that cells form a functional tissue in vitro, which is then administered in vivo. Specific tissues that are described for use in the context of the current scaffold...

Inventors: Binette, Francois (Weymouth, MA); Bowman, Steven M. (Sherborn, MA); Bruker, Izi (Wayland, MA); Hwang, Julia (Wayland, MA); Melican, Mora Carolynne (Bridgewater, NJ); Rezania, Alireza (Hillsborough, NJ)

Assignee: DePuy Mitek, Inc. (Norwood, MA)

Date of First Priority Issue: Thursday December 21st, 2000

Filamentary means for introducing agents into tissue of a living host

Patent Number: 6884427

This patent teaches a method of administering cells, including stem cells, through use of a filament-type object. The object has a solid core and an outside sheath that is porous and to which cells can be attached to before administration. The invention teaches that hair follicle cells, cells that have been encapsulated, and cells that have been genetically engineered can be administered...

Inventor: Barrows, Thomas H. (Austell, GA)

Assignee: Aderans Research Institute, Inc. (Beverly Hills, CA)

Date of First Priority Issue: Monday February 8th, 1999

Bioabsorbable breast implant

Patent Number: 6881226

This patent covers a breast implant that eventually resorbs and is replaced by endogenous tissue. The patent has claims covering not only the use for cosmetic reasons, but also for administration of therapeutic agents.

Inventors: Corbitt, Jr., John D. (Palm Springs, FL); Leonetti, Lori A. (Delray Beach, FL)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday March 11th, 1998

Cultures of GFAP+ nestin+ cells that differentiate to neurons

Patent Number: 6878543

Generation and expansion of neuronal cells is described in this patent through inducting proliferation of GFAP+,

nestin+ stem cells of neuronal origin through treatment with EGF, amphiregulin, aFGF, bFGF, TGF.alpha. and then inducing differentiation through serum free culture. The cells generated by this means can be made into neurons or glial cells depending on culture conditions.
Inventors: Wahlberg, Lars (Asnaes, DK); Campbell, Kenneth (Cincinnati, OH); Skogh, Charlotta (Malmo, SE); Eriksson, Cecilia (Falsterbo, SE); Wictorin, Klas (Lund, SE)
Assignee: NsGene SA (Ballerup, DK)
Date of First Priority Issue: Monday October 25th, 1999

Isolation, selection and propagation of animal transgenic stem cells

Patent Number: 6878542
This patent appears to be a really unique way of expanding stem cells. Essentially the patent teaches to connect a growth factor receptor to a promoter that is only expressed on stem cells, such as the promoter for Oct-4. This way stem cells will express the growth factor receptor. This way if you add the ligand for the receptor the stem cells will proliferate selectively. Theoretically, the...
Inventors: Smith, Austin Gerard (Edinburgh, GB); Mountford, Peter Scott (Elsdenwid, AU)
Assignee: The University of Edinburgh (GB)
Date of First Priority Issue: Thursday April 21st, 1994

Therapeutic angiogenesis by bone marrow-derived cell transplantation in myocardial ischemic tissue and skeletal muscle ischemic tissue

Patent Number: 6878371
This is a very important patent for the clinical trials ongoing right now that are administering bone marrow autolous stem cells into the heart of patients in order to stimulate angiogenesis. This paten is definately worthy of detailed reading and understanding in light of existing clinical research in this area.
Inventors: Ueno, Takafumi (Decatur, GA); Murohara, Toyoaki (Fukuoka, JP); Robinson, Keith Allen (Norcross, GA); Chronos, Nicolas A. F. (Atlanta, GA); Baldwin, Sam (Newton, MA); Palasis, Maria (Wellesley, MA)
Assignee: Boston Scientific Scimed, Inc. (Maple Grove, MN)
Date of First Priority Issue: Wednesday July 26th, 2000

Mixed chimerism and tolerance

Patent Number: 6877514
This patent teaches how to induce allogeneic tolerance to transplanted grafts through making the recipient a chimera in terms of blood composition. In other words, donor hematopoietic stem cells are administered in order to make the recipient have both donor blood cells circulating, as well as some left over recipient cells. This system has been shown effective in several animal models.
Inventor: Sykes, Megan (Charlestown, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Thursday May 9th, 1996

Propagation and/or derivation of embryonic stem cells

Patent Number: 6875608
This patent discloses compounds that can be added to a culture of embryonic stem cells so as to selectively kill non-embryonic stem cells.
Inventors: Smith, Austin Gerard (Edinburgh, GB); Burdon, Thomas Grant (Edinburgh, GB)
Assignee: University of Edinburgh (Edinburgh, GB)
Date of First Priority Issue: Friday September 11th, 1998

Embryonic stem cells

Patent Number: 6875607
Despite its appealing title, the claims of this patent appear only to cover the alteration of differentiation of embryonic stem cells, in part through providing the use of feeder cell layers.
Inventors: Reubinoff, Benjamin Eithan (Elsternwick, AU); Pera, Martin Frederick (Prahran, AU); Fong, Chui-Yee (Singapore, SG); Trounson, Alan Osborne (Asburton, AU); Bongso, Ariffeen (Singapore, SG)
Assignee: ES Cell International Pte Ltd (Singapore, SG)
Date of First Priority Issue: Monday November 9th, 1998

Composition for delivery of hematopoietic growth factor

Patent Number: 6875441
This patent teaches ways of formulating G-CSF so as to have better pharmacological properties. Specifically the patent is trying to address the problem of: "...administration of hematopoietic growth factors such as G-CSF, GM-CSF, SCF and Flt3-L, requires multiple daily injections. This, in turn leads to another common disadvantage of current injectable therapies such as these, that being the...
Inventors: Rosenthal, Gary J. (Louisville, CO); Etter, Jeffrey B. (Boulder, CO)
Assignee: RxKinetix, Inc. (Louisville, CO)
Date of First Priority Issue: Friday May 26th, 2000

Mesenchymal stem cells for prevention and treatment of immune responses in transplantation

Patent Number: 6875430

Xenotransplantation is limited primarily by antibody mediated rejection. Accordingly while this patent covers the use of mesenchymal stem cells for preventing xenograft rejection, the actual applicability of this patent seems unlikely since mesenchymal stem cells do not strongly protect against antibody mediated immune rejection in xenotransplantation.

Inventors: McIntosh, Kevin R. (Ellicott City, MD); Mosca, Joseph D. (Ellicott City, MD); Klyushnenkova, Elena (Baltimore, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Wednesday March 18th, 1998

Biomaterials containing hyaluronic acid derivatives in the form of three-dimensional structures free from cellular components or products thereof for the in vivo regeneration of tissue cells

Patent Number: 6872819

This patent describes biomaterials that can be administered in an area of tissue injury to allow for stem cells to expand locally and produce new functional tissue. The biomaterials covered appear to be hyaluronic acid based.

Inventors: Pavesio, Alessandra (Padua, IT); Dona' , Massimo (Due Carrare, IT); Callegaro, Lanfranco (Thiene, IT)

Assignee: Fidia Advanced Biopolymers S.r.l. (Brindisi, IT)

Date of First Priority Issue: Wednesday May 27th, 1998

Hepp, a novel gene with a role in hematopoietic and neural development

Patent Number: 6872812

HEPP is a gene that appears to be found in certain stem cell populations involved in differentiation, although its function remains unclear. This patent is a composition of matter patent on the gene. If there are some interesting properties found with this protein, it may be a really good patent to license since not too much work has been performed on it.

Inventors: Jurecic, Roland (Key Biscayne, FL); Nachtman, Ronald G. (Miami, FL)

Assignee: University of Miami (Miami, FL)

Date of First Priority Issue: Friday February 16th, 2001

In vitro production of haploid germ cells

Patent Number: 6872569

This patent teaches how to generate sperm in vitro through the use of sertoli cells and undifferentiated diploid germ cells. It is useful not only for infertility applications, but also for various veterinary purposes.

Inventors: Lee, Dong Ryul (Seoul, KR); Kaproth, Michael T. (Ithaca, NY); Parks, John E. (Ithaca, NY)

Assignee: Cornell Research Foundation, Inc. (Ithaca, NY)

Date of First Priority Issue: Friday May 18th, 2001

Liver stem cell

Patent Number: 6872389

This patent covers a liver stem cell that is isolated based on expression of the marker OV6. These cells could be used for a variety of therapeutic purposes including hepatitis. Liver cell therapy can be performed by administration of single cell suspensions, additionally attractive with this patent is that liver cells are generally more tolerogenic and less likely to rejection than other...

Inventor: Faris, Ronald A. (Providence, RI)

Assignee: Rhode Island Hospital (Providence, RI)

Date of First Priority Issue: Friday July 10th, 1998

Methods for promoting growth of bone, ligament, and cartilage using zvegf4

Patent Number: 6866991

This patent describes the use of zvegf3, a platelet derived growth factor homologue for expansion of various stem cells, including bone marrow stem cells.

Inventors: Gilbertson, Debra G. (Seattle, WA); Hart, Charles E. (Woodinville, WA)

Assignee: ZymoGenetics, Inc. (Seattle, WA)

Date of First Priority Issue: Monday May 3rd, 1999

Method of transplanting in a mammal and treating diabetes mellitus by administering a pseudo-islet like aggregate differentiated from a nestin-positive pancreatic stem cell

Patent Number: 6866843

This patent teaches extraction of pancreatic stem cells based on expression of nestin...expansion of the cells into islet-like cells...and transplantation of the cells for treatment of diabetes. The problem is how much expansion can one achieve? Since there is a SEVERE shortage of donor pancreas'. The other problem, of course, is the need for immune suppression.

Inventors: Habener, Joel F. (Newton Centre, MA); Zulewski, Henryk (Basel, CH); Abraham, Elizabeth (Quincy, MA); Vallejo, Mario (Madrid, ES); Faustman, Denise L. (Weston, MA); Thomas, Melissa K. (Boston, MA)

Assignee: Viacell, Inc. (Charlestown, MA

Date of First Priority Issue: Monday December 6th, 1999

Muscle-derived cells (MDCs) for treating muscle-or bone-related injury or dysfunction

Patent Number: 6866842

This patent teaches the use of skeletal myoblast, muscle stem cells, for treating urinary incontinence. The cells may be used without modification, or may be genetically engineered to express therapeutic genes. Examples of therapeutic genes include nerve growth factor, nitric oxide, etc.

Inventors: Chancellor, Michael B. (Pittsburgh, PA); Huard, Johnny (Wexford, PA)

Assignee: University of Pittsburgh (Pittsburgh, PA)

Date of First Priority Issue: Friday May 1st, 1998

Compositions and methods for treating cellular response to injury and other proliferating cell disorders regulated by hyaladherin and hyaluronans

Patent Number: 6864235

The ability of cells to respond to danger signals is associated with how the host will respond to injury in general. This patent is based around observations that cellular injury is associated with upregulation of certain danger signal associated molecules, which the inventors call "transition molecules". This is most likely why the name of one of the companies that the inventors established...

Inventors: Turley, Eva A. (Toronto, CA); Cruz, Tony F. (Etobicoke, CA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday April 1st, 1999

Regeneration and augmentation of bone using mesenchymal stem cells

Patent Number: 6863900

Inventors: Kadiyala, Sudhakar (Baltimore, MD); Bruder, Scott P. (Owings Mills, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Friday April 19th, 1996

Neuroprotective composition and uses thereof

Patent Number: 6858646

Oxidative stress plays a very important role in the ability of stem cells to survive. Specifically, stem cells prefer to reside in areas of relative hypoxia, and are particularly senstive to oxidative stress. This patent teaches that use of pyruvate, and other antioxidants in order to protect neurons, and stem cells of neurons, from damage. This patent may be used to treat, for example...

Inventors: Paquin, Joanne (Montreal, CA); Mateescu, Mircea-Alexandru (Montreal, CA); De Grandpre , Eric (Joliette, CA)

Assignee: Universite du Quebec a Montreal (Montreal, CA)

Date of First Priority Issue: Wednesday May 5th, 1999

Method to determine an engrafting cell dose of hematopoietic stem cell transplant units

Patent Number: 6852534

At first glance this patent seems extremely simple and maybe even obvious. Essentially it teaches the use of counting of leukocytes from a hematopoietic stem cell graft so has to know how many cells to transplant for hematopoietic reconstitution. The invention is however very important in areas like cord blood stem cell transplants where it is very difficult to actually quantify the number...

Inventors: Wernet, Peter (Dusseldorf, DE); Kogler, Gesine (Dusseldorf, DE); Fischer, Johannes (Neuss, DE)

Assignee: Kourion Therapeutics GmbH (Duesseldorf, DE)

Date of First Priority Issue: Friday November 3rd, 2000

Hemoglobin alpha chain peptide fragments useful for inhibiting stem cell proliferation

Patent Number: 6858583

Hematopoietic stem cells are sensitive to chemotherapy and radiation therapy. Accordingly, hematopoietic stem cells are one of the first cell types to be negatively affected by cancer therapy. One of the reasons that hematopoietic stem cells are destroyed is due to the fact that at some level, they are proliferating constantly. Now, the early primitive hematopoietic stem cells usually are...

Inventors: Tsyrlova, Irena (Gaithersburg, MD); Wolpe, Stephen D. (Rockville, MD)

Assignee: Wellstat Therapeutics Corporation (Gaithersburg, MD)

Date of First Priority Issue: Wednesday March 31st, 1993

Methods and compositions for healing heart wounds

Patent Number: 6852706

This patent teaches activation of cardiac healing processes through reducing levels of thyroid hormone. This patent seems to depart substantially from the common notion that thyroid hormone is actually beneficial for the heart. For example, it is published that reducing thyroid hormone by administration of propylthiouracil actually leads to cardiac atrophy, angina and general deterioration (Tang...

Inventor: Heber-Katz, Ellen (Philadelphia, PA)

Assignee: The Wistar Institute (Philadelphia, PA)

Date of First Priority Issue: Wednesday March 22nd, 2000

Transgenic circulating endothelial cells

Patent Number: 6852537

This patent covers the expansion of endothelial cells by growing on collagen-1 coated plates in the combination of various growth factors such as FGF, VEGF, and IGF. Additionally, numerous culture conditions for endothelial expansion are disclosed. The abstract of the patent discribes the use of endothelial cells for gene therapy, but not the claims. The disclosure also describes how...

Inventors: Hebbel, Robert P. (North Oaks, MN); Lin, Yi (St. Paul, MN); Lollar, John S. (Decatur, GA)

Assignee: Regents of the University of Minnesota Emory University (Atlanta, GA)

Date of First Priority Issue: Tuesday November 24th, 1998

Purified populations of stem cells

Patent Number: 6852533

This is a powerful patent that covers essentially the endothelial precursor cell. The importance of endothelial precursors is their ability to induce angiogenesis. The patent has claims on any CD34 + VEGF R+ cell, as well as CD133+, VEGF R+ endothelial stem cell. Sources of these cells covered in the claims include circulating blood, cord blood, mobilized blood, and bone marrow. The...

Inventors: Rafii, Shahin (Great Neck, NY); Witte, Larry (Stormville, NY); Moore, Malcolm A. S. (New York, NY)

Assignee: Cornell Research Foundation, Inc. (Ithaca, NY); Sloan-Kettering Institute for Cancer Research (New York, NY); ImClone System Incorporated (New York, NY)

Date of First Priority Issue: Friday January 23rd, 1998

Method of isolating human neuroepithelial precursor cells from human fetal tissue

Patent Number: 6852532

This patent teaches methods of extracting and purifying neuroepithelial precursor cells that can differentiate into a variety of neurological tissue and be useful for regenerative medicine. The patent essentially teaches to deplete cells expressing the markers A2B5, NG2 and eNCAM, so that approximately half of the purified cells are positive for AC133/2. The cells are extracted at the time...

Inventors: Mayer-Proschel, Margot (Pittsford, NY); Rao, Mahendra S. (Salt Lake City, UT); Tresco, Patrick A. (Sandy, UT); Messina, Darin J. (Salt Lake City, UT)

Assignee: University of Utah Research Foundation (Salt Lake City, UT)

Date of First Priority Issue: Thursday March 1st, 2001

Lectin-derived progenitor cell preservation factor and methods of use

Patent Number: 6852321

This patent teaches that certain lectins (sugar binding proteins) may be used for the preservation of progenitor cells and stem cells. It is not clear which property of the lectins is involved in the preservation. The concept that lectins may be used in stem cell preservation brings to mind old experiments in which the preferentially affinity of lectins to cancer cell membranes was reported...

Inventors: Colucci, M. Gabriella (Dugenta, IT); Chrispeels, Maarten J. (La Jolla, CA); Moore, Jeffrey G. (Kennebunkport, ME)

Assignee: ImClone Systems Incorporated (New York, NY); Regents of the University of California (La Jolla, CA)

Date of First Priority Issue: Tuesday June 24th, 1997

Method of stimulating growth of melanocyte cells by administering stem cell factor

Patent Number: 6852313

Melanocyte proliferation may be desired in a variety of pathological conditions. Melanocytes are important, for example in burn patients where it is desireble to obtain a sufficient layer of skin so as to avoid scepticemia. Melanocytic proliferation is demonstrated in this patent by treatment with stem cell factor (kit-ligand), as well as combinations of stem cell factor with other cytokines.

Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Park, CA); Martin, Francis H. (Thousand Oaks, CA)

Assignee: Amgen Inc. (Thousand Oaks, CA)

Date of First Priority Issue: Friday October 16th, 1998

Production of tyrosine hydroxylase positive neurons

Patent Number: 6844312

Neurons that express tyrosine hydroxylase (TH) are subfunctional in diseases such as Alzheimer's and Parkinson's. This patent teachs how to generate TH expressing neurons through contacting stem cells with FGF-1, an agent that activates protein kinase A, as well as a phorbol ester and dopamine. The ability to generate TH neurons in this manner may lead not only to in vitro generation...

Inventors: Weiss, Samuel (Calgary, CA); Shingo, Tetsuro (Okayama, JP)

Assignee: Stem Cell Therapeutics Inc. (Calgary, CA)

Date of First Priority Issue: Wednesday April 11th, 2001

Transforming growth factor beta (TGF-.beta.) blocking agent-treated stem cell composition and method

Patent Number: 6841542

This patent claims ex vivo inhibition of TGF beta in hematopoietic stem cells in order to increase speed of engraftment post recipient marrow ablation. Since TGF beta is an endogenous inhibitor of stem cell proliferation, the inhibition of the inhibitor should lead to enhanced proliferation. The technology described in this patent would definately benefit from RNA...

Inventors: Bartelmez, Stephen H. (Seattle, WA); Iversen, Patrick L. (Corvallis, OR)

Assignee: AVI BioPharma, Inc. (Corvallis, OR)

Date of First Priority Issue: Thursday July 6th, 2000

Methods and use of motoneuronotrophic factors

Patent Number: 6841531

This is a composition of matter patent on some endogenous factors that stimulate repair and regeneration of motor neurons. The authors have demonstrated some significant biological activities of the "motoneuronotrophic" factors in nerve injury, including ability to accelerating healing after cutting of the sciatic nerve in rats.

Inventor: Chau, Raymond Ming Wah (Hong Kong, HK)

Assignee: Genervon Biopharmaceuticals LLC (Montebello, CA)

Date of First Priority Issue: Friday September 27th, 1996

Modulation of primary stem cell differentiation using an insulin-like growth factor binding protein

Patent Number: 6841386

Insulin like growth factor (IGF) is involved in numerous biological activities. The basis of this patent is that IGF possesses some differentiation inducing activity for CD34+ CD38- hematopoietic stem cells. The ability of stem cells to be expanded ex vivo depends on not allowing said cells to differentiate. This patent teaches that blocking IGF signalling can inhibit hematopoietic stem...

Inventors: Kraus, Morey (Jefferson, MA); Deng, Hongkui (Framingham, MA); Liu, Liqin (Framingham, MA)

Assignee: Viacell, Inc. (Worcester, MA)

Date of First Priority Issue: Tuesday April 10th, 2001

Use of adipose tissue-derived stromal cells for chondrocyte differentiation and cartilage repair

Patent Number: 6841150

This appears to be a very important patent in that it teaches the use of adipose stem cells for generating chondrocytes and using the chondrocytes to heal cartilage. This patent should be compared to ones by Osiris that use adipose derived mesenchymal stem cells for cartilage repair, as well as by Cytori which uses adipose derived stem cells for a variety of indications.

Inventors: Halvorsen, Yuan-Di C. (Holly Springs, NC); Wilkison, William O. (Bahama, NC); Gimble, Jeffrey Martin (Chapel Hill, NC)

Assignee: Artecal, Sciences, Inc. (Durham, NC)

Date of First Priority Issue: Thursday August 19th, 1999

Stem cell factor compositions

Patent Number: 6841147

This is a composition of matter patent on the kit-ligand, otherwise known as stem cell factor. Stem cell factor is involved in regulation of a variety of stem cells in addition to hematopoietic stem cells. This patent is particularly important for when novel methods of inducing stem cell differentation in vivo are discovered and stem cell factor may be added to these methods to either induce...

Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Park, CA); Martin, Francis H. (Thousand Oaks, CA)

Assignee: Amgen, Inc. (Thousand Oaks, CA)

Date of First Priority Issue: Monday October 16th, 1989

Human pluripotent hematopoietic colony stimulating factor, method of production and use

Patent Number: 6838549

This is a patent for a hematopoietic stimulatory cytokine that the inventors named pluripoietin alpha. This cytokine is described in several papers including (Gabrilove et al. Pluripoietin : A Second Human Hematopoietic Colony-Stimulating Factor Produced by the Human Bladder Carcinoma Cell Line 5637, PNAS | April 15, 1986 | vol. 83 | no. 8 | 2478-2482). This factor is produced by several cell...

Inventors: Welte, Karl (New York, NY); Platzer, Erich (Spardorf, DE); Gabrilove, Janice L. (New York, NY); Mertelsmann, Roland (Mainz, DE); Moore, Malcolm A. S. (Larchmont, NY)

Assignee: Sloan-Kettering Institute for Cancer Research (New York, NY)

Date of First Priority Issue: Thursday March 28th, 1985

Cell culture medium containing growth factors and L-glutamine

Patent Number: 6838284

This is a patent for a specific type of tissue culture media that may be used for growth and expansion of

various stem cells. The media contains combinations of various factors such as anti-oxidants, nutrients, and growth factors. This patent may be useful not only for laboratory reagents but as a basis for developing cellular therapy media for ex vivo expansion in a GMP setting.

Inventors: de Bruijn, Joost Dick (Amersfoort, NL); Tibbe, Gerhardus Johannes M. (Amersfoort, NL); da Silva Madureira Mendes, Sandra Claudia (Gouda, NL)
Assignee: IsoTis N.V. (Bilthoven, NL)
Date of First Priority Issue: Tuesday December 28th, 1999

Antibody recognizing a small subset of human hematopoietic cells

Patent Number: 6838282

This is a patent for a unique stem cell marker that is recognized by the antibody MG-1. There are numerous stem cell markers in existence which are used for isolation of stem cell subtypes. The value of new stem cell markers is relatively high since the field is very populated. A patent such as the present one, if MG-1 has not been commercialized, can be used to position a new biotech...

Inventors: Lawman, Michael J. P. (Chipley, FL); Lawman, Patricia (Chipley, FL)
Assignee: Morphogenesis, Inc. (Chipley, FL)
Date of First Priority Issue: Wednesday November 13th, 1996

Methods for using the obese product to stimulate hematopoietic development

Patent Number: 6838079

Leptin is a natural inhibitor of fat. When you knock out leptin gene, mice are extremely obese. Interestingly, leptin has numerous other functions in the body, including stimulation of inflammatory responses, as well as immunologically predisposing to Th1. In this patent the inventors identified that leptin stimulates hematopoiesis. This patent may be useful for treatment of...

Inventors: Snodgrass, H. Ralph (Powell, OH); Cioffi, Joseph (New Albany, OH); Zupancic, Thomas Joel (Worthington, OH); Shafer, Alan Wayne (Lancaster, OH)
Assignee: Indevus Pharmaceuticals, Inc. (Lexington, MA)
Date of First Priority Issue: Wednesday September 14th, 1994

Method and apparatus for sorting biological cells with a MEMS device

Patent Number: 6838056

This patent covers a medical device that is useful for purifying hematopoietic stem cells. The medical device selects stem cells but not contaminating cancer cells, and is therefore useful for treatment of cancer patients by purifying autologous stem cells before high dose chemotherapy so that the stem cells can be re-introduced in order to accelerate reconstitution of hematopoiesis.

Inventor: Foster, John Stuart (Santa Barbara, CA)
Assignee: Innovative Micro Technology (Goleta, CA)
Date of First Priority Issue: Saturday June 8th, 2002

Thrombopoietic compounds

Patent Number: 6835809

This patent covers a peptide that stimulates stem cells to differentiate into the megakaryocytic lineage. This patent is useful for acceleration of platelet recovery after chemotherapy, radiation therapy, or bone marrow transplant. Since thrombopoietin stimulates early stem cells to self-renew, it may be interesting to see if this peptide also has similar activities.

Inventors: Liu, Chuan-Fa (Longmont, CO); Feige, Ulrich (Newbury Park, CA); Cheetham, Janet C. (Montecito, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday October 23rd, 1998

Human lineage committed cell composition with enhanced proliferative potential, biological effector function, or both; methods for obtaining same; and their uses

Patent Number: 6835566

This patent teaches the generation of lineage-committed dendritic cell progenitors. This is important since the dendritic cell is a master controller of the immune response, being able to both stimulate responses as well as inhibit them. Dendritic cells can be made to stimulate responses through activation with various cytokines or toll like receptors, whereas they can also suppress responses...

Inventors: Smith, Alan K. (Saline, MI); Smith, Douglas M. (Ann Arbor, MI); Mandalam, Ramkumar K. (Westland, MI)
Assignee: Aastrom Biosciences, Inc. (Ann Arbor, MI)
Date of First Priority Issue: Monday February 23rd, 1998

Making neural cells for human therapy or drug screening from human embryonic stem cells

Patent Number: 6833269

Despite all the publicity of embryonic stem cell therapy, the fact that embryonic stem cells turn into cancer cells when inserted into a living organism suggests the very import need to understand and develop ways of manipulating them to differentiate into the tissue that is

needed to be repaired. This patent teaches conditions for generating neural cells from embryonic stem cells through...
Inventor: Carpenter, Melissa K. (Castro Valley, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Wednesday May 17th, 2000

Common neural progenitor for the CNS and PNS

Patent Number: 6830927
This patent teaches how to generate neuronal stem cells that are bipotent into differentiating into central nervous system neurons as well as peripheral nervous system neurons. The patent uses neuronal stem cells that are extracted from specific parts of the embryo and cultured in fibroblast growth factor and chicken embryo extract. Besides the intrinsic value of composition of matter on...
Inventors: Rao, Mahendra S. (Salt Lake City, UT); Mujtaba, Tahmina (Sandy, UT)
Assignee: University of Utah Research Foundation (Salt Lake City, UT
Date of First Priority Issue: Wednesday May 7th, 1997

Method for the isolation of stem cells by immuno-labeling with HLA/MHC gene product marker

Patent Number: 6828145
Classically hematopoietic stem cells are purified based on expression of markers such CD34 or c-kit. This patent teaches that hematopoietic stem cells can also be further purified by selecting cells that lack expression of MHC I. The lack of expression of class I may have to do with the presumed weaker immunogenecity of hematopoietic stem cells. Currently this invention doesnt seem to be...
Inventors: Avital, Itzhak (Los Angeles, CA); Arnaout, Walid (Calabasas, CA); Inderbitzin, Daniel (Zurich, CH)
Assignee: Cedars-Sinai Medical Center (Los Angeles, CA)
Date of First Priority Issue: Wednesday May 10th, 2000

Therapeutic and diagnostic methods and compositions based on Jagged/Notch proteins and nucleic acids

Patent Number: 6825007
This patent covers composition of matter of Jagged 1, as well as its use in stem cell expansion. This patent is useful not only for classical regenerative applications, but also for stimulating production of special immune system cells.
Inventors: Zimrin, Ann B. (Marriottsville, MD); Maciag, Thomas (Freeport, ME); Pepper, Michael S. (Geneva, CH); Montesano, Roberto (Geneva, CH); Wong, Michael (Derwood, MD)
Assignee: Maine Medical Center Research Institute (Scarborough, ME)
Date of First Priority Issue: Friday May 31st, 1996

Methods for storing neural cells

Patent Number: 6821779
This patent covers methods of storing neural stem cells and neural cells that have been differentiated from stem cells. This patent covers not only human but also porcine cells. The assignee company was at one time performing clinical trials with encapsulated porcine neural cells in patients.
Inventors: Koopmans, Jan (Groningen, NL); Jacoby, Douglas B. (Wellesley, MA); Dinsmore, Jonathan (Brookline, MA)
Assignee: University Hospital Groningen, Inc. (Groningen, NL); Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Monday July 6th, 1998

Method for enhancing hematopoiesis

Patent Number: 6821513
Inventor: Fleming, William H. (Portland, OR)
Assignee: Oregon Health & Science University (Portland, OR)
Date of First Priority Issue: Wednesday June 23rd, 1999

Methods of creating constructs useful for introducing sequences into embryonic stem cells

Patent Number: 6815185
This patent provides methods and vectors for transfection of embryonic stem cells. This patent is useful for generation of various animal research models that have a genetic modification introduced into the whole animal. Additionally, transfection of embryonic stem cells could be useful for a variety of different things, including using the embryonic stem cells as a vector...or in another...
Inventors: Klein, Robert D. (Palo Alto, CA); Brennan, Thomas J. (South San Francisco, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Monday November 17th, 1997

Myocardial grafts and cellular compositions useful for same

Patent Number: 6818210
This patent teaches how to generate a myocardial graft using embryonic stem cells that have been induced to differentiate into the cardiac lineage. This patent is especially useful for post myocardial infarction in

which scar tissue replaces functional myocardium resulting in decreased cardiac output. Numerous methods have been previously described for generation of myocardial cells from...
Inventor: Field, Loren J. (Indianapolis, IN)
Assignee: Advanced Research & Technology Institute (Indianapolis, IN)
Date of First Priority Issue: Tuesday November 16th, 1993

Methods of making pancreatic islet cells

Patent Number: 6815203
This patent teaches ways of dedifferentiating pancreatic duct or exocrine cells and then redifferentiating the cells to generate functional islet cells. This patent is especially relevant in light of the Edmonton Protocol that provides methods of transplanting allogeneic pancreatic islets. The problem with the Edmonton Protocol is that it takes up to 2, sometimes even more pancreas's for 1...
Inventors: Bonner-Weir, Susan (Cambridge, MA); Taneja, Monica (Bronx, NY)
Assignee: Joslin Diabetes Center, Inc. (Boston, MA)
Date of First Priority Issue: Wednesday June 23rd, 1999

Method for enhancing stem cell trafficking

Patent Number: 6814961
This patent teaches the use of a naturopathic remedy for actually mobilizing stem cells into systemic circulation. The naturopathic remedy is blue green algae. This patent may be used for treating anything that benefits from mobilized stem cells ranging from stroke to myocardial infarction.
Inventors: Jensen, Gitte S. (Port Dover, Ontario, CA); Drapeau, Christian (Keno, OR)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Monday May 14th, 2001

Process for ex vivo formation of mammalian bone and uses thereof

Patent Number: 6811776
This patent teaches how to use bone stem cells, or bone precursor cells in order to generate in vitro bones that can be subsequently introduced in vivo. The invention is of use to any biotech interested in entering the regenerative market in the area of osteogenesis.
Inventors: Kale, Sujata (Boston, MA); Long, Michael W. (Northville, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Wednesday December 27th, 2000

Method for generating immune-compatible cells and tissues using nuclear transfer techniques

Patent Number: 6808704
This patent teaches methods of generating stem cells using cloning that match the potential recipient according to HLA phenotype. This patent could be very useful since in essence it describes a method of making stem cells that will not be rejected by the immune system.
Inventors: Lanza, Robert (Clinton, MA); West, Michael D. (Boston, MA); Cibelli, Jose (Holden, MA)
Assignee: Advance Cell Technology, Inc. (Worcester, MA)
Date of First Priority Issue: Tuesday September 7th, 1999

Treatment of disorders by implanting stem cells and/or progeny thereof into gastrointestinal organs

Patent Number: 6808702
This patent is very interesting in that it provides a source of nitric oxide through the use of fetal and embryonically derived neural stem cells. The neural stem cells can be administered by various means in order to correct gastrointestinal deficiencies.
Inventors: Pasricha, Pankaj J. (Houston, TX); Micci, Maria A. (Dickinson, TX)
Assignee: Board of Regents, the University of Texas System (Austin, TX)
Date of First Priority Issue: Thursday April 13th, 2000

Method of transluminal application of myogenic cells for repair or replacement of heart tissue

Patent Number: 6805860
This patent appears to cover the tempory occlusion of a vessel so that stem cells can be administered for repair of the injured organ. This patent has the potential to cover various clinical applications of stem cell therapies, especially for myocardial infarction that use a balloon stent to localize the stem cells into the infarct related artery.
Inventor: Alt, Eckhard (D-85521 Ottobrunn, DE)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Sunday September 30th, 2001

Method for maintenance and propagation of germline stem cells using members of the TFG-.beta. family of growth factors

Patent Number: 6800790
This patent teaches how to increase the number of germline stem cells in a fruitfly through overexpression of Dpp locally using certain promoters that are specific to germline stem cells. Since the patent is only covering

the fruitfly species, clinical applications seem to be limited.
Inventors: Spradling, Allan C. (Baltimore, MD); Xie, Ting (Baltimore, MD)
Assignee: Carnegie Institution of Washington (Washington, DC)
Date of First Priority Issue: Friday July 24th, 1998

Methods and materials for the growth of primate-derived primordial stem cells in feeder-free culture

Patent Number: 6800480
This patent teaches how to grow embryonic stem cells in absence of feeder cells. This is a useful "base patent" that is essential to generation of therapeutics from embryonic stem cells, since it is usually not desired to use feeder cell layers in culture of embryonic stem cells for clinical use.
Inventors: Bodnar, Andrea G. (Oshawa, CA); Chiu, Choy-Pik (Cupertino, CA); Gold, Joseph D. (San Francisco, CA); Inokuma, Margaret (San Jose, CA); Murai, James T. (San Bruno, CA); West, Michael D. (Boston, MA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday October 23rd, 1997

Mesenchymal stem cells as immunosuppressants

Patent Number: 6797269
This patent covers mesenchymal stem cells that are treated with interferon gamma for suppression of an immune response. Mesenchymal stem cells are naturally immunosuppressive...it may be that the interferon gamma treatment is activating the expression of the immune suppressive enzyme 2,3-indolamine-dehydrogenase (IDO), which selectively depletes tryptophan, thus stopping T cell activation.
Inventors: Mosca, Joseph D. (Ellicott City, MD); McIntosh, Kevin R. (Ellicott City, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday April 3rd, 1998

Medicinal product and method for treatment of conditions affecting neural stem cells or progenitor cells

Patent Number: 6797264
This patent covers the use of neural stem cells together with a growth hormone for treatment of neurological conditions. This covers various hormones including growth hormone itself, as well as fibroblast growth factor.
Inventor: Eriksson, Peter (Goteborg, SE)
Assignee: Cellartis AB (Goteborg, SE)
Date of First Priority Issue: Wednesday November 25th, 1998

Biomaterial derived from vertebrate liver tissue

Patent Number: 6793939
This patent covers the use of liver tissue derived basement membrane material for the stimulation of endogenous or exogenous stem cells. One interesting use of this patent would be the combination of cord blood stem cells with liver tissue extract for stimulation of various regenerative applications.
Inventor: Badylak, Stephen F. (West Lafayette, IN)
Assignee: Purdue Research Foundation (West Lafayette, IN)
Date of First Priority Issue: Tuesday December 10th, 1996

Method of providing cells and other biologic materials for transplantation

Patent Number: 6793677
This patent teaches ways of using cells and stem cells from the nucleus pulposus for the treatment of degenerative back diseases. Since lower back pain is a major medical concern, various stem cell therapeutics are being considered for stimulation of the nucleus pulposus cellular content, so as to regenerate degenerate discs. The cells used in this patent do not necessarily have to be...
Inventor: Ferree, Bret A. (Cincinnati, OH
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday August 13th, 1999

Combinations and methods for promoting in vivo liver cell proliferation and enhancing in vivo liver-directed gene transduction

Patent Number: 6790838
This patent teaches ways of improving the transfection of liver cells with genes in vivo. Transfection of liver cells is performed through the administration of the thyroid hormone T3, as well as keratinocyte growth factor. The transfection of liver cells may be performed not only for treatment of genetic disorders, but also for induction of islet differentiation.
Inventors: Alison, Malcolm R. (London, GB); Coutelle, Charles (London, GB); Forbes, Stuart J. (London, GB); Hodgson, Humphrey J. F. (London, GB); Sarosi, Ildiko (Newbury Park, CA); Themis, Michael (Oxfordshire, GB)
Assignee: Amgen, Inc. (Thousand Oaks, CA); Imperial College Innovations LTD (London, GB)
Date of First Priority Issue: Tuesday February 23rd, 1999

Human haemopoietic maturation factor

Patent Number: 6790826

This patent covers composition of matter on a factor, which seems to be not clearly stated, that can induce both proliferation and differentiation of hematopoietic stem cells, as well as stem cells that have been committed to the lymphoid lineage. This patent is particularly useful for treatment of patients after bone marrow transplantation, or chemotherapy, or radiation therapy.

Inventors: Kirkness, Ewen F. (Olney, MD); Adams, Mark D. (Rockville, MD); Olsen, Henrik (Gaithersburg, MD); Rosen, Craig A. (Laytonsville, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Tuesday May 16th, 1995

Cell delivery system comprising a fibrous matrix and cells

Patent Number: 6790455

This patent teachs cell delivery matrices that can be used for localized administration of stem cells into an area of need. The matrices disclosed are biocompatible and biodegradable. The patent is owned by a non-for-profit entity and appears to be available for licensing.

Inventors: Chu, Benjamin (Setauket, NY); Hsiao, Benjamin S. (Setauket, NY); Hadjiargyrou, Michael (Coram, NY); Fang, Dufei (Painted Post, NY); Zong, Xinhua (Centereach, NY); Kim, Kwangsok (Setauket, NY)

Assignee: The Research Foundation at State University of New York (Stony Brook, NY)

Date of First Priority Issue: Friday September 14th, 2001

Plasma-derived fibrin-based matrices and tissue

Patent Number: 6787357

This patent provides matrices that can be generated easily in GMP conditions, and can be administered in combination with various stem cells for therapeutic benefits. Cytokines and other growth factors may also be administered with the stem cells into the matrix to either induce local proliferation, or to chemoattract endogenous stem cells.

Inventors: Bowlin, Gary L. (Mechanicsville, VA); Wnek, Gary (Midlothian, VA); Simpson, David G. (Mechanicsville, VA); Lam, Philippe (Richmond, VA); Carr, Marcus E. (Midlothian, VA); Fillmore, Helen (Richmond, VA)

Assignee: Virginia Commonwealth University (Richmond, VA)

Date of First Priority Issue: Friday September 1st, 2000

Cell expansion system for use in neural transplantation

Patent Number: 6787356

This patent teaches methods of generating and expanding dopaminergic neurons that can be used for treatment of a variety of neurological conditions. The system uses, amongst other things, fibroblast growth factor for expansion.

Inventors: Studer, Lorenz (New York, NY); McKay, Ron D. (Bethesda, MD)

Assignee: The United States of America as represented by the Department of Health and Human Services

Date of First Priority Issue: Friday July 24th, 1998

Multipotent neural stem cells from peripheral tissues and uses thereof

Patent Number: 6787355

This patent covers multipotent stem cells that are generated from skin or from tongue tissue. This stem cell type is particularly useful for generation of neural stem cells and neurons.

Inventors: Miller, Freda D. (Montreal, CA); Gloster, Andrew (Saskatoon, CA); Toma, Jean (Montreal, CA)

Assignee: McGill University (Montreal, CA)

Date of First Priority Issue: Monday August 26th, 1996

Lineage-restricted neuronal precursors and methods of isolation

Patent Number: 6787353

This patent teaches ways of generating a new type of neuronal precursor cell from embryonic tissue. The cells are negative for the marker A2B5 and positive for expression of NCAM.

Inventors: Rao, Mahendra S. (Salt Lake City, UT); Mayer-Proschel, Margot (Sandy, UT); Kalyani, Anjali J. (Salt Lake City, UT)

Assignee: University of Utah Research Foundation (Salt Lake City, UT)

Date of First Priority Issue: Friday July 4th, 1997

Inhibitor and stimulator of stem cell proliferation and uses thereof

Patent Number: 6784155

The connection between the brain and the immune system is well-known, such as the experiments of Pavlovian conditioning of immune responses. Here the inventor covers the use of opiates and certain peptides for stimulation of bone marrow stem cell proliferation. Specific peptide sequences of hematopoietic stem cell stimulators are disclosed including peptide fractions of hemoglobin chains...

Inventors: Wolpe, Stephen D. (Rockville, MD); Tsyrlova, Irena (Gaithersburg, MD)

Assignee: Wellstat Therapeutics Corporation (Gaithersburg, MD)

Date of First Priority Issue: Wednesday April 3rd, 1996

Proteins related to neuronal regeneration and uses thereof

Patent Number: 6783982

This patent teaches that neural stem cells can be expanded through the use of a novel protein called Neural Plakophilin Related Armadillo Protein (hNPRAP). Additionally the patent claims the induction of cellular extensions ushing hNPRAP.

Inventors: St. George-Hyslop, Peter H. (Toronto, CA); Fraser, Paul E. (Toronto, CA)

Assignee: The Governing Council of The University of Toronto (Toronto, CA)

Date of First Priority Issue: Friday February 12th, 1999

Serum-derived factor inducing cell differentiation and medical uses thereof

Patent Number: 6783775

This patent teaches ways of inducing differentiation in stem cells. Specifically it claims a composition of matter that can induce not only differentiation of hematopoietic stem cells, but also of leukemic cells. The composition contains the enzyme ceruloplasmin, together with a specific serum derived component. This patent is ripe for commercialization.

Inventors: Peled, Tony (Mevaseret Zion, IL); Fibach, Eitan (Mevaseret Zion, IL); Rachmilewitz, Eliezer A. (Jerusalem, IL)

Assignee: Hadasit Medical Research Services and Development Ltd. (Jerusalem, IL)

Date of First Priority Issue: Tuesday December 10th, 1996

Methods for cloning mammals using telophase oocytes

Patent Number: 6781030

This patent teaches a new way of cloning, including for the generation of embryonic stem cells, by selecting oocytes at a specific cell stage called telophase.

Inventors: Baguisi, Alexander (Grafton, MA); Overstrom, Eric W. (Grafton, MA)

Assignee: Trustee of Tufts College, Ballou Hall (Medford, MA)

Date of First Priority Issue: Monday November 2nd, 1998

Cultures of human CNS Neural stem cells

Patent Number: 6777233

This patent provides a tissue culture media and systems that can be used to expand nestin positive neural stem cells. The neural stem cells that are expanded in this patent have more potency and appear to be more undifferentiated than neural stem cells that are covered in the prior art.

Inventor: Carpenter, Melissa (Foster City, CA)

Assignee: StemCells California, Inc. (Palo Alto, CA)

Date of First Priority Issue: Friday September 5th, 1997

Adipose-derived stem cells and lattices

Patent Number: 6777231

This is one of the founding patents covering work performed by Cytori, formerly Macropore. The patent covers an adipose derived stem cell that can diffentiate into bone, cartilage cell, nerve, or muscle cells.

Inventors: Katz, Adam J. (Charlottesville, VA); Llull, Ramon (Mallorca, ES); Futrell, William J. (Pittsburgh, PA); Hedrick, Marc H. (Encino, CA); Benhaim, Prosper (Los Angeles, CA); Lorenz, Hermann Peter (Los Angeles, CA); Zhu, Min (Los Angeles, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Wednesday March 10th, 1999

Histone deacetylases, and uses related thereto

Patent Number: 6777217

This patent appears to be a composition of matter patent on various histone deacetylases. These proteins, histone deacetylases, are very important in controlling gene expression. Typically histone deacetylases suppress gene expression by deacetylazing histones, which control large parts of the DNA. Since histone deacetylase inhibitors actually stimulate expression of genes that are normally...

Inventors: Schreiber, Stuart L. (Boston, MA); Taunton, Jack (Somerville, MA); Hassig, Christian A. (Somerville, MA); Jamison, Timothy F. (Cambridge, MA)

Assignee: President and Fellows of Harvard College (Cambridge, MA)

Date of First Priority Issue: Tuesday March 26th, 1996

Method and system for myocardial infarction repair

Patent Number: 6775574

This patent covers the implantation of a stem cell source, or genes associated with stem cells and regeneration, together with a pace-maker type device, into a patient whose heart is in need of regeneration. The advantage of this patent is that numerous times the implanted cells do not beat in synchronism with the host cardiac cells, this patent tries to overcome this problem.

Inventors: Soykan, Orhan (New Brighton, MN); Donovan, Maura G. (St. Paul, MN)

Assignee: Medtronic, Inc. (Minneapolis, MN)

Date of First Priority Issue: Friday November 7th, 1997

Methods of inducing regulated pancreatic hormone production in non-pancreatic islet tissues

Patent Number: 6774120

This patent teaches how to make liver cells behave like pancreatic cells and even offers the possibility of treating type 1 diabetes. Essentially the patent claims that by transfecting liver cells with the pancreatic stem cell transcription factor PDX-1, the liver cells will start producing insulin (besides other things).

Inventor: Ferber, Sarah (Ramat Hasharon, IL)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday April 19th, 2000

Injection molding of living tissues

Patent Number: 6773713

This patent teaches how to combine computer engineering design tools together with stem cell technologies for the formation of 3 dimensional tissues that may subsequently be implanted.

Inventors: Bonassar, Lawrence J. (Acton, MA); Rowley, Jon A. (Chapel Hill, NC); Mooney, David J. (Ann Arbor, MI)

Assignee: University of Massachusetts (Boston, MA)

Date of First Priority Issue: Friday February 23rd, 2001

Container for biological products requiring cellular stasis

Patent Number: 6773425

This patent discloses various vessels and uses thereof that can be used to store stem cells and other biological products during transportation.

Inventor: Tamari, Yehuda (Oyster Bay, NY)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday December 29th, 2000

Hematopoietic stimulation

Patent Number: 6770628

This patent takes a new twist on stimulation of hematopoietic stem cells. It uses inhibitors of Dipeptidyl Peptidase IV, an enzyme that destroys hematopoietic growth factors, in order to "suppress the suppressor".

Inventors: Wallner, Barbara P. (Weston, MA); Jones, Barry (Cambridge, MA); Miller, Glenn T. (Haverhill, MA); Adams, Sharlene (Watertown, MA)

Assignee: Point Therapeutics, Inc. (Boston, MA)

Date of First Priority Issue: Monday May 4th, 1998

Erythrocytic cells and method for preserving cells

Patent Number: 6770478

This patent covers methods of preserving red blood cells through cryopreservation. The method involves depletion of cholesterol and loading of the cells with an oligosaccharide. Cryopreservation according to this method may be performed in stem cell derived erythrocytes for use in emergency situations.

Inventors: Crowe, John H. (Davis, CA); Crowe, Lois M. (Davis, CA); Tablin, Fern (Davis, CA); Wolkers, Willem F (Davis, CA); Tsvetkova, Nelly M. (Davis, CA); Oliver, Ann F. (Davis, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Thursday February 10th, 2000

Method preventing depletion of non-autologous hematopoietic cells and animal model systems for use thereof

Patent Number: 6770260

This patent teaches depletion or inactivation of recipient macrophages using dichloromethylene diphosphonate in order to allow allogeneic or xenogeneic stem cell transplants and progeny of the stem cell transplants not to be rejected. The patent is very interesting since the inactivation of macrophages theoretically may also allow for inactivation of dendritic cells. If this occurs, then the...

Inventors: Chen, Ben (Fremont, CA); Fraser, Chris (Los Altos, CA); Weissman, Irv (Redwood City, CA)

Assignee: Novartis AG (Basel, CH)

Date of First Priority Issue: Friday December 17th, 1993

Mineralization and biological modification of biomaterial surfaces

Patent Number: 6767928

This patent covers ways of altering biomaterials so that bone may be grown around them. Specifically useful is the application of such biomaterials as scaffolds around which stem cells can be grown in order to generate tissues that can be implanted.

Inventors: Murphy, William L. (Ann Arbor, MI); Peters, Martin C. (Ann Arbor, MI); Mooney, David J. (Ann Arbor, MI); Kohn, David H. (Ann Arbor, MI)

Assignee: The Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Friday March 19th, 1999

Stem cell and dental pulp harvesting method and apparatus

Patent Number: 6767740

Teeth are known to contain various cellular populations in the pulp, including stem cells. The idea of banking tooth stem cells is limited by the ease of extraction. This patent discloses various apparatus' that are easily used for the extraction of tooth stem cells.

Inventors: Sramek, Roger Anton (Sausalito, CA); Javid, Bahram (El Cerrito, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday October 9th, 2001

Method of isolating adult mammalian CNS-derived progenitor stem cells using density gradient centrifugation

Patent Number: 6767738
This patent teaches ways of using gradient centrifugation (separation based on weight) to purify stem cells of the neural lineage from adults. This is specifically useful since it is a relatively easy way to purify cells and is commonly used in the purification of hematopoietic stem cells.
Inventors: Gage, Fred H. (La Jolla, CA); Palmer, Theo (San Carlos, CA); Safar, Francis G. (Irvine, CA); Takahashi, Jun (Kyoto, JP); Takahashi, Masayo (Kyoto, JP)
Assignee: The Salk Institute for Biological Studies (La Jolla, CA)
Date of First Priority Issue: Friday September 24th, 1999

Stem cells bearing an FGF receptor on the cell surface

Patent Number: 6767737
This patent is on a type of stem cell that expresses the fibroblast growth factor receptor. This is a composition of matter patent on a stem cell and could be very useful for strategic positioning of companies in the area of stem cell therapeutics.
Inventors: Wilson, E. Lynette (New York, NY); Burger, Patricia E. (Cape Town, ZA)
Assignee: New York University (New York, NY)
Date of First Priority Issue: Monday August 31st, 1998

Loop peptide and TGF.alpha. for stimulating stem cell proliferation and migration

Patent Number: 6764683
Mucositis is a big problem in cancer patients taking chemotherapy and radiation therapy, in part due to the effect of these therapies on the epithelial stem cell pool. This patent teaches the usefulness of transforming growth factor alpha on preventing this condition by its ability to protect the stem cell compartment and to enhance their expansion.
Inventors: Twardzik, Daniel R. (Bainbridge Island, WA); Paskell, Stefan (Bainbridge Island, WA); Felker, Thomas S. (Vashon, WA)
Assignee: Kaleidos Pharma, Inc. (Seattle, WA)
Date of First Priority Issue: Monday April 26th, 1999

Methods for treating a patient undergoing chemotherapy

Patent Number: 6762167
This patent teaches that angiotensin I and/or angiotensin II can be used for stimulation of hematopoiesis.
Inventors: Rodgers, Kathleen E. (Long Beach, CA); DiZerega, Gere S. (Los Angeles, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Wednesday March 11th, 1998

Alginate layer system for chondrogenic differentiation of human mesenchymal stem cells

Patent Number: 6761887
Mesenchymal stem cells can be used as "universal donors" since they do not elicit rejection in certain situations. This patent teaches methods of differentiating mesenchymal stem cells into cartilage through growth on alginate layers.
Inventors: Kavalkovich, Karl (Baltimore, MD); Boynton, Raymond (Watertown, MA); Murphy, Mary (Baltimore, MD); Barry, Frank (Baltimore, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Monday November 16th, 1998

Mammalian myeloid progenitor cell subsets

Patent Number: 6761883
This is a composition of matter patent on stem cells of the hematopoietic lineage that differentiate specifically into myeloid cells under the appropriate culture and/or in vivo conditions. These stem cells may be used as a "boost" for patients in which the myeloid compartment is not repopulating after bone marrow transplant, or chemotherapy, or radiation therapy.
Inventors: Weissman, Irving L. (Redwood City, CA); Traver, David Jeffrey (West Roxbury, MA); Akashi, Koichi (Palo Alto, CA); Manz, Markus Gabriel (Palo Alto, CA); Miyamoto, Toshihiro (Menlo Park, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Tuesday June 29th, 1999

Human neuronal attachment factor-1

Patent Number: 6759512
This patent covers a protein called F-spondin that is involved in regulation of development and stem cell function. It is published that F-spondin induces differentiation of neural stem cells into neurons (Schubert D et al. F-spondin promotes nerve precursor differentiation. J Neurochem. 2006 Jan;96(2):444-53).
Inventors: Hastings, Gregg (Newberry Park, CA); Dillon, Patrick J. (Gaithersburg, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)
Date of First Priority Issue: Monday February 12th, 1996

Cell culture systems and methods for organ assist devices

Patent Number: 6759245

Ex vivo culture of stem cells is important for the generation of artificial organs. This patent teaches culture of stem cells and precursor cells using a unique culture set up that allows for proper differentiation of cells in an in vivo like setting. The patent is primarily targeted towards the generation of hepatocytes.
Inventors: Toner, Mehmet (Wellesley, MA); Tilles, Arno W. (Cambridge, MA); Balis, Ulysses J. (Peabody, MA); Yarmush, Martin L. (Newton, MA); Cosman, Maury D. (Woburn, MA); Dimilla, Paul A. (Dover, MA)
Assignee: The General Hospital Corporation (Boston, MA); Organogenesis Inc. (Canton, MA)
Date of First Priority Issue: Monday June 21st, 1999

Composite blastocysts (CBs) from aggregates of dissociated cells of non-viable pre-embryos

Patent Number: 6759244

This patent teaches methods of generating a composite blastocyst from non-viable embryos. The invention is useful for generation of stem cells of embryonic origin through a novel method.
Inventors: Alikani, Mina (New York, NY); Willadsen, Steen Malte (Windermere, FL)
Assignee: Art Institute of New York and New Jersey, Inc. (New York, NY)
Date of First Priority Issue: Thursday November 8th, 2001

Low oxygen culturing of neural crest stem cells and methods of use

Patent Number: 6759242

This patent teaches that neural stem cells, specifically neural crest stem cells, can be expanded preferentially by growing in low oxygen conditions.
Inventors: Csete, Marie (S. Pasadena, CA); Morrison, Sean J. (Ann Arbor, MI); Wold, Barbara (San Marino, CA); Anderson, David J. (Altadena, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Wednesday November 18th, 1998

Method of preparing human stem cell factor polypeptide

Patent Number: 6759215

This patent is part of the huge wall Amgen put around the IP for stem cell factor. This patent specifically encompasses the cells that are transformed with SCF genes in order to generate SCF protein. SCR is the same as kit ligand.
Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Park, CA); Martin, Francis H. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Monday October 16th, 1989

Method of identifying a neural progenitor cell by evaluating expression of daedalos

Patent Number: 6759201

This patent covers a new marker for neural stem cells called Daedalos. It provides methods of using this marker for identifying and extracting neural stem cells. The neural stem cells can be used for treatment of a variety of neurological disorders such as Parkinsons, Alzheimers, etc.
Inventor: Morgan, Bruce A. (Lexington, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Wednesday October 25th, 2000

Culturing pancreatic stem cells having a specified, intermediate stage of development

Patent Number: 6759039

This patent covers methods of culturing and expanding pancreatic stem cells. These cells may be used for the treatment of diabetes through encapsulation or administration into the liver such as thought by the Edmonton Protocol.
Inventors: Tsang, Wen-Ghih (Sherman Oaks, CA); Zheng, Tianli (Culver City, CA); Huang, Chang Jiang (Los Angeles, CA)
Assignee: AmCyte, Inc. (Santa Monica, CA)
Date of First Priority Issue: Friday June 30th, 2000

Catheter for cell delivery in tissue

Patent Number: 6758828

This patent is for a medical device that can be utilized for administration of stem cells into tissues. This medical device is unique in that it contains several safety parameters that are important for regulatory approval of such administration devices.
Inventors: Hammer, Bruce E. (Minnetonka, MN); Conroy, Mark J. (St. Louis Park, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN)

Date of First Priority Issue: Monday December 10th, 2001

Markers for identification and isolation of pancreatic islet .alpha. and .beta. progenitors

Patent Number: 6753153

This patent discloses protein markers that can be used for purification of pancreatic stem cells. The markers are agents that are capable of binding the protein ErbB2. This patent may be used for purification and ex vivo expantion of islets from tissue, or may be used for characterization of islet stem cells generated via embryonic or other type of stem cell culture.

Inventors: Sarvetnick, Nora (San Diego, CA); Kritzik, Marcie (La Jolla, CA)

Assignee: The Scripps Research Institute (La Jolla, CA)

Date of First Priority Issue: Monday December 13th, 1999

Membrane for in guided tissue regeneration

Patent Number: 6752834

Disclosed is a matrix that is useful for administration of living stem cells particularly for treatment of bone or cartilage injuries. The matrix is comprised primarily of collagen II and is compatible with a variety of stem cell technologies. This patent is useful for numerous applications.

Inventors: Geistlich, Peter (Stanstaad, CH); Eckmayer, Zdenek (Weinheim, DE); Schlosser, Lothar (Darmstadt, DE)

Assignee: Ed Geistlich Soehne AG Fuer Chemische Industrie (CH)

Date of First Priority Issue: Friday October 10th, 1997

Methods of treating disorders of the eye

Patent Number: 6750196

This patent teaches expansion of retinal cells, and stem cells thereof, through the administration of proteins called neuroregulins. The patent is useful for treatment of a variety of ocular degenerative diseases.

Inventors: Reh, Thomas A. (Seattle, WA); Marchionni, Mark A. (Arlington, MA); McCabe, Kathryn L. (Seattle, WA); Bermingham-McDonogh, Olivia (Watertown, MA); Mahanthappa, Nagesh K. (Cambridge, MA); Gwynne, David I. (Beverly, MA)

Assignee: Acorda Therapeutics (Hawthorne, NY)

Date of First Priority Issue: Monday March 27th, 1995

Methods of identifying compounds for regulating muscle mass or function using vasoactive intestinal peptide receptors

Patent Number: 6750194

This patent covers expansion of muscle mass through the use of vasoactive intestinal peptide receptors (VPAC)agonists. The activity of such agonists on stem cells are only beginning to be identified, and I am sure this area is ripe for expansion...for example, what do such agonists do on neural stem cells?

Inventors: Isfort, Robert Joseph (Fairfield, OH); Sheldon, Russell James (Fairfield, OH)

Assignee: The Procter & Gamble Company (Cincinnati, OH)

Date of First Priority Issue: Monday October 23rd, 2000

Implantable artificial organ and physiological monitoring system

Patent Number: 6750055

This patent covers an implantable culture system that uses islet cells and/or stem cells for treatment of diabetes. What is interesting about this patent is that it actually involves a mechanism of detecting insulin so that the culture system and other additions to the body can be perform in order to maintain homeostatic insulin concentrations. This patent is useful for small biotechs...

Inventors: Connelly, Patrick R. (Rochester, NY); Weiner, Michael L. (Webster, NY)

Assignee: Biomed Solutions LLC (West Henrietta, NY)

Date of First Priority Issue: Wednesday March 7th, 2001

Method of cell culture using neurturin

Patent Number: 6743628

This patent teaches how to expand neuronal stem cells through administration of the protein neurturin. The patent seems to be restricted to in vitro use.

Inventors: Johnson, Jr., Eugene M. (St. Louis, MO); Milbrandt, Jeffrey D. (St. Louis, MO); Kotzbauer, Paul T. (St. Louis, MO); Lampe, Patricia A. (St. Louis, MO)

Assignee: Washington University (St. Louis, MO)

Date of First Priority Issue: Monday August 28th, 1995

Bone precursor cells: compositions and methods

Patent Number: 6740493

This patent teaches how to diagnose, or to predict a bone disease through identifying the bone stem cell content and activity of the patient.

Inventors: Long, Michael W. (Northville, MI); Mann, Kenneth G. (Grand Isle, VT)

Assignee: The Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Friday August 12th, 1994

Implant for repairing cartilage having outer surface layers of copolymer and ceramic material

Patent Number: 6737073

This is an implantable matrix that can be used for growing stem cells in vitro for the regeneration of cartilage. The implant has several advantages over the prior art including the fact that it is compartamentalized in structure to provide a more "in vivo" like function.

Inventors: Mahmood, Tahir (Cambridge, MA); Riesle, Jens Uwe (Amsterdam, NL); van Blitterswijk, Clemens Antoni (Hekendorp, NL)

Assignee: IsoTis N.V. (Bilthoven, NL)

Date of First Priority Issue: Wednesday February 10th, 1999

Matrix for tissue engineering formed of a hyaluronic acid ester and hydrolyzed collagen

Patent Number: 6737072

This patent covers a matrix that is made of hyaluronic acid and hydrolyzed collagen, that can be used as a scaffold for in vitro three dimensional tissue generation, or can be seeded with stem cells and implanted in vivo.

Inventors: Angele, Peter (Regensburg, DE); Kujat, Richard (Pettendorf, DE)

Assignee: Nerlich, Michael (Pentling, DE)

Date of First Priority Issue: Saturday December 3rd, 1988

Myocardial grafts and cellular compositions useful for same

Patent Number: 6737054

This patent teaches administration of stem cells, or cardiomyocytes, into areas of the heart that have been injured, including by infarction.

Inventor: Field, Loren J. (Indianapolis, IN)

Assignee: Advanced Research and Technology Institute (Indianapolis, IN)

Date of First Priority Issue: Thursday December 16th, 1993

Delivery device for biological composites and method of preparation thereof

Patent Number: 6736799

This patent covers a device for administration of biological matrices that can be co-implanted with stem cells for regenerative purposes.

Inventors: Erbe, Erik M. (Berwyn, PA); Marx, Jeffrey G. (Downington, PA); Bagga, Charanpreet S. (Phoenixville, PA)

Assignee: Vita Licensing, Inc. (Wilmington, DE)

Date of First Priority Issue: Tuesday October 24th, 2000

Transfection, storage and transfer of male germ cells for generation of transgenic species and genetic therapies

Patent Number: 6734338

This patent teaches how to transfect male germ stem cells in non-human mammals. This technology is useful for generation of a variety of animal models for laboratory experimentation. It is also useful for research companies who want to circumvent some of the transgenic patents today.

Inventors: Readhead, Carol W. (Pasadena, CA); Winston, Robert (London, GB)

Assignee: Cedars-Sinai Medical Center (Los Angeles, CA); IMPEL, Imperial College of Science, Technology and Medicine (London, GB)

Date of First Priority Issue: Friday November 14th, 1997

Isolation of lineage-restricted neuronal precursors

Patent Number: 6734015

This patent covers a type of neuronal stem cell that is restricted in its differentiation ability to the neuronal, but not astrocyte or glial lineage. The patent covers a cell that is E-NCAM positive, FGF-dependent, and derived from embryonic sources.

Inventors: Rao, Mahendra S. (Salt Lake City, UT); Mayer-Proschel, Margot (Sandy, UT)

Assignee: University of Utah Research Foundation (Salt Lake City, UT)

Date of First Priority Issue: Friday July 4th, 1997

Hematopoietic cell culture nutrient supplement

Patent Number: 6733746

This patent covers a tissue culture media useful for the expansion of CD34+ hematopoietic stem cells that does not require the use of serum, and thus is easier for clinical implimentation. The patent is owned by Invitrogen which sells various laboratory and tissue culture reagents.

Inventors: Daley, John P. (Buffalo, NY); Dadey, Barbara M. (East Aurora, NY); Biddle, William C. (Buffalo, NY); Wysocki, Michelle G. (Cheektowaga, NY)

Assignee: Invitrogen Corporation (Carlsbad, CA)

Date of First Priority Issue: Tuesday March 12th, 1996

Blood separation system particularly for concentrating hematopoietic stem cells

Patent Number: 6733433

This patent covers a medical device that is useful for the concentration of stem cells, especially hematopoietic stem cells, from peripheral blood and other fluids.

Inventor: Fell, Claude (Nyon, CH)

Assignee: Biosafe S.A. (Eysins, CH)

Date of First Priority Issue: Thursday December 24th, 1998

Medium and matrix for long-term proliferation of cells

Patent Number: 6730315

This patent covers a hydrogel mixture that is useful for storage and/or expansion of cells, especially useful for stem cell applications. This technology may be used to form an in vivo depot of stem cells, or may be embedded with stem cell chemoattractants to call in endogenous stem cells into an area of need.

Inventors: Usala, Anton-Lewis (Winterville, NC); Klann, Richard Chris (Washington, NC)

Assignee: Encelle, Inc. (Greenville, NC)

Date of First Priority Issue: Monday February 24th, 1992

Methods for fabricating a filament for use in tissue engineering

Patent Number: 6730252

This patent covers generation of filaments that are useful for forming three dimensional scaffolds for tissue engineering using stem cells or precursor cells.

Inventors: Teoh, Swee Hin (Singapore 596504, SG); Hutmacher, Dietmar Werner (Singapore, SG); Tan, Kim Cheng (Singapore 524856, SG); Tam, Kock Fye (Singapore 730659, SG); Zein, Iwan (Singapore 448909, SG)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday September 20th, 2000

Materials and methods relating to the transfer of nucleic acid into quiescent cells

Patent Number: 6723561

The early hematopoietic stem cells are usually non-proliferating, additionally, intermediately developed hematopoietic stem cells treated with stem cell inhibitors such as TGF-beta, also do not proliferate. This causes a problem for gene therapy since most gene therapy vectors require the cells to be proliferating for appropriate transfection. This patent teaches methods of transfecting cells...

Inventors: Russell, Stephen James (Cambridge, GB); Fielding, Adele Kay (Cambridge, GB); Casimir, Colin Maurice (London, GB)

Assignee: Mayo Foundation for Medical Education and Research (Rochester, MN)

Date of First Priority Issue: Thursday September 28th, 1995

Methods and compositions for healing and repair of articular cartilage

Patent Number: 6727224

This patent teaches the use of bone morphogenic proteins together with stem cells for repair of articular cartilage injury. In some embodiments the stem cells may be endogenous.

Inventors: Zhang, Renwen (Rutherford, NJ); Peluso, Diane (Marshfield, MA); Morris, Elisabeth (Sherborn, MA)

Assignee: Genetics Institute, LLC. (Cambridge, MA)

Date of First Priority Issue: Monday February 1st, 1999

Bone resorption inhibitors

Patent Number: 6723696

This patent covers a novel factor that on the one hand is involved in leukocyte activation, and on the other hand inhibits bone resorption. This factor is useful in conjunction with stem cell therapies that stimulate bone formation.

Inventors: Suzuki, Kazuo (Misaki-machi, JP); Yamagoe, Satoshi (Kashiwa, JP); Yamakawa, Tooru (Tokyo, JP)

Assignee: Japan as represented by Secretary of National Institute of Infectious Diseases (Tokyo, JP)

Date of First Priority Issue: Tuesday December 22nd, 1998

Methods and compositions for treating intervertebral disc degeneration

Patent Number: 6723335

This patent covers the use of a fluid matrix together with stem cells, specifically mesenchymal stem cells, for the regeneration of the nucleus pulposus. This invention is suitable for treatment of patients with lower back pain due to disc degeneration.

Inventors: Moehlenbruck, Jeffrey William (Austin, TX); Ranieri, John Paul (Austin, TX)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday April 7th, 2000

Composite bone marrow graft material with method and kit

Patent Number: 6723131

This patent teaches how to administer bone marrow in vivo, so that administration is performed not only of hematopoietic stem cells, but also stromal elements. This combination should be useful in patients whose stroma has been destroyed for one reason or another. The invention may also be useful for prevention of donor-derived leukemic relapse.

Inventor: Muschler, George F. (Cleveland Heights, OH)

Assignee: The Cleveland Clinic Foundation (Cleveland, OH)

Date of First Priority Issue: Saturday April 28th, 2001

Nicotine receptor agonists in stem cell and progenitor cell recruitment

Patent Number: 6720340

This patent teaches that nicotine may be used for mobilization of stem cells. It covers endothelial precursor cells as well.

Inventors: Cooke, John (Palo Alto, CA); Johnson, Frances Lauri (Portola Valley, CA); Pathak, Anjali (Campbell, CA); Jang, James (San Bruno, CA); Tsao, Phillip (San Jose, CA); Heeschen, Christopher (Menlo Park, CA)

Assignee: The Board of Trustees of the Leland Stanford, Jr. Unversity (Palo Alto, CA)

Date of First Priority Issue: Wednesday July 28th, 1999

Method of generating cartilage

Patent Number: 6719970

This patent discloses chondrocytes and suitable biocompatible polymers that may be administered in vivo for the regeneration, or de novo generation of cartilage tissue.

Inventors: Costantino, Henry R. (Grantham, NH); Bonassar, Lawrence J. (Acton, MA); Tracy, Mark A. (Arlington, MA)

Assignee: Alkermes Controlled Therapeutics, Inc. (Cambridge, MA); University of Massachusetts (Boston, MA)

Date of First Priority Issue: Monday July 10th, 2000

Treatment of liver disease and injury with CXC chemokines

Patent Number: 6719969

This patent teaches that CXC chemokines are potent stimulators of hepatic stem cells and hepatic regeneration. Chemokines covered include MIP-2, ENA-78 and IL-8.

Inventors: Hogaboam, Cory M. (Ann Arbor, MI); Bone-Larson, Cynthia L. (Petersburg, MI); Simpson, Kenneth J. (Edinburgh, GB); Lukacs, Nicholas W. (Brighton, MI); Kunkel, Steven L. (Ann Arbor, MI); Colletti, Lisa M. (Webberville, MI); Strieter, Robert M. (Sherman Oaks

Assignee: The Regents of The University of Michigan (Ann Arbor, MI); University Court of The University of Edinburgh (GB)

Date of First Priority Issue: Monday August 9th, 1999

2 Comments

Devices and methods for treating tissue

Patent Number: 6719805

This patent seems to cover the use of angiogenic stimuli, together with stem cells for treatment of muscle disorders including disorders associated with the myocardium. This patent may influence the current trials ongoing for treatment of myocardial dysfunction with stem cells and angiogenic stimuli.

Inventor: Ahern, John E. (Melrose, MA)

Assignee: C. R. Bard, Inc. (Murray Hill, NJ)

Date of First Priority Issue: Wednesday June 9th, 1999

Human CNS cell lines and methods of use therefor

Patent Number: 6713247

This patent covers neuronal cell and neuronal stem cell lines that are conditionally immortal. These may be used for therapeutic purposes, and also for in vitro drug discovery.

Inventors: Sah, Dinah W. Y. (San Diego, CA); Gage, Fred H. (La Jolla, CA); Ray, Jasodhara (San Diego, CA))

Assignee: Signal Pharmaceuticals, Inc. (San Diego, CA

Date of First Priority Issue: Tuesday September 3rd, 1996

Methods for storing neural cells such that they are suitable for transplantation

Patent Number: 6713245

This patent covers methods of preserving neural stem cells and various types of neuronal cells so that they may be transported for use in treatment of neurological disorders. One of the drawbacks of such cell therapy is the issue of rejection by the allogeneic immune system, this has been addressed in studies using encapsulation, or using stereotactic implantation into the brain, since the...

Inventors: Koopmans, Jan (University of Groningen, NL); Jacoby, Douglas B. (Wellesley, MA); Dinsmore, Jonathan (Brookline, MA)

Assignee: Diacrin, Inc. (Charlestown, MA); University Hospital Groningen (NL)

Date of First Priority Issue: Monday July 6th, 1998

Methods for promoting healing of skin resurfacing wounds

Patent Number: 6713084

This patent covers methods of healing skin after a laser wound through the application of stem cells, or various epithelial cells that may be either allogeneic or xenogeneic.

Inventors: Kuri-Harcuch, Walid (Brookline, MA); Bolivar-Flores, Yesid (Delegacion Tlalpan, MX)

Assignee: Celadon Science, LLC (Wellesley, MA)

Date of First Priority Issue: Friday January 17th, 1997

Methods of using hedgehog proteins to modulate hematopoiesis and vascular growth

Patent Number: 6713065

This patent covers the use of hedgehog proteins for stimulation of hematopoiesis and angiogenesis. The hedgehog proteins are critically involved in embryogenesis and developmental biology. Given the numerous similarities between stem cells and embryonic cells in general, the notion that hematopoietic stem cells still respond to embryonic signals is intriguing.

Inventors: Baron, Margaret H. (New York, NY); Farrington, Sarah M. (Cambridge, MA); Belaoussoff, Maria (Gottingen, DE)

Assignee: President and Fellows of Harvard College (Cambridge, MA)

Date of First Priority Issue: Monday February 10th, 1997

Method of mobilizing stem cells with chemokine .beta.-8

Patent Number: 6713052

This patent teaches ways of mobilizing hematopoietic stem cells using the chemokine know as beta-8. Mobilization may be performed for harvesting of stem cells from peripheral blood by leukopheresis, or it may be performed for the purposes of expanding the number of stem cells in circulation when there is a wound in the body that is attracting stem cells. Such a wound could be the lesion of a...

Inventors: White, John R. (Coatsville, PA); Pelus, Louis (Richboro, PA); Li, Haodong (Germantown, MD); Kreider, Brendt L. (Germantown, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD); SmithKline Beecham Corporation (Philadelphia, PA)

Date of First Priority Issue: Tuesday October 24th, 1995

Adipogenic differentiation of human mesenchymal stem cells

Patent Number: 6709864

This patent covers the generation of mesenchymal stem cells from adipose tissue. This is an interesting situation since Cytori and others have patents on stem cells from the adipose tissue, and Osiris has patents on mesenchymal stem cells from any tissue. It will be interesting to watch if there is litigation coming out of this patent in light of other patents and clinical trials. For...

Inventors: Pittenger, Mark F. (Severna Park, MD); Beck, Stephen C. (Reistertown, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Tuesday July 30th, 1996

Reversal of insulin-dependent diabetes by islet-producing stem cells, islet progenitor cells and islet-like structures

Patent Number: 6703017

This patent covers the treatment of diabetes using islets and/or islet-like cells that are generated from stem cells residing in the pancreatic duct.

Inventors: Peck, Ammon B. (Gainesville, FL); Cornelius, Janet (Gainesville, FL); Ramiya, Vijayakumar K. (Gainesville, FL)

Assignee: Ixion Biotechnology, Inc. (Alachua, FL); University of Florida (Gainesville, FL)

Date of First Priority Issue: Thursday April 28th, 1994

Injectable hyaluronic acid derivative with pharmaceuticals/cells

Patent Number: 6699471

This patent teaches various forms of hyaloronic acid that may be administered in combination with stem cells for localization and better function of the stem cell. This patent is interesting in light of US patent application # 20060069064 which teaches "Methods for facilitating recovery of functions of endogenous or implanted or transplanted stem cells using hyaluronic acid"

Inventors: Radice, Marco (Modena, IT); Pastorello, Andrea (Abano Terme, IT); Pavesio, Alessandra (Padua, IT); Callegaro, Lanfranco (Thiene, IT)

Assignee: Fidia Advanced Biopolymers, SRL (Abano Terme, IT)

Date of First Priority Issue: Tuesday December 21st, 1999

Processing fetal or neo-natal tissue to produce a scaffold for tissue engineering

Patent Number: 6696074

This patent teaches how to make scaffolds that are useful for subsequent seeding with stem cells and generating tissues. The scaffolds seem to be made from decellularized tissues, including fetal and xenogeneic (in some cases) sources.

Inventors: Dai, Jianwu (Boston, MA); Bell, Eugene (Boston, MA); Russakovsky, Vladimir (Boston, MA)

Assignee: TEI Biosciences, Inc. (Boston, MA)

Date of First Priority Issue: Monday December 4th, 2000

Cardiovascular components for transplantation and methods of making thereof

Patent Number: 6695879

This patent provides compositions of matter useful for the treatment of cardiac valve dysfunctions. The compositions may be seeded with stem cells, or may be implanted as scaffolds that naturally become cellularized.

Inventor: Bell, Eugene (Boston, MA)

Assignee: TEI Biosciences, Inc. (Boston, MA)

Date of First Priority Issue: Tuesday October 20th, 1998

Cord blood-derived activated lymphocytes, preparations containing said lymphocytes as main ingredient and method and kit for producing said preparations

Patent Number: 6692958

This patent provides methods of expanding cord blood cells to generate T cells in vitro, and the subsequent use of the T cells for immunotherapy. The patent also covers other types of lymphocytes such as B cells, and NK cells.

Inventors: Sekine, Teruaki (Tokyo, JP); Ito, Kiminari (Hokkaido, JP); Shimizu, Norio (Yamanashi, JP); Bamba, Kenzo (Ibaraki, JP); Yamaguchi, Tomohiro (Saitama, JP); Kuroiwa, Yasuyuki (Ibaragi, JP)

Assignee: Humantec Ltd. (Ibaraki-ken, JP)

Date of First Priority Issue: Monday December 4th, 2000

Scaffold for tissue engineering cartilage having outer surface layers of copolymer and ceramic material

Patent Number: 6692761

This patent covers scaffolds that can be seeded with cells and/or growth factors so as to promote regeneration of cartilage.

Inventors: Mahmood, Tahir (Cambridge, MA); Riesle, Jens Uwe (Amsterdam, NL); van Blitterswijk, Clemens Antoni (Hekendorp, NL)

Assignee: IsoTis N.V. (Bilthoven, NL)

Date of First Priority Issue: Wednesday February 10th, 1999

Delivery of therapeutic biologicals from implantable tissue matrices

Patent Number: 6692738

This patent covers compositions of matter that can be used to deliver proteins to tissue. The matrices described in this patent can be seeded with cells for delivery of stem cells together with the therapeutic protein. In some embodiements of the patent the therapeutic protein can be an antibody, a growth factor, or a cytokine.

Inventors: MacLaughlin, David T. (Saugus, MA); Vacanti, Joseph P. (Winchester, MA); Donahoe, Patricia K. (Boston, MA); Masiakos, Peter T. (Boston, MA)

Assignee: The General Hospital Corporation (Boston, MA)

Date of First Priority Issue: Thursday January 27th, 2000

Biological pacemaker and implantation catheter

Patent Number: 6690970

This patent covers the use of stem cells and products of stem cells as "biological pacemakers" so as to ensure that the electrical pulses of the heart are appropriately coordinated.

Inventors: Taheri, Syde A. (Buffalo, NY); Leonhardt, Howard J. (Weston, FL)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday October 6th, 2000

Use of GM-CSF to promote accelerated wound healing

Patent Number: 6689351

This patent teaches that the hematopoietic stem cell stimulatory cytokine GM-CSF, which is clinically used today, can also be used for acceleration of wound healing when applied topically. This brings the question of what other stem cell stimulatory cytokines may be used to stimulate regeneration or healing of other tissues? The sky is the limit !!

Inventors: Pierce, Glenn (Thousand Oaks, CA); Altrock, Bruce W. (Newbury Park, CA))

Assignee: Amgen Inc. (Thousand Oaks, CA

Date of First Priority Issue: Friday February 22nd, 1991

Surface modifications for enhanced epithelialization

Patent Number: 6689165

This patent teaches how to accelerate healing of epithelial cells of the cornea through administration of an optical polymer that consists, in part of a hydrogel. The devices and compositions thought are useful for stimulation of stem cells associated with production of corneal epithelial cells.

Inventors: Jacob, Jean T. (New Orleans, LA); Bi, Jingjing (River Ridge, LA)

Assignee: Board of Supervisors of Louisana State University and Agricultural and Mechanical College (Baton Rouge, LA)

Date of First Priority Issue: Wednesday May 31st, 2000

Regulators of the hedgehog pathway, compositions and uses related thereto

Patent Number: 6686388

Like many biological pathways activated in stem cells, the pathways associated with hedgehog signalling are also associated with cancer. In this invention methods of modulating the hedgehog signalling pathway are provided that can be useful for controlling normal stem cells, as well as cancer cells.

Inventors: Dudek, Henryk (Wellesley, MA); Ji, Benxiu (Sharon, MA)

Assignee: Curis, Inc. (Cambridge, MA)

Date of First Priority Issue: Wednesday January 13th, 1999

Method of inducing and maintaining neuronal cells

Patent Number: 6686198

This patent teachs how to induce neural differentiation of stem cells through activation of the activin receptor associated pathways. One wonders if this patent is also applicable to bone marrow stem cells, or bone marrow stem cells induced to dedifferentiated by epigenetic modification.

Inventors: Melton, Douglas A. (Lexington, MA); Hemmati-Brivanlou, Ali (New York, NY)

Assignee: President and Fellows of Harvard College (Cambridge, MA)

Date of First Priority Issue: Thursday October 14th, 1993

Methods and compositions for modulating telomerase reverse transcriptase (TERT) expression

Patent Number: 6686159

Telomerase induces cellular escape from sensence and is important for stem cell activity, as well as for cancer to becoming immortal. In this patent agents are identified that suppress the suppressor of telomerase, therapy allowing various types of cells to express telomerase and thereby escape senescence.

Inventors: Andrews, William H. (Reno, NV); Foster, Christopher A. (Carmichael, CA); Fraser, Stephanie (Sparks, NV); Mohammadpour, Hamid (Reno, NV)

Assignee: Sierra Sciences, Inc. (Reno, NV)

Date of First Priority Issue: Friday September 1st, 2000

Method and composition for repairing and promoting regeneration of mucosal tissue in the gastrointestinal tract

Patent Number: 6685971

This patent teaches methods of increasing activity of stem cells in the gastrointestinal tract through administration of a beeswax based composition. This patent is useful for treatment of various gastrointestinal disorders.

Inventor: Xu, Rongxiang (Arcadia, CA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday June 28th, 2001

Suppressor cells induced by culture with mesenchymal stem cells for treatment of immune responses in transplantation

Patent Number: 6685936

In an effort to solidify its IP wall, Osiris decided not only to cover immune suppression by mesenchymal stem cells, but also the ability of mesenchymal stem cells to elicit other immunosuppressive cells. In this patent to ability of mesenchymal stem cells to activate/expand suppressor T cells, and other types of immune suppressor cells is covered.

Inventors: McIntosh, Kevin (Ellicott City, MD); Klyushnenkova, Elena (Baltimore, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Tuesday October 12th, 1999

In vitro activation of mammalian oocytes

Patent Number: 6680199

This is one of the patents that teaches how to activate oocytes into parthenogenesis (ie without the male side). This patent is useful for generation of pathenogenically-derived embryonic stem cells.

Inventors: Susko-Parrish, Joan L. (Monona, WI); Northey, David L. (Madison, WI); Leibfried-Rutledge, M. Lorraine (Madison, WI); Stice, Steven L. (DeForest, WI)

Assignee: Infigen, Inc. (Deforest, WI)

Date of First Priority Issue: Wednesday February 10th, 1993

Engraftable human neural stem cells

Patent Number: 6680198

This patent teaches a type of neuronal stem cell that can be used for cell therapy of neurological disorders. Characterization of the cell is provided and includes expression of EGF and FGF receptors.

Inventors: Snyder, Evan Y. (Jamaica Plain, MA); Wolfe, John H. (Philadelphia, PA); Kim, Seung U. (Vancouver, CA)

Assignee: The Children's Medical Center Corporation (Boston, MA); University of British Columbia (Vancouver, GB); University of Pennsylvania (Philadelphia, PA)

Date of First Priority Issue: Friday August 14th, 1998

Devices and methods for harvesting limbal stem cells

Patent Number: 6679898

This patent provides a medical device and ways to use the device to extract corneal tissue and limbal stem cells from the eye of a donor.

Inventor: Chuck, Roy S. (Irvine, CA)

Assignee: The Regents of the University of California (Oakland, CA

Date of First Priority Issue: Wednesday September 27th, 2000

Electrical field therapy with reduced histopathological change in muscle

Patent Number: 6678556

This patent covers ways of in vivo transfecting cells by

means of electroporation without inducing inflammatory or tissue damaging changes. I have included this in the "expansion" section of the StemCellPatents.Com database since electroporation can be used for cytoplasmic transfect of cytoplasm from embryonic stem cells into various tissues, so as to endow the tissues with stem cell like...
Inventors: Nolan, Edward (San Diego, CA); Rabussay, Dietmar P. (Solana Beach, CA); Widera, Georg (Del Mar, CA); Zhang, Lei (San Diego, CA) A)
Assignee: Genetronics, Inc. (San Diego, C
Date of First Priority Issue: Monday July 13th, 1998

TGF-.alpha. polypeptides, functional fragments and methods of use therefor

Patent Number: 6677307
This patent discloses compositions of transforming growth factor alpha peptides and pharmaceutical preparations thereof. The patent is useful for expanding certain stem cells that respond to this cytokine. One potential use is for treatment of mucositis.
Inventors: Twardzik, Daniel R. (Bainbridge Island, WA); Pernet, Andre (Lake Forest, IL); Felker, Thomas S. (Vashon, WA); Paskell, Stefan (Bainbridge Island, WA); Reno, John M. (Brier, WA)
Assignee: Kaleidos Pharma, Inc. (Seattle, WA)
Date of First Priority Issue: Thursday August 19th, 1999

Patterned substrates and methods for nerve regeneration

Patent Number: 6676675
This patent provides biocompatible surfaces which can be used for growing nerve cells on that are derived from stem cells. This type of technology will be critical for generation of neural networks in vitro and in vivo, and eventually for the ability to expand central nervous system function.
Inventors: Mallapragada, Surya K. (Ames, IA); Heath, Carole (Seattle, WA); Shanks, Howard (Ames, IA); Miller, Cheryl A. (Irvine, CA); Jeftinija, Srdija (Ames, IA)
Assignee: Iowa State University Research Foundation, Inc. (Ames, IA)
Date of First Priority Issue: Wednesday April 19th, 2000

Low intensity light therapy for the manipulation of fibroblast, and fibroblast-derived mammalian cells and collagen

Patent Number: 6676655
This patent provides frequencies of light that effect extracellular and cellular components. This patent is useful for regulation of stem cells after implantation into a host through non-pharmacological means.
Inventor: McDaniel, David H. (Virginia Beach, VA)
Assignee: Light BioScience L.L.C. (Virginia Beach, VA)
Date of First Priority Issue: Monday November 30th, 1998

Stem cell growth factor-like polypeptides

Patent Number: 6673904
This is a composition of matter patent that can be used for developing into a pharmaceutical for stem cell stimulation and differentiation. The composition provided is a stimulator of stem cells, both of hematopoietic and non-hematopoietic lineages.
Inventors: Nishikawa, Mitsuo (Gunma, JP); Labat, Ivan (Mountain View, CA); Drmanac, Radoje T. (Palo Alto, CA); Tang, Y. Tom (San Jose, CA); Chao, Cheng-Chi (Cupertino, CA); Mize, Nancy (Mountain View, CA); Childs, John (Sunnyvale, CA)
Assignee: Kirin Beer Kabushiki Kaisha (Tokyo, JP); Hyseq, Inc. (Sunnyvale, CA)
Date of First Priority Issue: Saturday December 23rd, 2000

Therapeutic uses for mesenchymal stromal cells

Patent Number: 6673606
This patent teaches how to induce the differentiation of mesenchymal stem cells into oligodendrocyte cells. These oligodendrocytes may be used for treatment of various metabolic and nervous system disorders.
Inventors: Tennekoon, Gihan (Wynnewood, PA); Coyle, Andrew J. (Philadelphia, PA); Grinspan, Judith (Ardmore, PA); Beesley, Jackie S. (West Sussex, GB)
Assignee: The Children's Hospital of Philadelphia (Philadelphia, PA
Date of First Priority Issue: Wednesday April 12th, 2000

Muscle cells and their use in cardiac repair

Patent Number: 6673604
This is a composition patent covering myocardial and fibroblast cell preparations that are useful for administration in the post-infarct myocardium. This approach is interesting and a similar approach seems to have been used clinically by the company Bioheart.
Inventor: Edge, Albert (Cambridge, MA)
Assignee: Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Friday July 23rd, 1999

Histone deacetylase, and uses therefor

Patent Number: 6673587
This is a composition of matter patent on several proteins that function as histone deacetylases. Histone

deacetylases act at an epigenetic level through modifying histones and controlling gene transcription. Manipulation of histone deacetylase activity can be used to change cellular fate.
Inventors: Evans, Ronald M. (La Jolla, CA); Kao, Hung-Ying (San Diego, CA); Downes, Michael (San Diego, CA); Ordentlich, Peter (San Diego, CA)
Assignee: The Salk Institute for Biological Studies (La Jolla, CA)
Date of First Priority Issue: Friday August 11th, 2000

Method for detecting hematopoietic stem cells

Patent Number: 6670123
This patent teaches the identification of stem cells by virtue of expression of the gene known as KIAA0918. Specifically, the claims are aimed at hematopoietic stem cells and detection by hybridization. It will be interesting to identify the protein and function of the protein encoded by the gene KIAA0918.
Inventors: Belyavsky, Alexander (New York, NY); Shmelkov, Sergey (Union City, NJ); Visser, Jan (New York, NY)
Assignee: New York Blood Center, Inc. (New York, NY)
Date of First Priority Issue: Friday November 3rd, 2000

Method and system for myocardial infarction repair

Patent Number: 6671558
This patent covers a method of preventing heart failure after a myocardial infarction through the administration of stem cells, together with a device that induces electrical signals. In some embodiments the stem cells are transfected with genetic material to modify functions (ie increased contractility: transfect with SERCA-2, increase angiogenesis: transfect with FGF, etc).
Inventors: Soykan, Orhan (Shoreview, MN); Donovan, Maura G. (St. Paul, MN)
Assignee: Medtronic, Inc. (Minneapolis, MN)
Date of First Priority Issue: Friday November 7th, 1997

Methods for transdifferentiation of body tissues

Patent Number: 6670397
This patent has some pretty broad claims. It teaches to repair tissue by inducing de-differentiation of cells, and then stimulating redifferentiation into another histological cell type. This patent may be very strong ammunition against companies active in the area of stem cell therapy that have not licensed it.
Inventor: Baranowitz, Steven (Apt. 519 Wyncote, PA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Sunday August 29th, 1999

Stem cell growth factor-like polypeptide

Patent Number: 6667391
This patent provides peptides and various compositions of matter that are useful for stimulation of stem cell proliferation. It is unclear what the biological analogues of these peptides are, but they seem very useful for anyone seeking to enter the area of stem cell therapeutics.
Inventors: Drmanac, Radoje T. (Palo Alto, CA); Labat, Ivan (Mountain View, CA); Tang, Y. Tom (San Jose, CA); Chao, Cheng-Chi (Cupertino, CA); Mize, Nancy K. (Mountain View, CA); Childs, John (Sunnyvale, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday January 21st, 2000

Methods for regulating the specific lineages of cells produced in a human hematopoietic cell culture, methods for assaying the effect of substances on lineage-specific cell production, and cell compositions produced by these cultures

Patent Number: 6667034
This patent covers ways of ex vivo stimulation of bone marrow and other hematopoietic cells so that after transplantation they may engraft faster. Some of the methods thought in the patent include ways of stimulating production of specific blood cell lineages that may be more important for the specific condition being treated by hematopoietic stem cell transplantation.
Inventors: Palsson, Bernhard O. (La Jolla, CA); Armstrong, R. Douglas (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Emerson, Stephen G. (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Method and device stimulating the activity of hair follicles

Patent Number: 6666878
This patent provides various frequencies of light, and ways of administering light so as to stimulate proliferation and differentiation of the stem cell that is responsible for hair growth. It will be interesting to see if these methods and devices provided can also stimulate other types of stem cells. The use of light may also be beneficial for stimulating proliferation of cancer stem cells...
Inventor: Carlgren, Stefan (Stockholm, SE)
Assignee: Inca Asset Management S.A. (Geneva, CH)
Date of First Priority Issue: Wednesday June 6th, 2001

Methods and compositions for modulating neurodegeneration

Patent Number: 6664039

This patent provides a peptide sequence composition of matter that is useful for treatment of neurodegeneration, in part through the stimulation of neural stem cell proliferation. Agents involved in stimulation of neural stem cells are important not only for obvious reasons, but also because they may also stimulate hematopoiesis. The specific peptide claimed in this patent is called "very long...

Inventors: Benzer, Seymour (San Marino, CA); Min, Kyung-Tai (Pasadena, CA)

Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Monday December 14th, 1998

Bioprosthetic heart valves

Patent Number: 6660260

This patent coves a heart valve that secretes nitric oxide. This patent is useful for treatment of various diseases associated with valvular dysfunction such as aortic insufficiency and mitral stenosis. The roles of nitric oxide in the cardiovascular system range from vasodilation, to inhibition of apoptosis.

Inventor: Rajamannan, Nalini M. (Rochester, MN)

Assignee: Mayo Foundation for Medical Education and Research (Rochester, MN)

Date of First Priority Issue: Tuesday September 21st, 1999

Percutaneous epicardial injection

Patent Number: 6659950

As stem cell therapy advances, it becomes more and more important to develop methods of administering the stem cells. In this particular invention a medical device is provided that can inject stem cells, as well as growth factors and other cells, into the epicardium. This of course is useful for many cardiac conditions.

Inventor: Taheri, Syde (Buffalo, NY)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday March 2nd, 2001

High efficiency gene targeting in mouse embryonic stem cells

Patent Number: 6653113

This patent teaches ways of generating knockout mice through targeting of the mouse embryonic stem cell with the various targeting constructs and approaches that are disclosed.

Inventors: Berns, Anton (Spaarndam, NL); Robanus Maandag, Els (Haarlem, NL); te Riele, Hein (Amsterdam, NL)

Assignee: Genpharm International, Inc. (Mountain View, CA)

Date of First Priority Issue: Tuesday August 20th, 1991

Human growth differentiation factor encoding sequence and polypeptide encoded by such DNA sequence and producing method thereof

Patent Number: 6656708

This patent provides a novel protein that is capable of stimulating stem cell proliferation and differentiation. The protein is called human growth differentiation factor (hGDF3-2). This patent is useful for generation of novel stem cell activating therapeutics. Additionally, it may be used to generate competition to the currently used stem cell stimulatory cytokines.

Inventors: Yu, Long (Shanghai, CN); Zhang, Honglai (Shanghai, CN); Fu, Qiang (Shanghai, CN); Dai, Fangyan (Shanghai, CN); Zhao, Shouyuan (Shanghai, CN)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday September 22nd, 1998

Method of evaluating myelosuppressive state

Patent Number: 6649352

After chemotherapy or radiation therapy, the myeloid compartment of the immune response is suppressed, due to destruction of the myeloid stem cell compartment. This patent provides a kit that allows the determination of myelosuppression, and therefore can be used to guide the amount of myelo-stimulatory therapy (ie G-CSF) that should be administered. The kit measures alone or in combination...

Inventors: Blumenthal, Rosalyn D. (Belleville, NJ); Lew, Walter (Caldwell, NJ); Juweid, Malik (Bloomfield, NJ); Alisauskas, Rita (Hopatcong, NJ); Ying, Zhiliang (East Brunswick, NJ); Goldenberg, David M. (Mendham, NJ)

Assignee: Center for Molecular Medicine and Immunology (Belleville, NJ)

Date of First Priority Issue: Friday January 29th, 1999

Isolated stromal cells for use in the treatment of diseases of the central nervous system

Patent Number: 6653134

This patent teaches that one can induce the differentiation of stromal stem cells into neural cells, through the culture of the stromal cells with differentiated neural cells. This patent is useful not only for generating cells for treatment of neurological conditions, but also may be used to begin elucidating what the specific signals are that the neural cells use to teach the stromal stem cells...

Inventors: Prockop, Darwin J. (Philadelphia, PA); Stokes, David G. (Willow Grove, PA); Azizi, S. Ausim (Philadelphia, PA)
Assignee: CP Hahnemann University (Philadelphia, PA)
Date of First Priority Issue: Sunday March 28th, 1999

Cardiac valve replacement

Patent Number: 6652583
This patent teaches how to use stem cells and other differentiated cells in order to generate a heart valve that can be used for replacement of defective valves in patients suffering from various valvular abnormalities. The advantage of this biological valve is that it conceptually is longer lasting than completely artificial or xenogeneic valves.
Inventors: Hopkins, Richard A. (Providence, RI); Hoffman-Kim, Diane (Providence, RI)
Assignee: Rhode Island Hospital (Providence, RI)
Date of First Priority Issue: Tuesday April 4th, 2000

Methods for use of delivery composition for expanding, activating, committing or mobilizing one or more pluripotent, self-renewing and committed stem cells

Patent Number: 6649189
This patent covers a method of administering a hematopoeitic stem cell activatory factor into a host using a depot-like formulation. One of the problems of protien administration into humans is that many proteins have a short half live and therefore the pharmacokinetic profiles may not be adequate for stimulation of the biological response needed. This patent seems to overcome this problem.
Inventors: Talmadge, James E. (Bellevue, NE); Rosenthal, Gary J. (Louisville, CO); Etter, Jeffrey B. (Boulder, CO)
Assignee: RxKinetix, Inc. (Louisville, CO)
Date of First Priority Issue: Monday June 26th, 2000

Medicinal implant and device and method for loading and delivering implants containing drugs and cells

Patent Number: 6648849
This patent covers a medical device that can be used for administering stem cells together with various polymers and depot-like formulations into a host. The administration of stem cells together with growth factors is useful since this can allow the stem cells to remain in an "activated" state and accelerate their process of interacting with the host cells.
Inventors: Tenhuisen, Kevor S. (Clinton, NJ); Rosenblatt, Joel (Watchung, NJ); McAllen, III, John (Point Pleasant, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Wednesday June 27th, 2001

Immortalized bone marrow mesenchymal stem cell

Patent Number: 6645763
This patent has one claim that covers a specific mesenchymal stem cell population that is immortalized and appears to contain a gene associated with immortalization.
Inventors: Kobayashi, Naoya (Okayama 703-8261, JP); Leboulch, Philippe (Charlestown, MA); Tanaka, Noriaki (Okayama 719-0252, JP); Fujiwara, Toshiyoshi (Okayama 703-8281, JP)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Monday November 12th, 2001

Antibody compositions for preparing enriched mesenchymal progenitor preparations

Patent Number: 6645727
This patent covers the antibody kit that can be used for negatively depleting non-mesenchymal stem cell populations from a population of cells in order to obtain a substantially purified population of mesenchymal stem cells.
Inventors: Thomas, Terry (Vancouver, CA); Clarke, Emer (Vancouver, CA)
Assignee: StemCell Technologies Inc. (Vancouver, CA)
Date of First Priority Issue: Friday May 26th, 2000

Methods and devices for the long-term culture of hematopoietic progenitor cells

Patent Number: 6645489
This patent covers ways for the in vivo culture and expansion of hematopoietic stem cells. The advantage of expanding such hematopoietic stem cells in vivo is that they are subjected to more "biological" conditions and at least theoretically should work better than other in vitro systems.
Inventors: Pykett, Mark J. (Boxford, MA); Rosenzweig, Michael (Boston, MA); Kaplan, Richard B. (Beverly Hills, CA)
Assignee: Cytomatrix, LLC (Woburn, MA)
Date of First Priority Issue: Thursday September 25th, 1997

Isoprenoid pathway inhibitors for stimulating bone growth

Patent Number: 6642216
This patent covers inhibitors of the isoprenoid pathway which can be used for stimulation of osteoblast and other bone stem cells in order to stimulate growth of bone.

Inventors: Gasper, Shirley R. (Seattle, WA); West, Robert R. (Seattle, WA); Martinez, Theresa (Greenback, WA); Robbins, Kirk G. (Renton, WA); McKernan, Patricia A. (Woodinville, WA); Baindur, Nand (Edmonds, WA); Labroo, Virender M. (Bangalore, IN); Mundy, Gregory R.
Assignee: ZymoGenetics Corporation (Seattle, WA); OsteoScreen, Inc. (San Antonio, TX)
Date of First Priority Issue: Friday December 13th, 1996

Human brain endothelial cells and growth medium and method for expansion of primitive CD34+CD38- bone marrow stem cells

Patent Number: 6642049

This patent covers culture techniques and cells that are useful for the growth and expansion of primitive hematopoietic stem cells. One of the interesting aspects of this patent is that it uses human endothelial cells that are derived from the brain as feeder cells. Given all of the interesting correlations between brain cells and bone marrow hematopoietic stem cells, this patent is particularly...
Inventors: Chute, John P. (San Francisco, CA); Saini, Abha A. (Collegeville, PA); Chute, Dennis J. (Los Angeles, CA); Davis, Thomas A. (Newton, PA)
Assignee: The United States of America as represented by the Secretary of the Navy
Date of First Priority Issue: Friday December 4th, 1998

Conditioned media for propagating human pluripotent stem cells

Patent Number: 6642048

This patent is part of Geron's armamentarium of patents covering not only embryonic stem cells (licensed from WARF), but also ways of growing them in absence of undefined materials. In this particular patent feeder-free culture methods for maintaining embryonic stem cells, as well as "pluripotent stem cells" are covered.
Inventors: Xu, Chunhui (Cupertino, CA); Gold, Joseph D. (San Francisco, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Tuesday January 11th, 2000

Platform for the differentiation of cells

Patent Number: 6638765

This patent covers methods of dedifferentiating cells, and redifferentiating them in order to produce islet-like cells for the treatment of diabetes.
Inventor: Rosenberg, Lawrence (Cote St-Luc, CA)
Assignee: McGill University (Montreal, CA)
Date of First Priority Issue: Thursday February 4th, 1999

Isolated mammalian neural stem cells, methods of making such cells

Patent Number: 6638763

This patent covers a specific type of early neuronal stem cell that is viable for a sigificant period of time after the host dies. These cells are transplantable and possess some properties of other neural stem cells, however in the patent, unique phenotypic and functional characteristics are provided.
Inventors: Steindler, Dennis A. (Memphis, TN); Laywell, Eric D. (Memphis, TN); Kukekou, Valery G. (Memphis, TN); Thomas, L. Brannon (Johnson City, TN)
Assignee: University of Tennessee Research Foundation
Date of First Priority Issue: Tuesday January 7th, 1997

Use of multipotent neural stem cell progeny to augment non-neural tissues

Patent Number: 6638501

This patent covers the use of neural stem cells for enhancing activity of hematopoietic stem cells. This patent attests to the similarity, if not synergy, between the neural stem cell system and the hematopoietic stem cells system.
Inventors: Bjornson, Christopher R. (Calgary, CA); Rietze, Rod L. (Calgary, CA); Reynolds, Brent A. (Saltspring, CA); Vescovi, Angelo L. (Milan, IT)
Assignee: Neurospheres Holdings Ltd. (Alberta, CA)
Date of First Priority Issue: Friday June 19th, 1998

Cell-culture and polymer constructs

Patent Number: 6637437

This patent provides novel cellular "fillers" that are generated in culture specifically for the patient, and administered during head and neck surgery in order to "fill the gap".
Inventors: Hungerford, David S. (Cockeysville, MD); Frondoza, Carmelita G. (Woodstock, MD); Shikani, Alan H. (Ruxton, MD); Domb, Abraham J. (Efrat, IL)
Assignee: Johns Hopkins University (Baltimore, MD); Chondros, Inc. (Baltimore, MD)
Date of First Priority Issue: Wednesday April 8th, 1998

Nuclear transfer using cells cultured in serum starvation media containing apoptosis inhibitors

Patent Number: 6635802

This patent teaches the use of antiapoptotic agents, and serum starvation, of the recipient cells for nuclear transfer. This can be used to generate autologous embryonic stem cells.

Inventors: Piedrahita, Jorge A. (College Station, TX); Lee, Chang-Kyu (Suwon, KR); Weaks, Regina (Richardson, TX); Bazer, Fuller (College Station, TX)
Assignee: The Texas A&M University System (College Station, TX)
Date of First Priority Issue: Friday October 10th, 1997

Normothermic, hypothermic and cryopreservation maintenance and storage of cells, tissues and organs in gel-based media

Patent Number: 6632666
This patent provides novel cellular and tissue storage compositions that are useful for not only stem cells but other cellular therapies.
Inventors: Baust, John M. (Vestal, NY); Van Buskirk, Robert (Apalachin, NY); Baust, John G. (Candor, NY)
Assignee: BioLife Solutions, Inc. (Binghamton, NY)
Date of First Priority Issue: Friday January 14th, 2000

Compositions for identification and isolation of stem cells

Patent Number: 6632620
This patent provides an antibody that recognizes both epidermal stem cells, as well as prostate cancer cells.
Inventor: Makarovskiy, Andrew N. (Mendon, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday June 22nd, 2000

Human FLTS3 ligand

Patent Number: 6632424
This patent is part of Immunex's wall of IP surrounding the stem cell stimulatory cytokine flt3 ligand.
Inventors: Lyman, Stewart D. (Seattle, WA); Beckmann, Patricia M. (Poulsbo, WA)
Assignee: Immunex Corporation (Seattle, WA)
Date of First Priority Issue: Monday May 24th, 1993

G-CSF mimetics

Patent Number: 6630470
G-CSF has many properties associated with stimulation of stem cells. In this patent compositions of matter for mimetics of G-CSF are provided. This patent can be used for treatment of neutropenia and other conditions that G-CSF is currently used for.
Inventors: Luengo, Juan I (Audubon, PA); Duffy, Kevin J (Norristown, PA)
Assignee: SmithKline Beecham Corporation (Philadelphia, PA)
Date of First Priority Issue: Friday May 22nd, 1998

Functionalized derivatives of hyaluronic acid, formation of hydrogels in situ using same, and methods for making and using same

Patent Number: 6630457
This patent teaches new compositions of matter based on hyaluronic acid that are useful for the administration of stem cells.
Inventors: Aeschlimann, Daniel (Madison, WI); Bulpitt, Paul (Madison, WI)
Assignee: Orthogene LLC (Sausalito, CA)
Date of First Priority Issue: Friday September 18th, 1998

Trophoblast cell preparations

Patent Number: 6630349
This patent provides trophoblast cell lines that are of murine origin. Since the trophoblast is similar to cancer cells in terms of immune suppression and metastizing ability, this patent is useful for the generation of a xenogeneic cancer vaccine, similar to XenoVax. The fact that trophoblast stem cells are provided is useful since this can be a good off the shelf starting population for...
Inventors: Rossant, Janet (Toronto, CA); Tanaka, Satoshi (Tokyo, JP); Kunath, Tilo (Toronto, CA)
Assignee: Mount Sinai Hospital (Toronto, CA)
Date of First Priority Issue: Wednesday September 23rd, 1998

Method of isolating stem cells

Patent Number: 6627759
This patent provides ways of extracting stem cells based on their expression of aldehyde dehydrogenase. This patent is in clinical trials by the company Aldegen.
Inventors: Smith, Clayton A. (Tampa, FL); Colvin, Michael (Chapel Hill, NC); Storms, Robert W. (Durham, NC); Ludeman, Susan M. (Durham, NC)
Assignee: Duke University (Durham, NC)
Date of First Priority Issue: Thursday December 17th, 1998

Anti-transforming growth factor Beta (TGF-.beta.) treated stem cell composition and method

Patent Number: 6627191
This patent teaches the use of antibodies to TGF beta in order to stimulate hematopoietic stem cell renewal. Hematopoietic stem cells generation secrete autocrine TGF beta which inhibits their proliferation. This patent inhibits the inhibitor thus attaining stem cell expansion.
Inventors: Bartelmez, Stephen H. (Seattle, WA); Sitnicka, Ewa (Lund, SE); Ruscetti, Frank (New Market, MD)
Assignee: Seattle Biomedical Research Institute (Seattle, WA)
Date of First Priority Issue: Monday January 25th, 1999

Methods for treatment of vascular disease and device for preparation of an autologous composition for treating vascular disease

Patent Number: 6623733

While some patents use cell supernatant for induction of biological activities, this patent goes all out and uses cell lysates! This patent covers the use of various cell lysates, including of stem cells, in order to augment stem cell proliferation as well as angiogenesis.

Inventors: Hossainy, Syed F. A. (Fremont, CA); Steward, Jeffrey A. (Lakewood, CO); Consigny, Paul M. (Sunnyvale, CA))

Assignee: Advanced Cardiovascular Systems, Inc. (Santa Clara, CA)

Date of First Priority Issue: Wednesday June 27th, 2001

Hematopoietic differentiation of human embryonic stem cells

Patent Number: 6613568

This patent teaches the generation of human hematopoietic stem cells from human embryonic stem cells by the simple culture of the embryonic stem cells on human bone amrrow stromal cells.

Inventors: Kaufman, Dan S. (Madison, WI); Thomson, James A. (Madison, WI)

Assignee: Wisconsin Alumni Research Foundation (Madison, WI)

Date of First Priority Issue: Monday November 8th, 1999

Use of delta-like protein to inhibit the differentiation of stem cells

Patent Number: 6613565

This patent covers the inhibition of hematopoietic stem cell differentiation through administration of the protein called "delta-like protein" (dlk). The patent teaches not only the use for expansion, but also for protecting the stem cell compartment from the effects of chemotherapy or radiotherapy.

Inventors: Witte, Larry (Stormville, NY); Pytowski, Bronislaw (New York, NY); Moore, Kateri A. (Princeton, NJ); Lemischka, Ihor R. (Princeton, NJ)

Assignee: ImClone Systems Incorporated (New York, NY); Trustees of Princeton University (Princeton, NJ)

Date of First Priority Issue: Friday March 1st, 1996

Method of promoting chondrocyte differentiation with hedgehog related polypeptides

Patent Number: 6610656

This patent teaches the use of hedgehog proteins for inducing stem cells to differentiate into the chondocytic lineage (useful for repairing of cartilage).

Inventors: Ingham, Philip W. (Summertown, GB); McMahon, Andrew P. (Lexington, MA); Tabin, Clifford J. (Cambridge, MA)

Assignee: President and Fellows of Harvard College (Cambridge, MA); Imperial Cancer Research Technology, Ltd. (London, GB)

Date of First Priority Issue: Thursday December 30th, 1993

Inhibitor of stem cell proliferation and uses thereof

Patent Number: 6610654

This patent provides peptides that inhibit stem cell proliferation, specific inhibition of hematopoietic stem cell proliferation is covered. These peptides are originally derived from bone marrow, but here are generated synthetically. They are useful for protection of the bone marrow stem cell compartment from agents that kill mitotically active cells.

Inventors: Tsyrlova, Irena (Gaithersburg, MD); Wolfe, Stephen D. (Rockville, MD)

Assignee: Wellstat Therapeutics Corporation (Gaithersburg, MD)

Date of First Priority Issue: Wednesday March 31st, 1993

Molecules that home to various selected organs or tissues

Patent Number: 6610651

This patent covers peptides that specifically home to the lung. This patent is useful for delivering compounds that activate pulmonary stem cells to the lung. Since injected stem cells generally go to the lung, the administration of stem cell factors targeted to the lung using these peptides in combination with exogenous stem cells may be a new therapeutic approach.

Inventors: Ruoslahti, Erkki (Rancho Santa Fe, CA); Pasqualini, Renata (Solana Beach, CA)

Assignee: The Burnham Institute (La Jolla, CA)

Date of First Priority Issue: Friday March 13th, 1998

Low oxygen culturing of central nervous system progenitor cells

Patent Number: 6610540

This patent teaches that low oxygen conditions may be used in the expansion and differentiation of undifferentiated mesencephalic stem cells. This is interesting since in the hematopoietic system the early stem cells also prefer growth in the relatively hypoxic niches of the marrow.

Inventors: Csete, Marie (Ann Arbor, MI); Doyle, John (South Pasadena, CA); Wold, Barbara J. (San Marino, CA); McKay, Ron (Bethesda, MD); Studer, Lorenz (New York, NY)

Assignee: California Institute of Technology (Pasadena, CA); National Institutes of Health (Bethesda, MD)

Date of First Priority Issue: Wednesday November 18th, 1998

Reconstructed laminae of human epithelium corneae and method of producing the same

Patent Number: 6610538

This patent teaches how to generate corneal epithelium in vitro from stem cell sources.

Inventors: De Luca, Michele (Ardea, IT); Pellegrini, Graziella (Ardea, IT)

Assignee: Provincia Italiana Della Congregazione Dei Figli Dell' Immacolata Concezione - Istituto Dermopatico Dell' Immacolata (Rome, IT)

Date of First Priority Issue: Tuesday September 25th, 2001

Progenitor cells and methods and uses related thereto

Patent Number: 6610535

This patent teaches the generation of islet like cells from pancreatic stem cells. It is useful for the treatment of diabetes. One source of stem cells used in this patent is pancreatic duct stem cells.

Inventors: Lu, Kuanghui (Brookline, MA); Pang, Kevin (Canton, MA); Rubin, Lee (Wellesley, MA)

Assignee: ES Cell International Pte Ltd. (SG)

Date of First Priority Issue: Thursday February 10th, 2000

Cytokine-like proteins that promote cell proliferation

Patent Number: 6610285

This patent covers a composition of matter that is a little similar to G-CSF in structure. The composition is useful for expansion of hematopoietic stem cells and several other types of cells.

Inventor: Hirata, Yuichi (Niihari-mura, JP)

Assignee: Chugai Seiyaku Kabushiki Kaisha (Tokyo, JP)

Date of First Priority Issue: Tuesday April 14th, 1998

Vertebrate embryonic pattern-inducing proteins and uses related thereto

Patent Number: 6607913

This is a composition of matter patent on molecules associated with embryonic differentiation of the hedgehog family. These molecules can provide a wealth of possibilities in regenerative medicine, especially given that they have receptors in numerous types of embryonic stem cells.

Inventors: Ingham, Philip W. (Summertown, Oxford OX27L, GB); McMahon, Andrew P. (Lexington, MA); Tabin, Clifford J. (Cambridge, MA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday December 30th, 1993

Genetically altered mammalian embryonic stem cells, their living progeny, and their therapeutic application for improving cardiac function after myocardial infarction

Patent Number: 6607720

This patent covers the use of embryonic stem cells as a source of stem cells for myocardial regeneration. Specifically, this patent covers genetically manipulated cells that are useful for these purposes.

Inventors: Xiao, Yong-Fu (Wayland, MA); Morgan, James P. (Newton Centre, MA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday September 5th, 2000

Process and apparatus for utilization of in vivo extracted plasma with tissue engineering devices, bioreactors, artificial organs, and cell therapy applications

Patent Number: 6607501

This patent teaches ways to continously perfuse a cell culture with plasma from a patient by performing a specialized "in vivo" plasmapheresis.

Inventor: Gorsuch, Reynolds G. (Yountville, CA)

Assignee: Transvivo, Inc. (Napa, CA)

Date of First Priority Issue: Monday May 14th, 2001

Isolation and preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood

Patent Number: 6605275

This patent covers preservation of cord blood cells. It is one of the patents that is actually generating revenue and has stood the test of litigation. Anyone doing cord blood banking in the US has to license this patent.

Inventors: Boyse, Edward A. (Tucson, AZ); Broxmeyer, Hal E. (Indianapolis, IN); Douglas, Gordon W. (New York, NY)

Assignee: PharmaStem Therapeutics, Inc. (Wayne, PA)

Date of First Priority Issue: Thursday November 12th, 1987

Method of making embryoid bodies from primate embryonic stem cells

Patent Number: 6602711

This is a patent for forming what is called "embryoid bodies" which are cellular aggregated generated from embryonic stem cells. Embryoid bodies can be subsequently dissociated in order to form various histological tissues useful for regenerative purposes.

Inventors: Thomson, James A (Madison, WI); Marshall, Vivienne S. (Madison, WI); Swiergiel, Jennifer J. (Roscoe, IL)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Monday February 21st, 2000

Production of gabaergic cells

Patent Number: 6602680
This patent teaches that transfection of neuronal stem cells with dlx induces their differentiation into neurons that express GABA. This is useful for generation of cell therapies of neurodegenerative diseases.
Inventors: Rubenstein, John L. (San Francisco, CA); Mione, Marina (London, GB); Anderson, Stewart (San Francisco, CA); Stuehmer, Thorsten (San Francisco, CA); Yun, Kyuson (San Francisco, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Friday July 14th, 2000

Method of inducing new bone growth in porous bone sites

Patent Number: 6599520
This patent provides matrices that are useful for treatment of bone disorders. The matrices may be seeded with stem cells to accelerate regeneration of bone.
Inventors: Scarborough, Nelson L. (Andover, MA); Russell, James (Little Silver, NJ)
Assignee: Osteotech, Inc. (Eatontown, NJ)
Date of First Priority Issue: Friday October 13th, 2000

Cell delivery catheter and method

Patent Number: 6599274
This patent provides a medical device that can be utilized for administration of stem cells to localized areas of need using a catheter-based system.
Inventors: Kucharczyk, John (Bishop, GA); Gillies, George T., N/A (Charlottesville, VA); Broaddus, William C., Fillmore, Helen L.
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Saturday January 1st, 2000

Vasostatin as marrow protectant

Patent Number: 6596690
This patent covers the new use of vasostatin in inhibiting the killing of stem cells from agents that are cytotoxic the mitotic cells such as radiation and chemotherapy.
Inventors: Tosato, Giovanna (Bethesda, MD); Pike, Sandra E. (North Bethesda, MD); Yao, Lei (Rockville, MD)
Assignee: The United States of America as represented by the Department of Health and Human Services
Date of First Priority Issue: Tuesday October 6th, 1998

Method for promoting hematopoiesis

Patent Number: 6596688
This patent teaches that administration of the pregnancy associated compound human chorionic gonadotropin can stimulate hematopoietic stem cells. This patent is interesting in light of clinical trials that are ongoing by Stem Cell Therapeutics Inc that use hCG in combination with other compounds for post-stroke regeneration of neurons.
Inventors: Gallo, Robert C. (Bethesda, MD); Bryant, Joseph (Rockville, MD); Lunardi-Iskandar, Yanto (Gaithersburg, MD)
Assignee: University of Maryland Biotechnology Institute (Baltimore, MD)
Date of First Priority Issue: Monday September 9th, 1996

Biological material containing bone marrow stem cells partially or completely differentiated into connective tissue cells and a hyaluronic acid ester matrix

Patent Number: 6596274
This patent provides materials that are biologically compatible, combined with bone marrow stem cells and/or progeny, for regenerative uses.
Inventors: Abatangelo, Giovanni (Saccolongo, IT); Callegaro, Lanfranco (Thiene, IT)
Assignee: Fidia Advanced Biopolymers S.r.l. (Brindisi, IT)
Date of First Priority Issue: Monday November 20th, 1995

Methods and compositions to improve germ cell and embryo survival and function

Patent Number: 6593309
This patent provides methods of increasing viability of cells used for the generation of embryonic stem cells. The patent is also useful for in vitro fertilization, where viability of oocytes is an issue.
Inventors: Ellington, Joanna E. (Valleyford, WA); Oliver, Sylvia Adams (Spokane, WA)
Assignee: Bio-Origyn LLC (Spokane, WA
Date of First Priority Issue: Thursday October 19th, 1995

Treatment of inner ear hair cells

Patent Number: 6593290
This patent teaches that IGF-1 and/or FGF-2 are useful for the stimulation of ear hair stem cell expansion. This invention may be used for preventing hearing loss. FGF2 is approved in Japan for certain indications, including some associated with the ear.
Inventor: Gao, Wei-Qiang (Foster City, CA)
Assignee: Genentech, Inc. (South San Francisco, CA)
Date of First Priority Issue: Friday November 1st, 1996

Cell-based gene therapy

Patent Number: 6592864
When cells are administered into the lung, many times they get stuck there. This invention takes advantage of this and claims the use of various cells, including stem cells, as vectors for genes that are beneficial for lung function. I believe that this inventor actually performed clinical trials by administration of iNOS transfected fibroblasts into patients with pulmonary hypertension.
Inventor: Stewart, Duncan John (Toronto, Ontario, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday March 27th, 1998

Methods for the modulation of the growth of collateral arteries and/or other arteries from preexisting arteriolar connections

Patent Number: 6592862
This patent essentially covers the induction of angiogenesis using the chemokine MCP-1. This patent would most likely synergize by combining administration of MCP-1 with hematopoietic stem cells and/or endothelial precursor cells.
Inventors: Schaper, Wolfgang (Bad Nauheim/Rodgen, DE); Ito, Wulf D. (Luneburg, DE)
Assignee: Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. (Berlin, DE)
Date of First Priority Issue: Friday April 4th, 1997

Cell separation using electric fields

Patent Number: 6589786
This patent teaches how to utilize distinct electromagnetic properties of stem cells for their isolation. Additionally it teaches how to purge a population of stem cells from contaminating cancer cells.
Inventors: Mangano, Joseph A. (Vienna, VA); Eppich, Henry M. (Andover, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday September 4th, 1997

Methods for isolation and activation of, and control of differentiation from, stem and progenitor cells

Patent Number: 6589728
This patent is directed primarily at muscle stem cells and methods of expanding and isolating them by culturing at low oxygen tension. It seems like muscle stem cells are similar to hematopoietic and neuronal stem cells in the fact that they prefer conditions of low oxygen tension.
Inventors: Csete, Marie (South Pasadena, CA); Doyle, John (South Pasadena, CA); Wold, Barbara (San Marino, CA)
Assignee: California Institute Of Technology (Pasadena, CA)
Date of First Priority Issue: Wednesday November 18th, 1998

Method and device for preparing a dental implant by immersion in a culture of mesenchymal cells

Patent Number: 6589525
This patent teaches how to use various cells, including stem cells, for generation of a dental implant.
Inventor: Gault, Philippe (Orleans, FR)
Assignee: Societe Anonyme Natural Implant (Brest, FR)
Date of First Priority Issue: Tuesday October 13th, 1998

System for the in vivo delivery and expression of heterologous genes in the bone marrow

Patent Number: 6583121
Gene therapy would greatly benefit from the ability to use stem cells as vectors. This patent addresses the problem of transfecting stem cells through the use of alpha viruses. Some clinical trials are already underway using alpha viruses.
Inventors: Johnston, Robert E. (Chapel Hill, NC); Davis, Nancy L. (Chapel Hill, NC); Simpson, Dennis A. (Chapel Hill, NC)
Assignee: University of North Carolina at Chapel Hill (Chapel Hill, NC)
Date of First Priority Issue: Wednesday February 19th, 1997

Directed maturation of CD34 negative stem cells to programmable antigen presenting cells

Patent Number: 6586243
This patent teaches ways of generating dendritic cells from human hematopoietic stem cells and furthermore teaches how to pulse these dendritic cells with tumor antigens for use as cancer vaccines. This approach is similar in some ways to work performed by Eli Gilboa and the company Argos Therapeutics.
Inventors: Cezayirli, Cem (Birmingham, AL); Silvers, Mel (North Miami Beach, FL)

Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday July 2nd, 1997

Compositions and methods for use in affecting hematopoietic stem cell populations in mammals

Patent Number: 6586192
This patent seems to cover a type of hematopoietic stem cell that is positive for expression of the marker KDR-1.
Inventors: Peschle, Cesare (Rome, IT); Ziegler, Benedikt L. (Tuebingen, DE)
Assignee: Thomas Jefferson University (Philadelphia, PA); Instituto Superiore di Sanita (Rome, IT)
Date of First Priority Issue: Friday May 29th, 1998

Therapeutic polypeptides from .beta.-hCG and derivatives

Patent Number: 6583109
This patent covers derivatives of the human chorionic gonadotrophin, as well as hCG itself, for the stimulation of hematopoiesis, reduction of cancer, and reduction of HIV.
Inventors: Gallo, Robert C. (Bethesda, MD); Bryant, Joseph (Rockville, MD); Lunardi-Iskandar, Yanto (Gaithersburg, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Monday September 9th, 1996

Use of fibroblast growth factor 2 for expansion of chondrocytes and tissue engineering

Patent Number: 6582960
This patent teaches that FGF-2 can actually de-differentiate certain cells, and be used for the formation of chondrocytes. This would be useful for cartilage repair, as well as for various tissue regenerative purposes.
Inventors: Martin, Ivan (Basel, CH); Freed, Lisa E. (Belmont, MA); Langer, Robert (Newton, MA); Vunjak-Novakovic, Gordana (Belmont, MA)
Assignee: Massachusetts Institute of Technology (Cambridge, MA)
Date of First Priority Issue: Friday September 18th, 1998

Methods for implanting cells

Patent Number: 6579313
The problem with various grafts and prosthesis is that the body starts reacting to them, either through restenosis, or complement activation, or thrombosis. This patent teaches unique ways to generate grafts and prosthetics through the implantation of stem cells and/or other cellular components in the structure to be introduced into the body.
Inventors: Dzau, Victor J. (Newton, MA); Pratt, Richard E. (Newton, MA); Mann, Michael J. (Newton, MA); Ehsan, Afshin (Boston, MA); Griese, Daniel P. (Boston, MA)
Assignee: The Bringham and Women's Hospital (Boston, MA)
Date of First Priority Issue: Friday July 10th, 1998

Method for identification of cell growth or differentiation factors

Patent Number: 6576433
This patent teaches the use of HOX11 cell populations for identifying genes that control stem cell proliferation and differentiation.
Inventors: Keller, Gordon M. (Denver, CO); Hawley, Robert G. (Toronto, CA); Choi, Kyunghee (Baltimore, MD)
Assignee: National Jewish Medical & Research Center (Denver, CO)
Date of First Priority Issue: Monday November 21st, 1994

Identification of a G protein-coupled receptor transcriptionally regulated by protein tyrosine kinase signaling in hematopoietic cells

Patent Number: 6569995
This patent covers an antibody that binds to GPCR involved in stem cell expansion and differentiation.
Inventors: Weng, Zhigang (Los Angeles, CA); Witte, Owen N. (Sherman Oaks, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Thursday November 13th, 1997

Human bone accessory cells

Patent Number: 6576465
This patent covers a type of stem cell, or actually a cell that helps bone generating stem cells to perform their function. Therapeutic applications of this cell range from in vitro expansion of bone stem cells, to in vivo induction of bone regeneration.
Inventor: Long, Michael W. (Northville, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Monday November 10th, 1997

Methods for providing differentiated stem cells

Patent Number: 6576464
It is well known that embryonic stem cells can cause cancers called teratomas. This patent teaches the

transfection of embryonic stem cells with suicide genes so that after the embryonic stem cell or its differentiated progeny are introduced into the body, they can be induced to kill themselves after having performed their effects. Of course we all know that cells mutate and even one small...
Inventors: Gold, Joseph D. (San Francisco, CA); Lebkowski, Jane S. (Portola Valley, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Monday November 27th, 2000

Electroactive materials for stimulation of biological activity of stem cells

Patent Number: 6569654
This patent teaches ways of stimulating virtually all possible biological activities from mesenchymal stem cells through the contact with electroactive materials.
Inventors: Shastri, Venkatram (Lower Gwynedd, PA); Martin, Ivan (Oberwil, CH); Langer, Robert (Newton, MA); Rahman, Nahid (Boston, MA)
Assignee: Massachusetts Institute of Technology (Cambridge, MA)
Date of First Priority Issue: Friday September 18th, 1998

Pharmaceutical products comprising endothelial cell precursors

Patent Number: 6569428
This patent provides the endothelial stem cell together with endothelial stem cell activatory genes as a pharmaceutical preparation for the stimulation of angiogenesis. This patent is useful for the treatment of ischemic disorders ranging from angina, to cerebral palsy, to peripheral vascular disease.
Inventors: Isner, Jeffrey M. (Weston, MA); Asahara, Takayuki (Arlington, MA)
Assignee: St. Elizabeth's Medical Center of Boston, Inc. (Boston, MA)
Date of First Priority Issue: Friday November 8th, 1996

Isolation and preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood

Patent Number: 6569427
This patent covers the use of cord blood cells. Any cord blood bank in the US has to license this patent or else Pharmastem will litigate as they have in the past.
Inventors: Boyse, Edward A. (Tucson, AZ); Broxmeyer, Hal E. (Indianapolis, IN); Douglas, Gordon W. (New York, NY)
Assignee: PharmaStem Therapeutics, Inc. (Del Mar, CA)
Date of First Priority Issue: Thursday November 12th, 1987

Methods of inducing nervous tissue regeneration

Patent Number: 6569423
This patent teaches how to induce neuronal stimulation and production of new neurons through administration of Schwann cells that express the protein DELTA.SCIP.
Inventor: Weinstein, David E. (Dobbs Ferry, NY)
Assignee: Albert Einstein College of Medicine of Yeshiva University (Bronx, NY)
Date of First Priority Issue: Monday April 19th, 1999

I-Sce I induced gene replacement and gene conversion in embryonic stem cells

Patent Number: 6566579
This patent teaches ways of generating knockout mice through a new targeting vector. Alternatively, knockout human embryonic stem cells can be made by this approach for generation of new tissues.
Inventors: Jaisser, Frederic (Malakoff, FR); Cohen-Tannoudji, Michel (Paris, FR); Robine, Sylvie (Vanves, FR); Choulika, Andre (Paris, FR); Louvard, Daniel (Sceaux, FR); Babinet, Charles (Paris, FR)
Assignee: Institut Pasteur (Paris, FR); Institut Curie (Paris, FR); Centre Nationale de la Recherche Scientifique (Paris, FR)
Date of First Priority Issue: Thursday April 18th, 1996

Treatment of brain damage

Patent Number: 6569421
This patent teaches how to treat neurological damage through administration of stem cells into the contralateral hemisphere of the brain.
Inventor: Hodges, Helen (London, GB)
Assignee: Reneuron Limited (GB)
Date of First Priority Issue: Wednesday March 29th, 2000

Systems and methods of use for delivering beneficial agents for revascularizing stenotic bypass grafts and other occluded blood vessels and for other purposes

Patent Number: 6569147
This patent teaches methods of administering cells and fluids in order to prevent inflammation and induce regeneration in areas of stent placement.
Inventors: Evans, Douglas G. (Downingtown, PA); Nash, John E. (Chester Springs, PA)
Assignee: Kensey Nash Corporation (Exton, PA)
Date of First Priority Issue: Friday July 26th, 1996

Methods for mobilizing hematopoietic progenitor cells from bone marrow into peripheral blood in a patient in need of chemotherapy

Patent Number: 6566335
This patent teaches ways of mobilizing hematopoietic stem cells by administration of angiotensin I and/or II and/or analogues thereof.
Inventors: Rodgers, Kathleen E. (Long Beach, CA); DiZerega, Gere (Pasadena, CA)
Assignee: University of Southern California (Los Angeles, CA
Date of First Priority Issue: Monday May 11th, 1998

Protein-induced tissue morphogenesis

Patent Number: 6565843
This patent teaches the use of the protein osteogenic protien-1 (OP-1) for the induction of tissue differentiation from stem cells. The invention is aimed primarily at induction of bone formation from osteogenic precursor cells.
Inventors: Cohen, Charles M. (Medway, MA); Kuberasampath, Thangavel (Medway, MA); Pang, Roy H. L. (Medway, MA); Oppermann, Hermann (Medway, MA); Rueger, David C. (West Roxbury, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Sunday March 11th, 2001

Differentiation of human embryonic germ cells

Patent Number: 6562619
This patent teaches the utilization of ligands that activate gp130 for the induction of differentiation of embryonic germ stem cells.
Inventors: Gearhart, John D. (Baltimore, MD); Shamblott, Michael Joseph (Baltimore, MD)
Assignee: The Johns Hopkins University School of Medicine (Baltimore, MD)
Date of First Priority Issue: Monday March 31st, 1997

Treatment for diabetes

Patent Number: 6558952
This patent teaches how to induce endogenous islet stem cells to multiply through administration of gastrin together with a ligand of the EGF receptor such as TGF alpha. One of the principles behind the current company doing clinical trials with this, Dr Tony Cruz, is also involved in the company Stem Cell Therapeutics, which is performing clinical trials with exogenous agents that stimulate...
Inventors: Parikh, Indu (Chapel Hill, NC); Lane, Anne (Westmount, CA); Nardi, Ronald V. (Mahwah, NJ); Brand, Stephen J. (Lincoln, MA)
Assignee: Waratah Pharmaceuticals, Inc. (Quebec, CA); The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Thursday July 30th, 1998

Stem cell inhibitor

Patent Number: 6558925
This invention covers a composition of matter consisting of polypeptides that inhibit stem cell proliferation. This invention is useful for protecting stem cells during administration of chemotherapy or radiotherapy.
Inventors: Graham, Gerard (Glasgow, GB); Pragnell, Ian (Glasgow, GB)
Assignee: Wyeth (Madison, NJ)
Date of First Priority Issue: Tuesday March 9th, 1993

Multiple mesodermal lineage differentiation potentials for adipose tissue-derived stromal cells and uses thereof

Patent Number: 6555374
This patent seems to cover a composition of cells that is made of adipose tissue and hematopoietic tissue. The composition is useful for regeneration of a hematopoietic system after ablation. Additionally, this composition may have uses for the induction of angiogenesis. In some papers, the induction of angiogenesis by bone marrow stem cells requires large amounts of stem cells to be...
Inventors: Gimble, Jeffrey Martin (Chapel Hill, NC); Halvorsen, Juan-Di Chang (Holly Springs, NC); Wilkison, William O. (Bahama, NC)
Assignee: Artecel Sciences, Inc. (Durham, NC)
Date of First Priority Issue: Thursday August 19th, 1999

Method to distinguish hematopoietic progenitor cells

Patent Number: 6555324
This patent covers methods for identifying hematopoietic stem cells based on expression of markers such as CD34, CD38, and various growth factor receptors.
Inventors: Olweus, Johanna (Fremont, CA); Lund-Johansen, Fridtjof (Fremont, CA); Terstappen, Leon Wmm (Palo Alto, CA)
Assignee: Becton Dickinson & Company (Franklin Lakes, NJ)
Date of First Priority Issue: Thursday November 4th, 1993

Pharmaceutical preparation for the treatment of topical wounds and ulcers

Patent Number: 6555118
This patent covers extracts from certain plants for the regeneration of skin tissue after wounding. The patent is useful not only for generation of a new topical product, but also for identification of potentially novel stem cell stimulators found in the concoction.
Inventor: Niazi, Sarfaraz K (Deerfield, IL)
Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday February 22nd, 2001

Patched genes and uses related thereto

Patent Number: 6551782

This patent covers ways of identifying expression of the gene patched inside cells. This is important since various stem cells, embryonic tissues, and cancer cells express this gene in its wildtype or mutated form. The manipulation of the patched pathway can be used for stem cell differentiation and/or expansion.

Inventors: Scott, Matthew P. (Stanford, CA); Goodrich, Lisa V. (Palo Alto, CA); Johnson, Ronald L. (Redwood City, CA); Epstein, Jr., Ervin (Orinda, CA)

Assignee: Stanford University (Stanford, CA); University of California (Oakland, CA)

Date of First Priority Issue: Friday October 7th, 1994

Compositions and methods for delivery of agents for neuronal regeneration and survival

Patent Number: 6551618

This patent covers a matrix that is embedded with genes that stimulate stem cell expansion and/or differentiation. The matrix can be administered alone or in combination with stem cells.

Inventors: Baird, Andrew (San Diego, CA); Gonzalez, Ana Maria (San Diego, CA); Logan, Ann (Worcester, GB); Berry, Martin (Birmingham, GB)

Assignee: University of Birmingham (Birmingham, GB); King's College (London, GB); Selective Genetics, Inc. (San Diego, CA

Date of First Priority Issue: Tuesday March 15th, 1994

Tissue transplant coated with biocompatible biodegradable polymer

Patent Number: 6551355

This patent covers various biocompatible coating compositions that in one embodiment are used to decrease immunogenecity of bone grafts.

Inventors: Lewandrowski, Kai-Uwe (Brookline, MA); Bondre, Shrikar (Malden, MA); Trantolo, Debra J. (Princeton, MA); Cattaneo, Maurice V. (Quincy, MA); Gresser, Joseph D. (Brookline, MA); Wise, Donald L. (Belmont, MA)

Assignee: Cambridge Scientific, Inc. (Cambridge, MA)

Date of First Priority Issue: Friday August 14th, 1998

Method and device for myogenesis and angiogenesis of the heart

Patent Number: 6551338

This patent covers ways of entering the myocardium through transthoracic means in order to administer angiogenic stimuli, which may include stem cells, or activators of stem cells that are associated with angiogenesis. The patent also discloses various administration devices.

Inventors: Chiu, Ray Chu-Jeng (Montreal, CA); Lachapelle, Kevin (Westmount, CA)

Assignee: McGill University (Montreal, CA)

Date of First Priority Issue: Wednesday September 1st, 1999

Lymphoid tissue-specific cell production from hematopoietic progenitor cells in three-dimensional devices

Patent Number: 6548299

This patent teaches how to generate cells of the lymphoid lineage in vitro through a variety of devices and culture techniques. This patent could be used for generating T suppressor cells in order to antigen-specifically inhibit autoimmunity.

Inventors: Pykett, Mark J. (Newton, MA); Rosenzweig, Michael (Boston, MA); Scadden, David T. (Weston, MA); Poznansky, Mark C. (Charlestown, MA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday November 12th, 1998

Embryonic germ cells, method for making same, and using the cells to produce a chimeric porcine

Patent Number: 6545199

This patent teaches ways of culturing various pluripotent embryonic germ stem cells. Methods are disclosed, as well as specific culture reagents. In one particular embodiment emphasis is placed on embryonic germ cells from pigs.

Inventors: Anderson, Gary B. (Davis, CA); Shim, Hosup (Davis, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Tuesday January 9th, 1996

Mediators of hedgehog signaling pathways, compositions and uses related thereto

Patent Number: 6545005

This patent provides compositions of matter that target signalling through the hedgehog pathway. This is important for inhibition of cancer cells since in many cases they have constitutive activation of the hedgehog pathway.

Inventors: Baxter, Anthony David (Abingdon, GB); Boyd, Edward Andrew (Didcot, GB); Guicherit, Oivin M. (Belmont, MA); Price, Stephen (Aylesbury, GB); Rubin, Lee D. (Wellesley, MA)

Assignee: Curtis, Inc. (Cambridge, MA)

Date of First Priority Issue: Thursday September 16th, 1999

Non-myeloablative/lymphoablative conditioning regimen to induce patient anti-donor unresponsiveness in stem cell transplantation

Patent Number: 6544787

This patent provides methods of performing hematopoietic transplants without having to wipe out the recipient's myelopoietic system. Specifically the patent teaches ways of inducing tolerance. This can be used not only for stem cell transplants, but also to induce donor-specific tolerance in a variety of solid organ transplant settings.

Inventor: Slavin, Shimon (Jerusalem, IL)

Assignee: Hadash Medical Research Services and Development Ltd. (Jerusalem, IL); Baxter International Inc. (Deerfield, IL)

Date of First Priority Issue: Friday November 15th, 1996

Pancreatic progenitor 1 gene and its uses

Patent Number: 6541251

This patent teaches ways of identifying pancreatic stem cells by assessing expression of the gene which encodes pancreatic progenitor-1.

Inventors: Sarvetnick, Nora (San Diego, CA); Fox, Howard (San Diego, CA)

Assignee: The Scripps Research Institute (La Jolla, CA)

Date of First Priority Issue: Thursday April 26th, 2001

Cell seeding of ceramic compositions

Patent Number: 6544290

This patent provides cell scaffolds made of a variety of materials, including ceramic. These scaffolds are useful for the growth of various tissues both in vitro and in vivo.

Inventors: Lee, Dosuk D. (Brookline, MA); Rey, Christian (Castanet, FR); Aiolova, Maria (Brookline, MA)

Assignee: Etex Corporation (Cambridge, MA)

Date of First Priority Issue: Friday May 19th, 1995

Engraftable human neural stem cells

Patent Number: 6541255

These are stem cells that are isolated from human fetal telencephalon and are useful for engrafting and generating various neuronal structures.

Inventors: Snyder, Evan Y. (Jamaica Plain, MA); Wolfe, John H. (Philadelphia, PA); Kim, Seung U. (Vancouver, CA)

Assignee: The Children's Medical Center Corporation (Boston, MA); The University of British Columbia (CA); The University of Pennsylvania (Philadelphia, PA)

Date of First Priority Issue: Friday August 14th, 1998

Immortalized human stromal cell lines

Patent Number: 6541249

This patent covers some stromal cell lines that have been deposited with ATCC. These cell lines are useful for expansion of hematopoietic stem cells since they secrete a variety of different cytokines. I would be interesting to see if they support expansion of other types of stem cells such as neuronal stem cells.

Inventors: Wager, Ruth E. (Rockville, MD); Ourmanova, Maria (Boyds, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Wednesday December 22nd, 1999

Method of isolating ependymal neural stem cells

Patent Number: 6541247

This patent covers stem cells of the ependymal CNS type from an animal that is non-embryonic. These neuronal stem cells can be isolated based on expression of Notch-1 receptor.

Inventors: Frisen, Jonas (Stockholm, SE); Janson, Ann Marie (Stockholm, SE); Johansson, Clas (Stockholm, SE); Momma, Stefan (Sp.ang.nga, SE); Clarke, Diana (Stockholm, SE); Zhao, Ming (Solna, SE); Lendahl, Urban (Sundbyberg, SE); Delfani, Kioumars (Solna, SE)

Assignee: Neuronova AB (Stockholm, SE)

Date of First Priority Issue: Monday May 25th, 1998

Hematopoietic stem cell growth factor (SCGF)

Patent Number: 6541217

This patent covers a cytokine that is able to stimulate proliferation of hematopoietic stem cells. It is unclear what the modern name of this cytokine is. This patent may be very useful for development of a stem cell pharmaceutical.

Inventors: Hiraoka, Atsunobu (Kyoto-shi, Kyoto 616-8428, JP); Sugimura, Atsushi (Hokkaido, JP); Mio, Hiroyuki (Shizuoka, JP)

Assignee: Kyowa Hakko Kogyo Co., Ltd. (Tokyo, JP); Hiraoka, Atsunobu (Kyoto, JP)

Date of First Priority Issue: Tuesday August 27th, 1996

Regeneration and augmentation of bone using mesenchymal stem cells

Patent Number: 6541024

This patent teaches ways of generating bone tissue

using mesenchymal stem cells that are placed into a special matrix. In one embodiment, the matrix and the mesenchymal stem cells are administered into an area of bone injury.
Inventors: Kadiyala, Sudhakar (Baltimore, MD); Bruder, Scott P. (Owings Mills, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Monday October 28th, 1996

Use of nerve growth factor for the storage, culture or treatment of cornea

Patent Number: 6537808
This patent covers the use of NGF for storing corneal samples, but also for use as a topical solution for the treatment of diseases associated with corneal dysfunction.
Inventor: Lambiase, Alessandro (Rome, IT)
Assignee: Anabasis S.R.L. (Rome, IT)
Date of First Priority Issue: Thursday April 24th, 1997

Hematopoietic stem cells

Patent Number: 6537807
This patent is in competition with other composition of matter patents that cover hematopoietic stem cells. Specific phenotypes are covered by this patent, which may be the reason why it issued in light of several other patents that also cover similar phenotypes and activities.
Inventors: Smith, Clayton A. (Durham, NC); Storms, Robert W. (Durham, NC); Gilboa, Eli (Durham, NC)
Assignee: Duke university
Date of First Priority Issue: Thursday December 4th, 1997

Porous tissue scaffoldings for the repair or regeneration of tissue

Patent Number: 6534084
The importance of scaffolds in tissue engineering can not be understated. In this patent, various composition of matter, included foam-based and biodegradable scaffolds are provided.
Inventors: Vyakarnam, Murty N. (Edison, NJ); Zimmerman, Mark C. (East Brunswick, NJ); Scopelianos, Angelo George (Whitehouse Station, NJ); Roller, Mark B. (North Brunswick, NJ); Gorky, David V. (Flemington, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Wednesday June 30th, 1999

Cardiac function comprising implantation of embryonic stem cell in which differentiation has been initiated

Patent Number: 6534052
This patent teaches how to administer embryonic stem cells, and differentiated cells thereof, into the area of infarcted myocardium so as to prevent future heart failure.
Inventors: Xiao, Yong-Fu (Wayland, MA); Morgan, James P. (Newton Centre, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday September 5th, 2000

Protein-induced morphogenesis in liver tissue

Patent Number: 6531445
This patent teaches the use of proteins such as osteogenic protein-1 (OP-1) for stimulation of liver regeneration.
Inventors: Cohen, Charles M. (Medway, MA); Kuberasampath, Thangavel (Medway, MA); Pang, Roy H. L. (Medway, MA); Oppermann, Hermann (Medway, MA); Rueger, David C. (Hopkinton, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Monday March 11th, 1991

Resorbable scaffolds to promote cartilage regeneration

Patent Number: 6530956
This patent teaches how to make scaffolds that can be implanted in order to promote healing and regeneration of injured cartilage. Chondrocytes and/or mesenchymal stem cells may be used along with this invention.
Inventor: Mansmann, Kevin A. (Paoli, PA
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday September 10th, 1998

Engraftable human neural stem cells

Patent Number: 6528306
This patent uses human fetal telencephalon as a source of stem cells that can be implanted and subsequent to implantation actually interdigitate and function in unison with host neurons.
Inventors: Snyder, Evan Y. (Jamaica Plain, MA); Wolfe, John H. (Philadelphia, PA); Kim, Seung U. (Vancouver, CA)
Assignee: The Children's of Medical Center Corporation (Boston, MA); The University of British Columbia (CA); The University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Tuesday April 14th, 1998

Bone marrow cells as a source of neurons for brain and spinal cord repair

Patent Number: 6528245
This patent teaches that bone marrow stromal cells may be used as a source of neurons or to assist in neuronal regeneration. One wonders if these bone marrow stromal cells are similar to the mesenchymal stem cells that are patented by Osiris Therapeutics.
Inventors: Sanchez-Ramos, Juan (Tampa, FL); Song, Shijie (Tampa, FL); Janssen, William (Tampa, FL); Sanberg, Paul (Spring Hill, FL); Freeman, Thomas (Tampa, FL)
Assignee: University of South Florida (Tampa, FL)
Date of First Priority Issue: Thursday May 7th, 1998

Method for in vivo ex vivo and in vitro repair and regeneration of cartilage and collagen and bone remodeling

Patent Number: 6528052
This patent discloses frequencies and methods of culturing stem cells in order to generate a source of bioartificial cartilage.
Inventors: Smith, R. Lane (Palo Alto, CA); Carter, Dennis R. (Stanford, CA); Schurman, David J. (Stanford, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Stanford, CA)
Date of First Priority Issue: Friday October 1st, 1999

Unactivated oocytes as cytoplast recipients of quiescent cell nuclei while maintaining correct ploidy

Patent Number: 6525243
This patent teaches ways of improving efficacy of cloning through nuclear transfer into oocytes that are in specific stages of proliferation. The use of cloning for generation of autologous embryonic stem cells offers incredible potential for regenerative medicine.
Inventors: Stockman Campbell, Keith Henry (Midlothian, GB); Wilmut, Ian (Midlothian, GB)
Assignee: Roslin Institute (Edinburgh, GB)
Assignee: The Minister of Agricultural, Fisheries and Food (GB); Biotechnology & Biological Sciences Research Council (GB)
Date of First Priority Issue: Thursday August 31st, 1995

Gene delivery to periosteal cells by microneedle injection

Patent Number: 6525030
The periosteum is a dense layer of connective tissue that wraps around bone. This patent teaches ways of transfecting this layer with various genes that are capable of stimulating stem cells and other cells to proliferate and/or differentiate.
Inventor: Eriksson, Elof (Wellesley Hills, MA)
Assignee: Applied Tissue Technologies, LLC (Wellesley Hills, MA)
Date of First Priority Issue: Thursday December 14th, 1989

FGFR3 as a marker for mesenchymal skeletal progenitor cells

Patent Number: 6517872
This patent teaches ways of extracting mesenchymal stem cells that act as progenitors for various types of bone. The expression of the receptor for fibroblast growth factor-3 is used as the identifying marker.
Inventors: Yayon, Avner (Moshav Sitria, IL); Nevo, Zvi (Herzlia, IL)
Assignee: Yeda Research and Development Co., Ltd. (Rehovot, IL); Ramdt University Authority for Applied Research and Industrial Development Ltd. (Tel Aviv, IL)
Date of First Priority Issue: Thursday January 12th, 1995

Neural retinal cells and retinal pigment epithelium cells and their use in treatment of retinal disorders

Patent Number: 6517833
This patent teaches the use of pig retinal cells and a variety of stem cells associated with retinal development, as a source of cellular material for transplantation into humans that suffer from various ocular diseases.
Inventor: Edge, Albert (Cambridge, MA)
Assignee: Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Tuesday August 25th, 1998

Homologous recombination for universal donor cells and chimeric mammalian hosts

Patent Number: 6514752
This patent discloses a stem cell theat has been modified so as to lack expression of MHC genes. The modification involves homologous recombination in a manner similar to which knockout mice are made. The cells are then used for transplantation since they are presumed to be less immunogeneic. If it was possible to generate liver cells through this method, then the therapy may actually be...
Inventors: Kucherlapati, Raju (Darien, CT); Koller, Beverly H. (Carrboro, NC); Smithies, Oliver (Chapel Hill, NC); Dubridge, Robert B. (Belmont, CA); Greenburg, Gary (San Carlos, CA); Capon, Daniel J. (Hillsborough, CA); Williams, Steven R. (San Francisco, CA); Arbo
Assignee: cell genesys
Date of First Priority Issue: Tuesday July 25th, 1989

Polymer constructs

Patent Number: 6514522
This patent provides compositions of matter for administration of cells and cytokines into a host. The compositions are various polymers that are biodegradable, but can serve as delivery systems.
Inventor: Domb, Abraham J. (Efrat, IL)
Assignee: Chondros, Inc. (Towson, MD)
Date of First Priority Issue: Wednesday April 8th, 1998

Device and method for regeneration and repair of cartilage lesions

Patent Number: 6514514
This patent covers a matrix that can be used for cartilage repair comprising of biodegradable materials, as well as cytokines and growth factors.
Inventors: Atkinson, Brent (Lakewood, CO); Benedict, James J. (Arvada, CO)
Assignee: Sulzer Biologics Inc. (Austin, TX)
Date of First Priority Issue: Thursday August 14th, 1997

Methods of treating anosmia and repopulating olfactory nerves with retinoids

Patent Number: 6506801
This patent teaches the use of retinoids to stimulate olfactory stem cells in order to restore the sense of smell to an animal in need thereof. The use of retinoids for stimulation of stem cell differentiation is well known and is actually therapeutic in various types of cancer, in which the malignant cell is subjected to "differentiation therapy" such that it loses its malignancy.
Inventors: Yee, Karen K. (Philadelphia, PA); Rawson, Nancy E. (Marlton, NJ)
Assignee: Monell Chemical Senses Center (Philadelphia, PA)
Date of First Priority Issue: Wednesday October 4th, 2000

Method for culturing langerhans islets and islet autotransplantation islet regeneration

Patent Number: 6506599
This patent teaches how to expand autologous or allogeneic islet stem cells and to generate from them islets useful for the treatment of diabetes. The culture techniques disclosed involve cytokine, matrix and antibody cocktails. This invention may be useful in conjunction with the various embryonic stem cell technologies that are currently being studied.
Inventor: Yoon, Tai-Wook (Seodaemoon-Ku Seoul, KR)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday October 15th, 1999

Serum-and steroid-free culture media for cerebellar granule neurons

Patent Number: 6506576
This patent covers a method of growing neurons in a media that is free from serum and feeder cells. This media will be important in clinical trials since there are high regulatory hurdles if cells are used that are grown in the presence of xenogenic feeders or with serum containing media.
Inventor: Belcher, Scott M. (Little Rock, AR)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday March 14th, 2001

Hepatocyte lineage cells derived from pluripotent stem cells

Patent Number: 6506574
This patent teaches how to generate hepatocytes by the differentiation of embryonic stem cells. Methods of using the newly generated hepatocytes for drug screening are also provided. The patent describes uses of histone decetylase inhibitors in the culture and differentiation process.
Inventors: Rambhatla, Lakshmi (Redwood City, CA); Carpenter, Melissa K. (Castro Valley, CA)
Assignee: Geron Corporation (Menlo Park, CA)
Date of First Priority Issue: Thursday April 27th, 2000

In vivo selection of primitive hematopoietic cells

Patent Number: 6500421
This patent teaches ways of using tranfection of hematopoietic stem cells in order to select for primitive cells in vivo. This patent is useful for treatment of a variety of hematological disorders in which stem cell transplants are indicated.
Inventors: Sorrentino, Brian P. (Memphis, TN); Blakely, Raymond L. (Germantown, TN); Allay, James (Cordova, TN); Spencer, H. Trent (Columbia, SC)
Assignee: St. Jude Children's Research Hospital (Nashville, TN)
Date of First Priority Issue: Monday November 4th, 1996

Low molecular weight cell, bone marrow and immune stimulants

Patent Number: 6498150
This patent covers the composition of matter for several aminocarboxylic acid amide derivatives that are both immunostimulatory, as well as augment hematopoietic activity of stem cells. This seems very interesting a combination since many cytokines that stimulate the immune system, at least the Th1 arm of the immune system, are also suppressive to the hematopoietic compartment. For...

Inventors: Taub, Floyd (Silver Spring, MD); Perun, Thomas J. (Round Lake, IL); Murray, Christopher K. (Longmont, CO); Daughenbaugh, Randall J. (Longmont, CO); Lednicer, Daniel (Rockville, MD)
Assignee: Dovetail Technologies, Inc. (College Park, MD)
Date of First Priority Issue: Tuesday October 17th, 1995

Method of promoting production of living tissue equivalents

Patent Number: 6498138
This patent covers the use of angiotensinogen I and II and fragments thereof for promoting viability of tissues. This could be used form maintaining the viability of stem cells during organ storage.
Inventors: Rodgers, Kathleen E. (Long Beach, CA); DiZerega, Gere (Pasadena, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Wednesday March 11th, 1998

Cultures of human CNS neural stem cells

Patent Number: 6498018
This patent appears to cover a method of screening for compounds that have ability to induce expension of neuronal stem cells. In one of the dependent claims the patent covers forebrain derived neural stem cells in the culture for screening.
Inventor: Carpenter, Melissa (Foster City, CA)
Assignee: Cytotherapeutics, Inc. (Lincoln, RI)
Date of First Priority Issue: Friday September 5th, 1997

Multilayer skin or dermal equivalent having a layer containing mesenchymal stem cells

Patent Number: 6497875
This patent covers the generation of an artificial skin that has a keratinocyte layer and a dermis-forming layer. The second layer can be generated by use of mesenchymal stem cells. This patent could be useful not only for covering of burn patients or sufferers of wounds that take a long time to heal, but it could also be useful for generation of in vitro systems for assessing ability of topical...
Inventors: Sorrell, J. Michael (Cleveland Heights, OH); Caplan, Arnold I. (Cleveland Heights, OH)
Assignee: Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Friday April 26th, 1996

Neural transplantation using proliferated multipotent neural stem cells and their progeny

Patent Number: 6497872
This patent covers the use of a multipotent neural stem cell for transplantation into patients suffering from various neurodegenerative disorders. Markers of the cells suitable for transplantation, as well as culture conditions, and genes which the stem cells can be transfected with are provided.
Inventors: Weiss, Samuel (Alberta, CA); Reynolds, Brent (Alberta, CA); Hammang, Joseph P. (Barrington, RI); Baetge, E. Edward (Barrington, RI)
Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday July 8th, 1991

Morphogen-enhanced survival and repair of neural cells

Patent Number: 6495513
This patent provides certain morphogen proteins that are capable of regenerating neural stem cells, as well as protecting neurons from apoptosis or other types of cell death. The claims cover specific polypeptides for neurite extension, as well as for repairing the gap between neurons.
Inventors: Rueger, David C. (Hopkinton, MA); Kuberasampath, Thangavel (Medway, MA); Oppermann, Hermann (Medway, MA); Ozkaynak, Engin (Milford, MA); Pang, Roy H. L. (Etna, NH); Cohen, Charles M. (Medway, MA)
Assignee: Curis, Inc. (Cambridge, MA)
Date of First Priority Issue: Monday March 11th, 1991

Hematopoietic stem cell proliferating agents

Patent Number: 6495365
This patent covers the use of IGF-1 (a protein that is already in the clinic) in combination with a protein selected from the group comprising of: G-CSF, M-CSF, or stem cell factor, for the stimulation of hematopoiesis. This patent should be examined for the possibility of extending this technology to the area of other uses of hematopoietic stem cells. For example, will these combinations...
Inventors: Saito, Yoshimasa (Kawanishi, JP); Ueda, Yoshiko (Osaka, JP); Tamura, Kouichi (Kobe, JP); Takata, Yoko (Osaka, JP); Yamada, Hisashi (Sanda, JP); Yamashita, Tatsuo (Kobe, JP); Kobayashi, Masakazu (Takarazuka, JP)
Assignee: Fujisawa Pharmaceutical Co., Ltd. (Osaka, JP)
Date of First Priority Issue: Tuesday August 12th, 1997

Keratinocyte stem cells

Patent Number: 6485971
This patent covers a type of stem cell that gives rise to keratinocytes. These cells can be purified from skin biopsy and used for amplification and generation of

numerous other cell types and tissue. One interesting possibility is the use of such keratinocyte stem cells for generation of artificial thymus.
Inventors: Kaur, Pritinder (East Melbourne, AU); Simmons, Paul J. (East Melbourne, AU)
Assignee: Peter MacCallum Cancer Institute (Victoria, AU)
Date of First Priority Issue: Wednesday March 18th, 1998

Treatment methods using homeopathic preparations of growth factors

Patent Number: 6485480
The process of ultradiluting a compound in order to magically "potentiate" various effects has been used for hundreds of years in the area of homeopathic medicine. Homeopathy is based on the principle of "like cures like", in the sense that if you are allergic to a specific compound, the ultradilution of that compound, prepared through a magical shaking during the dilution process, will result in...
Inventor: Brewitt, Barbara A. (Seattle, WA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday March 31st, 1994

Methods and compositions for producing artificial fascia

Patent Number: 6482645
The fascia is a layer of connective tissue that surrounds muscles, bones, and joints. This patent teaches ways of generating artificial fascia's through the use of various stem cells and biological matrices.
Inventor: Atala, Anthony (Weston, MA)
Assignee: Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Wednesday December 29th, 1999

Cell-based gene therapy for the pulmonary system

Patent Number: 6482406
This patent covers the transfection of various cells and their administration in order to heal various pulmonary lesions or disorders. In one utilization, cells are transfected with iNOS and used to administer nitric oxide directly into the lung of patients with pulmonary hypertension.
Inventor: Stewart, Duncan J. (Toronto, Ontario, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday March 26th, 1999

Stimulation, culture and preservation of pancreatic cells

Patent Number: 6479283
This patent covers a method of administering beta cells in a matrix that allows for enhanced viability, as well as insulin production.
Inventors: M.ang.nsson, Per (Sollentuna, SE); Lundin, Tomas (Enkoping, SE); Busch, Christer (Troms.o slashed., SE)
Assignee: Ascendia AB (Sollentuna, SE)
Date of First Priority Issue: Tuesday March 18th, 1997

Device having a microporous membrane lined deformable wall for implanting cell cultures

Patent Number: 6479066
This patent covers an implantable 3 dimensional matrix that takes the shape of the cavity it is administered in. This matrix is a great delivery system for introduction of various cell types into the host. In some ways this patent is useful for generation of compositions useful for the treatment of bone defects, livers, and other bodily structures.
Inventor: Harpstead, Stanley D. (Arden Hills, MN)
Assignee: RST Implanted Cell Technology, LLC (Arden Hills, MN)
Date of First Priority Issue: Thursday December 16th, 1999

Purging of stem cell products

Patent Number: 6475481
This patent covers ways of purging tumor cells from bone marrow stem cell grafts. Specifically, the patent teachs ways of selectively protecting the bone marrow through gene transfection, while allowing tumor cells to die. This patent is particularly suited for situations of autolous bone marrow transplants in cancer patients in order to allow for high levels of chemotherapy and/or...
Inventor: Talmadge, James E. (Bellevue, NE)
Assignee: Canji, Inc. (San Diego, CA)
Date of First Priority Issue: Tuesday November 18th, 1997

Enriched central nervous system stem cell and progenitor cell populations, and methods for identifying, isolating and enriching for such populations

Patent Number: 6468794
StemCells Inc is one of the few companies that has actually entered clinical trials. In this patent the extraction of specific neuronal stem cells is disclosed. Cells that bind to the antibodies 5E12 and/or AC133 derived from brain sources are identified as neuronal stem cells capable of inducing production of neurospheres. These cells have also demonstrated ability to integrate into the brains...
Inventors: Uchida, Nobuko (Palo Alto, CA); Buck, David W. (Santa Clara, CA); Weissman, Irving (Redwood City, CA)

Assignee: StemCells, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday February 12th, 1999

Use of .beta.-catenin in the expansion of stem and progenitor cells

Patent Number: 6465249

The various signalling pathways associated with embryogenesis seem to be fundamentally important in controlling a variety of stem cells. In this patent the manipulation of beta catenin signalling is covered for the activation of stem cells to either differentiate or proliferate.

Inventors: Reya, Tannishtha (Mountain View, CA); Nusse, Roeland (Stanford, CA); Weissman, Irving L. (Redwood City, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Tuesday January 18th, 2000

Methods for producing and preparing cells for cell therapy

Patent Number: 6465248

This patent teaches ways how to culture neurons in order to obtain certain phenotypes. One type of neuron that is obtained by using the culture conditions thought by this invention is a dopamine secreting neuron. This invention is owned by the company Prescient NeuroPharma which appears to be a Canadian venture-backed company.

Inventor: Commissiong, John (Mississauga, CA)
Assignee: Prescient NeuroPharma, Inc. (Toronto, CA)
Date of First Priority Issue: Friday July 16th, 1999

Mammalian myeloid progenitor cell subsets

Patent Number: 6465247

This patent covers a type of stem cell that has differentiated and is committed to the myeloid lineage. This stem cell is useful for inducing a rapid production of myeloid cells such as granulocytes and monocytes, which are protective against bacteria. The cells covered in the patent display the phenotype of c-kit positive, negative for IL-7 receptor (most likely since IL-7 is associated...

Inventors: Weissman, Irving L. (Redwood City, CA); Traver, David Jeffrey (West Roxbury, MA); Akashi, Koichi (Palo Alto, CA)
Assignee: The Board of Trustees of the Leland Stanford Junior University (Palo Alto, CA)
Date of First Priority Issue: Tuesday June 29th, 1999

Identification of cells for transplantation

Patent Number: 6465215

This patent covers genes that are indicative if cells of the neuronal lineage are suitable for transplantation for regenerative purposes. The genes mentioned in this patent are not named, but sequences are provided. So if one is curious what these are, they have to check genbank.

Inventors: Price, Jack (London, GB); Uwanogho, Dafe (London, GB)
Assignee: Reneuron Limited (London, GB)
Date of First Priority Issue: Tuesday December 14th, 1999

Methods and uses of connective tissue growth factor for differentiation of mesenchymal stem cells

Patent Number: 6464983

This patent teaches how to induce mesenchymal stem cells into chondrocytes (to make cartilage) or osteoblasts (to make bone) through the use of the cytokine called Connective Tissue Growth Factor. This patent is useful for regenerative purposes in the area of injuries, however it is interesting in that the mesenchymal stem cell patents are owned by Osiris and should be licensed in order to...

Inventor: Grotendorst, Gary R. (Miami, FL)
Assignee: University of South Florida (Tampa, FL); University of Miami (Miami, FL)
Date of First Priority Issue: Tuesday April 30th, 1991

Bone marrow as a site for transplantation

Patent Number: 6463933

This patent teaches how to perform transplantation of cells directly into the bone or bone marrow. The patent specifically claims the transplantation of hepatocytes or islet cells. It is known that the bone marrow is an immune priviledged environment, at least to some extent, therefore this idea is really novel. Sakaguchi in Japan was at one time publishing that intra-bone transplant of...

Inventors: Laster, Morris (Jerusalem, 97289, IL); Rosenwald, Lindsay (New York, NY)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday March 25th, 1997

Hepatocyte lineage cells derived from pluripotent stem cells

Patent Number: 6458589

This patent covers methods of generating and isolating hepatocytes from embryonic stem cells. The hepatocytes are designated by specific phenotypic and functional characteristics that are described in the patent. This invention could be useful for treatment of a wide variety of disorders ranging from hepatitis to cirrhosis.

Inventors: Rambhatla, Lakshmi (Redwood City, CA); Carpenter, Melissa K. (Castro Valley, CA)

Assignee: geron
Date of First Priority Issue: Thursday April 27th, 2000

Renal stem cells and uses thereof

Patent Number: 6458588
This patent covers a renal stem cell that is identified based on expression of the markers flk-1 and Sca-1. It is interesting how some many stem cells of different tissues all express similar markers and in some situations similar properties. Examples of such similarities include expression of Sca-1 (which appropriately stands for "stem cell antigen") on stem cells ranging from...
Inventors: Arnaout, M. Amin (Chestnut Hill, MA); Linde, Peter G. (Dedham, MA)
Assignee: The General Hospital Corporation (Boston, MA)
Date of First Priority Issue: Wednesday January 31st, 2001

Human hematopoietic stem and progenitor cell antigen

Patent Number: 6455678
This patent appears to cover the stem cell antigen AC133, otherwise known as CD133. This antigen is found not only on hematopoietic stem cells, but also on stem cells capable of inducing angiogenesis. This patent may be useful for people who do not want to licence CD34.
Inventors: Yin, Amy H. (San Jose, CA); Miraglia, Sheri (Palo Alto, CA); Godfry, Wayne G. (Atherton, CA); Buck, David W. (Santa Clara, CA)
Assignee: AmCell Corporation (Burlingame, CA)
Date of First Priority Issue: Friday April 26th, 1996

Genes in the control of hematopoiesis

Patent Number: 6451558
This patent covers some genes whose function is not really described in the application. In order to understant the relevance of this patent, one should take the sequence and blast it in genbank to see what the real name of this gene is.
Inventors: Cooke, Michael Paul (Del Mar, CA); Holness, Claire Louise (Palo Alto, CA); Sirenko, Oksana Ivanivna (Belmont, CA)
Assignee: Novartis AG (Basel, CH)
Date of First Priority Issue: Monday August 3rd, 1998

Composites for tissue regeneration and methods of manufacture thereof

Patent Number: 6454811
This patent provides various engineering techniques and devices for generation of artificial tissue from biological sources in vitro and in vivo. Specific material and ways of manipulating the materials to design cellular substrates and shape inducing structures are disclosed.
Inventors: Sherwood, Jill K. (Princeton, NJ); Griffith, Linda G. (Cambridge, MA); Brown, Scott (Princeton, NJ)
Assignee: Massachusetts Institute of Technology (Cambridge, MA); Therics, Inc. (Princeton, NJ)
Date of First Priority Issue: Monday October 12th, 1998

Methods for therapy of neurodegenerative disease of the brain

Patent Number: 6451306
This patent covers a method of treating a neurodegenerative condition through administration of neuronal stem cells into the cholinergic basal forebrain that have been transfected with nerve growth factor or a neurotropin. This patent uses the natural ability of neural stem cells to migrate to the place where they are needed, in order to deliver the protein that is produced from the gene that...
Inventors: Tuszynski, Mark H. (La Jolla, CA); Gage, Fred (La Jolla, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Wednesday April 15th, 1998

Method of treating coronary artery disease by administering a recombinant FGF

Patent Number: 6451303
There are more than 20 members of the fibroblast growth factor family. Many of the FGF proteins are involved in activation of stem cell proliferation, as well as induction of angiogenesis. This patent covers the treatment of coronary artery disease, for example ischemia induced by it...through the stimulation of angiogenesis by administration of FGF. There is at least one trial ongoing with...
Inventors: Whitehouse, Martha J. (San Francisco, CA); Kavanaugh, W. Michael (Marin, CA)
Assignee: Chiron Corporation (Emeryville, CA)
Date of First Priority Issue: Tuesday October 13th, 1998

Method of mobilizing hematopoietic stem cells

Patent Number: 6447766
Inventors: Pelus, Louis Martin (Richboro, PA); King, Andrew Garrison (Blue Bell, PA); Qian, Yanqiu (King of Prussia, PA)
Assignee: SmithKline Beecham Corporation (Philadelphia, PA)

Date of First Priority Issue: Tuesday June 8th, 1993

Transplantation of neural cells for the treatment of chronic pain or spasticity

Patent Number: 6444205

This patent covers administration of GABA producing neurons or neural stem cells from a fetus into a patient with chronic pain or spasticity. This patent covers not only human donor sources but also porcine. The ability to generate different types of pigs through genetic engineering may allow for some of these approaches to enter the clinic. One such particular strain of pig is the alpha...

Inventors: Dinsmore, Jonathan (Brookline, MA); Siegan, Julie (Boston, MA)

Assignee: Diacrin, Inc. (Charlestown, MA)

Date of First Priority Issue: Wednesday September 30th, 1998

Angiogenically effective unit dose of FGF-2 and method of use

Patent Number: 6440934

This patent covers specific doses of FGF-2 that may be used for the stimulation of angiogenesis. Angiogenesis stimulation should not be thought of as important only for disease such as angina, but for other disease associated with ischemia such as cerebral palsy, and peripheral vascular disease.

Inventor: Whitehouse, Martha Jo (San Francisco, CA)

Assignee: Chiron Corporation (Emeryville, CA)

Date of First Priority Issue: Tuesday October 13th, 1998

Methods and devices for the long-term culture of hematopoietic progenitor cells

Patent Number: 6440734

This patent discloses various three dimensional biomaterials that resemble the actual bone marrow microenvironment and are useful for stimulating expansion of hematopoietic stem cells. This patent may be used for expanding autologous stem cells for patients that lack a suitable bone marrow or stem cell donor. Additionally, the ability to expand and grow hematopoietic stem cells can also...

Inventors: Pykett, Mark J. (Newton, MA); Rosenzweig, Michael (Boston, MA); Kaplan, Richard B. (Beverly Hills, CA)

Assignee: Cytomatrix, LLC (Woburn, MA)

Date of First Priority Issue: Friday September 25th, 1998

Methods of ex-vivo expansion of hematopoietic cells using interleukin-3 (IL-3) multiple mutation polypeptides

Patent Number: 6440407

This patent covers IL-3 and various forms of it for the expansion of hematopoietic stem cells outside of the body.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J

Assignee: Searle, G. D. (Chicago, IL)

Date of First Priority Issue: Tuesday November 24th, 1992

Human pancreatic epithelial progenitor cells and methods of isolation and use thereof

Patent Number: 6436704

This patent covers a type of pancreatic stem cell that can be grown and expanded outside of the body. The cells are defined as expressing the following markers: cytokeratin-19, CEA, carbonic anhydrase II, and CFTCR.

Inventors: Roberts, Penelope E. (Millbrae, CA); Mather, Jennie Powell (Millbrae, CA)

Assignee: Raven Biotechnologies, Inc. (South San Francisco, CA)

Date of First Priority Issue: Monday April 10th, 2000

Derivation of pluripotential embryonic cell lines from ungulate species

Patent Number: 6436701

This patent covers methods of generating stem cells, embryonic stem cells from ungulate species. This technology may be useful not only for veterinary applications, but also for generating large quantities of cytoplasm with "dedifferentiating" ability that may be used for various regenerative purposes in humans...many of the cytoplasmic factors in embryonic stem cells that induce...

Inventors: Evans, Martin John (Cambridge, GB); Moor, Robert Michael (Babraham, GB); Notaranni, Elena (Cambridge, GB)

Assignee: Babraham Institute (Cambridge, GB)

Date of First Priority Issue: Monday September 12th, 1988

Methods of ex-vivo expansion of hematopoietic cells using multivariant IL-3 hematopoiesis chimera proteins

Patent Number: 6436387

This patent covers chimeric proteins that are based on the cytokine interleukin-3. The specific use of these proteins for expanding stem cells of the hematopoeitic lineage outside the body are disclosed.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J
Assignee: G.D. Searle & Co. (Chicago, IL)
Date of First Priority Issue: Tuesday November 24th, 1992

Autogenous cell patch cardio myoplasty and advanced muscle graft implantation system

Patent Number: 6435190

This patent teaches what appears to be a surgical method for producing an autograft that can cover lesions in the heart. This is important since after a heart attack, there is scar tissue formation, and the heart starts to lose function. The patent also covers ways in which autologous stem cells may be administered.
Inventors: Taheri, Syde A. (Buffalo, NY); Leonhardt, Howard J. (Weston, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday June 14th, 2000

Inhibitor of stem cell proliferation and uses thereof

Patent Number: 6432917

This patent covers a strange composition generated from bone marrow by various chemical and physical procedures that seems to inhibit leukemic stem cell proliferation. This patent is similar to a composition published previously called Reptimed that was also bone marrow derived and inhibited leukemic cell activity.
Inventors: Kozlov, Vladimir (Novosibirisk, RU); Tsyrlova, Irena (Gaithersburg, MD)
Assignee: Pro-Neuron, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Wednesday March 31st, 1993

Embryonic stem cells capable of differentiating into desired cell lines

Patent Number: 6432711

This patent covers the generation of neurons and muscle cells from embryonic stem cells. The patent uses fetal calf serum which can be a drawback to clinical implimentation.
Inventors: Dinsmore, Jonathan H. (Brookline, MA); Ratliff, Judson (Stoneham, MA)
Assignee: Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Wednesday November 3rd, 1993

Use of adipose tissue-derived stromal cells for chondrocyte differentiation and cartilage repair

Patent Number: 6429013

This patent teaches how to generate cartilage and chondrocytes from stromal cells that are derived from adipose tissues. Another company working heavily in this area is Cytori, formerly called Macropore.
Inventors: Halvorsen, Yuan-Di C. (Holly Springs, NC); Wilkison, William O. (Bahama, NC); Gimble, Jeffrey Martin (Chapel Hill, NC)
Assignee: Artecel Science, Inc. (Durham, NC)
Date of First Priority Issue: Thursday August 19th, 1999

Cell population containing non-fetal hemangioblasts and method for producing same

Patent Number: 6429012

This is a patent for a cell population that can differentiate into both the hematopoietic lineage and the endothelial lineage.
Inventors: Kraus, Morey (Worcester, MA); Wilder, Paul (Worcester, MA)
Assignee: Viacell, Inc. (Worcester, MA)
Date of First Priority Issue: Tuesday June 10th, 1997

Method of inducing formation of kidney epithelia from mesenchymal precursors

Patent Number: 6423681

This patent teaches how to induce formation of new kidney cells in vivo through the administration of ligands of gp130 such as LIF. This is one of the few patents that covers administration of therapies systemically that induce generation of new cells by stimulation of endogenous stem cells. This patent is in line with the approach of Transition Therapeutics for generation of new islets, and...
Inventors: Barasch, Jonathan M. (New York, NY); Oliver, Juan A. (New York, NY); Yang, Jun (New York, NY)
Assignee: The Trustees of Columbia University in the City of New York (New York, NY)
Date of First Priority Issue: Tuesday May 4th, 1999

Human pluripotent hematopoietic colony stimulating factor, method of use

Patent Number: 6419918

This patent covers the pluripotent colony stimulating factor, a type of cytokine that is not really described in terms of modern nomenclature in this patent. The use of such stem cell stimulatory cytokines that come from the hematopoietic system should be explored for other types of stem cells...this is especially since there is so

much similarity between stem cells of various tissues not...
Inventors: Welte, Karl (New York, NY); Platzer, Erich (Spardorf, DE); Gabrilove, Janice L. (New York, NY); Mertelsman, Roland (Mainz, DE); Moore, Malcolm A. S. (Larchmont, NY)
Assignee: Sloan-Kettering Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Thursday March 28th, 1985

Phosphatidylinositol 3-kinase inhibitors as stimulators of endocrine differentiation

Patent Number: 6413773
This patent teaches that if one inhibits the PI3 kinase pathway, it is possible to induce differentiation of pancreatic stem cells into islet-like cells. PI3k has activity in a variety of stem cells, including hematopoietic stem cells. It will be interesting to see what modification of this enzyme does in other types of stem cells.
Inventors: Ptasznik, Andrezej (Philadelphia, PA); Hayek, Alberti (La Jolla, CA); Beattie, Gillian M. (Poway, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Monday June 1st, 1998

Cell structure media for mammalian cells

Patent Number: 6413772
This patent teaches methods of expanding hepatic stem cells, and hepatocytes in culture through a specialized type of serum free media. This media is useful for clinical applications and may be an important part in cellular therapy of hepatic disorders.
Inventor: Block, Geoffrey D. (Pittsburgh, PA)
Assignee: University of Pittsburgh (Pittsburgh, PA)
Date of First Priority Issue: Monday March 18th, 1996

Methods of ex-vivo expansion of hematopoietic cells using interleukin-3 mutant polypeptides with other hematopoietic growth factors

Patent Number: 6413509
This patent provides variants of interleukin 3 that are useful for the expansion of stem cells in general, and specifically hematopoietic stem cells. These stem cells may be expanded for a variety of uses including for autologous stem cell transplantation. When methods of inducing hematopoietic stem cell differentiation into other types of tissues are figured out, this patent will be...
Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday November 24th, 1992

Method and compositions for isolation and growth of kidney tubule stem cells, in vitro kidney tubulogenesis and ex vivo construction of renal tubules

Patent Number: 6410320
This patent covers a type of renal stem cell that is useful for generation of artificial nephrons and eventually artificial kidneys.
Inventor: Humes, H. David (Ann Arbor, MI)
Assignee: The University of Michigan (Ann Arbor, MI
Date of First Priority Issue: Monday March 2nd, 1992

Gene therapy methods using bone marrow-derived cells expressing blood clotting factors

Patent Number: 6410015
This patent covers hematopoietic stem cells that are gene transfected with various clotting factors. In some embodiments the stem cells have a preferntially affinity towards injured tissue.
Inventors: Gordon, Erlinda Maria (Glendale, CA); Hall, Frederick L. (Glendale, CA); Anderson, W. French (San Marino, CA)
Assignee: University of Southern California (Los Angeles, CA)
Date of First Priority Issue: Tuesday November 12th, 1996

Methods and articles for regenerating bone or peridontal tissue

Patent Number: 6409764
This patent provides methods of using stem cells to generate an artificial bone. Various stem cells are able to be used in the context of this invention, including mesenchymal stem cells. This invention also uses members of the TGF beta family in combination with specialized artificial matrices.
Inventors: White, Charles F. (Camp Verde, AZ); Flynn, Charles (Cottonwood, AZ); Cook, Alonzo D. (Flagstaff, AZ); Hardwick, William R. (Flagstaff, AZ); Wikesjo, Ulf M. E. (Bryn Mawr, PA); Thomson, Robert C. (Flagstaff, AZ)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday December 3rd, 1998

Multipotent neural stem cell cDNA libraries

Patent Number: 6399369

This patent provides the genes that are expressed in various neuronal cells and stem cells. These genes are useful for identifying markers of stem cells that can be used for their extraction and isolation. Additionally, knowledge of these genes may enable drug discovery and target identification for ways of expanding and/or differentiating neural stem cells.

Inventors: Weiss, Samuel (Calgary, CA); Reynolds, Brent (Saltspring, CA)

Assignee: Neurospheres Holdings Ltd. (Calgary, CA)

Date of First Priority Issue: Monday July 8th, 1991

Myocardial grafts and cellular compositions useful for same

Patent Number: 6399300

This patent teaches ways of purifying out cells expressing myocardial genes from a heterogeneous population of stem cells. Specifically the patent teaches the use of cardiac specific promoters driving expression of markers that can be used to take the cells desired out of a heterogeneous population of cells.

Inventor: Field, Loren J. (Indianapolis, IN)

Assignee: Indiana University Foundation (Bloomington, IN)

Date of First Priority Issue: Tuesday November 16th, 1993

Method and construct for producing graft tissue from an extracellular matrix

Patent Number: 6398819

This patent teaches ways of decellularizing tissue, including xenogeneic tissue, so that it may be used as a scaffold to be seeded with human stem cells, and then the stem cells plus tissue scaffold are implanted into the human as an artificial composite tissue.

Inventor: Bell, Eugene (Boston, MA)

Assignee: TEI Biosciences, Inc. (Boston, MA)

Date of First Priority Issue: Friday August 7th, 1992

Genetic engineering of cells to enhance healing and tissue regeneration

Patent Number: 6398816

This patent teaches the use of mesenchymal stem cells transfected with "bioactive molecules" (ie cytokines, growth factors, etc), so as to induce repair of bone, cartilage, or connective tissue.

Inventors: Breitbart, Arnold S. (Great Neck, NY); Grande, Daniel A. (Sea Cliff, NY); Mason, James M. (Bethpage, NY)

Assignee: North Shore-Long Island Jewish Research Institute (Manhasset, NY)

Date of First Priority Issue: Thursday September 4th, 1997

Cardiac muscle regeneration using mesenchymal stem cells

Patent Number: 6387369

This patent covers the use of mesenchymal stem cells for cardiac repair, specifically after myocardial infarction. Mesenchymal stem cells are currently in clinical trials for this application. In fact the same company to which this patent is assigned to, Osiris Therapeutics, has actually published positive double blind data on patients post infarct treated with allogeneic,

Inventors: Pittenger, Mark F. (Severna Park, MD); Gordon, Stephen L. (Columbia, MD); Mackay, Alastair Morgan (Towson, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Monday July 14th, 1997

Human mesenchymal stem cells

Patent Number: 6387367

This patent covers mesenchymal stem cells and provides a specific phenotype for them which includes CD45+, SH2,3,4+, and in some cases CD14+. This patent is important for anyone operating in the area of mesenchymal stem cells since it essentially covers the use of this specific cell population. Patents on cells have been previously upheld by the courts, as was previously illustrated for...

Inventors: Davis-Sproul, Janice M. (Towson, MD); Moorman, Mark Aaron (Baltimore, MD); McNeil, Renee Marie (Baltimore, MD); Simonetti, Jr., Donald William (Forest Hill, MD); Hammill, Lora Catherine (Bel Air, MD); Craig, Stewart (Timonium, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Friday May 29th, 1998

Methods for reducing adverse side effects associated with cellular transplantation

Patent Number: 6387366

This patent teaches ways how to overcome some of the negative effects associated with cell therapy in regards to excessive coagulation. It is stated in the specification that in many cases the administration of a cellular therapy results in coagulation of blood due to expression of pro-clotting agents on the surface of the administered blood cells such as tissue factor. The patent teaches ways...

Inventors: Hurwitz, David R. (Boston, MA); Cherington, Van (Harvard, MA); Galanopoulos, Theofanis (Arlington, MA); Levine, Peter H. (Worcester, MA); Greenberger, Joel S. (Sewickley, PA)

Assignee: ALG Company (Marlboro, MA)

Date of First Priority Issue: Thursday December 31st, 1998

Method for transplantation of hemopoietic stem cells

Patent Number: 6383481

This patent teaches that intraportal administration of bone marrow subsequent to myeloablation can be used as a therapy for the treatment of autoimmune disease. This approach may be useful since it "reprograms" the immune system, allowing for it to come back into homeostasis. The problem with this is that several severe toxicities are usually associated with transplantation of bone...

Inventors: Ikehara, Susumu (Osaka, JP); Inaba, Muneo (Kyoto, JP); Takeuchi, Kenji (Osaka, JP); Kushida, Taketoshi (Amagasaki, JP)

Assignee: Japan Immunoresearch Laboratories Co., Ltd. (Gunma-Ken, JP)

Date of First Priority Issue: Monday March 30th, 1998

Composition comprising midkine or pleiotrophin protein and method of increasing hematopoietic cells

Patent Number: 6383480

This patent covers a cytokine cocktail, that contains midkine, amongst other classical hematopoietic cytokines, useful for the expansion of hematopoietic stem cells. The cocktail may be used for the in vivo treatment of patients that are neutropenic or cytopenic, or may be used for the ex vivo expansion of hematopoietic stem cells.

Inventors: Kikuchi, Makoto (Fukuoka, JP); Ikematsu, Shinya (Kanagawa, JP); Oda, Munehiro (Kanagawa, JP); Sakuma, Sadatoshi (Kanagawa, JP); Muramatsu, Takashi (Aichi, JP)

Assignee: Meiji Milk Products, Co., Ltd. (Tokyo, JP)

Date of First Priority Issue: Wednesday July 10th, 1996

Ligands that modulate differentiation of mesenchymal stem cells

Patent Number: 6379953

This patent teaches the use of the molecule ALCAM for induction of mesenchymal cell differentiation. It is also thought in this patent that ALCAM may be useful for the isolation of certain types of mesenchymal stem cells.

Inventors: Bruder, Scott P. (Owings Mills, MD); Jaiswal, Neelam (Ellicott City, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Thursday September 4th, 1997

Biomaterial derived from vertebrate liver tissue

Patent Number: 6379710

This patent teaches that one can take an organ from an allogeneic or xenogeneic animal, decellularize the organ, and use the matrix components of the organ as a scaffold to be seeded with stem cells either in vitro or in vivo, and used for the generation of a new organ. In one specific embodiment, livers are generated using this approach.

Inventor: Badylak, Stephen F. (West Lafayette, IN)

Assignee: Purdue Research Foundation (West Lafayette, IN)

Date of First Priority Issue: Tuesday December 10th, 1996

Culture media for neurons, methods for preparing the culture media, and methods for culturing neurons

Patent Number: 6376238

This patent provides a culture media for the growth of neuronal stem cells, and neurons themselves. The media is made using standard tissue culture components, with the exception that astroglial cells are used to condition it. The fact that astroglial cells normally produce various compounds that support the nervous system cells is what maybe triggered the inventor to think to condition...

Inventor: Watanabe, Yoshiaki (Akita, JP)

Assignee: Sumitomo Bakelite Co., Ltd. (Tokyo, JP)

Date of First Priority Issue: Tuesday June 27th, 1995

Methods of making conditioned cell culture medium compositions

Patent Number: 6372494

This patent teaches how to generate cell conditioned media. The unique part about this patent is that the cells used to condition the media are grown in three dimensional culture.

Inventors: Naughton, Gail K. (La Jolla, CA); Mansbridge, Jonathan N. (La Jolla, CA); Pinney, R. Emmett (Poway, CA))

Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)

Date of First Priority Issue: Friday May 14th, 1999

Serum-derived factor inducing cell differentiation and medical uses thereof

Patent Number: 6372262

This patent covers a factor derived from serum by chemical purification techniques that induces stem cell differentiation, and is able to induce differentiation of leukemic cells. Such factors have great possibilities in cancer therapy. Older work by Laurence Burton at the Immune Augmentative Therapy (IAT) clinic actually clinically used such factors with good results in mesothelioma patients...

Inventors: Peled, Tony (Mevaseret, IL); Fibach, Eitan (Mevaseret Zion, IL); Rachmilewitz, Eliezer A. (Jerusalem, IL)

Assignee: Hadasit Medical Research Services & Development Company Ltd. (Jerusalem, IL)
Date of First Priority Issue: Tuesday December 10th, 1996

Method for repopulating human bone marrow comprising culturing CD34+ cells in a serum free medium

Patent Number: 6372210
This patent provides tissue culture media and conditions for expansion and growth of hematopoietic cells in vitro. Specifically, this patent is useful for cellular therapy in which the media for growing and maintaining the stem cells has to be chemically defined and effective.
Inventor: Brown, Ronald L. (Derwood, MD)
Assignee: Quality Biological, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Friday October 18th, 1996

Hypoxia mediated neurogenesis

Patent Number: 6368854
Bone marrow stem cells and other types of stem cells prefer to reside in conditions of hypoxia. In this patent, the use of hypoxia for inducing differentiation of neural stem cells into neurons is disclosed.
Inventors: Weiss, Samuel (Calgary, CA); Sorokan, S. Todd (Victoria, CA))
Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA
Date of First Priority Issue: Friday October 24th, 1997

Mesenchymal stem cells for prevention and treatment of immune responses in transplantation

Patent Number: 6368636
This patent teaches the use of mesenchymal stem cells for preventing allograft rejection through immune modulation. It is known that bone marrow cells can display a veto-like effect in that they are capable of inducing donor-specific tolerance. The bone marrow cells are one source of mesenchymal stem cells. In this patent purified mesenchymal stem cells are claimed not only for inducing...
Inventors: McIntosh, Kevin R. (Ellicott City, MD); Mosca, Joseph D. (Ellicott City, MD); Klyushnenkova, Elena N. (Baltimore, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Wednesday March 18th, 1998

Devices for cloaking transplanted cells

Patent Number: 6368612
This patent covers a device that can be implanted so as to protect the cells inside the device from immune mediated rejection. This is particularly useful for stem cell therapy and therapy with cells that are differentiated from stem cells because it would allow for the use of one cell source in all people. The device is also useful for transplantation of islet cells that are xenogeneic to the...
Inventors: Lanza, Robert P. (Clinton, MA); Chick, William (Wellesley, MA)
Assignee: Biohybrid Technologies LLC (Shrewsbury, MA)
Date of First Priority Issue: Friday December 12th, 1997

Hematopoietic cell method for treatment of HIV infection

Patent Number: 6365404
This patent teaches the treatment of HIV by reconstituting the immuen system with cells that can not be infected since they lack the HIV receptor or co-receptor. This patent is neat since theoretically it would not need immune suppression since the HIV will perform the task of selecting only for the cells that are resistant...then again the HIV may mutate !!
Inventor: O'Donnell, Jr., Francis E. (St. Louis, MO)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Monday August 12th, 1996

Mechanically elongated neuronal cells and methods for producing and using these cells

Patent Number: 6365153
This patent teaches ways of using physical means to stretch out neuronal cells. These neurons can then be inserted into an animal or human with a nervous system injury. This patent is useful for stem cells since the neurons could be generated from progenitors in vitro, then mechanically modified, then placed into the nervous system of the patient.
Inventor: Smith, Douglas H. (Concord/Boothwyn, PA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday August 17th, 1999

Porous tissue scaffoldings for the repair or regeneration of tissue

Patent Number: 6365149
This patent covers the composition of matter and use of a specialized foam that can be embedded with stem cells and inserted in vivo, or can be inserted in vivo with chemoattractants for stem cells so that the endogenous stem cells repopulate it.
Inventors: Vyakarnam, Murty N. (Edison, NJ); Zimmerman, Mark C. (East Brunswick, NJ); Scopelianos, Angelo George (Whitehouse Station, NJ); Roller, Mark B. (North Brunswick, NJ); Gorky, David V. (Flemington, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)

Date of First Priority Issue: Wednesday June 30th, 1999

Efficient culture of stem cells for the production of hemoglobin

Patent Number: 6361998

This patent teaches how to generate large amounts of erythrocytes by specifically culturing hematopoietic stem cells with cytokines such as IL-3, Stem Cell Factor, and EPO.

Inventors: Bell, David N. (Oakville, CA); Matthews, Kathryn Emma (Toronto, CA); Mueller, Susan G. (Milton, CA)

Assignee: Hemosol Inc. (Mississauga, CA)

Date of First Priority Issue: Friday June 25th, 1999

Genetically modified CD34-negative adherently growing stem cells and their use in gene therapy

Patent Number: 6361997

This patent provides stem cells that are mesenchymal-like or lack expression of CD34, for the purpose of transfection with a foreign gene.

Inventor: Huss, Ralf (83666 Waakirchen, DE)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday July 24th, 1998

Neuroepithelial stem cells and glial-restricted intermediate precursors

Patent Number: 6361996

This patent provides a type of neural stem cell that is capable of differentiating into neural cells and glial cells. Specific properties of the stem cell are covered such as dependence on FGF.

Inventors: Rao, Mahendra S. (Salt Lake City, UT); Mayer-Proschel, Margot (Sandy, UT)

Assignee: University of Utah Research Foundation (Salt Lake City, UT)

Date of First Priority Issue: Wednesday May 7th, 1997

Methods of using multivariant IL-3 hematopoiesis fusion protein

Patent Number: 6361977

IL-3 is an important cytokine not only for hematopoietic stem cell proliferation and differentiation, but also for other immune cells and non-hematopoietic stem cells. This patent provides various compositions of matter relating to proteins that stimulate the IL-3 receptor.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday November 24th, 1992

Co-administration of interleukin-3 mutant polypeptides with CSF'S for multi-lineage hematopoietic cell production

Patent Number: 6361976

This patent teaches the use of various proteins that activate the IL-3 receptor in combination with other hematopoietic growth factors for the stimulation of hematopoietic stem cell proliferation.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday November 24th, 1992

G-CSF receptor agonists

Patent Number: 6358505

This patent provides various compositions of matters in the form of proteins that are useful for stimulating in an agonistic manner the receptor for granulocyte colony stimulating factor. This patent may be used for treatment of neutropenia as a way of getting around Amgen's G-CSF.

Inventors: Zurfluh, Linda (Kirkwood, MO); Klein, Barbara (St. Louis, MO); McWherter, Charles (Wildwood, MO); Feng, Yiping (St. Louis, MO); McKearn, John (Glencoe, MO); Braford-Goldberg, Sarah (St. Louis, MO)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday September 27th, 1995

Apparatus for extracting bone marrow

Patent Number: 6358252

Usually bone marrow is extracted from the iliac crest of patients. In this patent a new device for extracting bone marrow is disclosed. The patent is useful for, intra alia, taking out bone marrow from the jaw bone of a subject that is undergoing dental surgery. If you thought root canals are painful, imagine this !

Inventor: Shapira, Ira L. (Highland Park, IL)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Tuesday July 1st, 1997

Uses for non-autologous mesenchymal stem cells

Patent Number: 6355239

This patent covers the use of mesenchymal stem cells that are either allogeneic or xenogeneic for the purposes of regeneration and/or enhancing hematopoietic graft function. Since mesenchymal stem cells are immunosuppressive (at least locally), the use of immunosuppressants can be avoided. This patent would be interesting to use with islet grafts for the treatment of diabetes. I mean, some...

Inventors: Bruder, Scott P. (Waltham, MA); McIntosh, Kevin R. (Ellicott City, MD); Marshak, Daniel R. (Lutherville, MD); Mosca, Joseph D. (Ellicott City, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Friday March 13th, 1998

Methods for using the obese gene and its gene product to stimulate hematopoietic development

Patent Number: 6355237

Leptin inhibits obesity. In this patent leptin is used in combination with other hematopoietic cytokines for the stimulation of hematopoietic stem cell function. Given the similarity between hematopoietic stem cells and neuronal stem cells, it would be interesting to assess the effects of leptin on neuronal stem cells.

Inventors: Snodgrass, H. Ralph (Powell, OH); Cioffi, Joseph (New Albany, OH); Zupancic, Thomas Joel (Worthington, OH); Shafer, Alan Wayne (Lancaster, OH)

Assignee: Progenitor, Inc. (Columbus, OH)

Date of First Priority Issue: Wednesday September 14th, 1994

Methods for implanting cells

Patent Number: 6352555

This patent provides methods and devices for administration of cells, including stem cells, via various prosthetic devices.

Inventors: Dzau, Victor J. (Newton, MA); Pratt, Richard E. (Newton, MA); Mann, Michael J. (Newton, MA); Ehsan, Afshin (Boston, MA); Griese, Daniel P. (Boston, MA)

Assignee: The Brigham and Womens Hospital, Inc. (Boston, MA)

Date of First Priority Issue: Friday July 10th, 1998

Human growth hormone to stimulate hematopoiesis and immune reconstitution after hematopoietic stem cell transplantation in humans

Patent Number: 6348444

This patent teaches the use of growth hormone to stimulate hematopoiesis. The fact that various hormones have hematopoietic activity suggests that it may be worthwhile to assess their activity on the growth of neural stem cells both in vitro, but also in vivo. I believe that there is evidence of hormones like testosterone increasing mental acuity in elderly patients...could this have something...

Inventor: Chappel, Scott C. (Milton, MA)

Assignee: Applied Research Systems ARS Holding N.V. (Curacao, NL)

Date of First Priority Issue: Thursday December 17th, 1998

G-CSF mimetics

Patent Number: 6346531

This patent provides compositions of matter that are useful for stimulating the receptor for granulocyte colony stimulating factor. The fact that G-CSF was the first drug introduced that acted on the level of stem cells suggests that this is an important area for drug development. This patent may be useful not only for stimulation of neutrophil function, but also for increasing stem cell...

Inventors: Luengo, Juan I (Audubon, PA); Duffy, Kevin J (Norristown, PA)

Assignee: SmithKline Beecham Corporation (Philadelphia, PA)

Date of First Priority Issue: Saturday March 20th, 1999

Antibody composition for isolating human cells from human-murine chimeric hematopoietic cell suspensions

Patent Number: 6342344

This patent provides kits for purifying out of a human-SCID mouse cells of human origin.

Inventors: Thomas, Terry E. (Vancouver, CA); Eaves, Connie J. (Vancouver, CA)

Assignee: StemCell Technologies Inc. (Vancouver, CA)

Date of First Priority Issue: Friday July 31st, 1998

Method of inhibiting the proliferation and causing the differentiation of cells with IGF-1 receptor antisense oligonucleotides

Patent Number: 6340674

This patent teaches that inhibition of stem cell proliferation, and induction of differentiation may be achieved by inhibiting expression or function of the protein insulin like growth factor. This patent can also be used with more modern gene silencing techniques such as RNA interference.

Inventors: Baserga, Renato (Ardmore, PA); Sell, Christian (Philadelphia, PA); Rubin, Raphael (Penn Valley, PA)

Assignee: Thomas Jefferson University (Philadelphia, PA)

Date of First Priority Issue: Friday March 26th, 1993

Neuronal uses of BMP-11

Patent Number: 6340668

The bone morphogenic proteins (BMPs) are able to stimulate various regenerative capabilities, including in the hematopoietic system, and especially in cartilage and bone. This patent teaches that BMP-11 is able to increase survival of neurons both in vitro and in vivo. This patent is useful for stimulation of neuronal stem cells, as well as for culture of neurons generated from stem cells...

Inventors: Celeste, Anthony J. (Hudson, MA); Wozney, John M. (Hudson, MA); Thies, R. Scott (Andover, MA)
Assignee: Genetics Institute, Inc. (Cambridge, MA)
Date of First Priority Issue: Wednesday May 12th, 1993

Selective expansion of target cell populations

Patent Number: 6338942

This patent seems very interesting. It covers ways of selectively inducing proliferation of certain cell populations while "weeding out" cells that are not desirable. This patent is very useful in selection of stem cells and their progeny.

Inventors: Kraus, Morey (Worcester, MA); Wilder, Paul T. (Boylston, MA); Friberg, Jill (Seattle, WA)
Assignee: T. Breeders, Inc. (Worcester, MA)
Date of First Priority Issue: Friday May 19th, 1995

Molecular marker for muscle stem cells

Patent Number: 6337184

This patent claims that expression of the anti-apoptotic gene bcl-2 can be used as a marker for stem cells of the muscle. The problem is that bcl-2 is an intracellular molecule, therefore it is difficult to selectively purify based on its expression. If a colourogenic substrate for bcl-2 can be discovered or already exists, this would greatly increase the value of the current patent.

Inventor: Miller, Jeffrey B. (Cambridge, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 1st, 1997

Method for promoting hematopoietic and mesenchymal cell proliferation and differentiation

Patent Number: 6335195

This patent teaches that angiotensinogen I, II, and analogues thereof, are useful for the stimulation of mesenchymal and/or hematopoietic stem cell proliferation and/differentiation.

Inventors: Rodgers, Kathleen E. (Long Beach, CA); DiZerega, Gere S. (Pasadena, CA)
Assignee: Maret Corporation (Newport Beach, CA)
Date of First Priority Issue: Tuesday January 28th, 1997

Method of producing an undifferentiated avian cell culture using avian primordial germ cells

Patent Number: 6333192

This patent teaches novel ways of generating chicken embryonic stem cells. This patent is useful for veterinary applications, as well, it may be transferrable to other species.

Inventors: Petitte, James N. (Raleigh, NC); Chang, Il-Kuk (Raleigh, NC)
Assignee: North Carolina State University (Raleigh, NC)
Date of First Priority Issue: Monday August 9th, 1999

Porous tissue scaffoldings for the repair of regeneration of tissue

Patent Number: 6333029

This patent provides compositions of matter, and their uses, for generation of foams and various implantable structures that can function as scaffolds for the generation of artificial tissues.

Inventors: Vyakarnam, Murty N. (Edison, NJ); Zimmerman, Mark C. (East Brunswick, NJ); Scopelianos, Angelo George (Whitehouse Station, NJ); Roller, Mark B. (North Brunswick, NJ); Gorky, David V. (Flemington, NJ)
Assignee: Ethicon, Inc. (Somerville, NJ)
Date of First Priority Issue: Wednesday June 30th, 1999

Cumulus cells as nuclear donors

Patent Number: 6331659

This patent provides the use of cumulus cells as donors of nuclei for the purpose of cloning animals with the exception of humans.

Inventors: Wakayama, Teruhiko (Honolulu, HI); Yanagimachi, Ryuzo (Honolulu, HI)
Assignee: University of Hawaii (Honolulu, HI)
Date of First Priority Issue: Wednesday January 21st, 1998

Human enbryonic germ cell and methods of use

Patent Number: 6331406

This patent provides a new type of cell that can function as a stem cell, or is useful in the generation of stem cells. The cell population is characterized and is isolated from embryonic gonadal ridges.

Inventors: Gearhart, John D. (Baltimore, MD); Shamblott, Michael Joseph (Baltimore, MD)
Assignee: The John Hopkins University School of Medicine (Baltimore, MD)

Date of First Priority Issue: Monday March 31st, 1997

Mesenchymal stem cells for prevention and treatment of immune responses in transplantation

Patent Number: 6328960

This patent teaches the use of mesenchymal stem cells as biological immunosuppressants for prevention of graft rejection.

Inventors: McIntosh, Kevin R. (Ellicott City, MD); Mosca, Joseph D. (Ellicott City, MD); Klyushnenkova, Elena N. (Baltimore, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Monday January 19th, 1998

Methods and articles for regenerating living tissue

Patent Number: 6328765

This patent teaches how to generate a vascularized tissue in vitro for subsequent implantation in vivo.

Inventors: Hardwick, William R. (Flagstaff, AZ); Thomson, Robert C. (Flagstaff, AZ); Cleek, Robert L. (Flagstaff, AZ); Mane, Shrikant M. (Flagstaff, AZ); Cook, Alonzo D. (Flagstaff, AZ)

Assignee: Gore Enterprise Holdings, Inc. (Newark, DE)

Date of First Priority Issue: Thursday December 3rd, 1998

Methods for use of Mpl ligands with primitive human stem cells

Patent Number: 6326205

Thrombopoietin (TPO) is a stimulatory molecule for early hematopoietic stem cells. In this patent the use of TPO and other ligands of its receptor, called mpl, are disclosed for purposes of expansion, and/or megakaryocytic differentiation of hematopoietic stem cells. It would be interesting to see if other types of stem cells also respond to mpl ligands in the manner that hematopoietic stem...

Inventors: Murray, Lesley J. (San Jose, CA); Young, Judy C. (San Carlos, CA)

Assignee: Systemix, Inc. (Palo Alto, CA)

Date of First Priority Issue: Monday October 30th, 1995

Methods and compositions for the ex vivo replication of stem cells, for the optimization of hematopoietic progenitor cell cultures, and for increasing the metabolism, GM-CSF secretion and/or IL-6 secretion of human stromal cells

Patent Number: 6326198

This patent provides systems for expanding hematopoietic stem cells, but culturing of these cells on stromal cells which secrete IL-6, and/or GM-CSF. It is important for the stromal cells to be secreting these compounds since stromal cells possess a wide variety of hematopoietic stimulatory signals, some known and others unknown. The synergy of the stromal signals with IL-6 and/or GM-CSF is used...

Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI)

Assignee: Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Thursday June 15th, 1989

Implantable biocompatible immunoisolatory vehicle for the delivery of selected therapeutic products

Patent Number: 6322804

This patent provides methods of encapsulating cells so that they will not be rejected by the recipient immune system. Encapsulation devices such as this should be considered not only for the protection of the cells that are administered, but also for protection of the host from the cells. For example, lets say that embryonic stem cells are administered into a degenerating organ for the...

Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Scharp, David W. (St. Louis, MO); Lacy, Paul E

Assignee: Neurotech S.A. (Evry, FR)

Date of First Priority Issue: Thursday April 25th, 1991

Adipogenic differentiation of human mesenchymal stem cells

Patent Number: 6322784

Mesenchymal stem cells can differentiate into a variety of cellular lineages. In this patent the ability of mesenchymal stem cells to be induced into the adipocyte lineage is covered.

Inventors: Pittenger, Mark F. (Severna Park, MD); Beck, Stephen C. (Reistertown, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD

Date of First Priority Issue: Tuesday July 30th, 1996

Methods for stimulating erythropoiesis using hematopoietic proteins

Patent Number: 6316254

This patent covers the use of TPO (thrombopoietin) for the stimulation of hematopoietic stem cells to differentiate into red blood cells. Classically, as the name implies, TPO is considered a growth factor that induces differentiation of hematopoietic stem cells into the megakaryocytic lineage (ie to make platelets).

Inventor: Kaushansky, Kenneth (Woodinville, WA)

Assignee: University of Washington (Seattle, WA

Date of First Priority Issue: Monday February 14th, 1994

Methuselah gene, compositions and methods of use

Patent Number: 6303768

Methuselah is a gene, which certain variants of it are associated with life extension. The mechanisms of action are not completely known, however it appears that it acts along the pathway of reducing cellular metabolic stress.

Inventors: Lin, Yi-Jyun (Arcadia, CA); Benzer, Seymour (San Marino, CA)

Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Monday September 7th, 1998

Genetic modification of primate hemopoietic repopulating stem cells

Patent Number: 6312957

Hematopoietic stem cells are an ideal vector for gene therapy since they repopulate the whole body, and in some cases can differentiate into various tissues in the body. This patent teaches the use of adeno-associated virus vectors to transfect hematopoietic stem cells so that the hematopoietic stem cells can repopulate the host and deliver the protein product of the gene to where it is...

Inventors: Einerhand, Markus Peter Wilhelmus (Amsterdam, NL); Valerio, Domenico (Leiden, NL)

Assignee: Introgene B.V. (NL)

Date of First Priority Issue: Thursday December 5th, 1996

Methods for preparing enriched human hematopoietic cell preparations

Patent Number: 6306575

This patent provides kits for negatively depleting a population of cells so that what remains is hematopoietic stem cells. Different variants of this kit are sold by the Canadian company StemCell Technologies.

Inventors: Thomas, Terry (Vancouver, CA); Lansdorp, Peter (Vancouver, CA)

Assignee: StemCell Technologies, Inc. (Vancouver, CA)

Date of First Priority Issue: Friday June 16th, 1995

Foam composite for the repair or regeneration of tissue

Patent Number: 6306424

This patent provides various compositions of matter for making foam implants that can be used to deliver cells into a host.

Inventors: Vyakarnam, Murty N. (New York, NY); Zimmerman, Mark C. (East Brunswick, NJ); Scopelianos, Angelo George (Whitehouse Station, NJ); Chun, Iksoo (Flemington, NJ); Melican, Mora C. (Bridgewater, NJ); Bazilio, Clairene A. (Plainfield, NJ); Roller, Mark B. (Nor

Assignee: Ethicon, Inc. (Somerville, NJ)

Date of First Priority Issue: Wednesday June 30th, 1999

Cells or tissue attached to a non-degradable filamentous matrix encapsulated by a semi-permeable membrane

Patent Number: 6303136

This teaches novel ways of encapsulating cells so that the immune system of the host does not reject them.

Inventors: Li, Rebecca (Needham, MA); Rein, David (Providence, RI)

Assignee: Neurotech S.A. (Evry, FR)

Date of First Priority Issue: Monday April 13th, 1998

Hematopoietic stimulation

Patent Number: 6300314

CD26 is an ectoenzyme that is found on numerous cells including stem cells. The enzyme performs numerous functions that inhibit stem cell proliferation. This patent provides a composition of matter that potently inhibits the CD26 ectoenzyme activity and thereby stimulates proliferation of hematopoietic stem cells. This patent would be very useful for stimulation of other types of stem cells...

Inventors: Wallner, Barbara P. (Weston, MA); Jones, Barry (Cambridge, MA); Miller, Glenn T. (Haverhill, MA); Adams, Sharlene (Watertown, MA)

Assignee: Point Therapeutics, Inc. (Boston, MA)

Date of First Priority Issue: Monday May 4th, 1998

Use of multipotent neural stem cells and their progeny for the screening of drugs and other biological agents

Patent Number: 6294346

Great advances in combinatorial chemistry and in silico design have fast outpaced the availability of biological systems that can be screened using high-throughput systems. In this patent various neural stem cells and their progeny are claimed for use as screening targets in drug discovery.

Inventors: Weiss, Samuel (Calgary, CA); Reynolds, Brent (Calgary, CA); Hammang, Joseph P. (Barrington, RI); Baetge, E. Edward (Barrington, RI)

Assignee: Neurospheres Holdings, Ltd. (Alberta, CA)

Date of First Priority Issue: Monday July 8th, 1991

Treatment for juvenile diabetes

Patent Number: 6288301

This patent teaches how to treat diabetes by the activation of endogenous stem cells through administration of gastrin and EGF. This patent is in clinical trials.

Inventors: Nardi, Ronald V. (Sudbury, MA); Brand, Stephen J. (Lincoln, MA))

Assignee: Waratah Pharmaceuticals, Inc. (CA); The General Hospital Corporation (Boston, MA

Date of First Priority Issue: Monday December 14th, 1992

Method of preparing suppressor T cells with allogeneic mesenchymal stem cells

Patent Number: 6281012

This patent covers the use of mesenchymal stem cells to generate T suppressor cells in general. Specifically it mentions that CD8 positive T cells can be turned into suppressor cells by contact with mesenchymal stem cells. Usually, T suppressor cells are called T regulatory cells and this refers to CD4+ CD25+ cells. CD8+ T suppressor cells were very popular in the 1970s and 1980s but then...

Inventors: McIntosh, Kevin (Ellicott City, MD); Klyushnenkova, Elena (Baltimore, MD)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Tuesday October 12th, 1999

Hematopoietic differentiation of human pluripotent embryonic stem cells

Patent Number: 6280718

This patent covers ways of inducing the generation of hematopoietic stem cells from embryonic stem cells. This is very useful since it may be possible to generate allogeneic hematopoietic stem cells for the whole population using such a method.

Inventors: Kaufman, Dan S. (Madison, WI); Thomson, James A. (Madison, WI)

Assignee: WARF

Date of First Priority Issue: Sunday November 8th, 1998

Factor IX delivery method using bone marrow-derived cells

Patent Number: 6277369

This patent teaches how to transfect hematopoietic stem cells with various genes, including the gene for Factor IX. Transfection is performed by first treating the stem cells with TGF beta in order to increase rate of DNA incorporation.

Inventors: Gordon, Erlinda M. (Glendale, CA); Anderson, W. French (San Marino, CA); Hall, Frederick L. (Glendale, CA)

Assignee: University of Southern California (Los Angeles, CA)

Date of First Priority Issue: Tuesday November 12th, 1996

Ischemia detection system

Patent Number: 6277082

This patent provides a medical device that detects ischemia based on electrical conductivity and other parameters. This invention is useful in combination with stem cell therapy so as to enable the administrator of stem cell angiogenic therapy to decide when and where therapy is needed.

Inventor: Gambale, Richard A. (Tyngsboro, MA)

Assignee: C. R. Bard, Inc. (Murray Hill, NJ)

Date of First Priority Issue: Thursday July 22nd, 1999

Compositions, kits, and methods for modulating survival and differentiation of multi-potential hematopoietic progenitor cells

Patent Number: 6261841

This patent teaches that administration of prolactin may be used for enhancing hematopoiesis. This is interesting since there are other patents, including by Stem Cell Therapeutics, that teach the use of prolactin and other compounds for stimulation of neural stem cells.

Inventors: Cohen, Isaac (Wilmette, IL); Lefebvre, Phil (Chicago, IL); Lin, Jiandie (Evanston, IL); Linzer, Daniel (Evanston, IL)

Assignee: The Board of Trustees of Northwestern University (Evanston, IL)

Date of First Priority Issue: Friday June 25th, 1999

Human mesenchymal stem cells from peripheral blood

Patent Number: 6261549

In the same way that hematopoietic stem cells can be purified from peripheral blood, and in the same way that they can be mobilized, this patent teaches that the concept is also applicable to mesenchymal stem cells.

Inventors: Fernandez, Mireya (Santiago, CL); Minguell, Jose J. (Santiago, CL)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Thursday July 3rd, 1997

Stimulation of hematopoietic cells in vitro

Patent Number: 6258597

The enzyme dipeptidyl peptidase is expressed on a variety of cells including stem cells. This enyzme inhibits the ability of stem cells to proliferate. This

patent provides an "inhibitor of inhibitor" so as to stimulate stem cell proliferation.
Inventors: Bachovchin, William (Melrose, MA); Wallner, Barbara (Weston, MA)
Assignee: Point Therapeutics, Inc. (Boston, MA)
Date of First Priority Issue: Monday September 29th, 1997

Method for homing hematopoietic stem cells to bone marrow stromal cells

Patent Number: 6258354
This patent covers the use of gene transfected stromal cells in order to increase engraftment of a hematopoietic stem cell transplant.
Inventor: Greenberger, Joel S. (Lincoln, MA
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday September 29th, 1989

Porcine neural cells and their use in treatment of neurological deficits due to neurodegenerative diseases

Patent Number: 6258353
This patent covers the use of a specialized cell population obtained from xenogeneic sources for the stimulation of recovery of various neurological disorders. Specifically, the patent covers pig lateral ganglionic eminence cells that are treated so as to not elicit immune rejection.
Inventors: Isacson, Ole (Cambridge, MA); Dinsmore, Jonathan (Brookline, MA)
Assignee: Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Tuesday November 8th, 1994

Method of treating huntington's disease using HNT neurons

Patent Number: 6254865
This patent covers the use of neural terminally differentiated teratocarcinoma cells (hNT) for the treatment of Huntington's disease. This technology has actually been used in clinical trials.
Inventors: Freed, Curt R. (Denver, CO); Kaddis, Farida G. (Lakewood, CO)
Assignee: University Technology Corporation (Boulder, CO)
Date of First Priority Issue: Tuesday June 17th, 1997

Regulation of hematopoietic stem cell differentiation by the use of human mesenchymal stem cells

Patent Number: 6255112
This patent covers the use of mesenchymal stem cells to stimulate hematopoietic stem cells. Mesenchymal stem cells are actually in Phase III trials for prevention of graft versus host after hematopoietic stem cell transplants. This patent ensures that if the mesenchymal stem cells also stimulate hematopoiesis, then Osiris is covered from an IP perspective.
Inventors: Thiede, Mark A. (Forest Hill, MD); Mbalaviele, Gabriel (Columbia, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Monday June 8th, 1998

Unactivated oocytes as cytoplast recipients of quiescent and non-quiescent cell nuclei, while maintaining correct ploidy

Patent Number: 6252133
This patent covers a method of increasing efficacy of the cloning process. Cloning may be used as a source for the generation of stem cells of the embryonic type.
Inventors: Campbell, Keith Henry Stockman (Midlothian, GB); Wilmut, Ian (Midlothian, GB)
Assignee: Roslin Institute (Edinburgh) (Midlothian, GB); The Minister of Agriculture, Fisheries & Food (London, GB); Biotechnology & Biological Sciences Research Council (Swindon, GB)
Date of First Priority Issue: Thursday August 31st, 1995

Compositions and methods of making embryonic stem cells

Patent Number: 6251671
This patent covers methods of generating spermatogonial stem cells. These stem cells may be used for a wide variety of regenerative purposes, as well, they appear similar in some ways to the cells generated by the company Primegen.
Inventors: Hogan, Brigid L. M. (Brentwood, TN); Zhao, Guang-Quan (Nashville, TN)
Assignee: Vanderbilt University (Nashville, TN)
Date of First Priority Issue: Wednesday February 28th, 1996

Neuronal progenitor cells and uses thereof

Patent Number: 6251669
This patent covers a type of neural stem cell. In one embodiment the stem cells can be differentiated into gamma aminobutyric acid (GABA) expressing neurons.
Inventor: Luskin, Marla B. (Decatur, GA)
Assignee: Emory University (Atlanta, GA)
Date of First Priority Issue: Thursday July 6th, 1995

Directed maturation of stem cells and production of programmable antigen presenting dentritic cells therefrom

Patent Number: 6251665
This patent covers the use of hematopoietic stem cells to generate dendritic cells. The dendritic cells disclosed are able to elicit an antitumor immune response.

Inventors: Cezayirli, Cem (Birmingham, AL); Silvers, Mel (N. Miami Beach, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday February 7th, 1997

Method for ex-vivo expansion of hematopoietic cells

Patent Number: 6251383
This patent covers the use of an extract of the plant called Tinospora cordifolia for stimulation of hematopoietic stem cells.
Inventors: Upadhyay, Shakti N. (New Delhi, IN); Madan, Vikas (New Delhi, IN)
Assignee: National Institute of Immunology (New Delhi, IN)
Date of First Priority Issue: Tuesday April 20th, 1999

Stimulating the differentiation of preadipocytic cells and therapies based thereon

Patent Number: 6248791
This patent covers ways of inducing the differentiation of cells into adipocytes that are responsive to insulin. This is for the treatment of type II diabetes.
Inventors: Ailhaud, Gerard (Nice, FR); Grimaldi, Paul (Nice, FR); Safonova, Irina (Nice, FR); Shroot, Braham (Antibes, FR); Reichert, Uwe (Pont du Loup, FR)
Assignee: Centre International de Recherches Dermatologiques Galderma (Valbonne, FR)
Date of First Priority Issue: Saturday April 2nd, 1994

Combinations and methods for promoting in vivo liver cell proliferation and enhancing in vivo liver-directed gene transduction

Patent Number: 6248725
This is an interesting patent that teaches the concurrent administration of the thyroid hormone T3, together with keratinocyte growth factor (KGF) can stimulate proliferation of endogenous hepatic stem cells.
Inventors: Alison, Malcom R. (London, GB); Coutelle, Charles (London, GB); Forbes, Stuart J. (Middlesex, GB); Hodgson, Humphrey J. F. (London, GB); Sarosi, Ildiko (Thousand Oaks, CA); Themis, Michael (Buckinghamshire, GB)
Assignee: Amgen, Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Tuesday February 23rd, 1999

Medium for preserving biological materials

Patent Number: 6248588
This patent teaches how to store various biological tissues and cells, including stem cells, through the injection of various cryopreservants into said tissues or cells.
Inventors: Crespo, Andre (Ormesson, FR); Soria, Henri Michel (Monts, FR)
Assignee: Aventis Pharms S.A. (Antony, FR)
Date of First Priority Issue: Tuesday March 12th, 1996

Method for promoting mesenchymal stem and lineage-specific cell proliferation

Patent Number: 6248587
This patent provides the use of angiotensinogen I, II, and various analogues thereof in order to accelerate proliferation and differentiation of mesenchymal stem cells that are in contact with various types of other cells.
Inventors: Rodgers, Kathleen E. (Long Beach, CA); DiZerega, Gere (Pasadena, CA)
Assignee: University of Southern Cailfornia (Los Angeles, CA)
Date of First Priority Issue: Friday January 23rd, 1998

Human embryonic germ cell line and methods of use

Patent Number: 6245566
This patent covers human primordial germ stem cells. These cells can be used for generating a variety of different stem cell lines, as well as for in vitro generation of various germ cells.
Inventors: Gearhart, John D. (Baltimore, MD); Shamblott, Michael Joseph (Baltimore, MD)
Assignee: The Johns Hopkins University School of Medicine (Baltimore, MD)
Date of First Priority Issue: Friday December 12th, 1997

Antigen found on a small subset of human hematopoietic cells which binds to monoclonal antibody MG1

Patent Number: 6242579
This patent covers an antigen that is found on some types of hematopoietic stem cells. This antigen can be used for purification of hematopoietic stem cells by magnetic or flow cytometric means.
Inventors: Lawman, Michael J. P. (Key Largo, FL); Lawman, Patricia (Key Largo, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday November 13th, 1996

Hepatic progenitors and method of isolating same

Patent Number: 6242252
This patent covers a type of hepatic stem cell that expresses OX-43, OX-44, and/or OC3.
Inventors: Reid, Lola M. (Chapel Hill, NC); Sigal, Samuel H. (Riverdale, NY); Brill, Shlomo (Ramat-Gan, IL); Holst, Patricia A. (Ossining, NY)

Assignee: Albert Einstein College of Medicine of Yeshiva University (Bronx, NY)
Date of First Priority Issue: Wednesday August 7th, 1991

Human hematopoietic progenitor cell preparations and their expansion in a liquid medium

Patent Number: 6241984
This patent covers autologous hematopoietic stem cell transplants with ex vivo expansion through an IL-3 + GM-CSF fusion protein, and/or with stem cell factor.
Inventors: Hoffman, Ronald (Palo Alto, CA); Brandt, John (Palo Alto, CA)
Assignee: The Indiana University Foundation (Bloomington, IN)
Date of First Priority Issue: Tuesday April 9th, 1991

Use of collagenase in the preparation of neural stem cell cultures

Patent Number: 6238922
This patent teaches that tissue samples, or neurospheres, may be dissociated with collagenase instead of mechanical means, in order to maintain viability of the stem cell component.
Inventor: Uchida, Nobuko (Palo Alto, CA)
Assignee: StemCells, Inc. (Sunnyvale, CA)
Date of First Priority Issue: Friday February 26th, 1999

CICM cells and non-human mammalian embryos prepared by nuclear transfer of a proliferating differentiated cell or its nucleus

Patent Number: 6235970
This patent teaches ways of generating stem cells, and inner cell mass cells through nuclear transfer. This patent is important for generation of embryonic stem cells, and offers the possibility of generation of autologous embryonic stem cells by nuclear transfer techniques.
Inventors: Stice, Steven L. (Belchertown, MA); Cibelli, Jose (Amherst, MA); Robl, James (Belchertown, MA); Golueke, Paul (Belchertown, MA); Ponce de Leon, F. Abel (Amherst, MA); Jerry, D. Joseph (Shutesbury, MA)
Assignee: University of Massachusetts, Amherst Campus (Amherst, MA)
Date of First Priority Issue: Friday January 10th, 1997

Programmable antigen presenting cell of CD34 lineage

Patent Number: 6228640
Disclosed in this patent are methods of generating antigen-loaded dendritic cells useful for cancer immunotherapy, through the differentiation of hematopoietic stem cells.
Inventors: Cezayirli, Cem (Birmingham, AL); Silvers, Mel (North Miami Beach, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday February 7th, 1997

Production of megakaryocytes by the use of human mesenchymal stem cells

Patent Number: 6225119
This patent teaches that mesenchymal stem cells can be used to support the production of platelets from hematopoietic stem cells. Additionally, the patent covers genetically transformed hematopoietic stem cells in contact with mesenchymal stem cells for the generation of genetically transformed platelets.
Inventors: Qasba, Pankaj (Columbia, MD); Thiede, Mark A. (Forest Hill, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday May 22nd, 1998

Method for repopulating human bone marrow comprising culturing CD34+ cells in a serum free medium

Patent Number: 6224860
This patent provides a culture media that can be used for the expansion of hematopoietic stem cells in vivo for use in transplantation.
Inventor: Brown, Ronald L. (Derwood, MD)
Assignee: Quality Biological, Inc. (Gaitersburg, MD)
Date of First Priority Issue: Friday October 18th, 1996

Hemopoietic stem cell multiplier

Patent Number: 6221359
This patent covers the use of hepatocyte growth factor (and various combinations) for the stimulation of hematopoietic stem cells.
Inventors: Komiyama, Atsushi (Matsumoto, JP); Nakahata, Tatsutoshi (Matsumoto, JP); Kubo, Tetsuo (Matsumoto, JP); Tanaka, Ryuhei (Tsu, JP); Kawano, Genji (Kamakura, JP); Sudo, Tetsuo (Kamakura, JP); Sano, Emiko (Yokohama, JP); Kojima, Katsuaki (Yokohama, JP)
Assignee: Toray Industries, Inc. (Tokyo, JP)
Date of First Priority Issue: Friday July 26th, 1991

Repopulation of testicular seminiferous tubules with foreign cells, corresponding resultant germ cells, and corresponding resultant animals and progeny

Patent Number: 6215039
This patent teaches ways of repopulating the testicles with stem cells and/or other cells so that the resulting animal may have offspring that are genetically different.
Inventor: Brinster, Ralph L. (Gladwyne, PA)

Assignee: The Trustees of the University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Friday December 6th, 1991

Mesenchymal stem cells for cartilage repair

Patent Number: 6214369
This patent covers the use of mesenchymal stem cells for generation of bone and cartilage. It is interesting that Osiris has patents in this area as well.
Inventors: Grande, Daniel A. (Sea Cliff, NY); Lucas, Paul A. (Macon, GA)
Assignee: MorphoGen Pharmaceuticals, Inc. (Downey, CA)
Date of First Priority Issue: Tuesday March 14th, 1995

Compositions and methods for producing and using homogenous neuronal cell transplants to treat neurodegenerative disorders and brain and spinal cord injuries

Patent Number: 6214334
This patent covers a neuronal stem cell line that is useful for treatment of central and peripheral nervous system disorders.
Inventors: Lee, Virginia M. -Y. (Philadelphia, PA); Trojanowski, John Q. (Philadelphia, PA)
Assignee: Trustees of the University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Monday October 21st, 1991

Methods for treating cancer using allogeneic lymphocytes without graft vs host disease activity

Patent Number: 6213127
This patent teaches ways of administering allogeneic lymphocytes that have been treated chemically or with radiation so as to elicit an antitumor effect while at the same time not causing graft versus host.
Inventor: Waller, Edmund K. (Atlanta, GA)
Assignee: Emory University (Atlanta, GA)
Date of First Priority Issue: Tuesday September 1st, 1998

Stem cell factor and compositions

Patent Number: 6207802
This is one of the composition of matter patents on the stem cell stimulatory cytokine called "stem cell factor". Since the receptor for this cytokine, c-kit, is present on numerous other types of stem cells (ie cardiac, muscle, kidney stem cells), it is of interest whether this cytokine can also be of use in expanding non-hematopoietic stem cells.
Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Park, CA); Martin, Francis H. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Monday October 16th, 1989

Preservation of tissue during removal storage and implantation

Patent Number: 6207658
Disclosed are various formulations and chemicals in which cells and tissue can be stored for prolonged time periods.
Inventors: Simpkins, James W. (Gainesville, FL); Green, Pattie S. (Gainesville, FL); Gridley, Kelly E. (Gainesville, FL)
Assignee: University of Florida Research Foundation, Inc. (Gainesville, FL)
Date of First Priority Issue: Thursday January 11th, 1996

Implantable system with drug-eluting cells for on-demand local drug delivery

Patent Number: 6206914
This patent covers the use of cells, including stem cells and derivatives, for producing certain drugs or proteins specifically upon stimulation. Stimulation may be electrical, mechanical, or chemical.
Inventors: Soykan, Orhan (New Brighton, MN); Donovan, Maura G. (St. Paul, MN))
Assignee: Medtronic, Inc. (Minneapolis, MN
Date of First Priority Issue: Thursday April 30th, 1998

Stem cell factor

Patent Number: 6204363
This patent covers the composition of matter for a stem cell expansion protein named "stem cell factor", this is the ligand for c-kit.
Inventors: Zsebo, Krisztina M. (Thousand Oaks, CA); Bosselman, Robert A. (Thousand Oaks, CA); Suggs, Sidney V. (Newbury Park, CA); Martin, Francis H. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Monday October 16th, 1989

Primate embryonic stem cells

Patent Number: 6200806
This is one of the patents that cover embryonic stem cells. These patents are under much controversy since they cover the composition of matter for all embryonic stem cells.
Inventor: Thomson, James A. (Madison, WI)

Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Friday January 20th, 1995

Isolation of precursor cells from hematopoietic and nonhematopoietic tissues and their use in vivo bone and cartilage regeneration

Patent Number: 6200606
This patent covers the use of adipose derived stem cells for the generation of cartilage and bones.
Inventors: Peterson, Dale R. (Carmel, IN); Nousek-Goebl, Nancy (Fishers, IN)
Assignee: DePuy Orthopaedics, Inc. (Warsaw, IN)
Date of First Priority Issue: Tuesday January 16th, 1996

Thymosin .alpha.1 promotes tissue repair, angiogenesis and cell migration

Patent Number: 6197751
Thymosin is expressed by the thymus and is associated with immune stimulation. In this patent the ability of thymosin to augment regeneration of tissue, as well as stimulate stem cells is patented. It is interesting that the production of thymosin actually decreases, as well as general thymic function with age. This patent may be a way to induce longevity by administration of thymosin.
Inventors: Malinda, Katherine M. (Millersville, MD); Kleinman, Hynda K. (Kensington, MD); Goldstein, Allan L. (Washington, DC)
Assignee: The United States of America as represented by the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Friday November 7th, 1997

Embryonic germ cells, method for making same, and using the cells to produce a chimeric porcine

Patent Number: 6194635
This patent teaches how to generate embryonic germ cells. These cells may be used for transgenic and knockout experiments, as well as for generation of stem cells with unique properties.
Inventors: Anderson, Gary B. (Davis, CA); Shim, Hosup (Davis, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Tuesday January 9th, 1996

Parthenogenic oocyte activation

Patent Number: 6194202
This patent covers the generation of embryonic stem cells through parthenogenesis in cows. Parthenogenesis involves activating the oocyte to differentiate in absence of sperm.
Inventors: Susko-Parrish, Joan L. (Monona, WI); Northey, David L. (Madison, WI); Leibfried-Rutledge, M. Lorraine (Madison, WI); Stice, Steven L. (DeForest, WI)
Assignee: Infigen, Inc. (DeForest, WI)
Date of First Priority Issue: Wednesday February 10th, 1993

Mouse embryonic stem cell lines

Patent Number: 6190910
This patent teaches the generation of several embryonic stem cell lines that are useful for creation of knockout mouse models.
Inventors: Kusakabe, Moriaki (Ibaragi, JP); Kamon, Toshio (Tokyo, JP)
Assignee: The Institute of Physical and Chemical Research (Saitama, JP)
Date of First Priority Issue: Thursday March 21st, 1996

Apparatus and method for collecting blood from an umbilical cord

Patent Number: 6190368
This patent covers a medical device that is useful for extraction of cord blood so as to avoid the need for letting the cord blood drop by gravity into the collection receptacle.
Inventors: Kuypers, Franciscus A. (El Cerrito, CA); Cole, Robert B. (Alamo, CA); Meyst, Richard P. (Valley Center, CA); Gorton, Lanny A. (San Diego, CA); Wright, James I. (Villa Park, CA)
Assignee: Children's Hospital Medical Center of Northern California (Oakland, CA)
Date of First Priority Issue: Tuesday May 14th, 1996

Methods for isolation and activation of, and control of differentiation from, skeletal muscle stem or progenitor cells

Patent Number: 6184035
This patent teaches ways of growing muscle stem cells through exposure to low oxygen tension and other tissue culture media.
Inventors: Csete, Marie (South Pasadena, CA); Doyle, John (South Pasadena, CA); Wold, Barbara (San Marino, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Wednesday November 18th, 1998

Medicinal preparation based on fetal cell suspension having immune substituting effect for patients with acquired immune deficiency syndrome (HIV infection)

Patent Number: 6184033
This patent teaches the administration of fetal cells, including stem cells, for the treatment of HIV infection. Various stem cells are known to secrete anti-inflammatory compounds such as TGF-beta. One possible mechanism of action is that stem cells secrete these antiinflammatory compounds, which in turn inhibit NF-kappa B, which does not allow for the HIV to replicate.
Inventor: Smikodub, Alexandr Ivanovich (Kiev, UA)
Assignee: Centr Embrionalnikh Tkaney "Emcell" (Kiev, UA)
Date of First Priority Issue: Wednesday August 9th, 1995

Umbilical cord blood collection

Patent Number: 6179819
Patented is a medical device that can extract cord blood out of an umbilical cord.
Inventor: Haswell, John N. (Sarasota, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday August 30th, 1996

Method for regulating neuron development and maintenance

Patent Number: 6177402
This patent teaches how to induce differentiation of neurons, as well as to enhance their survival using a variety of growth factors, including leukemia inhibitory factor.
Inventors: Bartlett, Perry (North Carlton, AU); Murphy, Mark (Fitzroy, AU)
Assignee: Amrad Corporation, Ltd. (Victoria, AU)
Date of First Priority Issue: Monday March 19th, 1990

Methods and compositions for cryopreservation of cells and tissues

Patent Number: 6176089
It is not good enough to encapsulate stem cells for therapeutic use, since the stem cells will have to be transported to the hospital or institution where they are needed. This patent covers methods of cryopreserving cells that have been encapsulated so that they may be shipped to the region of need.
Inventor: Bouche, Nicola (Lausanne, CH)
Assignee: Modex Therapeutics (Lausanne, CH)
Date of First Priority Issue: Tuesday October 27th, 1998

Blood-borne mesenchymal cells

Patent Number: 6174526
This patent teaches the use of circulating mesenchymal stem cells for treatment of wounds.
Inventors: Cerami, Anthony (Shelter Island, NY); Bucala, Richard J. (New York, NY)
Assignee: The Picower Institute for Medical Research (Manhaset, NY)
Date of First Priority Issue: Friday February 26th, 1993

Biomatrix for soft tissue regeneration using mesenchymal stem cells

Patent Number: 6174333
This patent covers implantable agents that can be administered together with mesenchymal stem cells for the purpose of creating or repairing various tissues.
Inventors: Kadiyala, Sudhakar (Baltimore, MD); Caplan, Arnold I. (Cleveland Heights, OH); Fink, David J. (Shaker Heights, OH); Young, Randall G. (Ellicott City, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD); Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Monday June 6th, 1994

Guided development and support of hydrogel-cell compositions

Patent Number: 6171610
This patent covers hydrogels that may be used in combination with stem cells for the generation of various artificial tissues.
Inventors: Vacanti, Charles A. (Uxbridge, MA); Vacanti, Joseph P. (Winchester, MA); Vacanti, Martin P. (Westborough, MA)
Assignee: University of Massachusetts (Boston, MA); The Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Friday April 24th, 1998

Method and device for regenerating cartilage in articulating joints

Patent Number: 6171340
This patent covers a procedure for repairing articular cartilage through administration of growth factors and/or stem cells.
Inventor: McDowell, Charles L. (Richmond, VA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday February 27th, 1998

Erythropoietin-mediated neurogenesis

Patent Number: 6165783
EPO is used clinically for treatment of anemia and is considered generally safe. This patent teaches that administration of EPO can stimulate the differentiation of neurons. Currently this concept is being tested (at least in part) by Stem Cell Therapeutics who are conducting clinical trials using EPO together with hCG for the treatment of stroke.

Inventors: Weiss, Samuel (Calgary, CA); Sorokan, S. Todd (Victoria, CA)
Assignee: Neuro Spheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Friday October 24th, 1997

Methods for suppressing myeloid cells with chemokines

Patent Number: 6165459
This patent teaches that administration of various chemokines, such as, for example MIP-1 alpha or IL-8, inhibits the production of myeloid stem cell derived cells such as granulocytes or monocytes.
Inventors: Broxmeyer, Hal E. (Indianapolis, IN); Cooper, Scott (Indianapolis, IN); Mantel, Charles (Indianapolis, IN); Lu, Li (Indianapolis, IN)
Assignee: Indiana University Foundation (Indianapolis, IN)
Date of First Priority Issue: Wednesday December 9th, 1992

Hepes based basal nutrient medium for the isolation and culturing of stem cells

Patent Number: 6162643
This is a composition of matter patent on a tissue culture medium that is useful for the growth of various stem cells.
Inventor: Wille, Jr., John J. (Trenton, NJ)
Assignee: Hy-Gene Biomedical Corporation (Ventura, CA)
Date of First Priority Issue: Monday January 29th, 1990

Combination of G-CSF with a chemotherapeutic agent for stem cell mobilization

Patent Number: 6162427
This patent teaches that a more potent stimulation of hematopoietic stem cell mobilization can be achieved by combining G-CSF with cyclophosphamide, as opposed to administration of either alone.
Inventors: Baumann, Matthias (Karl-Ludwig-Strasse, DE); Ochlich, Peter-Paul (Wallonenstrasse, DE)
Assignee: Roche Diagnostics GmbH (Mannheim, DE)
Date of First Priority Issue: Wednesday December 20th, 1995

Method for modulating hemopoiesis

Patent Number: 6159940
This patent seems ripe for development. It covers a composition of matter that appears, at face value, relatively easy to synthesize and is useful for the stimulation of hematopoietic stem cells.
Inventors: Deigin, Vladislav I. (North York, CA); Korotkov, Andrei M. (Moscow, RU)
Assignee: Immunotech Developments Inc. (Toronto, CA)
Date of First Priority Issue: Wednesday February 28th, 1996

Use of GHRH-RP to stimulate stem cell factor production

Patent Number: 6159934
This patent teaches that Sertoli cells make stem cell factor (which is interesting since people are co-culturing sertoli cells with islets from treating diabetes)...and that production of stem cell factor from sertoli cells may be upregulated by administration of the hormone GHRH-RP.
Inventor: Pescovitz, Ora H. (Carmel, IN)
Assignee: Indiana University Foundation (Bloomington, IN)
Date of First Priority Issue: Wednesday December 20th, 1995

Uses of Wnt polypeptides

Patent Number: 6159462
This patent provides composition of matter for various peptides that are derived frim Wnt that are capable of stimulating stem cell expansion.
Inventors: Matthews, William (Woodside, CA); Austin, Timothy W. (Morgan Hill, CA)
Assignee: Genentech, Inc. (So. San Francisco, CA)
Date of First Priority Issue: Friday August 16th, 1996

Use of c-kit ligand with TNF-.alpha. and hematopoietic factors for the expansion or differentiation of hematopoietic cells

Patent Number: 6159461
Combinations of cytokines are provided in this patent for expanding the number of hematopoietic stem cells. Cytokines include stem cell factor, tnf-alpha, and pixy. This is somewhat interesting since TNF alpha is usually considered to inhibit hematopoiesis.
Inventors: Besmer, Peter (New York, NY); Buck, Jochen (New York, NY); Moore, Malcolm A. S. (New York, NY); Nocka, Karl (Harvard, MA)
Assignee: Sloan-Kettering Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Thursday April 23rd, 1992

Use of leukemia inhibitory factor and endothelin antagonists

Patent Number: 6156733
This patent teaches how to treat heart failure by administration of antagonists to endothelin and LIF.
Inventors: Ferrara, Napoleone (San Francisco, CA); King, Kathleen (Pacifica, CA); Luis, Elizabeth (San Francisco, CA); Mather, Jennie P. (Millbrae, CA); Paoni, Nicholas F. (Belmont, CA)

Assignee: Genentech, Inc. (South San Francisco, CA)
Date of First Priority Issue: Monday April 24th, 1995

Bioartificial extracellular matrix containing hydrogel matrix derivatized with cell adhesive peptide fragment

Patent Number: 6156572
This patent provides novel compositions of matter that are useful for growing stem cells and neurons derived thereof for the purpose of implantation into the host. Specific matrices are provided.
Inventors: Bellamkonda, Ravi (Boston, MA); Ranieri, John P. (Lausanne, CH); Aebischer, Patrick (Lutry, CH)
Assignee: Neurotech S.A. (Evry, FR)
Date of First Priority Issue: Wednesday July 20th, 1994

Use of interleukin-7 to stimulate proliferation of hematopoietic cell precursors

Patent Number: 6156301
This patent teaches the use of IL-7 for stimulation of hematopoiesis, as well as increasing the output of lymphocytes. IL-7 has several interesting properties, including the ability to support homeostatic expansion of T cells.
Inventors: Namen, Anthony E. (Seattle, WA); Goodwin, Raymond G. (Seattle, WA); Lupton, Stephen D. (Seattle, WA); Mochizuki, Diane Y. (Seattle, WA)
Assignee: Sanofi-Synthelabo (Paris, FR)
Date of First Priority Issue: Monday October 26th, 1987

Methods and compositions of a bioartificial kidney suitable for use in vivo or ex vivo

Patent Number: 6150164
This patent teaches how to make a cell-seeded bioreactor so as to grow various types of kidney cells onto a hollow fiber filter for the generation of an "artificial kidney".
Inventor: Humes, H. David (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Monday September 30th, 1996

Manipulation of non-terminally differentiated cells using the notch pathway

Patent Number: 6149902
This patent teaches how to expand stem cells of ectodermal, endodermal and mesodermal origin without inducing differentiation, by the activation of the notch pathway. This patent could be a very strong base for development of regenerative cell populations either allogeneic or autologous.
Inventors: Artavanis-Tsakonas, Spyridon (Hamden, CT); Fortini, Mark Edward (New Haven, CT); Matsuno, Kenji (New Haven, CT)
Assignee: Yale University (New Haven, CT)
Date of First Priority Issue: Monday September 25th, 1995

Method of differentiating erythrocyte progenitor cells

Patent Number: 6147052
Disclosed is the novel protein "Erythroid Differentiation and Denucleation Factor" (EDDF) which is capable of inducing production of red blood cells from hematopoietic stem cells both in vitro and in vivo. Methods of stimulating hematopoietic stem cells to generate various lineages of cells are important in medicine. It will be interesting to see if the EDDF also has similarity to EPO in terms...
Inventor: Chau, Raymond Ming Wah (Hong Kong, CN)
Assignee: KM Biotech, Inc. (Montebello, CA)
Date of First Priority Issue: Thursday December 5th, 1996

Proliferation of hepatocyte precursors

Patent Number: 6146889
Disclosed are culture conditions and compositions of matter that are useful for expansion of liver stem cells. This patent is useful not only for the generation of single cell hepatocytes, but may be used with other scaffold patents in order to generate artificial liver lobes.
Inventors: Reid, Lola M. (Chapel Hill, NC); Agelli, Maria (New Providence, NJ)
Assignee: Albert Einstein College of Medicine of Yeshiva University, a division of Yeshiva University (Bronx, NY)
Date of First Priority Issue: Wednesday August 7th, 1991

Method of enriching for mammalian stem cells

Patent Number: 6146888
In this patent an antibiotic resistance gene is placed under the control of a promoter associated with stem cells. This way only the stem cells will live while the other cells will die when exposed to the antibiotic.
Inventors: Smith, Austin Gerard (Edinburgh, GB); Mountford, Peter Scott (Elsfernwid, AU)
Assignee: The University of Edinburgh (GB)
Date of First Priority Issue: Thursday April 21st, 1994

In vitro-derived genetically altered human neutrophil precursor cells and methods for administering the same

Patent Number: 6146623
This patent covers genetic transfection of stem cells

that give rise to neutrophils. Transfection of this cell population may be performed to enhance their ability to proliferate, or may be performed to endow them with increased antibacterial activities.
Inventors: Bender, James G. (Lindenhurst, IL); Maples, Phillip B. (Waukegan, IL); Smith, Stephen (Arlington Heights, IL); Unverzagt, Kristen L. (Palatine, IL); Van Epps, Dennis E. (Cary, IL)
Assignee: Nexell Therapeutics Inc. (Irvine, CA)
Date of First Priority Issue: Monday March 23rd, 1992

Assembled scaffolds for three dimensional cell culturing and tissue generation

Patent Number: 6143293
This patent covers a multilayered scaffold that can be seeded with stem cells, other types of cells, and/or growth factors for the generation of three dimensional tissues in culture.
Inventors: Weiss, Lee E. (Pittsburgh, PA); Calvert, Jay Wynn (Pittsburgh, PA)
Assignee: Carnegie Mellon (Pittsburgh, PA); University of Pittsburgh (Pittsburgh, PA)
Date of First Priority Issue: Thursday March 26th, 1998

Compositions of myeloid-cell-suppressive chemokines

Patent Number: 6143289
Disclosed are methods of inhibiting production of myeloid lineage hematologic cells through the administration of various members of the chemokine family. Chemokines useful for inhibiting myeloid cell production include MIP1 alpha, and beta, IL-8, PF4, and MCAF.
Inventors: Broxmeyer, Hal E. (Indianapolis, IN); Cooper, Scott (Indianapolis, IN); Mantel, Charles (Indianapolis, IN); Lu, Li (Indianapolis, IN)
Assignee: Indiana University Foundation (Bloomington, IN)
Date of First Priority Issue: Wednesday December 9th, 1992

Methods and compositions to improve germ cell and embryo survival and function

Patent Number: 6140121
This patent provides compounds that are capable of increasing the viability of germ cells and embryos both in vitro and in vivo.
Inventors: Ellington, Joanna E. (Valleyford, WA); Oliver, Sylvia Adams (Spokane, WA)
Assignee: Advanced Reproduction Technologies, Inc. (Valleyford, WA)
Date of First Priority Issue: Sunday September 10th, 1995

Isolated and modified porcine cerebral cortical cells

Patent Number: 6140116
This patent covers a type of stem cell, specifically xenogeneic pig cerebral cortical cells. These cells, when treated so as to not elicit immune rejection, are useful for the treatment of various neurodegenerative disorders.
Inventor: Dinsmore, Jonathan (Brookline, MA)
Assignee: Diacrin, Inc. (Charlestown, MA)
Date of First Priority Issue: Tuesday November 8th, 1994

Preparation of cell seeded ceramic compositions

Patent Number: 6139578
This patent provides scaffolds and various compositions for their manufacture so that the structures made may be seeded with stem cells and/or other types of cells for tissue engineering purposes.
Inventors: Lee, Dosuk D. (Brookline, MA); Rey, Christian (Castanet, FR); Aiolova, Maria (Brookline, MA)
Assignee: Etex Corporation (Cambridge, MA)
Date of First Priority Issue: Friday May 19th, 1995

Human jagged polypeptide, encoding nucleic acids and methods of use

Patent Number: 6136952
This patent covers the composition of matter of JAGGED and various peptide derivatives. JAGGED is important embryonically for development, as well it has stimulatory activity on a wide variety of stem cells.
Inventors: Li, Linheng (Seattle, WA); Hood, Leroy (Seattle, WA)
Assignee: University of Washington (Seattle, WA)
Date of First Priority Issue: Wednesday June 25th, 1997

Human growth-associated methyltransferases

Patent Number: 6132714
This patent covers the composition of matter for several methyltransferases that are associated with stem cell renewal. These methyltransferases may be associated with activity of numerous cell types in addition to hair follicle stem cells.
Inventors: Tang, Y. Tom (San Jose, CA); Yue, Henry (Sunnyvale, CA); Guegler, Karl J. (Menlo Park, CA); Shah, Purvi (Sunnyvale, CA)
Assignee: Incyte Pharmaceuticals, Inc. (Palo Alto, CA)
Date of First Priority Issue: Monday April 13th, 1998

Liver regeneration using pancreas cells

Patent Number: 6132708
While some patents cover the generation of islet like cells from hepatocytes by transfection with PDX-1, this patent covers the generation of live cells through insertion of pancreatic cells into the spleen (in one embodiment). If anything, this patent attests to the plasticity of various cellular populations.
Inventor: Grompe, Markus (Portland, OR)
Assignee: Oregon Health Sciences University (Portland, OR)
Date of First Priority Issue: Friday October 10th, 1997

Cell seeding of ceramic compositions

Patent Number: 6132463
This patent covers compositions of matter useful for generation of bone grafts and artificial bones either in vitro or in vivo.
Inventors: Lee, Dosuk D. (Brookline, MA); Rey, Christian (Castanet, FR); Aiolova, Maria (Brookline, MA)
Assignee: Etex Corporation (Cambridge, MA)
Date of First Priority Issue: Friday May 19th, 1995

Human stem cell antigen 2

Patent Number: 6130061
This patent covers a new protein that is expressed on various types of stem cells. This protein can be used for purification of stem cells from tissue, or for assessment of stem cell populations in various in vitro culture systems.
Inventors: Ni, Jian (Rockville, MD); Yu, Guo-Liang (Darnestown, MD); Gentz, Reiner (Silver Spring, MD); Gocayne, Jeannine D. (Potomac, MD)
Assignee: Human Genome Sciences, Inc. (Rockville, MD)
Date of First Priority Issue: Thursday November 9th, 1995

Liver stem cell

Patent Number: 6129911
This patent covers the stem cell for livers. Given the strong regenerative capacity of the liver, the characterization of stem cells of this organ is of great interest. Specific markers and methods of expanding liver stem cells are provided. The patent is currently owned by a company called MultiCell.
Inventor: Faris, Ronald A. (Providence, RI)
Assignee: Rhode Island Hospital, A LifeSpan Partner (Providence, RI)
Date of First Priority Issue: Friday July 10th, 1998

Methods of obtaining compositions enriched for hematopoietic stem cells, antibodies for use therein, compositions derived therefrom and methods of use thereof

Patent Number: 6127135
This patent covers a novel marker of stem cells which the inventors call EM10. This patent is useful for identifying the stem cell content of a population of cells.
Inventors: Hill, Beth Louise (Mountain View, CA); Rozler, Elen (Mountain View, CA); Chen, Benjamin P. (Fremont, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday June 7th, 1995

Mobilization of peripheral blood precursor cells by .beta.(1,3)-glucan

Patent Number: 6117850
This patent teaches how to mobilize stem cells through administration of beta glucan and various derivatives of it. The use of other immune stimulants and TLR agonists should be evaluated for mobilization in future.
Inventors: Patchen, Myra L. (Framingham, MA); Bleicher, Paul (Newton, MA)
Assignee: The Collaborative Group, Ltd. (Stony Brook, NY)
Date of First Priority Issue: Monday August 28th, 1995

Retinal stem cells

Patent Number: 6117675
This patent covers retinal stem cells. These stem cells are useful for the treatment of a variety of ocular disorders including viral retinitis, blind spots, or loss of color vision.
Inventors: van der Kooy, Derek (Toronto, CA); McInnes, Roderick (Ontario, CA); Chiasson, Bernard (York, CA); Tropepe, Vincenzo (Toronto, CA)
Assignee: HSC Research and Development Limited Partnership (Toronto, CA)
Date of First Priority Issue: Wednesday September 25th, 1996

Compositions of mononuclear phagocytes useful for promoting axonal regeneration

Patent Number: 6117424
This patent covers induction of neural regeneration through administration of monocytes and other immune cells. The immune cells may be administered for the treatment of spinal cord injury. This is actually in clinical trials right now.
Inventors: Eisenbach-Schwartz, Michal (Rehovot, IL); Spiegler, Orly (Rehovot, IL); Hirschberg, David L. (Stanford, CA)

Assignee: Yeda Research and Development Co. Ltd. (Rehovot, IL)
Date of First Priority Issue: Friday September 15th, 1995

Hemoregulatory compounds

Patent Number: 6114357

This patent covers unique compositions of matter that stimulate the proliferation of hematopoietic stem cells.
Inventors: Bhatnagar, Pradip Kumar (Exton, PA); Heerding, Dirk Andries (Malvern, PA); Hartmann, Michael (Linz, AT); Hiebl, Johann (Linz, AT); Kremminger, Peter (Asten, AT); Rovenszky, Franz (Linz, AT)
Assignee: SmithKline Beecham Corporation (Philadelphia, PA); Nycomed Austria GmbH (Linz, AT)
Date of First Priority Issue: Monday November 13th, 1995

Method for modulating smooth muscle cell proliferation

Patent Number: 6114311

This patent covers promoters of smooth muscle cells, as well as promoters found in the stem cells for smooth muscle cells. The invention teaches how to use these promoters to treat various conditions ranging from restenosis to asthma.
Inventors: Parmacek, Michael S. (Chicago, IL); Solway, Julian (Glencoe, IL)
Assignee: Arch Development Corporation (Chicago, IL)
Date of First Priority Issue: Monday October 7th, 1996

Human pluripotent hematopoietic colony stimulating factor and cell line producing same

Patent Number: 6114166

This patent covers a cytokine that stimulates proliferation of hematopoietic stem cells which give rise to all hematopoietic lineages.
Inventors: Welte, Karl (New York, NY); Platzer, Erich (Erlangen, DE); Gabrilove, Janice L. (New York, NY); Mertelsmann, Roland (Mainz, DE); Moore, Malcolm A. S. (Larchmont, NY)
Assignee: Sloan-Kettering Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Thursday March 28th, 1985

Development and use of human pancreatic cell lines

Patent Number: 6110743

This patent covers islet stem cells and cell lines that generate islet cells. This patent could be useful for the treatment of type 1 diabetes. In some cases, it may be beneficial to encapsulate the cell lines so as to avoid immune mediated rejection. Alternatively these cells would provide a great source of tissue for using the Edmonton Protocol.
Inventors: Levine, Fred (Del Mar, CA); Wang, Sijian (Dallas, TX); Beattie, Gillian M. (Poway, CA); Hayek, Alberto (La Jolla, CA)
Assignee: The Regents of the University of California (Oakland, CA); Whittier Institute for Diabetes and Endocrinology (La Jolla, CA)
Date of First Priority Issue: Friday February 10th, 1995

Method to produce novel embryonic cell populations

Patent Number: 6110739

This patent covers generation of cells from embryonic stem cells, and subsequent immortalization of the generated cells. The generated cells may be semidifferentiated stem cells or precursor cells. Immortalization may be accomplished by transfection with the gene HOX 11.
Inventors: Keller, Gordon M. (Denver, CO); Hawley, Robert G. (Toronto, CA); Choi, Kyunghee (Baltimore, MD)
Assignee: National Jewish Medical and Research Center (Denver, CO)
Date of First Priority Issue: Monday November 21st, 1994

Manufacture of autogenous replacement body parts

Patent Number: 6110482

This patent teaches how to make artificial joints using stem cells and various devices and systems.
Inventors: Khouri, Roger K. (St. Louis, MI); Sampath, Kuber T. (Medway, MA); Rueger, David C. (Hopkinton, MA)
Assignee: Styker Corporation (Kalamazoo, MI)
Date of First Priority Issue: Friday June 3rd, 1994

Methods for extracting bone marrow

Patent Number: 6110176

This patent provides procedures and devices useful for harvesting bone marrow. In one embodiment the bone marrow is harvested from the jaw of the patient.
Inventor: Shapira, Ira L. (Highland Park, IL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday July 1st, 1997

Culture of totipotent embryonic inner cells mass cells and production of bovine animals

Patent Number: 6107543

This patent is about ways of cloning cows using stem cells harvested form the inner cell mass.
Inventors: Sims, Michelle M. (Stoughton, WI); First, Neal L. (Madison, WI)

Assignee: Infigen, Inc. (DeForest, WI)
Date of First Priority Issue: Thursday August 20th, 1992

Method for enhancing hematopoiesis with acyl deoxyribonucleosides

Patent Number: 6103701
Small molecules are provided that stimulate hematopoietic stem cell proliferation. These molecules may be of interest for stimulation of non-hematopoietic stem cells.
Inventors: von Borstel, Reid Warren (Darnestown, MD); Bamat, Michael Kevin (Darnestown, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday October 28th, 1987

Method of decreasing radiation of radio-mimetic chemotherapy for hematopoietic pluripotent cell engraftment

Patent Number: 6103694
This patent teaches how to perform hematopoietic stem cell transplants without myeloablating the recipient. This patent provides specific doses of radiation that can mimic the effects of chemotherapy. This patent may be useful for other types of stem cell therapy in order to temporarily suppress the recipient immune system so as to allow the transplanted cells to engraft, establish themselves...
Inventors: Mardiney, III, Michael (Baltimore, MD); Malech, Harry L. (Bethesda, MD)
Assignee: The United States of America as represented by the Department of Health (Washington, DC)
Date of First Priority Issue: Friday July 21st, 1995

Cultures of human CNS neural stem cells

Patent Number: 6103530
This patent provides a tissue culture media that is useful for the growth and expansion of neural stem cells.
Inventor: Carpenter, Melissa (Lincoln, RI)
Assignee: Cytotherapeutics, Inc. (Lincoln, RI)
Date of First Priority Issue: Friday September 5th, 1997

Reversible gelling culture media for in-vitro cell culture in three-dimensional matrices

Patent Number: 6103528
This patent teaches how to make a tissue culture media which gells upon treatment or exposure to specific conditions. The advantage of this is that cells can be added when the media is liquid, and then the gelling characteristic can be used for the formation of specially shaped structures, structures which can subsequently be implanted.
Inventors: An, Yuehuei H. (Charleston, SC); Mironov, Vladimir A. (Mt. Pleasant, SC); Gutowska, Anna (Richland, WA)
Assignee: Battelle Memorial Institute (Richland, WA); Medical University of South Carolina (Charleston, SC)
Date of First Priority Issue: Friday April 17th, 1998

Human marrow stromal cell lines which sustain hematopoiesis

Patent Number: 6103522
Culture of early hematopoietic stem cells (human ones) was previously performed on murine stromal cells, and stromal cells of mouse that are transfected with certain genes. In this patent a human stromal cell line is provided (can be bought at ATCC), which is capable of sustaining expansion of early human hematopoietic stem cells. This cell line allows for growth and generation of human...
Inventors: Torok-Storb, Beverly (Seattle, WA); Roecklein, Bryan A. (Seattle, WA); Johnson, Gretchen (Issaquah, WA)
Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)
Date of First Priority Issue: Wednesday July 20th, 1994

Universal donor cells

Patent Number: 6100443
This patent covers non-human cells and stem cells that are "de-immunogenized" so that they may be transplanted into humans without rejection. The patent "de-immunogenizes" the cells by inducing expression of human anticomplement proteins, as well as by suppressing the expression of immunogenic proteins such as those of the MHC type.
Inventors: Sims, Peter J. (Mequon, WI); Bothwell, Alfred L. M. (Guilford, CT); Elliot, Eileen A. (New Haven, CT); Flavell, Richard A. (Killingworth, CT); Madri, Joseph (North Branford, CT); Rollins, Scott (Monroe, CT); Bell, Leonard (Woodbridge, CT); Squinto, Stephe
Assignee: Oklahoma Medical Research Foundation (Oklahoma City, OK); Yale University (New Haven, CT)
Date of First Priority Issue: Monday June 12th, 1989

G-CSF receptor agonists

Patent Number: 6100070
This patent covers the composition of matter of several polypeptides and compounds that can activate the granulocyte colony stimulating factor receptor. These compounds can be developed into therapeutic agents for similar indications such those treated by Amgen's Neupogen.

Inventors: Zurfluh, Linda L. (Kirkwood, MO); Klein, Barbara K. (St. Louis, MO); McWherrter, Charles A. (Wildwood, MO); Feng, Yiqing (St. Louis, MO); McKearn, John P. (Glencoe, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO)
Assignee: G. D. Searle & Co. (Chicago, IL)
Date of First Priority Issue: Thursday October 5th, 1995

Differentiation of granulocytic and monocytic progenitor cells

Patent Number: 6096540
This patent teaches various proteins that can be used as discriminatory markers for distinguishing progenitors of the monocytic lineage from progenitors of the granulocytic lineages.
Inventors: Olweus, Johanna (Palo Alto, CA); Lund-Johansen, Fridtjof (Palo Alto, CA); Thompson, Peter (Danville, CA)
Assignee: Becton Dickinson and Company (Franklin Lakes, NJ)
Date of First Priority Issue: Monday September 30th, 1996

Generation of hematopoietic cells from multipotent neural stem cells

Patent Number: 6093531
Brain to blood...thats essentially what this patent teaches...the use of neural stem cells as a source of hematopoietic cells.
Inventors: Bjornson, Christopher R. (Seattle, WA); Rietze, Rod L. (Brunswick, AU); Reynolds, Brent A. (Saltspring, CA); Vescovi, Angelo L. (Milan, IT)
Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday September 29th, 1997

Co-administration of interleukin-3 mutant polypeptides with CSF's for multi-lineage hematopoietic cell production

Patent Number: 6093395
This patent teaches various forms of IL-3 together with various stem cell stimulatory factors for the expansion of hematopoietic stem cells.
Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J
Assignee: G. D. Searle & Co. (Chicago, IL)
Date of First Priority Issue: Tuesday November 24th, 1992

Methods for promoting functional regeneration of mammalian muscle by administering leukaemia inhibitor factor

Patent Number: 6093390
This patent teaches that LIF may be used alone, or in combination with neurotrophic factors for the stimulation of neurogenesis and muscle innervation. This patent may be useful for combining with exogenous stem cell sources such as cord blood. Additionally, the patent may be used for treating patients with multiple sclerosis.
Inventors: Bartlett, Perry (North Carlton, AU); Murphy, Mark (Fitzroy, AU); Brown, Melissa (London, GB)
Assignee: Amrad Corporation Limited (Victoria, AU)
Date of First Priority Issue: Tuesday March 20th, 1990

Hemoglobin alpha and beta chain peptide fragments useful for inhibiting stem cell proliferation

Patent Number: 6090782
This patent covers peptides that inhibit proliferation of hematopoietic stem cells. These peptides may be used for protection form chemotherapy or radiotherapy induced stem cell destruction.
Inventors: Tsyrlova, Irena (Gaithersburg, MD); Wolpe, Stephen D. (Rockville, MD)
Assignee: Pro-Neuron, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Wednesday March 31st, 1993

Method of increasing the relative number of CD34.sup.+ cells in a cell population

Patent Number: 6090625
This patent teaches that by crosslinking various portions of MHC II on differentiated cells, the cells will dedifferentiate and increase the number of CD34 stem cells. This patent, if the data is reproducible, could revolutionize stem cell therapy. The company currently developing this patent is called TriStem.
Inventor: Abuljadayel, Ilham (London, GB)
Assignee: Dhoot, Ghazi Jaswinder (London, GB)
Date of First Priority Issue: Thursday February 2nd, 1995

Electrospraying apparatus and method for introducing material into cells

Patent Number: 6093557
This patent teaches methods of introducing materials into cells. It is useful for introducing genes into cells to cause differentiation, or alternatively introducing cytoplasm of embryonic stem cells into adult cells in order to "rejuvenate" them.
Inventors: Pui, David Y. H. (Plymouth, MN); Chen, Da-Ren (Lauderdale, MN)

Assignee: Regents of the University of Minnesota (Minneapolis, MN)
Date of First Priority Issue: Thursday June 12th, 1997

Human embryonic pluripotent germ cells

Patent Number: 6090622
This patent teaches a new type of stem cell that is isolated from the gonadal ridge.
Inventors: Gearhart, John D. (Baltimore, MD); Shamblott, Michael Joseph (Baltimore, MD)
Assignee: The Johns Hopkins School of Medicine (Baltimore, MD)
Date of First Priority Issue: Monday March 31st, 1997

Conversion of non-neuronal cells into neurons: transdifferentiation of epidermal cells

Patent Number: 6087168
This patent teaches how to induce "trandifferentiation" of epidermal cells into neurons. The neurons are useful for treatment of neurodegenerative diseases.
Inventors: Levesque, Michel F. (Beverly Hills, CA); Neuman, Toomas (Santa Monica, CA)
Assignee: Cedars Sinai Medical Center (Los Angeles, CA)
Date of First Priority Issue: Wednesday January 20th, 1999

Monoclonal antibodies for human mesenchymal stem cells

Patent Number: 6087113
As part of Osiris's territorial stake on the mesenchymal stem cell area, this patent covers antibodies that are publically available from ATCC, that specifically recognize mesenchymal stem cells.
Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Tuesday June 18th, 1991

Composition and method for preserving progenitor cells

Patent Number: 6084060
This patent discloses lectins and portions of the lectins that are capable of protecting various types of stem cells from death or inactivation.
Inventor: Moore, Jeffrey G. (New York, NY)
Assignee: ImClone Systems Incorporated (New York, NY)
Date of First Priority Issue: Monday December 9th, 1996

Method of preparing hematopoietic stem cells with gp105-specific antibodies

Patent Number: 6083747
This patent discloses a new marker of hematopoietic stem cells. The marker can be used for isolation, purification, or identification of such stem cells.
Inventors: Wong, Peter M. C. (Gladwyne, PA); Chung, Siu-Wah (Gladwyne, PA); Han, Xiaodong (San Francisco, CA)
Assignee: Stemcell Therapeutics LLC (Bala Cynwyd, PA)
Date of First Priority Issue: Tuesday June 6th, 1995

Implantable biocompatable immunoisolatory vehicle for delivery of selected therapeutic products

Patent Number: 6083523
This patent covers a device that is implantable, and explantable, that can be used for administration of stem cells so that they will not be rejected by the host immune system. It will be interesting to use such devices with embryonic stem cells so as to allow the embryonic stem cells to secrete soluble factors in vivo that hopefully will possess rejuvenating ability.
Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Scharp, David W. (St. Louis, MO); Lacy, Paul E
Assignee: Brown University Research Foundation (Providence, RI); Brown University (Providence, RI)
Date of First Priority Issue: Thursday April 25th, 1991

Pluripotential bone marrow cell line and methods of using the same

Patent Number: 6082364
This patent seems to cover a cell that is very similar to the cell covered by Osiris...that is mesenchymal stem cells.
Inventors: Balian, Gary (Charlottesville, VA); Wang, Gwo-Jaw (Charlottesville, VA); Diduch, David (Charlottesville, VA); Hahn, Chang (Charlottesville, VA)
Assignee: Musculoskeletal Development Enterprises, LLC (Charlottesville, VA)
Date of First Priority Issue: Monday December 15th, 1997

Culture vessel for growing or culturing cells, cellular aggregates, tissues and organoids and methods for using same

Patent Number: 6080581
This patent covers a method of generating three dimensional tissues in culture. The culture system allows for continuous addition of media and growth factors as well as escape of waste products.

Inventors: Anderson, Charles Daniel (Houston, TX); Dodd, Charlie W. (Seabrook, TX)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday July 2nd, 1998

Genetic engineering of cells to enhance healing and tissue regeneration

Patent Number: 6077987
This patent covers the induction of healing through administration of mesenchymal stem cells alone, or mesenchymal stem cells after transfection with other genes.
Inventors: Breitbart, Arnold S. (Great Neck, NY); Grande, Daniel S. (Sea Cliff, NY); Mason, James M. (Bethpage, NY)
Assignee: North Shore-Long Island Jewish Research Institute (Manhasset, NY)
Date of First Priority Issue: Thursday September 4th, 1997

Hemoregulatory compounds

Patent Number: 6077857
This patent provides compositions of matter that stimulate hematopoietic stem cell proliferation. These compounds appear to be small molecules and have an acceptable safety profile in the data provided.
Inventors: Bhatnagar, Pradip Kumar (Exton, PA); Heerding, Dirk Andries (Malvern, PA)
Assignee: SmithKline Beecham Corporation (Philadelphia, PA)
Date of First Priority Issue: Tuesday November 12th, 1996

Parthenogenic oocyte activation

Patent Number: 6077710
This patent covers the generation of embryos through virgin birth or parthenogenesis. Essentially if an oocyte is activated through the induction of calcium flux it can generate an embryo-like structure which can be used to derive stem cells.
Inventors: Susko-Parrish, Joan L. (Monona, WI); Northey, David L. (Madison, WI); Leibfried-Rutledge, M. Lorraine (Madison, WI); Stice, Steven L. (DeForest, WI)
Assignee: Infigen, Inc. (Deforest, WI)
Date of First Priority Issue: Wednesday February 10th, 1993

Method of determining progenitor cell content of a hematopoietic cell culture

Patent Number: 6077708
This patent teaches how to determine the number of stem cells in a tissue culture situation through assessing various metabolic properties of the tissue culture media.
Inventors: Collins, Paul C. (Bridgewater, NJ); Papoutsakis, E. Terry (Glenview, IL); Miller, William M. (Evanston, IL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday July 18th, 1997

Hapatoblasts and method of isolating same

Patent Number: 6069005
This patent discloses methods of purifying hepatic stem cells. These stem cells may be expanded and used for therapeutic purposes. One interesting application of this invention would be to tranfect embryonic stem cell cytoplasm into these hepatocyte stem cells and to see if we can increase their expansion capability. Theoretically hepatocytes should be easier to tranplant than other tissues...
Inventors: Reid, Lola M. (Chapel Hill, NC); Sigal, Samuel H. (Riverdale, NY); Brill, Shlomo (Ramat-Gan, IL); Holst, Patricia A. (Ossining, NY)
Assignee: Albert Einstein College of Medicine of Yeshwa University (Bronx, NY)
Date of First Priority Issue: Saturday September 7th, 1991

Cell compositions for use in transplantation

Patent Number: 6068836
This patent teaches how to transfect quiescent hematopoietic stem cells. Transfection of these primitive stem cells should be useful for a variety of gene therapy applications including treatment of several metabolic diseases such as Krabbe Disease.
Inventor: Quesenberry, Peter J. (Shrewsbury, MA)
Assignee: University of Massachusetts (Boston, MA)
Date of First Priority Issue: Wednesday November 23rd, 1994

Neural cell protein marker RR/B and DNA encoding the same

Patent Number: 6066451
This patent provides a marker for the identification of specific neural cells. This marker is useful for knowing the quantity and quality of neurons generated from various stem cell populations.
Inventors: Avraham, Shalom (Brookline, MA); Avraham, Hava (Brookline, MA); Groopman, Jerome E. (Brookline, MA)
Assignee: Beth Israel Deaconess Medical Center, Inc. (Boston, MA)
Date of First Priority Issue: Monday October 3rd, 1994

Multi-functional hematopoietic fusion proteins between sequence rearranged C-MPL receptor agonists and other hematopoietic factors

Patent Number: 6066318

This patent covers variants of thrombopoietin and the use of these variants in combination with other hematopoietic cytokines for the stimulation of hematopoietic stem cells.

Inventors: Feng, Yiqing (St. Louis, MO); Staten, Nicholas R. (St. Louis, MO); Baum, Charles M. (Evanston, IL); Summers, Neena L. (St. Charles, MO); Caparon, Maire Helena (Chesterfield, MO); Bauer, S. Christopher (New Haven, MO); Zurfluh, Linda L. (Kirkwood, MO); McK

Assignee: G.D. Searle & Co. (Chicago, IL)

Date of First Priority Issue: Thursday October 5th, 1995

Method of using IL-11 for treating deficiencies in hematopoietic progenitor or stem cells

Patent Number: 6066317

This patent teaches that interleukin 11 can be administered into patients for stimulation of hematopoietic activity. Interleukin 11 is known to upregulate platelet production but not as potently as TPO.

Inventors: Yang, Yu-Chung (Indianapolis, IN); Bennett, Frances K. (Melrose, MA); Paul, Stephan R. (Wyncote, PA)

Assignee: Genetics Institute, Inc. (Cambridge, MA)

Date of First Priority Issue: Wednesday November 22nd, 1989

TGF.beta.1 responsive bone marrow derived cells to express a recombinant protein

Patent Number: 6063593

This patent teaches that tranforming growth factor beta treatment of hematopoietic stem cells will make them more susceptible to gene transfection.

Inventors: Gordon, Erlinda Maria (Glendale, CA); Hall, Frederick L. (Glendale, CA); Anderson, W. French (San Marino, CA)

Assignee: University of Southern California University Park Campus (Los Angeles, CA)

Date of First Priority Issue: Tuesday November 12th, 1996

Methods and compositions for isolation and growth of kidney tubule stem cells, in vitro kidney tubulogenesis and ex vivo construction of renal tubules

Patent Number: 6060270

This patent teaches how to grow kidney tubules from renal stem cells, and how to use these for making a hollow fiber filter that resembles an artificial kidney.

Inventor: Humes, H. David (Ann Arbor, MI)

Assignee: The University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Monday March 2nd, 1992

Methods for use of Mpl ligands with primitive human hematopoietic stem cells

Patent Number: 6060052

This patent teaches ways of using thrombopoietin or other ligands of MPL in order to stimulate proliferation of early hematopoietic stem cells. Since thrombopoietin is used in numerous stem cell expansion cocktails, this patent is very important.

Inventors: Murray, Lesley J. (San Jose, CA); Young, Judy C. (San Carlos, CA)

Assignee: SyStemix, Inc. (Palo Alto, CA)

Date of First Priority Issue: Monday October 30th, 1995

Systems for processing and storing placenta/umbilical cord blood

Patent Number: 6059968

Methods and devices are disclosed that enable efficient collection and storage of cord blood.

Inventor: Wolf, Jr., Ludwig (Inverness, IL)

Assignee: Baxter International Inc. (Deerfield, IL)

Date of First Priority Issue: Tuesday January 20th, 1998

Stem cell inhibiting proteins

Patent Number: 6057123

This patent provides analogues of chemokines that are capable of inhibiting proliferation of hematopoietic stem cells.

Inventors: Craig, Stewart (Oxford, GB); Hunter, Michael George (Buckinghamshire, GB); Edwards, Richard Mark (Oxford, GB); Czaplewski, Lloyd George (Oxford, GB); Gilbert, Richard James (Oxford, GB)

Assignee: British Biotech Pharmaceuticals Limited (Oxford, GB)

Date of First Priority Issue: Wednesday December 23rd, 1992

Method and device for regenerating cartilage in articulating

Patent Number: 6056777

This patent provides medical devices useful for the treatment of cartilage injury. Stem cells may be differentiated into cartilage and used in combination with this invention.

Inventor: McDowell, Charles L. (Richmond, VA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday February 27th, 1998

Hemoregulatory compounds

Patent Number: 6054465

Small molecule compounds are provided that stimulate hematopoietic stem cell proliferation. It would be interesting to see whether these compounds have selective stimulatory capability towards normal versus leukemic hematopoietic stem cells.

Inventors: Bhatnagar, Pradip Kumar (Exton, PA); Heerding, Dirk Andries (Malvern, PA)

Assignee: SmithKline Beecham Corporation (Philadelphia, PA)

Date of First Priority Issue: Monday November 13th, 1995

Methods and compositions for modulation and inhibition of telomerase in vitro

Patent Number: 6054442

This patent discloses small molecules that modulate activity of telomerase. On the one hand telomerase inhibition is useful for cancer therapy, on the other activation of telomerase is useful for longevity purposes.

Inventors: Chen, Shih-Fong (San Antonio, TX); Maine, Ira (San Antonio, TX); Kerwin, Sean M. (Round Rock, TX); Fletcher, Terace M. (San Antonio, TX); Salazar, Miguel (Austin, TX); Mamiya, Blain (Austin, TX); Windle, Bradford E. (San Antonio, TX); Wajima, Makoto (San

Assignee: Board of Regents, University of Texas System (Austin); CTRC Research Foundation (San Antonio, TX)

Date of First Priority Issue: Thursday July 6th, 1995

Oxypurine nucleosides and their congeners, and acyl derivatives thereof, for improvement of hematopoiesis

Patent Number: 6054441

This patent covers small molecule stimulators of hematopoietic stem cell activity. These molecules appear to have a reasonable safety profile and are interesting for clinical development. One area of development may be their use in combination with cord blood transplants in adults...since cord blood transplants usually take a longer time to reconstitute.

Inventors: von Borstel, Reid W. (Potomac, MD); Bamat, Michael K. (Potomac, MD); Hiltbrand, Bradley M. (Columbia, MD); Butler, James C. (Gaithersburg, MD); Shirali, Shyam (Gaithersburg, MD)

Assignee: Pro-Neuron, Inc. (Rockville, MD)

Date of First Priority Issue: Monday June 5th, 1995

Biocompatible devices with foam scaffolds

Patent Number: 6054142

This patent provides scaffolds that can be seeded with stem cells and subsequently inplanted for regeneration of various tissues.

Inventors: Li, Rebecca (Canton, MA); Hazlett, Tyrone F. (Coventry, RI)

Assignee: Cyto Therapeutics, Inc. (Lincoln, RI)

Date of First Priority Issue: Thursday August 1st, 1996

Modulation of immune responses in blood-borne mesenchymal cells

Patent Number: 6054121

If I read this currently, this patent seems to cover the use of blood mesenchymal stem cells for stimulation of immune responses to antigens. This is the opposite to what the current knowledge of mesenchymal stem cells is...that being that they are immune suppressive. If these cells were immune stimulatory then the current Phase III trials for graft versus host disease that Osiris is doing would...

Inventors: Cerami, Anthony (Shelter Island, NY); Bucala, Richard J. (New York, NY)

Assignee: The Picower Institute for Medical Research (Manhasset, NY)

Date of First Priority Issue: Friday February 26th, 1993

Methods of enhancing functioning of the upper gastrointestinal tract

Patent Number: 6051557

This patent covers the use of GLP-2 for stimulation of stem cells in the upper GI tract. This patent is useful for treatment of pathologies associated with malfunction of these cells, such as mucositis, gastritis, or various types of injuries.

Inventor: Drucker, Daniel J. (Ontario, CA)

Assignee: 1149336 Ontario Inc. (Toronto, CA)

Date of First Priority Issue: Friday May 16th, 1997

Methods and kits for stimulating production of megakaryocytes and thrombocytes

Patent Number: 6051415

C reactive protein is produced by the liver in times of inflammation. This patent discloses various mutants of CRP that are capable of stimulating production of increased platelets. Given that TPO, another agent that stimulates platelet production, can stimulate self renewal of primitive hematopoietic stem cells, it would be interesting to see if these CRP mutants have similar activity.

Inventor: Potempa, Lawrence A. (Deerfield, IL)

Assignee: Immtech International, Inc. (Evanston, IL)

Date of First Priority Issue: Wednesday February 23rd, 1994

Therapeutic uses of interleukin-3 (IL-3) multiple mutation polypeptides

Patent Number: 6051217

This patent provides compositions of matter for various forms of the cytokine IL-3. Uses of IL-3 such as stimulation of hematopoiesis are described. Since myeloid suppressor cells express the IL-3 receptor, it may be interesting to see if IL-3 can actually mediate immune suppressive functions.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J

Assignee: G. D. Searle & Co. (Chicago, IL)

Date of First Priority Issue: Saturday November 14th, 1992

Apparatus and methods for preparing an implantable graft

Patent Number: 6049026

This patent provides methods of administering stem cells after differentiating them into bioartificial bone.

Inventor: Muschler, George Frederick (Cleveland Heights, OH)

Assignee: The Cleveland Clinic Foundation (Cleveland, OH)

Date of First Priority Issue: Monday June 3rd, 1996

Bioreactor for mammalian cell growth and maintenance

Patent Number: 6048721

This patent provides new devices and culture conditions for expanding stem cells of the hematopoietic lineage ex vivo. This patent has actually been used for development of technologies that were used in clinical trials.

Inventors: Armstrong, R. Douglas (Ann Arbor, MI); Maluta, James (Dexter, MI); Roecker, David (Denver, CO)

Assignee: Aastrom Biosciences, Inc. (Ann Arbor, MI)

Date of First Priority Issue: Wednesday June 7th, 1995

Method for production of neuroblasts

Patent Number: 6045807

This patent teaches how to make immortalized neurons through differentiation of neuronal stem cells and then transfection with various genes. These immortalized cell lines can subsequently be used for treatment of neurodegenerative conditions.

Inventors: Gage, Fred H. (La Jolla, CA); Ray, Jasodhara (San Diego, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Date of First Priority Issue: Wednesday January 6th, 1993

Antibody recognizing a small subset of human hematopoietic cells

Patent Number: 6043348

This patent covers a new marker of hematopoietic stem cells. This marker can be used for extraction of these stem cells, as well as for quantification. The protein marker is called "MG-1" in the specification.

Inventors: Lawman, Michael J. P. (Gainesville, FL); Lawman, Patricia (Gainesville, FL)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday November 13th, 1996

Cell culture media for mammalian cells

Patent Number: 6043092

This patent covers a specific tissue culture media that is useful for the expansion of hepatocytes. The media is a serum free media and can be used for clinical applications.

Inventor: Block, Geoffrey D. (Pittsburgh, PA)

Assignee: University of Pittsburgh (Pittsburgh, PA)

Date of First Priority Issue: Monday March 18th, 1996

In vitro generation of differentiated neurons from cultures of mammalian multipotential CNS stem cells

Patent Number: 6040180

This patent teaches that by manipulating divalent ion content of a tissue culture media, it is possible to modify the differentiation program of neuronal stem cells. Various methods of inducing differentiation of such neuronal stem cells into neurons, astrocytes, and oligodendrocytes are disclosed.

Inventor: Johe, Karl K. (Potomac, MD)

Assignee: NeuralStem Biopharmaceuticals, Ltd. (College Park, MD)

Date of First Priority Issue: Thursday May 23rd, 1996

Preparation of serum-free suspensions of human hematopoietic cells or precursor cells

Patent Number: 6037174

This is a patent on generation of neutrophil precursors and their expansion ex vivo. It may be interesting to use a patent such as this to generate allogeneic neutrophils for short term use after chemotherapy for patients that are immunocompromised so that they do not get infections. The question is whether administration of such allogeneic neutrophils would cause nephritis by virtue of...

Inventors: Smith, Stephen L. (Arlington Heights, IL); Qiao, Xiaoying (Waukegan, IL); Maciukas, Susan M. (El Cerrito, CA); Loudovaris, Maureen F. (Grayslake, IL); Bender, James G. (Lindenhurst, IL); Van Epps, Dennis (Cary, IL)
Assignee: Nexell Therapeutics, Inc. (Irvine, CA)
Date of First Priority Issue: Monday August 23rd, 1993

Methods for differentiating neural stem cells to glial cells using neuregulins

Patent Number: 6033906
This patent covers ways of generating glial cells in vitro for in vivo use. Several growth factors and culture conditions are provided.
Inventor: Anderson, David J. (Altadena, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Monday July 26th, 1993

Vitro maintenance of hematopoietic stem cells

Patent Number: 6030836
This patent covers expansion of hematopoietic stem cells by culturing with allogeneic or autologous mesenchymal stem cells.
Inventors: Thiede, Mark A. (Forest Hill, MD); Pittenger, Mark F. (Severna Park, MD); Mbalaviele, Gabriel (Columbia, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Monday June 8th, 1998

Guided development and support of hydrogel-cell compositions

Patent Number: 6027744
This patent covers ways generating tissue implants and artificial tissues in vitro for in vivo implantation.
Inventors: Vacanti, Charles A. (Worcester, MA); Vacanti, Joseph P. (Worcester, MA)
Assignee: University of Massachusetts Medical Center (Boston, MA); The Children's Medical Center Corporation (Boston, MA)
Date of First Priority Issue: Friday April 24th, 1998

Three-dimensional culture of pancreatic parenchymal cells cultured living stromal tissue prepared in vitro

Patent Number: 6022743
This patent teaches the three dimensional generation of artificial pancreatic grafts using a proprietary culture system that is described in detail.
Inventors: Naughton, Gail K. (Del Mar, CA); Naughton, Brian A. (El Cajon, CA)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Ligands that modulate differentiation of mesenchymal stem cells

Patent Number: 6022540
This patent covers the induction of mesenchymal stem cell differentiation by activation of a ligand called ALCAM. Mesenchymal stem cells can differentiate into a wide variety of non-hematopoietic tissues and are useful for many clinical applications since they can be transplanted across allogeneic barriers, therefore knowing how to modulate their differentiation programs is very useful.
Inventors: Bruder, Scott P. (Owings Mills, MD); Jaiswal, Neelam (Ellicott City, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Thursday September 4th, 1997

Method for production of neuroblasts

Patent Number: 6020197
This patent covers the induction of differentiation of neural stem cells into various committed neuronal lineages. The patent provides FGF-2 for expansion of neural cells and stem cells, as well it provides various oncogenes which may be used for their immortalization.
Inventors: Gage, Fred H. (La Jolla, CA); Ray, Jasodhara (San Diego, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Wednesday January 6th, 1993

Methods for treatment of pulmonary disease using GM-CSF

Patent Number: 6019965
This patent teaches that the administration of the clinically-used cytokine GM-CSF is useful for the treatment of alveolar proteinosis. This patent would be great to use in combination with systemically administered stem cell therapy since most stem cells given intravenously end up in either the lung or the liver.
Inventors: Dunn, Ashley Roger (Parkville, AU); Stanley, Edouard Guy (London, GB); Lieschke, Graham John (Parkville, AU); Grail, Dianne (Parkville, AU); Fowler, Kerry J. (Parkville, AU)
Assignee: Ludwig Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Monday October 24th, 1994

Myocardial grafts and cellular compositions

Patent Number: 6015671
This patent teaches how to extract specific cells from a population of stem cells that are differentiating.

Inventor: Field, Loren J. (Indianapolis, IN)
Assignee: Indiana University Foundation (Bloomington, IN)
Date of First Priority Issue: Wednesday June 7th, 1995

Methods for increasing hematopoietic cells

Patent Number: 6013067
This patent teaches to treat a hematopoietic stem cell donor with thrombopoietic, collect the "activated" stem cells, and infuse them into a recipient. In some situations the recipient may also be given thrombopoietin.
Inventors: Fibbe, Willem E. (Lisse, NL); Grossman, Angelika (Seattle, WA)
Assignee: ZymoGenetics, Inc. (Seattle, WA)
Date of First Priority Issue: Wednesday June 7th, 1995

Intrapulmonary delivery of hematopoietic drug

Patent Number: 6012450
This patent teaches the administration of hematopoietic stem cell stimulatory factors through the intrapulmonary route. This patent is interesting in light of the fact that exogenous stem cells generally go to the liver or lung.
Inventor: Rubsamen, Reid M. (Berkeley, CA)
Assignee: Aradigm Corporation (Hayward, CA)
Date of First Priority Issue: Tuesday March 5th, 1991

Method of cloning bovines using reprogrammed non-embryonic bovine cells

Patent Number: 6011197
This patent teaches methods of cloning cattle.
Inventors: Strelchenko, Nikolai S. (DeForest, WI); Betthauser, Jeffrey M. (Windsor, WI); Jurgella, Gail L. (Madison, WI); Pace, Marvin M. (DeForest, WI); Bishop, Michael D. (Rio, WI)
Assignee: Infigen, Inc. (Deforest, WI)
Date of First Priority Issue: Thursday March 6th, 1997

Infusion of neutrophil precursors for treatment of neutropenia

Patent Number: 6010697
This patent teachs ways of overcoming neutropenia by administration of committed stem cells that differentiate into the neutrophil lineage. This work has the potential to be very beneficial in nuclear accidents where a quick supply of neutrophils is needed. The biggest barrier is whether allogeneic neutrophil committed stem cells may be used or whether the stem cells strictly have to be...
Inventors: Smith, Stephen L. (Arlington Heights, IL); Qiao, Xiaoying (Waukegan, IL); Maciukas, Susan M. (El Cerrito, CA); Loudovaris, Maureen F. (Grayslake, IL); Bender, James G. (Lindenhurst, IL); Van Epps, Dennis E. (Cary, IL)
Assignee: Nexell Therapeutics, Inc. (Irvine, CA)
Date of First Priority Issue: Monday August 23rd, 1993

Enhancing hematopoietic progenitor cell engraftment using mesenchymal stem cells

Patent Number: 6010696
This patent covers the administration of mesenchymal stem cells as "facilitator cells" such that engraftment of hematopoietic stem cells is accelerated. Mesenchymal stem cells may play this engraftment assisting role due to the wide variety of growth factors that they are known to produce.
Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH); Gerson, Stanton L. (Pepper Pike, OH); Lazarus, Hillard M. (Shaker Heights, OH)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday November 16th, 1990

System for the in vivo delivery and expression of heterologous genes in the bone marrow

Patent Number: 6008035
This patent covers a method of generating viruses that are useful for transfection in living beings. Specifically the viral approaches can be used to target bone marrow stem cells.
Inventors: Johnston, Robert E. (Chapel Hill, NC); Davis, Nancy L. (Chapel Hill, NC); Simpson, Dennis A. (Pittsboro, NC)
Assignee: The University of North Carolina at Chapel Hill (Chapel Hill, NC)
Date of First Priority Issue: Wednesday February 19th, 1997

Method of freezing cells and cell-like materials

Patent Number: 6007978
This patent covers methods of freeze-drying various cells, including stem cells.
Inventors: Goodrich, Jr., Raymond P. (Pasadena, CA); Coker, Samuel O. S. (South Pasadena, CA); Arnaud, Francoise (Pasadena, CA); Hackett, Roger W. (Pasadena, CA)
Assignee: COBE Laboratories, Inc. (Lakewood, CO)
Date of First Priority Issue: Wednesday May 18th, 1988

Methods of inducing immunity using low molecular weight immune stimulants

Patent Number: 6007819

This patent covers a small molecular weight family of compounds that directly stimulate hematopoietic stem cell proliferation but at the same time have immune augmentative effects. Such compounds are especially useful after bone marrow transplantation for leukemias or cancers since post transplantation it is not only enough to have restored hematopoiesis, but augmentation of the immune system...

Inventors: Taub, Floyd (Silver Spring, MD); Perun, Thomas J. (Round Lake, IL); Murray, Christopher K. (Longmont, CO); Daughenbaugh, Randall J. (Longmont, CO); Lednicer, Daniel (Rockville, MD)

Assignee: Dovetail Technologies, Inc. (College Park, MD)

Date of First Priority Issue: Tuesday October 17th, 1995

Liver parenchymal cells having clonal growth ability, method for obtaining same, method for subculturing same, and subculturing system of primary hepatocytes

Patent Number: 6004810

This patent covers a type of liver stem cell that is useful for the treatment of various hepatic diseases. It will be interesting to compare this patent to the other ones in this directory that cover liver stem cells.

Inventors: Tateno, Chise (Hiroshima, JP); Yoshizato, Katsutoshi (Hiroshima, JP)

Assignee: Research Development Corporation of Japan (Saitama, JP)

Date of First Priority Issue: Tuesday April 11th, 1995

Analogs of pluripotent granulocyte colony-stimulating factor

Patent Number: 6004548

This patent covers hematopoietic stem cell stimulatory peptides and proteins that are analogs of pluripotent G-CSF. These compounds are useful for stimulation of hematopoiesis after ablation with radiotherapy or chemotherapy.

Inventor: Souza, Lawrence M. (Thousand Oaks, CA)

Assignee: Amgen, Inc. (Thousand Oaks, CA)

Date of First Priority Issue: Friday August 23rd, 1985

Methods for differentiating neural stem cells to neurons or smooth muscle cells using TGT-.beta. super family growth factors

Patent Number: 6001654

This patent teaches how to induce the differentiation of neural stem cells into either neurons or smooth muscle cells by treatment with proteins that belong to the transforming growth factor beta superfamily.

Inventors: Anderson, David J. (Altadena, CA); Shah, Nirao M. (New York, NY)

Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Monday July 27th, 1992

In vitro growth of functional islets of Langerhans and in vivo uses thereof

Patent Number: 6001647

This patent teaches how to expand populations of islet cells in vitro for possible in vivo use in the treatment of type 1 diabetes. This technology seems very exciting, however the patent has some priority claims more than a decade ago and to our knowledge this therapy has yet to be clinically implimented.

Inventors: Peck, Ammon B. (Gainesville, FL); Cornelius, Janet G. (Gainesville, FL)

Assignee: Ixion Biotechnology, Inc. (Alachua, FL)

Date of First Priority Issue: Thursday April 28th, 1994

Resurfacing cartilage defects with chondrocytes proliferated without differentiation using platelet-derived growth factor

Patent Number: 6001352

This patent teaches the use of platelet derived growth factor for stimulating proliferation of chondrocyte and chondrocyte stem cells along the area of a joint defect, so as to accelerate healing.

Inventors: Boyan, Barbara D. (San Antonio, TX); Schwartz, Zvi (Jerusalem, IL)

Assignee: OsteoBiologics, Inc. (San Antonio, TX)

Date of First Priority Issue: Monday March 31st, 1997

Ex-vivo expansion of stem cells using combinations of interleukin-3 (IL-3) variants and other cytokines

Patent Number: 5997860

This patent covers IL-3 and various deviations of it, in combination with other hematopoietic stem cell stimulatory cytokines for acceleration of hematopoietic recovery after stem cell transplantation. This patent is useful in situations in which the stem cell dose administered may be relatively low, such as cord blood transplants given to adult recipients.

Inventors: Bauer, S. Christopher (New Haven, MO); Abrams, Mark Allen (St. Louis, MO); Braford-Goldberg, Sarah Ruth (St. Louis, MO); Caparon, Maire Helena (Chesterfield, MO); Easton, Alan Michael (Maryland Heights, MO); Klein, Barbara Kure (St. Louis, MO); McKearn, J

Assignee: G. D. Searle & Co. (Chicago, IL)

Date of First Priority Issue: Tuesday November 24th, 1992

Method of producing a polypeptide having human granulocyte colony stimulating factor activity

Patent Number: 5994518
This patent covers ways of generating a molecule that has granulocyte colony stimulating activity. It may be that this molecule is similar to G-CSF which is currently sold as "Neupogen" by the company Amgen.
Inventors: Kuga, Tetsuro (Yamaguchi, JP); Miyaji, Hiromasa (Tokyo, JP); Sato, Moriyuki (Tokyo, JP); Okabe, Masami (Shizuoka, JP); Morimoto, Makoto (Shizuoka, JP); Itoh, Seiga (Kanagawa, JP); Yamasaki, Motoo (Tokyo, JP); Yokoo, Yoshiharu (Kanagawa, JP); Yamaguchi, Ka
Assignee: Kyowa Hakko Co., Ltd (JP)
Date of First Priority Issue: Tuesday December 22nd, 1987

Gene therapy using stromal cells

Patent Number: 5993801
This patent covers transfection of stromal cells with therapeutic genes and administering the transfected cells into a recipient in need of therapy. It is interesting to see if these stromal cells have a similar phenotype as the mesenchymal stem cells that Osiris has patents on.
Inventors: Greenberger, Joel S. (Lincoln, MA); Levine, Peter H. (Worcester, MA)
Assignee: ALG Company (Marlboro, MA)
Date of First Priority Issue: Thursday February 2nd, 1989

Apparatus and method for collecting blood from an umbilical cord

Patent Number: 5993429
This patent anticipated the cord blood revolution and therefore claimed various devices and methods of collection of cord blood. Stem cells purified from cord blood are currently used for a variety of hematological and non-hematological disorders.
Inventors: Kuypers, Franciscus A. (El Cerrito, CA); Cole, Robert B. (Alamo, CA); Meyst, Richard P. (Valley Center, CA); Gorton, Lanny A. (San Diego, CA); Wright, James I. (Villa Park, CA)
Assignee: Childen's Hospital Medical Center of Northern California (Oakland, CA)
Date of First Priority Issue: Tuesday May 14th, 1996

Computer-based mixed-use registry of placental and umbilical cord stem cells

Patent Number: 5993387
This patent in a way smells like a method of doing business patent. Interestingly it was actually filed before the "State Street v Signature Financial" case. Essentially this patent covers a computer registry for matching cord blood to donors. I wonder if this patent is actually being enforced today?
Inventors: Moore, Thomas Eldon (Los Altos Hills, CA); Harris, David Thomas (Tucson, AZ); Kramer, Jesse O. (San Francisco, CA)
Assignee: Core Blood Registry, Inc. (San Bruno, CA)
Date of First Priority Issue: Thursday August 14th, 1997

Methods for stimulating granulocyte/macrophage lineage using thrombopoietin

Patent Number: 5989537
As the name "thrombopoietin" implies, this cytokine is conventionally viewed as a stimulator of platelet production. In this patent the use of thrombopoietin for stimulation of the granulocytic/monocytic lineage is claimed. Currently numerous companies are developing agonists and agonistic antibodies of the thrombopoietin receptor.
Inventors: Holly, Richard D. (Seattle, WA); Lok, Si (Seattle, WA); Foster, Donald C. (Seattle, WA); Hagen, Frederick S. (Seattle, WA); Kaushansky, Kenneth (Woodinville, WA); Kuijper, Joseph L. (Bothell, WA); Lofton-Day, Catherine E. (Brier, WA); Oort, Pieter J. (Sea
Assignee: ZymoGenetics, Inc. (Seattle, WA); University of Washington (Seattle, WA)
Date of First Priority Issue: Monday March 21st, 1994

Human haemopoietic maturation factor polypeptides

Patent Number: 5986069
This patent covers peptides that inhibit HELA cell proliferation, but are stimulatory to T cells and hematopoietic stem cells.
Inventors: Kirkness, Ewen F. (Olney, MD); Adams, Mark D. (North Potomac, MD); Olsen, Henrick S. (Gaithersburg, MD); Rosen, Craig A. (Laytonsville, MD)
Assignee: Human Genome Sciences, Inc. (Rockville, MD)
Date of First Priority Issue: Tuesday January 25th, 1994

Use of IGF-I for the treatment of kidney disorders

Patent Number: 5985830
This patent teaches that Insulin Like Growth Factor-1 is useful for the treatment of polycystic kidney disease. Given the stimulatory effects of this hormone on stem cells, it is interesting to see if this patent can be used with exogenous stem cell therapy.
Inventors: Acott, Philip D. (Halifax, CA); Crocker, John F. S. (Halifax, CA)
Assignee: Dalhousie University (Halifax, CA)
Date of First Priority Issue: Monday September 16th, 1996

Embryonic stem cell lines obtained from C3H/HeN and DBA/1J mouse strains

Patent Number: 5985659

This patent provides some embryonic stem cell lines derived from mice that are useful for the creation of knockout animals.

Inventors: Kusakabe, Moriaki (Ibaragi, JP); Kamon, Toshio (Tokyo, JP)

Assignee: The Institute of Physical and Chemical Research (Saitama, JP)

Date of First Priority Issue: Tuesday May 21st, 1996

Suppressor and progenitor cells

Patent Number: 5985656

This patent covers a type of bone marrow immune suppressive cell that appears to be related to what is currently called the NKT cell. This suppressor cell may also be related to the classical "natural suppressor cell" which is a myeloid progenitor with immune suppressive properties. The cells in this patent are useful for the treatment of autoimmunity and transplant rejection.

Inventor: Strober, Samuel S. (Portola Valley, CA)

Assignee: The Board of Trustees of the Leland Stanford Junior University (Stanford, CA)

Date of First Priority Issue: Thursday June 12th, 1986

Stem cell proliferation factor

Patent Number: 5981708

This patent covers a cytokine whose modern name is not known from reading the patent. The cytokine is capable of stimulating expansion of CD34+ human hemapoietic stem cells.

Inventors: Lawman, Michael J. P. (Gainesville, FL); Lawman, Patricia D. (Gainesville, FL); Denslow, Nancy D. (Gainesville, FL)

Assignee: University of Florida (Gainesville, FL)

Date of First Priority Issue: Thursday October 6th, 1983

Epidermal differentiation factor

Patent Number: 5981220

This patent covers a protein that stimulates stem cell differentiation into epidermal cells. The protein is useful for a variety of regenerative purposes, either alone or in combination with exogenous stem cells.

Inventors: Ni, Jian (Rockville, MD); Feng, Ping (Gaithersburg, MD); Dillon, Patrick J. (Gaithersburg, MD); Gentz, Reiner (Silver Spring, MD)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Wednesday March 27th, 1996

Maintaining cells for an extended time by entrapment in a contracted matrix

Patent Number: 5981211

This patent teaches how to grow cells outside of the body but in chambers that can be connected to an extracorporeal set up. In one particular embodiment this patent may be used for the generation of an artificial liver.

Inventors: Hu, Wei-Shou (Falcon Heights, MN); Cerra, Frank Bernard (Edina, MN); Nyberg, Scott Lyle (St. Louis Park, MN); Scholz, Matthew Thomas (Woodbury, MN); Shatford, Russell A. (Minneapolis, MN)

Assignee: Regents of the University of Minnesota (Minneapolis, MN)

Date of First Priority Issue: Thursday May 18th, 1989

In vitro induction of dopaminergic cells

Patent Number: 5981165

This patent teaches how to generate in vitro neurons that produce dopamine. The neurons are generated from stem cells through culture in FGF and TGF beta family members, as well as in the presence of feeder cell layers.

Inventors: Weiss, Samuel (Alberta, CA); Reynolds, Brent (Alberta, CA)

Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA)

Date of First Priority Issue: Monday July 8th, 1991

Methods for enhancing angiogenesis with endothelial progenitor cells

Patent Number: 5980887

This patent covers the use of various endothelial stem cells, and stem cells that resemble hematopoietic stem cells, for the stimulation of angiogenesis. Cell types covered include: CD34+, Tie+, or flk-1+. Methods of expanding the cells in vitro prior to implantation are also disclosed.

Inventors: Isner, Jeffrey M. (Weston, MA); Asahara, Takayuki (Arlington, MA)

Assignee: St. Elizabeth's Medical Center of Boston (Boston, MA)

Date of First Priority Issue: Friday November 8th, 1996

Recombinant vectors for reconstitution of liver

Patent Number: 5980886

This patent covers ways of transfecting liver cells in vivo through the induction of liver stem cell activation by first transfection with a gene such as tPA or uPA,

and then once the cells are proliferating, transfection with another gene that is therapeutic.
Inventors: Kay, Mark A. (Seattle, WA); Lieber, Andre (Seattle, WA)
Assignee: University of Washington (Seattle, WA)
Date of First Priority Issue: Wednesday December 14th, 1994

Growth factor-induced proliferation of neural precursor cells in vivo

Patent Number: 5980885
This patent teaches the in vivo expansion of neural stem cells through administration of fibroblast growth factor in combination with an agent selected from the group comprising of: EGF, TGF, and amphiregulin. This patent is useful for the treatment of degenerative nervous system diseases alone, or in combination with exogenously administered stem cells.
Inventors: Weiss, Samuel (Alberta, CA); Reynolds, Brent (Alberta, CA)
Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday July 8th, 1991

Bone precursor cells: compositions and methods

Patent Number: 5972703
This patent teaches the isolation, expansion, and use of bone stem cells that are separated from bone marrow cells.
Inventors: Long, Michael W. (Northville, MI); Mann, Kenneth G. (Shelburne, VT)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Friday August 12th, 1994

Human CNS neural stem cells

Patent Number: 5968829
This patent provides a type of neural stem cells, including stem cells derived from the basal forebrain. Disclosed are methods of maintaining the neural stem cells in culture, as well as ways of differentiating them into neurons.
Inventor: Carpenter, Melissa (Lincoln, RI)
Assignee: Cytotherapeutics, Inc. (Providence, RI)
Date of First Priority Issue: Friday September 5th, 1997

Keratinocyte culture from precursor cells

Patent Number: 5968546
This patent provides compositions for treatment of skin defects, including burn wounds, through culture and diffentiation of keratinocyte stem cells, and subsequent administration of the keratinocyte stem cells in vivo.
Inventors: Baur, Marcus (CH-1066 Epalinges, CH); Hunziker, Thomas (CH-3653 Oberhofen, CH); Limat, Alain (CH-1712 Tafers, CH); Riedel, Wolfram (D-869198 Utting, DE); Toloczyki, Christian (D-86919 Utting, DE)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday May 16th, 1997

Method of promoting hematopoiesis using derivatives of human chorionic gonadotropin

Patent Number: 5968513
This patent teaches that the pregnancy associated protien hCG is a stimulator of hematopoiesis. This is an interesting concept since numerous cancers actually secrete hCG. I wonder if during pregnancy, or cancer, there is a high enough gradient of hCG to stimulate hematopoiesis. It is known that pregnant mice have an increase in spleen size, I wonder if the hCG has anything to do with this?
Inventors: Gallo, Robert C. (Bethesda, MD); Bryant, Joseph (Rockville, MD); Lunardi-Iskandar, Yanto (Gaithersburg, MD)
Assignee: University of Maryland Biotechnology Institute (College Park, MD)
Date of First Priority Issue: Monday June 24th, 1996

Hepatocyte growth factor--induced proliferation and differentiation of erythroid cells

Patent Number: 5968501
This patent covers the use of HGF for stimulation of hematopoietic stem cell proliferation, as well as differentiation along the erythroid lineage. This patent may be useful for the treatment of anemia, as well as post hematopoietic stem cell ablation patients.
Inventor: Comoglio, Paolo (Turin, IT)
Assignee: Dompe S.p.A. (IT)
Date of First Priority Issue: Thursday November 24th, 1994

Methods of screening for a candidate compound able to bind to CD34.sup.+ cells

Patent Number: 5965457
This patent covers methods of screening for identifying which compounds bind to purified CD34+ cells. Since CD34+ cells are stem cells of the hematopoietic lineage, by identifying agents that bind to them it is possible to generate novel ways of purifying and identifying them.
Inventor: Magnani, John L. (Rockville, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday June 6th, 1995

Method of screening a compound for hematopoietic activity

Patent Number: 5965437
This patent teaches the in vitro purification of early

hematopoietic stem cells by killing of the mature ones. This is performed through addition of a hematopoietic growth factor, together with a cytotoxic agent that only kills dividing cells. The hematopoietic stem cells that are very primitive will not be killed since the primitive hematopoietic stem cells do not undergo division very...
Inventor: Scadden, David T. (Weston, MA)
Assignee: Beth Israel Deaconess Medical Center, Inc. (Boston, MA)
Date of First Priority Issue: Thursday September 1st, 1994

Method of isolating mesenchymal stem cells associated with isolated megakaryocytes by isolating megakaryocytes

Patent Number: 5965436
This patent teaches that mesenchymal stem cells in the bone marrow are sometimes found in attachment to megakaryocytes. The patent teaches that it is possible to extracted megakaryocytes from the bone marrow, using antibodies such as anti-CD41, and then from the megakaryocytes to de-attach the mesenchymal stem cells.
Inventors: Thiede, Mark A. (Forest Hills, MD); Marshak, Daniel R. (Lutherville, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday November 15th, 1996

Three-dimensional stromal tissue cultures

Patent Number: 5962325
This patent teaches how to generate three dimensional cultures of stem cells through the use of special metrices and TGF beta. The three dimensional cultures can be generated using a variety of stem cells including mesenchymal stem cells. The mesenchymal stem cells may be extracted from bone marrow, cord blood or other sources.
Inventors: Naughton, Gail K. (La Jolla, CA); Naughton, Brian A. (El Cajon, CA)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Expansion of bone marrow stromal cells

Patent Number: 5962323
This patent teaches how to grow bone marrow stromal cells in vitro. Several types of culture conditions for growing stromal cells are given. For example, the stromal cells may be expanded by treatment with FGF-1 on gelatin-coated plates. If FGF-1 can stimulate stromal cells in vitro, one wonders whether it also has similar in vivo abilities. The reason this is important is that there are...
Inventors: Greenberger, Joel S. (Sewickley, PA); Hurwitz, David R. (Acton, MA)
Assignee: ALG Company (Marlboro, MA)
Date of First Priority Issue: Friday December 29th, 1995

Leukemia inhibitory factor from mammalian species and use thereof to enhance implantation and development of embryos

Patent Number: 5962321
This patent teaches the use of the cytokine LIF for increasing the rate of implantation of embryos. This patent is useful for generation of knockout and transgenic mice.
Inventors: Gough, Nicholas Martin (North Balwyn, AU); Willson, Tracey Ann (North Balwyn, AU); Seamark, Robert Frederick (Beulah Park, AU)
Assignee: Amrad Corporation Limited (Victoria, AU)
Date of First Priority Issue: Thursday December 1st, 1994

Engraftable human neural stem cells

Patent Number: 5958767
This patent covers a type of neural stem cells that is isolated from human fetal telencephalon. This stem cell can be propagated in vitro and subsequently implanted for therapeutic benefit in a wide variety of animal models.
Inventors: Snyder, Evan Y. (Jamaica Plain, MA); Wolfe, John H. (Philadelphia, PA); Kim, Seung U. (Vancouver, CA)
Assignee: The Children's Medical Center Corp. (Boston, MA)
Date of First Priority Issue: Friday August 14th, 1998

In-vitro-derived human neutrophil precursor cells

Patent Number: 5955357
This patent covers the differentiation of hematopoietic stem cells into neutrophil stem cells. The neutrophil stem cell is a type of cell that gives rise primarily to neutrophils upon further differentiation.
Inventors: Bender, James G. (Lindenhurst, IL); Maples, Phillip B. (Waukegan, IL); Smith, Stephen L. (Arlington Heights, IL); Unverzagt, Kristen L. (Palatine, IL); Van Epps, Dennis E. (Cary, IL)
Assignee: Nexell Therapeutics Inc. (Irvine, CA)
Date of First Priority Issue: Monday March 23rd, 1992

Method for testing the differentiation status in pancreatic cells of a mammal

Patent Number: 5948623
This patent covers the use of the transcription factor Pax4 for identifying the number of pancreatic stem

cells in an animal. This patent is useful for entities seeking to expand the number of pancreatic stem cells in vivo through administration of various compounds. One such example is the work by Transition Therapeutics utilizing gastrin with EGF for treatment of diabetes through inducing...
Inventors: Sosa-Pineda, Beatriz (Memphis, TN); Gruss, Peter (Gottingen, DE)
Assignee: Max-Planck Gesellschaft Zur Forderung der Wissenschaften E.V. (Berlin, DE)
Date of First Priority Issue: Tuesday December 31st, 1996

Method and article to induce hematopoietic expansion

Patent Number: 5948426
This patent covers a matrix derived from bone that is able to induce the proliferation and expansion of hematopoietic stem cells in vitro.
Inventor: Jefferies, Steven R. (York, PA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Saturday May 3rd, 1997

Method for culturing CD34.sup.+ cells in a serum-free medium

Patent Number: 5945337
This patent covers the composition of matter for several types of tissue culture media that are useful for ex vivo expanding stem cells in absence of various forms of serum. This is useful for clinical purposes since administration of cells grown in serum is not looked upon favorably by regulatory agencies.
Inventor: Brown, Ronald L. (Derwood, MD)
Assignee: Quality Biological, Inc. (Gaithersburg, MD)
Date of First Priority Issue: Friday October 18th, 1996

Human hematopoietic-specific protein

Patent Number: 5945303
This patent provides various pepties that stimulate proliferation of hematopoietic stem cells. It is not clear from the specification what exactly these peptides are stimulating in order to induce hematopoietic stem cell expansion.
Inventors: Wei, Ying-Fei (Darnestown, MD); Li, Haodong (Gaithersburg, MD)
Assignee: Human Genome Sciences, Inc. (Rockville, MD)
Date of First Priority Issue: Thursday April 11th, 1996

Lineage-directed induction of human mesenchymal stem cell differentiation

Patent Number: 5942225
Disclosed are tissue culture conditions that can direct the differentiation of mesenchymal stem cells into the following cell lineages: osteogenic, chondrogenic, tendonogenic, ligamentogenic, myogenic, marrow stromagenic, adipogenic and dermogenic. This patent is useful for the generation of artificial tissue. Although the mesenchymal stem cells themselves are poorly immunogenic, the tissue...
Inventors: Bruder, Scott P. (Owings Mills, MD); Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Case Western Reserve University (Cleveland, OH); Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Tuesday January 24th, 1995

Recombinant primate granulocyte macrophage-colony stimulating factor

Patent Number: 5942221
This patent covers primate G-CSF. G-CSF is a potent stimulator of granulocyte production and is used clinically under the name Neupogen and more recently Neulasta.
Inventors: Clark, Steven C. (Winchester, MA); Kaufman, Randal J. (Boston, MA); Wong, Gordon G. (Cambridge, MA)
Assignee: Novartis Corporation (Basel, CH)
Date of First Priority Issue: Wednesday July 6th, 1994

Methods and kits for stimulating production of megakaryocytes and thrombocytes

Patent Number: 5939529
This patent covers the use of various types of C Reactive Protein mutants for the stimulation of platelet production. CRP is actually made naturally by the liver in times of inflammation. I wonder if natural CRP also has hematopoietic effects?
Inventor: Potempa, Lawrence A. (Deerfield, IL)
Assignee: Immtech International Inc. (Evanston, IL)
Date of First Priority Issue: Wednesday February 23rd, 1994

Mammalian multipotent neural stem cells

Patent Number: 5928947
This patent covers a type of stem cell that gives rise to numerous neural lineages. The stem cell is useful for administration after differentiation, administration in an undifferentiated state, as well as administration after gene transfection. This stem cell is purified from the fetal neural crest.
Inventors: Anderson, David J. (Altadena, CA); Stemple, Derek L. (Newton, MA)
Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Monday July 27th, 1992

Application of shear flow stress to chondrocytes or chondrocyte stem cells to produce cartilage

Patent Number: 5928945

This patent teaches how to generate cartilage through the growth of chondrocyte stem cells under shear stress. It is believed that the sheer stress activates certain mechanoreceptors which cause appropriate differentiation of the chondrocyte stem cells into cartilage.

Inventors: Seliktar, Dror (Atlanta, GA); Dunkelman, Noushin (San Diego, CA); Peterson, Alvin Edward (Jamul, CA); Schreiber, Ronda Elizabeth (Ramona, CA); Willoughby, Jane (Del Mar, CA); Naughton, Gail K. (Del Mar, CA)

Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)

Date of First Priority Issue: Wednesday November 20th, 1996

Embryonal cardiac muscle cells, their preparation and their use

Patent Number: 5928943

This patent covers specific embryonically-derived cells that have stem cell ability to regenerate myocardium after injury. Methods for selecting cells with such potential are disclosed.

Inventors: Franz, Wolfgang-Michael (Gross Gronau, DE); Wobus, Anna M. (Gatersleben, DE)

Assignee: Institut fur Pflanzengenetik und Kulturpflanzenforschung (Gatersieben, DE)

Date of First Priority Issue: Tuesday November 22nd, 1994

Release and mobilization of haematopoietic cells

Patent Number: 5925568

This patent teaches that the chemokines MIP-1 alpha/LD78 are capable of causing the mobilization of stem cells from the bone marrow. This patent is useful for increasing the number of circulating stem cells from a donor so that peripheral blood may be harvested for stem cells for transplantation. Additionally, mobilization may be performed in a patient with a stroke or cardiac infarct so as to...

Inventors: Comer, Michael Berisford (Oxford, GB); McCourt, Matthew John (Oxford, GB); Wood, Lars Michael (Oxford, GB); Hunter, Michael George (Oxford, GB); Edwards, Richard Mark (Oxford, GB)

Assignee: British Biotech Pharmaceuticals Limited (Oxford, GB)

Date of First Priority Issue: Tuesday June 15th, 1993

Methods of purifying hematopoietic cells using an antibody to a stem cell factor receptor

Patent Number: 5922847

This patent teaches ways of purifying hematopoietic stem cells based on their expression of the marker c-kit. This marker is the receptor for the cytokine stem cell factor that was developed by Amgen.

Inventors: Broudy, Virginia C. (Seattle, WA); Lin, Nancy (Seattle, WA)

Assignee: Amgen Inc. (Thousand Oaks, CA)

Date of First Priority Issue: Friday April 5th, 1991

Ex vivo culture of stem cells

Patent Number: 5922597

This patent teaches ways of increasing the number of stem cells ex vivo through a specific tissue culture cocktail that contains several cytokines but is serum-free and stromal cell-free.

Inventors: Verfaillie, Catherine M. (St. Paul, MN); McGlave, Philip B. (St. Paul, MN); Miller, Jeffrey S. (Little Canada, MN)

Assignee: Regents of the University of Minnesota (Minneapolis, MN)

Date of First Priority Issue: Tuesday November 14th, 1995

Polynucleotides encoding haemopoietic maturation factor

Patent Number: 5922572

This patent covers peptide sequences from the "hematopoietic maturation factor", a protein that stimulates differentiation of hematopoietic stem cells.

Inventors: Rosen, Craig A. (Laytonsville, MD); Olsen, Henrik (Gaithersburg, MD); Adams, Mark D. (North Potomac, MD); Kirkness, Ewen (Washington, DC)

Assignee: Human Genome Sciences, Inc. (Rockville, MD)

Date of First Priority Issue: Tuesday January 25th, 1994

Apparatus and method for collecting blood from an umbilical cord

Patent Number: 5919176

This patent covers a medical device for extraction of cord blood from an umbilical cord after delivery.

Inventors: Kuypers, Franciscus A. (El Cerrito, CA); Cole, Robert B. (Alamo, CA); Meyst, Richard P. (Valley Center, CA); Gorton, Lanny A. (San Diego, CA); Wright, James I. (Villa Park, CA)

Assignee: Children's Hospital Medical Center of Northern California (Oakland, CA)

Date of First Priority Issue: Tuesday May 14th, 1996

Umbilical cord blood collection

Patent Number: 5916202
This patent covers a medical device that contains a special pouch for the collection of cord blood from umbilical cords after delivery.
Inventor: Haswell, John N. (Sarasota, FL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday August 30th, 1996

Embryonic cell populations and methods to isolate such populations

Patent Number: 5914268
This patent covers ways of culturing an embryoid body that is derived from embryonic stem cells, in order to generate a type of cell that gives rise to hematopoietic lineage stem cells and differentiated cells.
Inventors: Keller, Gordon M. (Denver, CO); Kennedy, Marion (Denver, CO); Choi, Kyunghee (Denver, CO); Firpo, Meri T. (Denver, CO)
Assignee: National Jewish Center for Immunology & Respiratory Medicine (Denver, CO)
Date of First Priority Issue: Monday November 21st, 1994

Formation of human bone in vivo using ceramic powder and human marrow stromal fibroblasts

Patent Number: 5914121
This patent teaches how to use bone marrow stromal cells (are they similar to mesenchymal stem cells??) for generation of artificial bone. The use of various matrices, including ceramic powder is disclosed for practicing this invention.
Inventors: Robey, Pamela Gehron (Bethesda, MD); Bianco, Paolo (Rome, IT); Kuznetsov, Sergei (Bethesda, MD); Rowe, David (West Hartford, CT); Krebsbach, Paul (Bethesda, MD); Mankani, Mahesh H. (Bethesda, MD)
Assignee: The United States of America as represented by the Secretary of the (Washington, DC)
Date of First Priority Issue: Wednesday February 12th, 1997

Human hematopoietic stem cell

Patent Number: 5914108
Provided are hematopoietic stem cells that are capable of reconsituting a hematopoietic system.
Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Mountain View, CA); Aihara, Yukoh (Yokohama, JP); Weissman, Irving (Palo Alto, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday March 30th, 1990

Apparatus for extracting bone marrow

Patent Number: 5913859
This patent teaches methods and discloses devices, that are useful for the extraction of bone marrow stem cells from the jawbone of a patient.
Inventor: Shapira, Ira L. (Highland Park, IL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday July 1st, 1997

Cerebellum-derived growth factors

Patent Number: 5912326
This patent discloses a polypeptide that is involved in the formation of various brain structures. This polypeptide is useful for stem cell differentiation and expansion.
Inventor: Chang, Han (Mountain View, CA)
Assignee: President and Fellows of Harvard College (Cambridge, MA); Leland S. Stanford University (Palo Alto, CA)
Date of First Priority Issue: Friday September 8th, 1995

Stem cell immobilization

Patent Number: 5912177
This patent covers methods of "grabbing" stem cells by virtue of a fibrin matrix together with RGD binding motifs. The attachment of stem cells to various structures may be useful as a means of harvesting stem cells.
Inventors: Turner, Marc Leighton (South Queensferry, GB); Murphy, William Gerrard (Edinburgh, GB)
Assignee: Common Services Agency (Edinburgh, GB)
Date of First Priority Issue: Wednesday June 29th, 1994

Process and media for the growth of human cornea and gingiva

Patent Number: 5912175
This patent teaches how to grow specialized epithelial structures from stem cells such as cornea, gingiva, and ureters. Specific tissue culture conditions and media are provided for growing the stem cells and inducing their differentiation into the desired tissue.
Inventor: Wille, Jr., John J. (Trenton, NJ)
Assignee: Hy-Gene, Inc. (Ventura, CA)
Date of First Priority Issue: Sunday January 21st, 1990

Stem cell and lymphocyte storage

Patent Number: 5912174
This patent provides gelatin-based compounds that allow for the preservation of various cells, including stem cells of the hematopoietic lineage.
Inventors: Scheer, David (Guilford, CT); Babior, Bernard M. (San Diego, CA)
Assignee: Unknown Assignee(s)

Date of First Priority Issue: Thursday June 25th, 1992

Method for isolating stem cells expressing flk-1 receptors

Patent Number: 5912133

This patent teaches that cells expressing flk-1 on their surface may be stem cells. It specifically provides methods of using flk-1, alone, or in combination with other markers for the purification of stem cells.

Inventor: Lemischka, Ihor R. (Princeton, NJ)

Assignee: The Trustees of Princeton University (Princeton, NJ)

Date of First Priority Issue: Tuesday April 2nd, 1991

In vitro chondrogenic induction of human mesenchymal stem cells

Patent Number: 5908784

This patent teaches how to induce differentiation of mesenchymal stem cells into chondrocytes. The tissue culture conditions described may be used for generation of artificial cartilage. This patent is useful in combination with the numerous patents that describe three dimensional matrices and scaffolds useful for making cartilage.

Inventors: Johnstone, Brian (Shaker Heights, OH); Yoo, Jung (Shaker Heights, OH)

Assignee: Case Western Reserve University (Cleveland, OH)

Date of First Priority Issue: Thursday November 16th, 1995

Chemically defined medium for human mesenchymal stem cells

Patent Number: 5908782

This patent provides serum free media for the growth, expansion, and differentiation of mesenchymal stem cells. Having media that can be used for expanding mesenchymal stem cells was a critical part of Osiris developing its advanced clinical program.

Inventors: Marshak, Daniel R. (Cold Spring Harbor, NY); Holecek, James J. (Solon, OH)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Monday June 5th, 1995

DNA encoding GM-CSF and a method of producing GM-CSF protein

Patent Number: 5908763

This patent covers composition of matter for the hematopoietic cytokine granulocyte monocyte colony stimulating factor.

Inventors: Clark, Steven C. (Winchester, MA); Kaufman, Randal J. (Boston, MA); Wong, Gordon G. (Cambridge, MA); Wang, Elizabeth A. (Carlisle, MA)

Assignee: Novartis Corporation (Basel, CH)

Date of First Priority Issue: Friday July 6th, 1984

Method of reconstituting hematopoietic cells using monoclonal antibodies to the stem cell factor receptor

Patent Number: 5906938

This patent provides antibodies that stimulate the receptor c-kit and allow for enhancement of hematopoiesis. This patent may be useful not only for stimulation of hematopoiesis, but for stimulating other tissue specific stem cells that also express c-kit...these include endogenous cardiac and other muscle stem cells.

Inventors: Broudy, Virginia C. (Seattle, WA); Lin, Nancy (Seattle, WA)

Assignee: Board of Regents of the University of Washington (Seattle, WA)

Date of First Priority Issue: Wednesday May 1st, 1991

Mesenchymal stem cells for cartilage repair

Patent Number: 5906934

This patent covers the use of mesenchymal stem cells for generation of artificial bone and cartilage. It is interesting that this patent was issued in light of Osiris's domination of the field of mesenchymal stem cells. This patent should be read in light of the other mesenchymal stem cell patents.

Inventors: Grande, Daniel A. (Sea Cliff, NY); Lucas, Paul A. (Macon, GA)

Assignee: Morphogen Pharmaceuticals, Inc. (New York, NY); North Shore University Hospital Research Corporation (Manhasset, NY)

Date of First Priority Issue: Tuesday March 14th, 1995

Matrix for the manufacture of autogenous replacement body parts

Patent Number: 5906827

Disclosed are a variety of devices and matrices that are useful for generation of artifical joints through the use of stem cells and differentiated cells.

Inventors: Khouri, Roger K. (St. Louis, MO); Sampath, Kuber T. (Medway, MA); Rueger, David C. (Hopkinton, MA)

Assignee: Creative BioMolecules, Inc. (Hopkinton, MA)

Date of First Priority Issue: Friday June 3rd, 1994

Cultured inner cell mass cell lines derived from bovine or porcine embryos

Patent Number: 5905042

This patent provides technologies for growing stem cells that are useful for the generation of chimeric cows or pigs.

Inventors: Stice, Steven L. (Belchertown, MA); Golueke, Paul J. (Belchertown, MA)

Assignee: University of Massachusetts, A Public Institution of Higher Education of (Amherst, MA)
Date of First Priority Issue: Monday April 1st, 1996

Identification of blast cells in a leukocyte cell preparation

Patent Number: 5905031
This patent covers ways of detecting blast cells from other types of cells using photometric means.
Inventors: Kuylen, Nazle (Miami, FL); Crews, Harold R. (Pembroke Pines, FL); Jaffe, Gerald E. (Pembroke Pines, FL); Barcelon, Maria (Ft. Lauderdale, FL); Lucas, Francis J. (Boca Raton, FL); Garcia, Nancy M. (Miami, FL)
Assignee: Coulter International Corp. (Miami, FL)
Date of First Priority Issue: Thursday May 18th, 1995

Method of stimulating bone marrow regeneration

Patent Number: 5888965
This patent teaches how to enhance hematopoiesis using hepatocyte growth factor alone or in combination with other cytokines.
Inventors: Kmiecik, Thomas E. (Frederick, MD); Vande Woude, George F. (Berryville, VA)
Assignee: The United States of America as represented by the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Wednesday December 27th, 1989

Devices for maintaining and growing human stem and/or hematopoietics cells

Patent Number: 5888807
This patent provides bioreactors and specialized culture vessels that are useful for the growth and expansion of human hematopoietic stem cells.
Inventors: Palsson, Bernhard O. (Ann Arbor, MI); Emerson, Stephen G. (Ann Arbor, MI); Schwartz, Richard M. (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Method for increasing neutrophil populations using in vitro-derived human neutrophil precursor cells

Patent Number: 5888499
This patent covers ways of generating neutrophil-committed stem cells. These neutrophil committed stem cells are useful for prevention of infection after myeloablation.
Inventors: Bender, James G. (Lindenhurst, IL); Maples, Phillip B. (Waukegan, IL); Smith, Stephen (Arlington Heights, IL); Unverzagt, Kristen L. (Palatine, IL); Van Epps, Dennis E. (Cary, IL)
Assignee: Nexell Therapeutics Inc. (Irvine, CA)
Date of First Priority Issue: Monday March 23rd, 1992

Human marrow stromal cell lines which sustain hematopoieses

Patent Number: 5879940
This patent covers a "stromal" cell line that supports hematopoiesis in vitro. I wonder how different are these "stromal" cell lines from the mesenchymal stem cells that are described by Osiris?
Inventors: Torok-Storb, Beverly (Seattle, WA); Roecklein, Bryan A. (Seattle, WA); Johnson, Gretchen (Issaquah, WA)
Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)
Date of First Priority Issue: Wednesday July 20th, 1994

Use of neuro-glial cell lines for transplantation therapy

Patent Number: 5869463
This patent covers a type of stem cell that is isolated from fetal brain that is useful for the treatment of neurodegenerative disease.
Inventors: Major, Eugene O. (Oakton, VA); Tornatore, Carlo S. (University Park, MD)
Assignee: The United States of America as represented by the Department of Health and Human Services (Washington, DC)
Date of First Priority Issue: Tuesday April 13th, 1993

Submucosa gel as a growth substrate for cells

Patent Number: 5866414
This patent describes compositions derived from the submucosa of various mammals that possess growth factors useful for the expansion of stem cells.
Inventors: Badylak, Stephen F. (West Lafayette, IN); Voytik, Sherry (Lafayette, Indiana, IN); Boder, George (Martinsville, IN)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday February 10th, 1995

Inhibitor of stem cell proliferation and uses thereof

Patent Number: 5861483
This patent describes peptides derived from hemoglobin that inhibit stem cell proliferation. These peptides are useful for protecting stem cells from killing by chemotherapy or radiation therapy.
Inventor: Wolpe, Stephen D. (Rockville, MD)
Assignee: Pro-Neuron, Inc. (Rockville, MD)
Date of First Priority Issue: Wednesday April 3rd, 1996

Use of stem cell factor and soluble interleukin-6 receptor for the ex vivo expansion of hematopoietic multipotential cells

Patent Number: 5861315

This patent covers the use of the c-kit ligand together with stimulators of gp130 for the in vitro and ex vivo expansion of hematopoietic stem cells. Since the c-kit ligand is important for other types of stem cells, it will be interesting to see if this patent can be used for expansion of, say for example, cardiac stem cells.

Inventor: Nakahata, Tatsutoshi (Tokyo, JP)

Assignee: Amgen Inc. (Thousand Oaks, CA); Tosoh Corporation (Thousand Oaks, CA)

Date of First Priority Issue: Wednesday November 16th, 1994

Method of isolating bile duct progenitor cells

Patent Number: 5861313

This patent covers a type of stem cell that is isolated from the bile duct that can be induced to differentiate into various types of pancreatic cells including islets.

Inventors: Pang, Kevin K. (Belmont, MA); Homa, Monica W. (Marblehead, MA)

Assignee: Ontogeny, Inc. (Cambridge, MA)

Date of First Priority Issue: Wednesday June 7th, 1995

Control of cell growth in a bioartificial organ with extracellular matrix coated microcarriers

Patent Number: 5858747

This patent covers several means of growing stem cells and their derivatives, as well as generating scaffolds and implantable means that protect the stem cells from the immunological reaction of the host.

Inventors: Schinstine, Malcolm (Ben Salem, PA); Shoichet, Molly S. (Toronto, CA); Gentile, Frank T. (Warwick, RI); Hammang, Joseph P. (Barrington, RI); Holland, Laura M. (Horsham, PA); Cain, Brian M. (Everett, MA); Doherty, Edward J. (Mansfield, MA); Winn, Shelley R

Assignee: CytoTherapeutics, Inc.

Date of First Priority Issue: Wednesday July 20th, 1994

Stem cell inhibiting proteins

Patent Number: 5856301

This patent covers the inhibition of stem cell proliferation through administration of MIP-1 alpha or LD78. It is interesting to ask whether these compounds also inhibit proliferation of leukemic stem cells. If they do not, the use of these compounds may selectively protect healthy hematopoietic stem cells but allow killing of the leukemic hematopoietic stem cells by chemotherapy.

Inventors: Craig, Stewart (Oxford, GB2); Hunter, Michael George (Buckinghamshire, GB2); Edwards, Richard Mark (Oxford, GB2); Czaplewski, Lloyd George (Oxford, GB2); Gilbert, Richard James (Oxford, GB2)

Assignee: British Biotech Pharmaceuticals Limited (Oxford, GB)

Date of First Priority Issue: Wednesday December 23rd, 1992

Biomatrix for soft tissue regeneration

Patent Number: 5855619

This patent provides various compositions of matter that are useful for the administration of stem cells in order to heal or regenerate soft tissue.

Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Fink, David J. (Shaker Heights, OH); Young, Randell G. (Ellicott City, MD)

Assignee: Case Western Reserve University (Cleveland, OH)

Date of First Priority Issue: Monday June 6th, 1994

Stimulating the differentiation of preadipocytic cells and therapies based thereon

Patent Number: 5854292

This patent covers the use of the retinoid receptor pathway to induce differentiation of adipocyte stem cells in vivo and therefore make a patient who is insulin resistant, insulinn sensitive.

Inventors: Ailhaud, Gerard (Nice, FR); Grimaldi, Paul (Nice, FR); Safonova, Irina (Nice, FR); Shroot, Braham (Antibes, FR); Reichert, Uwe (Pont Du Loup, FR)

Assignee: Centre International De Recherches Dermatologiques Galderma (Valbonne, FR)

Date of First Priority Issue: Wednesday August 2nd, 1995

Methods and compositions of growth control for cells encapsulated within bioartificial organs

Patent Number: 5853717

This patent teaches ways of encapsulating stem cells and their derivatives. It provides various means and devices for the generation of artificial organs. Additionally, the patent teaches how to optimize the viability of the stem cells in the artificial organ.

Inventors: Schinstine, Malcolm (Ben Salem, PA); Shoichet, Molly S. (Toronto, CA); Gentile, Frank T. (Warwick, RI); Hammang, Joseph P. (Barrington, RI); Holland, Laura M. (Horsham, PA); Cain, Brian M. (Everett, MA); Doherty, Edward J. (Mansfield, MA); Winn, Shelley R

Assignee: CytoTherapeutics, Inc. (Lincoln, RI)

Date of First Priority Issue: Monday June 20th, 1994

Method of enhancing proliferation or differentiation of hematopoietic stem cells using Wnt polypeptides

Patent Number: 5851984

Wnt peptides are critical in embryonic development and cell fate determination. In this patent Wnt peptides are used for the expansion and differentiation of hematopoietic stem cells. I predict that these peptides would also be useful for expansion of non-hematopoietic stem cells as well.

Inventors: Matthews, William (Woodside, CA); Austin, Timothy W. (Morgan Hill, CA)

Assignee: Genentech, Inc. (South San Francisco, CA)

Date of First Priority Issue: Friday August 16th, 1996

In vitro growth and proliferation of multipotent neural stem cells and their progeny

Patent Number: 5851832

This patent covers a type of neural stem cell that can differentiate into neurons and neuron supporting cells. This patent also teaches ways of expanding and differentiating the neural stem cells.

Inventors: Weiss, Samuel (Alberta, CA); Reynolds, Brent (Alberta, CA); Hammang, Joseph P. (Barrington, RI); Baetge, E. Edward (Barrington, RI)

Assignee: Neurospheres, Ltd. (CA)

Date of First Priority Issue: Monday July 8th, 1991

Methods for prevention and/or treatment of neutropenia

Patent Number: 5851534

Inventors: Raheman, Fazal (Burlington, MA); Istrate, Nicolae (Lexington, MA); Muni, Gita (North Reading, MA); Brauner, Edgard (Brighton, MA)

Assignee: Dynagen, Inc. (Cambridge, MA)

Date of First Priority Issue: Friday May 3rd, 1996

Morphogen-induced liver regeneration

Patent Number: 5849686

This patent provides various morphogens that can be administered in vivo for the induction of liver regeneration. This patent is useful alone, or in combination with exogenous stem cell delivery for treatment of hepatic disorders. This patent is especially interesting in light of recent work using cord blood stem cells for liver regeneration.

Inventors: Kuberasampath, Thangavel (Medway, MA); Rueger, David C. (Hopkinton, MA); Oppermann, Hermann (Medway, MA); Pang, Roy H. L. (Etna, NH); Cohen, Charles M. (Medway, MA)

Assignee: Creative BioMolecules, Inc.

Date of First Priority Issue: Monday March 11th, 1991

Mammalian multipotent neural stem cells

Patent Number: 5849553

This patent covers neural stem cells that are transfected with various oncogenes so as to make them immortal. These cells would be highly beneficial for cell therapy of neurodegenerative diseases, if the safety issue of potential oncogenesis can be overcome.

Inventors: Anderson, David J. (Altadena, CA); Stemple, Derek L. (Newton, MA)

Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Monday July 27th, 1992

Gene therapy using stromal cells

Patent Number: 5849287

This patent covers the use of stromal cells for delivery of genes. Stromal cells can migrate systemically and when transfected with genes can serve as a stable source of protein production in a patient. I wonder what the difference is between the stromal cells described in this patent and the mesenchymal stem cells covered by Osiris?

Inventors: Greenberger, Joel S. (Lincoln, MA); Levine, Peter H. (Worcester, MA)

Assignee: Stromagene Corporation (Lincoln, MA); Gene Therapy Sciences, Inc. (Worcester, MA)

Date of First Priority Issue: Thursday February 2nd, 1989

Polypeptide capable of differentiating and maturing malignant cells into normal cells or capable of accelerating the formulation of erythroblasts

Patent Number: 5847078

Disclosed is a novel peptide that is useful for terminally differentiating leukemic cells. This peptide could be generally used for luekemia therapy, but should also be considered in combination with some other differentiation inducing agents such as retinoic acid.

Inventors: Eto, Yuzuru (Yokohama-shi, Kanagawa-ken, JP); Tsuji, Tomoko (Kawasaki-shi, Kanagawa-ken, JP); Takano, Satoshi (Yokohama-shi, Kanagawa-ken, JP); Takezawa, Misako (Yokohama-shi, Kangawa-ken, JP); Yokogawa, Yasunori (Yamato-shi, Kanagawa-ken, JP); Shibai, Hi

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday July 2nd, 1986

Methods of using aminothiols to promote hematopoietic progenitor cell growth

Patent Number: 5846958

This patent covers a small molecule that is useful for expansion of hematopoietic stem cells in vivo. This

small molecule would be interesting to use in a depot formulation and administered together with local cell therapy for the stimulation of angiogenesis.
Inventors: Capizzi, Robert L. (Haverford, PA); List, Alan F. (Tucson, AZ)
Assignee: U.S. Bioscience, Inc. (West Conshohocken, PA); Arizona Board of Regents on Behalf of the University of Arizona (Tucson, AZ)
Date of First Priority Issue: Friday February 17th, 1995

Method of using exendin and GLP-1 to affect the central nervous system

Patent Number: 5846937
This patent may be interesting for Amylin from San Diego to look at. Why it is interesting is because, I believe, Amylin actually has taken some of the compounds described in this patent to the clinic. This patent teaches the use of GLP-1 and/or exendin-4 for modulation of central nervous system activity.
Inventor: Drucker, Daniel J. (Toronto, CA)
Assignee: 1149336 Ontario Inc. (Toronto, CA)
Date of First Priority Issue: Monday March 3rd, 1997

Media compositions for three-dimensional mammalian tissue growth under microgravity culture conditions

Patent Number: 5846807
This patent describes ways of growing tissue in space or under microgravity conditions. This patent could be used not only for generation of medically important implants, but also for production of various artificial meats and foods for astronauts to eat while in space.
Inventor: Goodwin, Thomas J. (Friendswood, TX)
Assignee: The United States of America as represented by the Administrator of the National Aeronautics and Space Administration (Washington, DC)
Date of First Priority Issue: Thursday June 30th, 1988

Blood-borne mesenchymal cells

Patent Number: 5846796
This patent covers mesenchymal stem cells that are circulating in the blood. This patent is interesting since the cells covered contain the hematopoietic stem cell marker CD34, which is usually not believed to be expressed on mesenchymal stem cells. Additionally, the marker CD45, is usually a hematopoietic associated marker, but it too is also expressed on the mesenchymal stem cells that are...
Inventors: Cerami, Anthony (Shelter Island, NY); Bucala, Richard J. (New York, NY)
Assignee: The Picower Institute for Medical Research (Manhasset, NY)
Date of First Priority Issue: Friday February 26th, 1993

Infusion of neutrophil precursors for treatment of neutropenia

Patent Number: 5846529
This patent covers ways of treating neutropenic patients through administration of stem cells that are committed to differentiating into neutrophils. This patent is useful for the treatment of patients that are suppressed in terms of white blood cell numbers.
Inventors: Smith, Stephen L. (Arlington Heights, IL); Qiao, Xiaoying (Waukegan, IL); Maciukas, Susan M. (El Cerrito, CA); Loudovaris, Maureen F. (Grayslake, IL); Bender, James G. (Lindenhurst, IL); Van Epps, Dennis E. (Cary, IL)
Assignee: Nexell Therapeutics, Inc. (Irvine, CA)
Date of First Priority Issue: Monday August 23rd, 1993

Vertebrate embryonic pattern-inducing proteins, and uses related thereto

Patent Number: 5844079
This patent covers hedgehog proteins and their derivatives. These compositions of matter are very important for embryonic development and can be used for the expansion and differentiation of a wide variety of stem cells.
Inventors: Ingham, Philip W. (Summertown, GB2); McMahon, Andrew P. (Lexington, MA); Tabin, Clifford J. (Cambridge, MA)
Assignee: President and Fellows of Harvard College (Cambridge, MA)
Date of First Priority Issue: Thursday December 30th, 1993

Primate embryonic stem cells

Patent Number: 5843780
This is one of the composition of matter patents on embryonic stem cells. It belongs to what is called the "WARF Patents" covering the use and production of human and primate embryonic stem cells.
Inventor: Thomson, James A. (Madison, WI)
Assignee: Wisconsin Alumni Research Foundation (Madison, WI)
Date of First Priority Issue: Friday January 20th, 1995

Characterization of a human hematopoietic progenitor cell antigen

Patent Number: 5843633
This patent covers the antigen known as AC133 or CD133. This antigen is useful for purification of hematopoietic stem cells, as well as stem cells with angiogenic activity.
Inventors: Yin, Amy (San Jose, CA); Miraglia, Sheri (Alameda, CA); Buck, David W. (Half Moon Bay, CA)
Assignee: Amcell Corporation (Sunnyvale, CA)
Date of First Priority Issue: Friday April 26th, 1996

Peripheralization of hematopoietic stem cells

Patent Number: 5843438

This patent covers the use of anti-VLA-4 and anti-VCAM antibodies for mobilizing stem cells from the bone marrow. Stem cell mobilization is induced by the antibodies blocking the binding of the hematopoietic stem cells to the bone marrow stroma.

Inventor: Papayannopoulou, Thalia (Seattle, WA)

Assignee: Board of Regents University of Washington (Seattle, WA)

Date of First Priority Issue: Friday November 13th, 1992

Controlling proliferation of cells before and after encapsulation in a bioartificial organ by gene transformation

Patent Number: 5843431

This patent covers the use of certain compositions of matter for the generation of implantable cells and stem cells. In some embodiments the cells are treated so as to not elicit an immune response. In other embodiments the proliferation of the cells in the encapsulation devices is controlled.

Inventors: Schinstine, Malcolm (Ben Salem, PA); Shoichet, Molly S. (Toronto, CA); Gentile, Frank T. (Warwick, RI); Hammang, Joseph P. (Barrington, RI); Holland, Laura M. (Horsham, PA); Cain, Brian M. (Everett, MA); Doherty, Edward J. (Mansfield, MA); Winn, Shelley R

Assignee: CytoTherapeutics, Inc.

Date of First Priority Issue: Wednesday July 20th, 1994

Methods of stimulating hematopoietic cells with flt3-ligand

Patent Number: 5843423

This patent covers the stimulation of hematopoietic stem cells with flt-3 ligand. This cytokine is used in many stem cell stimulation/expansion cocktails...additionally flt-3 ligand is one of the few cytokines that can preferentially induce expansion of tissue dendritic cells.

Inventors: Lyman, Stewart D. (Seattle, WA); Beckmann, M. Patricia (Poulsbo, WA)

Assignee: Immunex Corporation (Seattle, WA)

Date of First Priority Issue: Monday May 24th, 1993

Phenotypic characterization of the hematopoietic stem cell

Patent Number: 5840580

This patent covers the combination of various phenotypic markers for the extraction of hematopoietic stem cells. For example, CD34+, CD38-, HLA-DR- is one phenotype of hematopoietic stem cell described.

Inventors: Terstappen, Leon W. (Huntingdon Valley, PA); Loken, Michael R. (Mercer Island, WA); Huang, Shiang (San Ramon, CA); Olweus, Johanna (Fremont, CA); Lund-Johansen, Fridtjof (Fremont, CA)

Assignee: Becton Dickinson and Company (Franklin Lakes, NJ)

Date of First Priority Issue: Tuesday May 1st, 1990

Monoclonal antibodies for human mesenchymal stem cells

Patent Number: 5837539

This patent covers the use of specific antibodies for the isolation and detection of mesenchymal stem cells. The antibodies are deposited at ATCC and can be purchased publically.

Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)

Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)

Date of First Priority Issue: Friday November 16th, 1990

Method of treating heart failure using leukemia inhibitory factor antagonists optionally with endothelin antagonists

Patent Number: 5837241

This patent covers antagonizing either or both the endothelin receptor and the LIF receptor. Methods of action by which this combination inhibits heart failure may have to do with modulation of stem cell function.

Inventors: Ferrara, Napoleone (San Francisco, CA); King, Kathleen (Pacifica, CA); Luis, Elizabeth (San Francisco, CA); Mather, Jennie P. (Millbrae, CA); Paoni, Nicholas F. (Belmont, CA)

Assignee: Genentech, Inc. (South San Francisco, CA)

Date of First Priority Issue: Tuesday April 25th, 1995

Uses of recombinant colony stimulating factor-1

Patent Number: 5837229

Covered in this patent is the use of the cytokine currently named M-CSF, for the expansion of hematopoietic stem cells and their differentiation along the myeloid lineage. Mice that are knocked out for M-CSF do not have functional macrophages, but also do not have tumor associated angiogenesis.

Inventors: Ralph, Peter (Orinda, CA); Chong, Kong T. (Union City, CA)

Assignee: Chiron Corporation (Emeryville, CA)

Date of First Priority Issue: Tuesday November 17th, 1998

Process and media for the growth of human epithelia

Patent Number: 5834312

This patent covers a liquid composition that is useful for the growth of epithelial cells and various stem cells

that differentiate along the epithelial lineages. Relevant types of cells generated by this culture could be corneal epithelial or gingival cells.
Inventor: Wille, Jr., John J. (Trenton, NJ)
Assignee: Hy-Gene, Inc. (Ventura, CA)
Date of First Priority Issue: Monday January 29th, 1990

In vitro growth of functional islets of Langerhans

Patent Number: 5834308
This the success of the Edmonton Protocol for treating diabetes using allogeneic islets, the need for sources of islet cells has intensified. The patent addresses that need through teaching ways of growing and expanding islet cells from pancreatic stem cells.
Inventors: Peck, Ammon B. (Gainesville, FL); Cornelius, Janet G. (Gainesville, FL)
Assignee: University of Florida Research Foundation, Inc. (Gainesville, FL)
Date of First Priority Issue: Thursday April 28th, 1994

Nerve guidance channel containing bioartificial three-dimensional hydrogel extracellular matrix derivatized with cell adhesive peptide fragment

Patent Number: 5834029
This patent teaches ways of generating in vitro channels in which nerves can be grown. These channels can then be administered in vivo for the treatment of neurodegenerative diseases.
Inventors: Bellamkonda, Ravi (Boston, MA); Ranieri, John P. (Lausanne, CH); Aebischer, Patrick (Lutry, CH)
Assignee: CytoTherapeutics, Inc. (Lincoln, RI)
Date of First Priority Issue: Friday May 20th, 1994

Methods for making immunoisolatory implantable vehicles with a biocompatiable jacket and a biocompatible matrix core

Patent Number: 5834001
This patent teaches ways of generating devices that contain cells or stem cells that can be implanted without fear of immune mediated rejection.
Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Sharp, David W. (St. Louis, MO); Lacy, Paul E.
Assignee: Brown University Research Foundation
Date of First Priority Issue: Thursday April 25th, 1991

Methods and compositions of growth control for cells encapsulated within bioartificial organs

Patent Number: 5833979
Lets imagine that one wanted to implant embryonic stem cells into a human. The first concern would be rejection by allogeneic immunity. To overcome this one could immune suppress, which is not desirable, or one could encapsulate the cells. If the cells are encapsulated but start proliferating, then they can either die or break through the encapsulation device. This patent teaches the use of UV...
Inventors: Schinstine, Malcolm (Ben Salem, PA); Shoichet, Molly S. (Toronto, CA); Gentile, Frank T. (Warwick, RI); Hammang, Joseph P. (Barrington, RI); Holland, Laura M. (Horsham, PA); Cain, Brian M. (Everett, MA); Doherty, Edward J. (Mansfield, MA); Winn, Shelley R
Assignee: CytoTherapeutics, Inc. (Lincoln, RI)
Date of First Priority Issue: Wednesday July 20th, 1994

Method for recombinant production of human pluripotent granulocyte colony-stimulating factor

Patent Number: 5830705
This is a patent on ways of generating a cytokine called human p-G-CSF. I wonder what the modern name of this cytokine is? In any case, the invention teaches that this cytokine stimulates hematopoietic stem cells proliferation.
Inventor: Souza, Lawrence M. (Witherspoon, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday August 23rd, 1985

Method of detecting hematopoietic progenitor cells

Patent Number: 5830701
This patent provides devices that can quantify hematopoietic stem cell numbers from a pool of cells through non-immunological means.
Inventors: Houwen, Berend (Redlands, CA); Tsujino, Yukio (Hyogo-ken, JP); Morikawa, Takashi (Hyogo-ken, JP); Ikeuchi, Yoshiro (Hyogo-ken, JP); Hamaguchi, Yukio (Hyogo-ken, JP)
Assignee: Tao Medical Electronics Co., Ltd. (JP)
Date of First Priority Issue: Friday March 28th, 1997

Human oligodendroglial progenitor cell line

Patent Number: 5830651
This patent covers a neural stem cell line that can differentiate into neurons, oligodendrocytes, and glial cells. This cell line can be used for drug discovery since it provides a uniform cellular population. These cells may be purchased by the public from ATCC.
Inventors: Cauley, Keith (Burlington, VT); Kukekov, Valery (San Diego, CA)
Assignee: Signal Pharmaceuticals, Inc. (San Diego, CA)
Date of First Priority Issue: Monday May 1st, 1995

Method of selecting pluripotent hematopioetic progenitor cells

Patent Number: 5827742
This patent takes advantage of the fact that early hematopoietic stem cells are usually CD34+ and quiescent. By treatment of CD34+ cells with cytotoxic agents that kill proliferating cells, a population of primitive stem cells may be obtained.
Inventor: Scadden, David T. (Weston, MA)
Assignee: Beth Israel Deaconess Medical Center, Inc. (Boston, MA)
Date of First Priority Issue: Thursday September 1st, 1994

Adipogenic differentiation of human mesenchymal stem cells

Patent Number: 5827740
Treatment of mesenchymal stem cells with a glucocorticoid together with an agent that increases intracellular cAMP is disclosed as one of several methods for inducing the differentiation of mesenchymal stem cells into adipocytes.
Inventor: Pittenger, Mark F. (Severna Park, MD)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Tuesday July 30th, 1996

Pluripotent mesenchymal stem cells and methods of use thereof

Patent Number: 5827735
This patent provides a new type of stem cell that is similar to the mesenchymal stem cells covered by Osiris. It appears that the stem cells disclosed in this patent are derived from muscle cells. If these cells are mesenchymal or express the markers SH2-4 covered by Osiris, this could be an interesting patent to watch out for.
Inventors: Young, Henry E. (Macon, GA); Lucas, Paul A. (Poughkeepsie, NY)
Assignee: MorphoGen Pharmaceuticals, Inc. (New York, NY)
Date of First Priority Issue: Monday June 22nd, 1992

Methods of isolating and detecting bone marrow stromal cells with VCAM-1-specific antibodies

Patent Number: 5827670
This patent covers VCAM positive bone marrow stromal cells. These are the cells that support hematopoietic stem cell proliferation. Do mesenchymal stem cells have VCAM on them??
Inventors: Masinovsky, Boris (Bellevue, WA); Gallatin, William Michael (Mercer Island, WA); Simmons, Paul J. (Seattle, WA)
Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)
Date of First Priority Issue: Tuesday October 27th, 1998

In vitro method for obtaining an isolated population of mammalian neural crest stem cells

Patent Number: 5824489
Covered is a method of purifying or extracting a type of stem cells from the fetal neural crest. This population of stem cells expresses low-affinity nerve growth factor receptor (LNGFR) and nestin and can differentiate into various cells of the neural lineage.
Inventors: Anderson, David J. (Altadena, CA); Stemple, Derek L. (Pasadena, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Tuesday July 21st, 1992

Peripheralization of hematopoietic stem cells

Patent Number: 5824304
This patent teaches how to treat HIV by removal of mobilized stem cells (stem cell mobilization by anti-VLA4 antibody), administering chemo or radiotherapy, and then subsequently reinfusing the purified stem cells to reconstitute the hematopoietic system.
Inventor: Papayannopoulou, Thalia (Seattle, WA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday November 13th, 1992

Stimulation, production, culturing and transplantation of stem cells by fibroblast growth factors

Patent Number: 5817773
This patent teaches that members of the FGF family are useful for expansion of hematopoietic stem cells. This is interesting since FGF-2 was actually used in the clinic for treatment of stroke. Although results were impressive in small subsets of patients, the adverse effects of systemic administration of this protein stopped its clinical development. According to this patent the systemic...
Inventors: Wilson, Elaine Lynette (New York, NY); Gabrilove, Janice (New York, NY)
Assignee: New York University (New York, NY); Sloan-Kettering Institute for Cancer Research (New York, NY)
Date of First Priority Issue: Friday June 8th, 1990

Method for providing trophic support for neurons comprising administering neurturin

Patent Number: 5817622
This patent teaches that administration of neurturin can increase survival and induce expansion of neural stem cells. It would be interesting to see if neurturin can also effect hematopoiesis, given the similarity between stem cells of the hematopoietic and neural lineages.

Inventors: Johnson, Jr., Eugene M. (St. Louis, MO); Milbrandt, Jeffrey D. (St. Louis, MO); Kotzbauer, Paul T. (St. Louis, MO); Lampe, Patricia A. (St. Louis, MO)
Assignee: Washington University (St. Louis, MO)
Date of First Priority Issue: Monday August 28th, 1995

Methods of obtaining compositions enriched for hematopoietic stem cells, antibodies for use therein, compositions derived therefrom and methods of use thereof

Patent Number: 5814440
Disclosed are methods of purifying hematopoietic stem cells using the antibody EM10.
Inventors: Hill, Beth Louis (Mountain View, CA); Rozler, Elen (Mountain View, CA); Chen, Benjamin P. (Fremont, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Wednesday June 7th, 1995

System for the in vivo delivery and expression of heterologous genes in the bone marrow

Patent Number: 5811407
This patent teaches the transfection of bone marrow stem cells using a new type of vector. The vector disclosed is an alphavirus vector. Transfection by alphavirus has been performed in numerous situations and is actually in clinical trials.
Inventors: Johnston, Robert E. (Chapel Hill, NC); Davis, Nancy L. (Chapel Hill, NC); Simpson, Dennis A. (Pittsboro, NC)
Assignee: The University of North Carolina at Chapel Hill (Chapel Hill, NC)
Date of First Priority Issue: Wednesday February 19th, 1997

In vitro method for producing differentiated universally compatible human blood cells

Patent Number: 5811301
This patent teaches ways of genetically modifying stem cells, and their progeny so as to generate a population of cells that is acceptable by all humanity.
Inventor: Cameron, Robert B. (San Francisco, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday November 16th, 1993

Connective tissue regeneration using human mesenchymal stem cell preparations

Patent Number: 5811094
This is one of the original Osiris patents covering the therapeutic use of mesenchymal stem cells. In this patent mesenchymal stem cells are generated from the bone marrow and used to regenerate connective tissue such as bone or cartilage.
Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Osiris Therapeutics, Inc. (Baltimore, MD)
Date of First Priority Issue: Friday November 16th, 1990

Pharmaceutical preparation based on fetal suspension and methods of treating acquired immune deficiency syndrome (HIV injection)

Patent Number: 5811089
This patent covers the injection of fetal hematopoietic organs, and extracts thereof, for the treatment of HIV.
Inventors: Smikodub, Alexandr Ivanovich (Kiev, UA); Markov, Igor Semenovich (Kiev, UA); Pilipchak, Elena Makarovna (Kiev, UA)
Assignee: Centr Embrionainikh Tkaney "Emcell" (Kiev, UA)
Date of First Priority Issue: Tuesday December 14th, 1993

Stem cell factor receptor-(c-kit)-specific monoclonal antibody A3C6E2

Patent Number: 5808002
This patent covers the use of an antibody to c-kit for the quantification and extraction of hematopoietic stem cells. Since non-hematopoietic stem cells also express c-kit, this antibody may have other uses than originally contemplated.
Inventor: Buhring, Hans-Jorg (Tubingen, DE)
Assignee: Eberhard-Karls-Universitat Tubingen (Tubingen, DE)
Date of First Priority Issue: Wednesday January 10th, 1996

Use of interferon .gamma. for the inhibition of proliferation and differentiation of primitive hematopoietic progenitor cells

Patent Number: 5807744
This patent teaches that the Th1 cytokine interferon gamma inhibits proliferation of hematopoietic stem cells. In one use, this cytokine may be administered to cultures of bone marrow harvested from cancer patients for autologous transplant, the administration of interferon gamma would protect the stem cells from chemotherapy which would kill residual cancer cells. Additionally, the interferon...
Inventors: Berneman, Zwi (Antwerp, BE); Van Bockstaele, Dirk (Edegem, BE); Snoeck, Hans-Willem (Antwerp, BE)
Assignee: Boehringer Mannheim GmbH (Mannheim, DE)
Date of First Priority Issue: Saturday August 13th, 1994

Pluripotential quiescent stem cell population

Patent Number: 5807686

This patent covers an early hematopoietic stem cell that is identified by unique physical characteristics. It is interesting to see how this patent is read in light of other patents dealing with hematopoietic stem cell populations.

Inventors: Wagner, John E. (Plymouth, MN); Lebkowski, Jane S. (Portola Valley, CA)

Assignee: Regents of University of Minnesota (Minneapolis, MN); Rhone-Poulenc Rorer Pharmaceuticals (Collegeville, PA)

Date of First Priority Issue: Monday November 16th, 1992

Bone marrow transplantation

Patent Number: 5806529

This patent teaches that administration of "mega-dose" hematopoietic stem cell grafts may be useful for circuventing the requirement of completely ablating the recipient immune system. Use of this patent may allow for reduced neutropenic times and increased survival after bone marrow transplantation.

Inventors: Reisner, Yair (Old Jaffa, IL); Martelli, Massimo (Perugia, IT)

Assignee: Yeda Research and Development Co. Ltd. (IL)

Date of First Priority Issue: Wednesday November 3rd, 1993

Blood-borne mesenchymal cells

Patent Number: 5804446

This patent covers a type of stem cell that circulates and is mesenchymal in nature. The cell phenotype is CD34+ and CD45+, both being markers of hematopoietic and not classical mesenchymal stem cells.

Inventors: Cerami, Anthony (Shelter Island, NY); Bucala, Richard J. (New York, NY)

Assignee: The Picower Institute for Medical Research (Manhasset, NY)

Date of First Priority Issue: Friday February 26th, 1993

Methods for coextruding immunoisolatory implantable vehicles with a biocompatible jacket and a biocompatible matrix core

Patent Number: 5800829

This patent provides a method of isolating cells from the immune system through encapsulation. Specific means of generating this implantable device, and use with stem cells, as well as other populations of cells is disclosed.

Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Scharp, David W. (St. Louis, MO); Lacy, Paul E

Assignee: Brown University Research Foundation

Date of First Priority Issue: Thursday April 25th, 1991

Implantable biocompatible immunoisolatory vehicle for delivery of selected therapeutic products

Patent Number: 5800828

This patent teaches ways of growing cells in vivo in an environment that is protected from immunological attack. Specific ways of encapsulating cells, including stem cells, and their progeny are described. This patent is useful, in one embodiment, for the treatment of diabetes with artificially generated islets.

Inventors: Dionne, Keith E. (Rehoboth, MA); Emerich, Dwaine F. (Providence, RI); Hoffman, Diane (Cambridge, MA); Sanberg, Paul R. (Spring Hill, FL); Christenson, Lisa (New Haven, CT); Hegre, Orion D. (Green Valley, AZ); Scharp, David W. (St. Louis, MO); Lacy, Paul E

Assignee: Brown University Research Foundation

Date of First Priority Issue: Thursday April 25th, 1991

Method and construct for producing graft tissue from an extracellular matrix

Patent Number: 5800537

This patent teaches how to decellularize various tissues and to use the remnants as a scaffold for seeding of stem cells. This patent is useful for tissue engineering of varous organs and anatomical structures.

Inventor: Bell, Eugene (Boston, MA)

Assignee: Tissue Engineering, Inc. (Boston, MA)

Date of First Priority Issue: Friday August 7th, 1992

Method for controlling proliferation and differentiation of cells encapsulated within bioartificial organs

Patent Number: 5795790

This patent teaches the use of UV irradiation in order to render encapsulated cells mitotically inactive, but still metabolically active. This patent is useful for the generation of grafts that are implantable, for example an artificial pancreas.

Inventors: Schinstine, Malcolm (Ben Salem, PA); Shoichet, Molly S. (Toronto, CA); Gentile, Frank T. (Warwick, RI); Hammang, Joseph P. (Barrington, RI); Holland, Laura M. (Horsham, PA); Cain, Brian M. (Everett, MA); Doherty, Edward J. (Mansfield, MA); Winn, Shelley R

Assignee: Cytotherapeutics, Inc. (Lincoln, RI)

Date of First Priority Issue: Wednesday July 20th, 1994

Treatment of radiation-damaged bone marrow using galactosyl ceramides

Patent Number: 5767092

The composition of matter described in this patent is actually a stimulator of NKT cells. In this patent, the composition, alpha galactosyl ceramide is described for the use of protecting the hematopoietic stem cell compartment from radiation or chemotherapy. It is unknown if these effects are directly mediated on the CD34+ hematopoietic stem cells, or if they are indirect through the activation...

Inventors: Koezuka, Yasuhiko (Takasaki, JP); Kabaya, Koji (Takasaki, JP); Motoki, Kazuhiro (Takasaki, JP)
Assignee: Kirin Beer Kabushiki Kaisha (Tokyo-to, JP)
Date of First Priority Issue: Thursday July 15th, 1993

Expansion of bone marrow stromal cells

Patent Number: 5766950

This patent teaches that the clinically used cytokine FGF-1 is able to expand bone marrow stromal cells. This bone marrow stromal cell subtype seems to resemble, at least superficially, the mesenchymal stem cell. This is an interesting question that should be examined further.

Inventors: Greenberger, Joel S. (Sewickley, PA); Hurwitz, David R. (Acton, MA)
Assignee: ALG Company (Marlborough, MA)
Date of First Priority Issue: Friday December 29th, 1995

Method for production of neuroblasts

Patent Number: 5766948

This patent teaches how to generate a type of multipotential neural stem cell. These stem cells are extracted from embryonic sources. This patent may be useful for the treatment of a variety of neurodegenerative diseases.

Inventors: Gage, Fred H. (La Jolla, CA); Ray, Jasodhara (San Diego, CA)
Assignee: The Regents of the University of California (Oakland, CA)
Date of First Priority Issue: Wednesday January 6th, 1993

T cell differentiation of CD34+ stem cells in cultured thymic epithelial fragments

Patent Number: 5766944

Disclosed are methods of generating T cells in vitro from CD34+ hematopoietic stem cells. Specifically, the use of thymic fragments are provided so as to recapitulate in vivo thymopoiesis.

Inventor: Ruiz, Margaret Eileen (Chevy Chase, MD)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday December 31st, 1996

Methods, compositions and devices for maintaining and growing human stem and/or hematopoietics cells

Patent Number: 5763266

Specific bioreactors and culture conditions are provided for the expansion of hematopoietic stem cells. These cells may be used directly for treatment post marrow ablation, or may be further differentiated into specific hematological cells for treatment of specific diseases.

Inventors: Palsson, Bernhard O. (Ann Arbor, MI); Emerson, Stephen G. (Wayne, PA); Schwartz, Richard M. (San Mateo, CA)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday March 4th, 1993

Human hematopoietic stem cell

Patent Number: 5763197

This patent teaches the use of the CD34+, lineage negative hematopoietic stem cell as a target for the in vitro screening and identification of drugs. For example, libraries may be screened for ability to inhibit or stimulate proliferation, or alternatively to induce differentiation into various lineages.

Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Mountain View, CA); Aihara, Yukoh (Yokohama, JP); Weissman, Irving (Palo Alto, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday March 30th, 1990

Human liver epithelial cell lines

Patent Number: 5759765

This patent teaches the use of immortalized human hepatic epithelial cells for testing toxicity of agents in vitro. This is a rapid and easy way to test for potential toxicity of various candidates without having to perform animal testing.

Inventors: Harris, Curtis C. (Bethesda, MD); Cole, Katharine H. (Dayton, MD); Lechner, John F. (Albuquerque, NM); Reddel, Roger (St. Ives, AU)
Assignee: The United States of America as represented by the Secretary of the (Washington, DC)
Date of First Priority Issue: Wednesday December 14th, 1988

Neuronal progenitor cells and uses thereof

Patent Number: 5753505
This patent provides a new type of neural stem cell that can be used for screening or therapeutic purposes.
Inventor: Luskin, Marla B. (Decatur, GA)
Assignee: Emory University (Atlanta, GA)
Date of First Priority Issue: Thursday July 6th, 1995

Use of neuro-derived fetal cell lines for transplantation therapy

Patent Number: 5753491
This patent covers fetally derived neuronal stem cells, alone, and after transfection with therapeutic genes. These stem cells may be transfected in order to secrete trophic factors that would allow endogenous brain stem cells to proliferate. On the other hand, they may be transfected with anti-apoptotic genes such as Xiap. Xiap transfection would allow the cells to maintain viability.
Inventors: Major, Eugene O. (Oakton, VA); Tornatore, Carlo S. (University Park, MD); Yadid, Gal (Kfar Saba, IL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 13th, 1993

Human hematopoietic stem cell

Patent Number: 5750397
This is one of the composition of matter patents on hematopoietic stem cells. It covers the phenotype of CD34+ and Thy1+
Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Mountain View, CA); Aihara, Yukoh (Yokohama, JP); Weissman, Irving (Palo Alto, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday March 30th, 1990

In vitro growth and proliferation of genetically modified multipotent neural stem cells and their progeny

Patent Number: 5750376
This patent covers neural stem cells of a specific phenotype and their use for delivery of gene products into an area of need.
Inventors: Weiss, Samuel (Alberta, CA); Reynolds, Brent (Alberta, CA); Hammang, Joseph P. (Barrington, RI); Baetge, E. Edward (Barrington, RI)
Assignee: NeuroSpheres Holdings Ltd. (Calgary, CA)
Date of First Priority Issue: Monday July 8th, 1991

Methods for identifying fetal cells

Patent Number: 5750339
Fetal to maternal trafficking of stem cells is a relatively undiscussed phenomena. This patent covers methods of detecting fetal cells in maternal circulation, in one embodiment through identification of cells expressing the immune suppressive molecule HLA-G
Inventor: Smith, J. Bruce (Philadelphia, PA)
Assignee: Thomas Jefferson University (Philadelphia, PA)
Date of First Priority Issue: Wednesday November 30th, 1994

Expansion of human hematopoietic progenitor cells in a liquid medium

Patent Number: 5744361
This patent provide tissue culture reagents for the expansion of hematopoietic stem cells.
Inventors: Hoffman, Ronald (Palo Alto, CA); Brandt, John (Palo Alto, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 9th, 1991

Yolk sac stem cells and their uses

Patent Number: 5744347
This patent covers an early hematopoietic stem cell that is derived from the yolk sac. The yolk sac is actually the first site, or one of the first sites of hematopoiesis during development.
Inventors: Wagner, Thomas E. (Albany, OH); Antczak, Michael R. (Albany, OH)
Assignee: Ohio University Edison Biotechnology Institute (Athens, OH)
Date of First Priority Issue: Friday January 16th, 1987

Protection of hemopoietic cells

Patent Number: 5739110
This patent covers the use of the peptide AcSDKP for inhibiting hematopoietic stem cell proliferation and protecting the stem cells from radiation or chemotherapy. In addition, since the angiotensin-converting enzyme is responsible for degradation of AcSDKP, inhibition of ACE by clinically used inhibitors for the inhibition of hematopoiesis is provided. ACE inhibitors include captopril...
Inventors: Bogden, Arthur E. (West Yarmouth, MA); De Paillette, Evelyn Deschamps (Paris, FR)
Assignee: Biomeasure Inc. (Milford, MA); Societe de Conseils de Recherches Et D'Applications Scientifiques (FR)
Date of First Priority Issue: Monday September 12th, 1994

Lineage-directed induction of human mesenchymal stem cell differentiation

Patent Number: 5736396
This patent teaches ways of inducing the differentiation

of mesenchymal stem cells into bone, cartilage and other non-hematopoietic tissues.
Inventors: Bruder, Scott P. (Moreland Hills, OH); Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Tuesday January 24th, 1995

Morphogen-induced periodontal tissue regeneration

Patent Number: 5733878
This patent provides various morphogens, such as OP-1 for the regeneration of various dendal components, including tooth sockets.
Inventors: Kuberasampath, Thangavel (Medway, MA); Rueger, David C. (Hopkinton, MA); Oppermann, Hermann (Medway, MA); Cohen, Charles M. (Medway, MA); Pang, Roy H. L. (Etna, NH)
Assignee: Creative BioMolecules, Inc. (Hopkinton, MA)
Date of First Priority Issue: Friday August 30th, 1991

Enhancing bone marrow engraftment using MSCS

Patent Number: 5733542
This patent teaches the use of mesenchymal stem cells to promote engraftment of hematopoietic stem cells. I wonder how this mesenchymal cell population is different that the stromal cell populations that are also used to promote engraftment?
Inventors: Haynesworth, Stephen E. (Cleveland Heights, OH); Caplan, Arnold I. (Cleveland Heights, OH); Gerson, Stanton L. (Pepper Pike, OH); Lazarus, Hillard M. (Shaker Heights, OH)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday November 16th, 1990

Hematopoietic cells: compositions and methods

Patent Number: 5733541
This patent covers the use of osteoblasts to stimulate activity and function of hematopoietic stem cells. I wonder if osteoblasts can also stimulate the activity of other types of stem cells?
Inventors: Taichman, Russell S. (Ann Arbor, MI); Emerson, Stephen G. (Wayne, PA)
Assignee: The Regent of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Wednesday December 31st, 1969

Human hematopoietic stem cell

Patent Number: 5716827
This is one of the patents on the composition of matter of hematopoietic stem cells, it covers a population of CD34+, Thy-1+ cells.
Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Mountain View, CA); Aihara, Yukoh (Yokohama, JP); Weissman, Irving (Palo Alto, CA)
Assignee: SyStemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday March 30th, 1990

Isolated stromal cells for treating diseases, disorders or conditions characterized by bone defects

Patent Number: 5716616
This patent teaches that stromal cells may be used for the treatment of various bone disorders, as well as regeneration of bone. How are these stromal cells related to the mesenchymal stem cells that Osiris is using?
Inventors: Prockop, Darwin J. (Philadelphia, PA); Pereira, Ruth F. (Lansdowne, PA); Leeper, Dennis B. (Wynnewood, PA); O'Hara, Michael D. (Wyncote, PA)
Assignee: Thomas Jefferson University (Philadelphia, PA)
Date of First Priority Issue: Tuesday March 28th, 1995

Universal donor cells

Patent Number: 5705732
This patent covers manipulated cells and stem cells that are not immunogeneic when inplanted into a recipient. Various means of reducing immunogenecity are disclosed such as expression of human complement inhibitors and deletion or suppression of MHC expression.
Inventors: Sims, Peter J. (Mequon, WI); Bothwell, Alfred L.M. (Guilford, CT); Elliot, Eileen A. (New Haven, CT); Flavell, Richard A. (Killingworth, CT); Madri, Joseph (North Branford, CT); Rollins, Scott (Monroe, CT); Bell, Leonard (Woodbridge, CT); Squinto, Stephen
Assignee: Oklahoma Medical Research Foundation (Oklahoma City, OK); Yale University (New Haven, CT)
Date of First Priority Issue: Monday June 12th, 1989

Use of interleukin-7 to stimulate proliferation of hematopoietic cell precursors

Patent Number: 5705149
This patent covers the use of IL-7 to stimulate hematopoiesis.
Inventors: Namen, Anthony E. (Seattle, WA); Goodwin, Raymond G. (Seattle, WA); Lupton, Stephen D. (Seattle, WA); Mochizuki, Diane Y. (Seattle, WA)
Assignee: Sterling Winthrop Inc. (New York, NY)

Date of First Priority Issue: Monday October 26th, 1987

Method for the preparation of in vitro-derived human neutrophil precursor cells

Patent Number: 5700691

This patent teaches how to differentiate hematopoietic stem cells into a type of stem cell that is committed to the neutrophil lineage. These "committed" stem cells may be administered into a neutropenic patient until endogenous neutrophils rebound.

Inventors: Bender, James G. (Lindenhurst, IL); Maples, Phillip B. (Waukegan, IL); Smith, Stephen (Arlington Heights, IL); Unverzagt, Kristen L. (Palatine, IL); Van Epps, Dennis E. (Cary, IL)

Assignee: Baxter Healthcare Inc. (Irvine, CA)

Date of First Priority Issue: Monday March 23rd, 1992

Tissue-engineered bone repair using cultured periosteal cells

Patent Number: 5700289

This patent teaches that in some situations, cells from the periosteum can be grown and used as a "stem cell like" population for the treatment of bone defects.

Inventors: Breitbart, Arnold S. (Great Neck, NY); Grande, Daniel A. (Sea Cliff, NY)

Assignee: North Shore University Hospital Research Corporation (Manhasset, NY)

Date of First Priority Issue: Friday October 20th, 1995

Submucosa as a growth substrate for islet cells

Patent Number: 5695998

This patent teaches that submucosa matrix proteins are useful for expanding islet cells in vitro. This technology may allow the use of pancreatic stem cells to generate large amounts of islets for treatment of patients with Type 1 diabetes.

Inventors: Badylak, Stephen F. (W. Lafayette, IN); Boder, George (Martinsville, IN); Voytik, Sherry (Lafayette, IN); Demeter, Robert J. (Mooresville, IN); Critser, John (Carmel, IN); Liu, Chi (Indianapolis, IN)

Assignee: Purdue Research Foundation (West Lafayette, IN); Methodist Hospital of Indiana, Inc. (Indianapolis, IN)

Date of First Priority Issue: Friday February 10th, 1995

Neurogenic differentiation (neurod) genes

Patent Number: 5695995

This patent teaches specific gene sequences that transcribe proteins which induce differentiation of stem cells into neurons.

Inventors: Weintraub, deceased, Harold M. (late of Seattle, WA); Lee, Jacqueline E. (Denver, CO); Hollenberg, Stanley M. (Portland, OR); Tapscott, Stephen J. (Seattle, WA)

Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)

Date of First Priority Issue: Friday May 6th, 1994

Peripheralization of hematopoietic stem cells

Patent Number: 5695755

This patent covers mobilization of hematopoietic stem cells by administration of antibodies to VCAM or VLA-4.

Inventor: Papayannopoulou, Thalia (Seattle, WA)

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Friday November 13th, 1992

Methods and reagents for lengthening telomeres

Patent Number: 5686306

This patent provides compositions of matter, specifically peptide targets for telomerase, which allow for enhanced telomerase activity and longer cellular life span.

Inventors: West, Michael D. (San Carlos, CA); Shay, Jerry (Dallas, TX); Wright, Woodring E. (Arlington, TX)

Assignee: Board of Regents, The University of Texas System (Austin, TX)

Date of First Priority Issue: Wednesday May 13th, 1992

Growth of pancreatic islet cells

Patent Number: 5681587

This patent teaches how to expand islets as much as 1000 fold !! This is performed through culture of islet stem cells in laminin 5, and other substrates derived from cell lines that are provided in the patent. This patent may be useful to stem cell companies that are currently generating islets from of a variety of stem cell sources.

Inventors: Halberstadt, Craig (San Diego, CA); Zimber, Michael (Pullman, WA); Grzesiak, John J. (Cardiff, CA)

Assignee: Desmos, Inc. (San Diego, CA)

Date of First Priority Issue: Friday March 29th, 1996

Method for producing a highly enriched population of hematopoietic stem cells

Patent Number: 5681559

This patent teaches the extraction of hematopoietic stem cells from fetal sources. It may be that these stem cells have more potent repopulating activity as compared to stem cells from sources.

Inventors: DiGiusto, David (Palo Alto, CA); Galy, Anne (Palo Alto, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Wednesday August 25th, 1993

In vitro differentiation of CD34.sup.+ progenitor cells into T lymphocytes

Patent Number: 5677139
This patent teaches how to generate T cells from hematopoietic stem cells in vitro. T cells may be used for immune stimulation, or in some other cases may be used for generation of T suppressor cells. If nuclear transfer can be performed in the starting population of cells, then patient-specific T cells may be generated.
Inventors: Johnson, R. Paul (Lexington, MA); Rosenzweig, Michael (Boston, MA); Scadden, David T. (Weston, MA)
Assignee: President and Fellows of Harvard College (Cambridge, MA)
Date of First Priority Issue: Friday April 21st, 1995

Methods of obtaining compositions enriched for hematopoietic stem cells, compositions derived therefrom and methods of use thereof

Patent Number: 5677136
This patent teaches that the protein CD59 may be used as a marker of hematopoietic stem cells both for identification, and also for purification.
Inventors: Simmons, Paul J. (Adelaide, AU); Hill, Beth L. (Mountain View, CA); Chen, Benjamin P. (Fremont, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Monday November 14th, 1994

Methods of enhancing bone marrow transplantation and treating burn wounds comprising administering human pluripotent granulocyte colony-stimulating factor

Patent Number: 5676941
Like other hematopoietic cytokines, this patent teaches that hpG-CSF may be administered for the treatment of burn wounds.
Inventor: Souza, Lawrence M. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday August 23rd, 1985

Increase in hematopoietic progenitor cells in peripheral blood by transforming growth factor .beta.

Patent Number: 5674843
This patent teaches that the stem cell inhibitory compound TGF-beta may be administered for the purpose of mobilization.
Inventor: Carlino, Joseph A. (San Leandro, CA)
Assignee: Celtrix Pharmaceuticals, Inc. (Santa Clara, CA)
Date of First Priority Issue: Thursday September 2nd, 1993

Method for inhibiting growth of stem cells

Patent Number: 5674841
Disclosed is a peptide that inhibits stem cell proliferation...it doesnt give a name for the peptide..
Inventors: Pragnell, Ian B. (Glasgow, GB6); Donaldson, Debra D. (Cambridge, MA); Graham, Gerald J. (Glasgow, GB6); Wong, Gordon G. (Jamaica Plain, MA)
Assignee: Genetics Institute, Inc. (Cambridge, MA)
Date of First Priority Issue: Monday September 25th, 1989

Laminin 5 for growth of pancreatic islet cells

Patent Number: 5672361
This patent teaches that laminin-5 is very potent at stimulation of expansion of pancreatic islet cells from stem cells.
Inventors: Halberstadt, Craig (San Diego, CA); Grzesiak, John J. (Cardiff, CA)
Assignee: Desmos, Inc. (San Diego, CA)
Date of First Priority Issue: Friday March 29th, 1996

Human stem cell compositions and methods

Patent Number: 5672346
This patent covers the CD34+, HLA-DR negative, c-kit positive, hematopoietic stem cell.
Inventors: Srour, Edward (Indianapolis, IN); Zanjani, Esmail (Reno, NV); Brandt, John E. (Indianapolis, IN); Hoffman, Ronald (Indianapolis, IN)
Assignee: Indiana University Foundation (Bloomington, IN)
Date of First Priority Issue: Monday July 27th, 1992

Pluripotential embryonic stem cells and methods of making same

Patent Number: 5670372
This patent covers certain types of embryonic stem cells and their use for screening. Note that this patent has priority to the WARF patents...
Inventor: Hogan, Brigid L. M. (Brentwood, TN)
Assignee: Vanderbilt University
Date of First Priority Issue: Thursday October 8th, 1992

Methods and compositions for the ex vivo replication of human hematopoietic stem cells

Patent Number: 5670351

This patent covers methods of expanding human hematopoietic stem cells through ex vivo transfection with various genes. Specific culture conditions are also provided. This patent can be used for post myeloablative reconsitution, but also, theoretically, for stimulation of angiogenesis by administration of the bone marrow stem cells into ischemia areas.

Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI); Schwartz, Richard M. (Ann Arbor, MI)

Assignee: The Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Thursday June 15th, 1989

Compositions containing cultured mitotic human stem cells

Patent Number: 5670147

This patent teaches ways of expanding stem cell, including culture in IL-6 and GM-CSF.

Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI)

Assignee: Regents of the University of Michigan (Ann Arbor, MI)

Date of First Priority Issue: Thursday June 15th, 1989

Pharmacological preparations comprising human pluripotent hematopoietic colony stimulating factor

Patent Number: 5670146

This patent covers the various formulations of human p-CSF. It also covers the factor's use for stimulation of hematopoiesis. I wonder what the modern name for p-CSF is?

Inventors: Welte, Karl (New York, NY); Platzer, Erich (Erlangen, DE); Gabrilove, Janice L. (New York, NY); Mertelsm, Roland (Chappaqua, NY); Moore, Malcolm A. S. (Larchmont, NY)

Assignee: Sloan-Kettering Institute (New York, NY)

Date of First Priority Issue: Thursday March 28th, 1985

Hematopoietic stem cell growth-promoting compositions containing a fibroblast-derived fragment of fibronectin and a growth factor, and methods employing them in vitro or in vivo

Patent Number: 5668104

This patent covers a protein that expands hematopoietic stem cells called FDF-3.

Inventors: Nakahata, Tatsutoshi (Matsumoto, JP); Kawano, Genji (Kamakura, JP); Sudo, Tetsuo (Kamakura, JP); Kojima, Katsuaki (Yokohama, JP)

Assignee: Toray Industries, Inc. (Tokyo, JP)

Date of First Priority Issue: Tuesday March 31st, 1992

Method of purifying a population of cells enriched for hematopoietic stem cells populations of cells obtained thereby and methods of use thereof

Patent Number: 5665557

This patent covers the use of CDw109 for purification and identification of hematopoietic stem cells.

Inventors: Murray, Lesley (San Jose, CA); Sutherland, D. Robert (Oakville, CA)

Assignee: Systemix, Inc. (Palo Alto, CA); The Toronto Hospital Research Institute (Toronto, CA)

Date of First Priority Issue: Monday November 14th, 1994

Method of administering human pluripotent hematopoietic colony stimulating factor

Patent Number: 5662895

This patent covers the hematopoietic uses of a tumor derived hematopoiesis stimulator called pluripotent colony stimulating factor...what is the modern name of this???

Inventors: Welte, Karl (New York, NY); Platzer, Erich (Spardorf, DE); Gabrilove, Janice L. (New York, NY); Mertelsmann, Roland (Mainz, DE); Moore, Malcolm A. S. (Larchmont, NY)

Assignee: Sloan-Kettering Institute (New York, NY)

Date of First Priority Issue: Thursday March 28th, 1985

Stromal cell lines from human bone marrow and their use

Patent Number: 5658761

This patent covers immortalized stromal cells, which can be used for gene therapy. These stromal cells appear to be similar to mesenchymal stem cells in some ways.

Inventors: Thalmeier, Karin (Munchen, DE); Dormer, Peter (Gilching, DE)

Assignee: Gsf-Forschungszentrum fur Umwelt und Gesundheit GmbH (OberscheleiBheim, DE)

Date of First Priority Issue: Wednesday July 7th, 1993

Preparation of pure cultures of post-mitotic human neurons

Patent Number: 5654189

This patent covers differentiated teratocarinoma cells as a source of neurons. The concepts and subject matter of this patent actually was used in clinical trials for stroke.

Inventors: Lee, Virginia (Philadelphia, PA); Pleasure, Samuel (Philadelphia, PA)

Assignee: Trustees of the University of Pennsylvania (Philadelphia, PA)

Date of First Priority Issue: Friday July 10th, 1992

Blood-borne mesenchymal cells

Patent Number: 5654186

This patent covers a special population of stem cells that circulate in peripheral blood. Although the patent uses the word "mesenchymal" to describe the cells, these may not be true mesenchymal cells since they possess hematopoietic markers such as CD34 and CD45.

Inventors: Cerami, Anthony (Shelter Island, NY); Bucala, Richard J. (New York, NY)

Assignee: The Picower Institute for Medical Research (Manhasset, NY)

Date of First Priority Issue: Friday February 26th, 1993

Genetically engineered mammalian neural crest stem cells

Patent Number: 5654183

LNGFR expressing neural stem cells are patented. The use of these cells for targets of gene transfection, and subsequent administration of the transfected stem cells for therapeutic benefit is disclosed.

Inventors: Anderson, David J. (Altadena, CA); Stemple, Derek L. (Newton, MA)

Assignee: California Institute of Technology (Pasadena, CA)

Date of First Priority Issue: Thursday July 2nd, 1992

Cells producing stem cell proliferation factor

Patent Number: 5650299

This patent covers a cell line that produces a factor associated with inducing proliferation of stem cells. If this factor is not already commercialized, which it appears it is not, this patent is a great tool for starting a biotech company.

Inventors: Lawman, Michael J. P. (Orlando, FL); Lawman, Patricia D. (Orlando, FL); Denslow, Nancy D. (Gainesville, FL)

Assignee: The University of Florida (Gainesville, FL)

Date of First Priority Issue: Wednesday October 6th, 1993

Methods for producing differentiated cells from immature hematopoietic cells

Patent Number: 5648248

This patent teaches how to use hematopoietic stem cells as a stem cell source for the generation of dendritic cells. Since the dendritic cell is the most potent stimulator of the immune system, this patent is useful for generating a biological adjuvant for vaccines. The patent teaches that activation of the rel gene through a unique construct can be used for generation of dendritic cells out...

Inventors: Zenke, Martin (Schonow, DE); Boehmelt, Guido (North York, CA); Madruga, Jaime (Berlin, DE); Enrietto, Paula (Stony Brook, NY)

Assignee: Boehringer Ingelheim International GmbH (DE)

Date of First Priority Issue: Friday December 30th, 1994

Identification and isolation of human hematopoietic stem cells

Patent Number: 5643741

This patent covers the identification of human hematopoietic stem cells by seeking out cells that express the markers CD34 and Thy1.

Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Mountain View, CA); Aihara, Yukoh (Yokohama, JP); Weissman, Irving (Palo Alto, CA)

Assignee: Systemix, Inc. (Palo Alto, CA)

Date of First Priority Issue: Friday March 30th, 1990

Continuous centrifugation process for the separation of biological components from heterogeneous cell populations

Patent Number: 5641622

This patent covers the use of continuous flow centrifuges and various systems for purification of homogeneous cells from a heterogeneous population. This patent may be useful for purifying stem cells from blood based on weight and other physical characteristics.

Inventors: Lake, William C. (Laguna Niguel, CA); Giesler, Richard (Deerfield, IL); Epps, Dennis Van (Cary, IL); Chapman, John R. (Lake Villa, IL); Martinson, Jeffrey A. (Mundelein, IL); Ellis, Dale R. (Wonder Lake, IL); Aono, Frederick (Arlington Heights, IL); Bisch

Assignee: Baxter International Inc. (Deerfield, IL)

Date of First Priority Issue: Thursday September 13th, 1990

Methods and device for culturing human hematopoietic cells and their precursors

Patent Number: 5635387

This patent provide conditions and systems for the ex vivo expansion of hematopoietic stem cells. Specific cell concentrations, growth factors, and vessels are provided. This patent is useful for expansion of cells either in the autologous situation, or in situations where an allogeneic source is not sufficient, such as in cord blood transplants.

Inventors: Fei, Rui G. (Seattle, WA); Heimfeld, Shelly (Woodinville, WA); Minshall, Billy W. (Mill Creek, WA); Berenson, Ronald J. (Mercer Island, WA)

Assignee: CellPro, Inc. (Bothell, WA)
Date of First Priority Issue: Monday April 23rd, 1990

Methods for regulating the specific lineages of cells produced in a human hematopoietic cell culture

Patent Number: 5635386
This patent provides culture conditions for in vitro pushing stem cells of the hematopoietic lineage to differentiate into various blood cells. This patent is useful for generation of "off the shelf" cells if a method is figured out how to "de-immunogenize" the cells.
Inventors: Palsson, Bernhard O. (Ann Arbor, MI); Armstrong, R. Douglas (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Emerson, Stephen G. (Ann Arbor, MI)
Assignee: The Regents of The University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Non-lethal methods for conditioning a recipient for bone marrow transplantation

Patent Number: 5635156
This patent teaches how to perform bone marrow transplantation, or transplantation of stem cells with hematopoietic potential, without completely ablating the recipient hematopoietic system. The patent uses various antibodies to not-completely deplete the host, but just enough so that the stem cells administered are not completely cleared away.
Inventor: Ildstad, Suzanne T. (Pittsburgh, PA)
Assignee: University of Pittsburgh (Pittsburgh, PA)
Date of First Priority Issue: Monday September 13th, 1993

In vivo use of human bone marrow for investigation and production

Patent Number: 5633426
This is one of the patents on the human SCID mouse. It teaches methods of introducing human stem cells into a mouse that is immune compromized, so that the behaviour of human stem cells can be studied in a non-human model.
Inventors: Namikawa, Reiko (Palo Alto, CA); Kyoizumi, Seishi (Hiroshima, JP); McCune, Joseph M. (San Francisco, CA); Kaneshima, Hideto (Palo Alto, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Friday May 25th, 1990

Method of stimulating hematopoiesis with hemoglobin

Patent Number: 5631219
This patent teaches that hemoglobin itself may have hematopoietic stem cell stimulatory properties. The ability of hemoglobin chains has been described by others for stimulation of stem cell proliferation, and in some cases inhibition. This patent covers purified hemoglobin, mutant hemoglobin, and various recombinant hemoglobins. In Feb 25, 1998, Somatogen was bought by Baxter for 189...
Inventors: Rosenthal, Gary J. (Boulder, CO); Gerber, Michael J. (Denver, CO)
Assignee: Somatogen, Inc. (Boulder, CO)
Date of First Priority Issue: Tuesday March 8th, 1994

Single chain peptide compounds having hemoregulatory activity

Patent Number: 5629293
This is a composition of matter patent on a peptide that has stimulatory activity to stem cells of the hematopoietic system. This patent can be used for not only stimulating hematopoiesis in a patient, but also for other novel uses such as angiogenesis.
Inventors: Undheim, Kjell (Sandvika, NO); Kremminger, Peter (Liuz, AT); Hartmann, Michael (Pettenbach, AT)
Assignee: Nycomed Imaging AS (Oslo, NO)
Date of First Priority Issue: Tuesday June 2nd, 1992

Homeopathic dilutions of growth factors

Patent Number: 5629286
This is a patent on using the technique of homeopathy (ultra-dilution with potentiation) in order to generate stem cell stimulants and other growth factors. This patent is very exciting...if the data is reproducible it could revolutionize medicine.
Inventor: Brewitt, Barbara (Seattle, WA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday March 31st, 1994

Methods for treating disorders by administering radio frequency signals corresponding to growth factors

Patent Number: 5626617
This patent teaches that stem cells can be expanded by applying radiofrequencies that correspond with growth factors. This is a very interesting approach since conceptually the radiofrequencies can be used as pharmaceuticals. This patent definately deserves further investigation.
Inventor: Brewitt, Barbara (Seattle, WA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday March 31st, 1994

Hemoregulatory peptides

Patent Number: 5620957
This patent provides novel compositions of matter for stimulation of hematopoietic stem cells. This patent is

useful for post chemotherapy and post radiation therapy stimulation of blood cell production. It may be useful for stimulation of other stem cells as well, including for stimulation of endothelial precursors and angiogenesis.
Inventors: Bhatnagar, Pradip K. (Exton, PA); Huffman, William F. (Malvern, PA); Talmadge, James E. (Bellevue, NE)
Assignee: SmithKline Beecham Corporation (Philadelphia, PA)
Date of First Priority Issue: Friday July 14th, 1989

Stimulation, production and culturing of hematopoietic progenitor cells by fibroblast growth factors

Patent Number: 5612211
This patent covers the expansion of hematopoietic stem cells, both in vitro and in vivo with fibroblast growth factors. This patent is important not only for stimulation of post-ablation hematopoiesis, but can also be used to cover angiogenesis stimulation by fibroblast growth factors since angiogenesis involves hematopoietic stem cells, at least in some embodiments.
Inventors: Wilson, Elaine L. (New York, NY); Gabrilove, Janice (New York, NY)
Assignee: New York University (New York, NY); Sloan-Kettering Institute For Cancer Research (New York, NY)
Date of First Priority Issue: Monday January 8th, 1990

Retrovirus infecting primate bone marrow cells and harvesting both non-adherent and adherent cells

Patent Number: 5612206
This patent covers transfection of primate bone marrow cells with genes that that gene therapy may be used. The patent provides amphotropic retroviral vectors for transfection of the bone marrow.
Inventors: Valerio, Domenico (Leiden, NL); van Beusechem, Victor W. (Amsterdam, NL)
Assignee: Introgene B.V. (NL)
Date of First Priority Issue: Friday October 4th, 1991

Method of regenerating or replacing cartilage tissue using amniotic cells

Patent Number: 5612028
This patent teaches the use of stem cells derived from amniotic tissue for regeneration of cartilage tissue. The stem cells of the amniotic tissue claimed are epithelial and free of mesenchymal tissue.
Inventors: Sackier, Jonathan M. (Surrey, GB3); Wood, Christopher B. (Buckinghamshire, GB3); Krishnan, Rajagopallan (Surrey, GB3); Wiggington, Gordon R. (Hampshire, GB3); Butler, Douglas Mitchel H. (Surrey, GB3)
Assignee: Genethics Limited (Surrey, GB)
Date of First Priority Issue: Wednesday February 17th, 1988

Double chain peptide compounds having hemoregulatory activity

Patent Number: 5610141
This patent is a composition of matter patent covering a novel peptide that has ability to stimulate bone marrow proliferation and hematopoiesis. This is a very useful patent for pharmaceutical development since there is a need in the art for agents with good pharmacokinetics that stimulate hematopoiesis.
Inventors: Undheim, Kjell (Sandvika, NO); Solbakken, Magne (Oslo, NO); Agner, Erik (Oslo, NO); Kremminger, Peter (Linz, AT); Lange, Meinolf (Oslo, NO)
Assignee: Nycomed Imaging AS (NO)
Date of First Priority Issue: Tuesday June 2nd, 1992

Use of stem cell factor interleukin-6 and soluble interleukin-6 receptor to induce the development of hematopoietic stem cells

Patent Number: 5610056
This patent teaches that administration of stem cell factor, IL6, and IL6 soluble receptor, to hematopoietic stem cells, causes the hematopoietic stem cells to differentiate into erythroid precursors, and into erythrocytes. This patent is useful for parties seeking to generate red blood cells in vitro.
Inventor: Nakahata, Tatsutoshi (Tokyo, JP)
Assignee: Amgen Inc. (Thousand Oaks, CA); Tosoh Corporation (Tokyo, JP)
Date of First Priority Issue: Wednesday November 16th, 1994

Stroma-derived stem cell proteoglycan growth factor

Patent Number: 5605829
This patent provides a novel composition of matter that is useful for expansion of hematopoietic stem cells in vitro. The composition of matter is a unique proteoglycan that can selectively enhance the numbers of CD34+ stem cells when added to various in vitro culture systems.
Inventors: McGlave, Philip B. (St. Paul, MN); Verfaillie, Catherine M. (St. Paul, MN); Gupta, Pankaj (Minneapolis, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN)
Date of First Priority Issue: Friday November 12th, 1993

Methods, compositions and devices for growing human hematopoietic cells

Patent Number: 5605822
This patent teaches culture systems for growing and expanding hematopoietic stem cells. The culture system consists of a gene-transfected stromal layer that produces growth factors, as well as a continuous perfusion system which allows media to pass over the cells.
Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI)
Assignee: The Regents of The University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Sunday January 15th, 1989

Protection of hemopoietic cells during chemotherapy or radiotherapy

Patent Number: 5595973
This patent is useful in the treatment of patients with radiation or chemotherapy. Since hematopoietic stem cell toxicity is usually the dose limiting factor in radiation or chemotherapy, this patent teaches a way how to overcome this. Specifically, the patent claims inhibiting hematopoietic stem cell proliferation through administration of AcSDKP, then providing the chemotherapy and/or...
Inventor: Bogden, Arthur E. (Hopedale, MA)
Assignee: Biomeasure Incorporated (Milford, MA)
Date of First Priority Issue: Wednesday September 21st, 1994

Transduced mesenchymal stem cells

Patent Number: 5591625
This patent covers mesenchymal stem cells that are transfected with anything. Mesenchymal stem cells are very useful for clinical development since that do not need to be matched with HLA of the recipient in many situations, thus allowing for the use of an "off the shelf" product. The advantage of transfecting mesenchymal stem cells with genes is that the mesenchymal stem cells can act as a...
Inventors: Gerson, Stanton L. (Pepper Pike, OH); Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Case Western Reserve University (Cleveland, OH)
Date of First Priority Issue: Wednesday November 24th, 1993

Mammalian neural crest stem cells

Patent Number: 5589376
This patent covers a type of neural stem cell that is derived from the neural crest and expresses a specific phenotypic profile that allows not only for isolation, but also in vitro and in vivo identification. This stem cell type is capable of differentiating into neurons similar to those found in the peripheral nervous system, as well as microglia. The cell has a phenotype of LNGFR...
Inventors: Anderson, David J. (Altadena, CA); Stemple, Derek L. (Pasadena, CA)
Assignee: California Institute of Technology (Pasadena, CA)
Date of First Priority Issue: Monday July 27th, 1992

T lymphocyte precursor

Patent Number: 5583033
This patent covers the stem cell that gives rise to T cells. The claims actually comprise methods of isolation of a precursor that is CD34+, Leu8+ and CD7+. This patent is useful not only for purifying T cell stem cells for ex vivo growth and expansion, but also for identifying the T cell precursor pool in patients with various diseases.
Inventors: Terstappen, Leon W. M. M. (Palo Alto, CA); Picker, Louis J. (Dallas, TX)
Assignee: Becton Dickinson and Company (Franklin Lakes, NJ)
Date of First Priority Issue: Tuesday May 1st, 1990

Methods of treating bacterial inflammation and granulocytopoiesis by administering human pluripotent granulocyte colony-stimulating factor

Patent Number: 5582823
This patent covers the use of human pluripotent granulocyte colony stimulating factor for induction of granulocyte production, as well as for reducing bacterially mediated inflammation. The use of growth factors such as the one described has expanded in recent years to other types of stem cells besides hematopoietic stem cells. It will be interesting to see first what the new name for the...
Inventor: Souza, Lawrence M. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday August 23rd, 1985

Generation of neural precursor cell lines

Patent Number: 5580777
This patent covers neural stem cells that have been immortalized with c-myc or n-myc. These cells are useful not only for in vitro study and drug discovery, but also for therapy if differentiated properly so as to not possess malignant potential. The owner of the patent, Amrad, possesses numerous powerful patents in the area of stem cells.
Inventors: Bernard, Ora (North Balwyn, AU); Bartlett, Perry F. (North Carlton, AU)
Assignee: Amrad Corporation Limited (AU)

Date of First Priority Issue: Wednesday December 28th, 1988

Human pluripotent granulocyte colony-stimulating factor

Patent Number: 5580755

This patent covers a growth factor called human pluripotent granulocyte colony stimulating factor. Since names of growth factors have been standardized, it is difficult to tell which modern-day cytokine this is referring to. In any case, this growth factor is an expander of hematopoietic stem cells, and is useful for treatment of patients whose hematopoietic system has been minimized either...

Inventor: Souza, Lawrence M. (Thousand Oaks, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday August 23rd, 1985

Differential expansion of fetal stem cells in maternal circulation for use in prenatal genetic analysis

Patent Number: 5580724

This patent teaches how to expand fetal cells found in the maternal blood so as to be able to perform genetic tests without the need for amniocentesis. Since some have reported fetal stem cells in maternal circulation, it may be possible to use the technique in this patent, or a variation thereof, for obtaining fetal stem cells at various stages of development.

Inventor: Alter, Blanche P. (Galveston, TX)
Assignee: Board of Regents, The University of Texas System (Austin, TX)
Date of First Priority Issue: Friday March 25th, 1994

Homologous recombination for universal donor cells and chimeric mammalian hosts

Patent Number: 5574205

This patent covers generation of mice that lack MHC I and/or MHC II. Stem cell transplants are one of the transplants that the inventor believes can be performed with donor cells that lack MHC I and/or MHC II. Unfortunately the issue of rejection has to do not only with "major" histoincompatibility, but also with "minor" histoincompatibility.

Inventors: Kucherlapati, Raju (Darien, CT); Koller, Beverly H. (Carrboro, NC); Smithies, Oliver (Chapel Hill, NC); Dubridge, Robert B. (Belmont, CA); Greenburg, Gary (San Carlos, CA); Capon, Daniel J. (Hillsborough, CA); Williams, Steven R. (San Francisco, CA); De R
Assignee: Cell Genesys (Foster City, CA)
Date of First Priority Issue: Tuesday July 25th, 1989

Liver reserve cells

Patent Number: 5559022

Liver stem cells are very interesting to study, in part because of the very potent regenerative ability of the liver. In this patent a type of liver stem cell is claimed called the "liver reserve cell". These cells are characterized by ability to be stained by methylene blue and Azure A, adherence, multinucleation, ability to differentated, and specific density on percoll.

Inventors: Naughton, Brian A. (El Cajon, CA); Sibanda, Benson (Oceanside, CA)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday October 9th, 1992

Hematopoietic stem cell specific gene expression

Patent Number: 5556954

This patent covers the promoter for CD34. CD34 is a classical marker of stem cells, not only of the hematopoietic type but also of the hepatic type. CD34 is highly glycosylated and acts as an adhesion molecule. Mice that are knocked out for CD34 still have hematopoiesis, however the stem cells to not migrate properly. The current patent can be used for many things, including placing...

Inventors: Burn, Timothy C. (Bedford, MA); Satterthwaite, Anne B. (Brighton, MA); Tenen, Daniel G. (Boston, MA)
Assignee: Beth Israel Hospital Boston Association (Boston, MA)
Date of First Priority Issue: Thursday February 13th, 1992

Methods of culturing and modulating the growth of hair follicular stem cells

Patent Number: 5556783

This patent covers methods of expanding stem cells derived from the hair follicle. One of the methods of expanding hair follicle stem cells is through growing then on 3T3 fibroblasts. Hair stem cells are somewhat similar to mesenchymal stem cells and may be useful for a wide variety of applications in addition to hair replacement.

Inventors: Lavker, Robert M. (Malvern, PA); Sun, Tung-Tien (Scarsdale, NY); Yang, Jing-Shan (New York, NY)
Assignee: Trustees of Univ. of Penna (Philadelphia, PA); New York Univ. (New York, NY)
Date of First Priority Issue: Wednesday March 27th, 1991

Method for implanting encapsulated cells in a host

Patent Number: 5550050

Microencapsulation allows delivery of

immunologically incompatible cells to a recipient. The technology of microencapsulation has been used clinically for a variety of uses, including administration of cell therapy ranging from neurons to islets. The use of embryonic stem cells may require encapsulation so has to not only overcome the allogeneic barriers, but also to prevent growth and...
Inventors: Holland, Laura M. (Providence, RI); Hammang, Joseph P. (Barrington, RI); Rudnick, Seth A. (Barrington, RI); Lysaght, Michael J. (E. Greenwich, RI); Dionne, Keith E. (Rehoboth, MA)
Assignee: CytoTherapeutics, Inc. (Providence, RI)
Date of First Priority Issue: Friday April 15th, 1994

Methods and compositions of a bioartificial kidney suitable for use in vivo or ex vivo

Patent Number: 5549674
This patent covers an artificial kidney system designed in a manner so as to combine hollow fiber technology with living, fresh endothelial cells. This patent does mention that in some embodiments stem cells may be used for providing the necessary cells. Various artificial kidneys have been designed and the author of this patent has actually been involved in their clinical development...
Inventors: Humes, H. David (Ann Arbor, MI); Cieslinski, Deborah A. (Ann Arbor, MI)
Assignee: The Regents of The University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Monday March 2nd, 1992

Three-dimensional bone marrow cell and tissue culture system

Patent Number: 5541107
In this patent regarding bone marrow stem cell culture, Advanced Tissue Sciences continues their tour de force in three dimensional culture IP, through covering the use of three dimensional cultures for expanding bone marrow stem cells. Specifically, the patent teaches that stromal cells and a three dimensional matrix can be used for expansion of hematopoietic stem cell.
Inventors: Naughton, Gail K. (Groton, VT); Naughton, Brian A. (Groton, VT)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Inducing granulocyte production or B cell production in peripheral blood by TGF-.beta.

Patent Number: 5529982
TGF-beta is a cytokine with numerous anti-inflammatory functions. The importance of TGF-beta at controlling inflammation is seen not only in its ability to prevent autoimmunity in several animal models, but also by the fact that tumor cells secrete large quantities of it in order to escape immune-mediated killing. This patent teaches that TGF-beta can be administered in order to stimulate...
Inventors: Carlino, Joseph (San Leandro, CA); Singh, Naina (Santa Clara, CA); Ellingsworth, Larry (San Jose, CA)
Assignee: Celtrix Pharmaceuticals, Inc. (Santa Clara, CA)
Date of First Priority Issue: Tuesday August 6th, 1985

Treatment of immunologic and hematologic disorders with IGFBP alone or complexed with IGF

Patent Number: 5527776
This patent teaches that IGF-1 together with IGF Binding Protein-3 (IGFBP-3) can be used for stimulation of hematopoiesis and specifically upregulation of erythroid production in anemic patients. This is one example of a patent covering compounds that are traditionally seen as in the domain of endocrinologists, that are applied to hematology for new uses. The importance of IGF+IGFBP3 in...
Inventors: Carlino, Joseph A. (San Leandro, CA); Higley, Howard R. (Mountain View, CA); Maack, Christopher A. (El Cerrito, CA)
Assignee: Celtrix Pharmaceuticals
Date of First Priority Issue: Monday September 20th, 1993

Stroma-derived proteoglycan containing composition which promotes differentiation and maintains the self-renewal capacity of long-term bone marrow culture-initiating cells

Patent Number: 5523286
This patent provides a proteoglycan matrix that can be used for growth and expansion of hematopoietic stem cells. Interestingly this patent promotes not just growth of CD34+ hematopoietic stem cells, but specifically, hematopoietic stem cells that are capable of supporting long term cultures. This patent can be used for expanding hematopoietic stem cells for autologous bone marrow...
Inventors: McGlave, Philip B. (St. Paul, MN); Verfaillie, Catherine M. (St. Paul, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN)
Date of First Priority Issue: Friday November 12th, 1993

Three-dimensional pancreatic cell and tissue culture system

Patent Number: 5516681
This patent teaches the use of stromal cells to support growth, proliferation, and differentiation of islet-like pancreatic structures after addition of pancreatic acinar

cells to the culture. This technology can be a great basis for the numerous other stem cell technologies currrently available for islet regeneration.
Inventors: Naughton, Gail K. (Groton, VT); Naughton, Brian A. (Groton, VT)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Three-dimensional kidney cell and tissue culture system

Patent Number: 5516680
This patent teaches the generation of artificial kidneys through culturing of various cells that comprise the functional kidney in a three dimensional stromal preparation. The patent may be used not only for addition of kidney stem cells, but can incorporate various types of adult and embryonic stem cells for generation of "younger" kidneys.
Inventors: Naughton, Gail K. (Groton, VT); Naughton, Brian A. (Groton, VT)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Three-dimensional skin cell and tissue culture system

Patent Number: 5512475
This patent teaches how to generate artificial skin through culturing of stem cells in a three dimensional matrix. Artificial skin is very useful not only for burn patients, but also for in vitro testing of topical drug formulations. The invention uses a stromal cell preparation onto which melanocytes and keratinocytes are added.
Inventors: Naughton, Gail K. (Groton, VT); Naughton, Brian A. (Groton, VT)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Megakaryocyte potentiator

Patent Number: 5498698
This patent discloses a protein that stimulates production of platelets. This protein may be similar to thrombopoietin and should be investigated further.
Inventors: Yamaguchi, Nozomi (Kyoto, JP); Oh-Eda, Masayoshi (Shizuoka, JP); Hattori, Kunihiro (Shizuoka, JP)
Assignee: Chugai Seiyaku Kabushiki Kaisha (JP)
Date of First Priority Issue: Friday December 27th, 1991

Method for producing non-neoplastic, three dimensional, mammalian tissue and cell aggregates under microgravity culture conditions and the products produced therefrom

Patent Number: 5496722
This patent teaches the generation of three dimensional tissues through culture under microgravity conditions. This patent discloses several culture conditions, as well as scaffolds, that can be utilized for the generation of the three dimensional organ or organoid structure.
Inventors: Goodwin, Thomas J. (Friendswood, TX); Wolf, David A. (Houston, TX); Spaulding, Glenn F. (Houston, TX); Prewett, Tacey L. (Friendswood, TX)
Assignee: The United States of America as represented by the Administrator of the (Washington, DC)
Date of First Priority Issue: Thursday June 30th, 1988

Parthenogenic oocyte activation

Patent Number: 5496720
Parthenogenesis comes from Greece and essentially means "virgin birth". This patent teaches how to induce parthenogenesis in a bovine oocyte through induction of calcium flux. The induction of parthenogenesis leads to activation of the oocyte and can be used as a method of generating autologous stem cells for woman.
Inventors: Susko-Parrish, Joan L. (Monona, WI); Northey, David L. (Middleton, WI); Leibfried-Rutledge, M. Lorraine (Madison, WI); Stice, Steven L. (DeForest, WI)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday February 10th, 1993

Use of neutral soluble glucan preparations to stimulate platelet production

Patent Number: 5488040
beta.(1-3) glucan is used clinically as an immune stimulator. This patent teaches that beta glucan can be used to stimulate production of platelets by acting at the level of the hematopoietic stem cell. Beta glucan's mechanism of doing this appears to be currently unknown. Given the wide availablity and safety profile of beta glucan, this patent is useful for clinical development if proper...
Inventors: Jamas, Spiros (Boston, MA); Easson, Jr., D. Davidson (Shrewsbury, MA); Ostroff, Gary R. (Worcester, MA)
Assignee: Alpha-Beta Technology, Inc. (Worcester, MA)
Date of First Priority Issue: Friday September 8th, 1989

Human mesenchymal stem cells

Patent Number: 5486359

Mesenchymal stem cells are propably the most advanced in terms of clinical development of all stem cell types, second only to bone marrow stem cell. This patent covers mesenchymal stem cells in general. Specifically a cell is claimed that is positive for the markers SH2, SH3, and SH4. The claimed cell is capable of differentiating into connective tissue. Mesenchymal stem cells are very...

Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Osiris Therapeutics, Inc. (Cleveland, OH)
Date of First Priority Issue: Friday November 16th, 1990

Peptide compounds which inhibit the proliferation of epidermal or epithelial stem cells

Patent Number: 5484770

This patent discloses peptides that specifically inhibit proliferation of epidermal and/or epithelial stem cells. On the one hand this patent is useful for protection of such stem cells when the patient is treated with a cytotoxic agent that targets proliferating cells, such as in the case of cancer therapy. On the other hand, this patent may be used in combination with other patents or...

Inventor: Laerum, Ole D. (Sandviken, NO)
Assignee: Hafslund Nycomed Bioreg AS (Oslo, NO)
Date of First Priority Issue: Friday September 16th, 1988

Method for culturing T precursor cells under conditions of high oxygen concentration

Patent Number: 5476780

The stem cells that generate T cells originate in the bone marrow and differentiate in the thymus. This patent teaches that T cell precursors can be expanded in high oxygen conditions in a thymic-like microenvironment. This patent is very interesting not only from the point of view of generating T cells for immune stimulation, but also because theoretically it can be applied to the generation of...

Inventor: Watanabe, Yoshihiro (Yokohama, JP)
Assignee: Japan Tobacco, Inc. (Tokyo, JP)
Date of First Priority Issue: Thursday July 4th, 1991

Satellite cell proliferation in adult skeletal muscle

Patent Number: 5466676

This patent teaches methods of transfecting various stem cells with therapeutic or marker genes. Particularly, muscle stem cells, called satellite cells are discussed as target cells suitable for transfection.

Inventors: Booth, Frank W. (Houston, TX); Thomason, Donald B. (Memphis, TN); Morrison, Paul R. (Indianapolis, IN); Stancel, George M. (Houston, TX)
Assignee: Board of Regents, The University of Texas at Austin (
Date of First Priority Issue: Monday February 12th, 1990

Purification and manipulation of bone marrow and blood cells on the basis of P-glycoprotein expression

Patent Number: 5464753

This patent teaches that stem cells have an active efflux mechanism similar to the way that cancer cells have an efflux mechanism that makes them drug resistant. The only question about this patent is whether it also covers stem cells that are already identified using other markers. For example, it is very likely that the stem cells, at least hematopoietic stem cells that possess the efflux...

Inventors: Chaudhary, Preet M. (Chicago, IL); Roninson, Igor B. (Chicago, IL)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday March 8th, 1991

Osteogenic growth polypeptides identified from regenerating bone marrow

Patent Number: 5461034

This patent covers a composition of matter (peptide) that is derived from bone marrow, that stimulates bone formation. The peptide may be useful for healing through stimulation of endogenous stem cells, as well as through administration in combination with a stem cell source so as to accelerate bone healing.

Inventors: Rodan, Gideon A. (Bryn Mawr, PA); Jacobs, John W. (Irvine, CA); Sardana, Mohinder K. (Lansdale, PA); Gazit, Dan (Jerusalem, IL); Chorev, Michael (Jerusalem, IL); Muhlrad, Andras (Jerusalem, IT); Shteyer, Arye (Jerusalem, IL); Mansur, Nura (Jerusalem, IL);
Assignee: Yissum Research Development Company of the Hebrew University of Jerusalem (Jerusalem, IL)
Date of First Priority Issue: Thursday February 23rd, 1989

Method for culturing hematopoietic cells

Patent Number: 5460964

This patent teaches the culture of hematopoietic stem cells in a manner that the cells do not adhere to the stromal cells that provide various trophic growth factors. IL-3 and MIP-1 alpha are also covered for use in the hematopoietic stem cell culture system described herein.

Inventors: McGlave, Philip B. (St. Paul, MN); Verfaillie, Catherine M. (St. Paul, MN); Miller, Jeffrey S. (Little Canada, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN)
Date of First Priority Issue: Friday April 3rd, 1992

Device for maintaining and growing human stem and/or hematopoietics cells

Patent Number: 5459069
This patent provides tissue culture devices that can be used for expansion of hematopoietic stem cells. The tissue culture devices allow for a culture of stem cells to be performed so that the stromal cells that provide various factors to the stem cells do not come into direct contact with the stem cells.
Inventors: Palsson, Bernhard O. (Ann Arbor, MI); Emerson, Stephen G. (Ann Arbor, MI); Schwartz, Richard M. (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Pluripotential embryonic stem cells and methods of making same

Patent Number: 5453357
This is one of the early embryonic stem cell patents. In this one embryonic stem cells are maintained in LIF, stem cell factor, and fibroblast growth factor. It is interesting to analyze this patent in light of the WARF patents because there is some very interesting similarities to the approaches.
Inventor: Hogan, Brigid L. M. (Brentwood, TN)
Assignee: Vanderbilt University (Nashville, TN)
Date of First Priority Issue: Thursday October 8th, 1992

Apparatus and method for culturing embryonic stem cells

Patent Number: 5449620
Generation of knockout animals, as well as other chimeras, involves insertion of a gene-targeted embryonic stem cell into an embryo. This patent discloses a device that can physically hold the embryo so that injection of the stem cell can be performed with increased ease and accuracy.
Inventor: Khillan, Jaspal S. (Cherry Hill, NJ)
Assignee: Thomas Jefferson University (Philadelphia, PA)
Date of First Priority Issue: Tuesday January 25th, 1994

Three-dimensional cell and tissue culture system

Patent Number: 5443950
This patent claims a three dimensional structure that can be grown in vitro using stromal cells, stem cells, and other cell types, for the generation of tissue. The structure can then be introduced in vivo either to function as an organ, or to assist the function of an existing body component.
Inventors: Naughton, Gail K. (Groton, VT); Naughton, Brian A. (Groton, VT)
Assignee: Advanced Tissue Sciences, Inc. (La Jolla, CA)
Date of First Priority Issue: Friday April 18th, 1986

Method for the ex vivo replication of stem cells, for the optimization of hematopoietic progenitor cell cultures, and for increasing the metabolism, GM-CSF secretion and/or IL-6 secretion of human stromal cells

Patent Number: 5437994
This patent teaches methods of expanding human hematopoietic cells ex vivo using various cytokine cocktails. The patent is heavily cited by other patents and its claims appear to be far-reaching.
Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI)
Assignee: Regents of The University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Method of enhancing the growth of gut epithelial cells by administration of a cytokine such as interleukin II

Patent Number: 5437863
Gut epithelial cells are proliferating, well at least the stem cells that give rise to them, are in a state of constant proliferation. This is one of the reasons why after chemotherapy and/or radiation therapy, there is adverse effects associated with the GI tract. This patent teaches that proliferation of these cells can be stimulated by IL-6, IL-11, LIF, Oncostatin M, and CNTF.
Inventors: Williams, David A. (Indianapolis, IN); Clark, Steven C. (Winchester, MA)
Assignee: Genetics Institute, Inc. (Cambridge, MA)
Date of First Priority Issue: Wednesday September 2nd, 1992

Method for culturing human hematopoietic stem cells in vitro

Patent Number: 5436151
This patent teaches how to culture hematopoietic stem cells so as to expand the hematopoietic repopulating ability through the culture on top of stromal cells, however under conditions so that the stromal cells are not in physical contact with the hematopoietic stem

cells. There is great interest in methods of culturing and expanding stem cell populations using various types of "feeder" cells...
Inventors: McGlave, Philip B. (St. Paul, MN); Verfaillie, Catherine M. (St. Paul, MN); Miller, Jeffrey S. (Little Canada, MN)
Assignee: Regents of the University of Minnesota (Minneapolis, MN)
Date of First Priority Issue: Friday April 3rd, 1992

Proliferative action of leukaemia inhibitory factor on satellite cells

Patent Number: 5435999
Satellite cells are muscle stem cells. This patent teaches that LIF either alone, or together with TGF-beta, EGF, or FGF, is capable of stimulating proliferation of muscle satellite cells. This technology is useful not only for stimulating proliferation of endogenous satellite cells after injury, but also for cells that have been transplanted to an area of need.
Inventor: Austin, Lawrence (Mount Waverley, AU)
Assignee: Monash University (Clayton, AU)
Date of First Priority Issue: Friday November 24th, 1989

Methods and compositions for isolation and growth of kidney tubule stem cells, in vitro kidney tubulogenesis and ex vivo construction of renal tubules

Patent Number: 5429938
This patent covers the isolation, expansion, and use of kidney stem cells in order to generate in vitro renal tubules. The compounds used for kidney stem cell expansion include retinoic acid, TGF, and EGF.
Inventor: Humes, H. David (Ann Arbor, MI)
Assignee: University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Monday March 2nd, 1992

Increase in hematopoietic progenitor cells in peripheral blood by transforming growth factor beta

Patent Number: 5426098
This patent leverages the ability of TGF-beta to protect stem cells from cytotoxic agents by inhibiting proliferation of stem cells. Specifically, since chemotherapy kills proliferating cells, if the hematopoietic stem cells are first stopped from proliferating by administration of TGF-beta, then the hematopoietic system should be preserved, at least in part.
Inventor: Carlino, Joseph A. (San Leandro, CA)
Assignee: Celtrix Pharmaceuticals, Inc. (Santa Clara, CA)
Date of First Priority Issue: Thursday September 2nd, 1993

System and method for transplantation of cells

Patent Number: 5423778
This patent teaches the expansion of stem cells and progeny of the stem cells in vivo in a patient. The patent discloses various chambers, as well as methods of introducing the cells into a patient so that the cells can be truly cultured "in vivo".
Inventors: Eriksson, Elof (Wellesley Hills, MA); Vogt, Peter M. (Newton, MA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Thursday December 14th, 1989

Homologous recombination for universal donor cells and chimeric mammalian hosts

Patent Number: 5413923
This patent teaches how to genetically delete the MHC antigens in order to have stem cells and progeny of the stem cells that are capable of acting as universal donor cells. Although this technology is at face value very interesting, the fact that other antigens besides MHC cause rejection of tissue dampens enthusiasm for this approach. Additionally, the ability of recipient immune system to...
Inventors: Kucherlapati, Raju (Darien, CT); Koller, Beverly H. (Carrboro, NC); Smithies, Oliver (Chapel Hill, NC)
Assignee: Cell Genesys, Inc. (Foster City, CA); Univ. of North Carolina at Chapel Hill (Chapel Hill, NC)
Date of First Priority Issue: Monday November 6th, 1989

Expansion of human hematopoietic progenitor cells in a liquid medium

Patent Number: 5409825
This patent uses mast cell growth factor as an additive to tissue culture media in order to generate a liquid composition that is useful for expansion of hematopoietic stem cells. The ability of this media to expand other types of stem cells should be assessed.
Inventors: Hoffman, Ronald (Indianapolis, IN); Brandt, John (Indianapolis, IN)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday April 9th, 1991

Medium for long-term proliferation and development of cells

Patent Number: 5405772
This patent is for a tissue culture media that is capable of expanding, as well as allowing differentiation of various cell types in vitro, including hematopoietic stem cells. The media is different than other approaches since it comprises several growth factors, as well as

extracellular matrix components. Importantly the media does not use serum, this is applicable for clinical ex vivo...
Inventor: Ponting, Ian L. O. (Woodland Hills, CA)
Assignee: Amgen Inc. (Thousand Oaks, CA)
Date of First Priority Issue: Friday June 18th, 1993

Methods and compositions for the optimization of human hematopoietic progenitor cell cultures

Patent Number: 5399493
The genetic engineering of hematopoietic stem cells offers the potential to cure several disease, including severe combined immunodeficiency, sickle cell anemia, beta thalessemia, etc. This patent teaches how to ex vivo genetically engineer hematopoietic stem cells through the use of retroviral vectors. This patent is highly cited by other patents.
Inventors: Emerson, Stephen G. (Ann Arbor, MI); Clarke, Michael F. (Ann Arbor, MI); Palsson, Bernhard O. (Ann Arbor, MI); Schwartz, Richard M. (Ann Arbor, MI)
Assignee: The Regents of the University of Michigan (Ann Arbor, MI)
Date of First Priority Issue: Thursday June 15th, 1989

Serum-free basal and culture medium for hematopoietic and leukemia cells

Patent Number: 5397706
This patent teaches the making of a serum free media for growth hematopoietic stem cells. Such a media is useful since the addition of fetal serum and especially fetal calf serum in culture medium for cell therapy is associated with regulatory hurdles.
Inventors: Correa, Paulo N. (Concord, Ontario, CA); Alexrad, Arthur A. (Willowdale, Ontario, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Wednesday November 6th, 1991

Ketamine analogues for treatment of thrombocytopenia

Patent Number: 5384331
Ketamine is used as an anasthetic in veterinary medicine, as well as for some human uses. This patent teaches various chemical modifications of ketamine that stimulate production of stem cells that are committed to generating platelets. The importance of stimulating platelet production is seen by the number of companies working on either thrombopoietin analogues or antibodies to the...
Inventors: Kogan, Timothy P. (Half Moon Bay, CA); Somers, Todd C. (Montara, CA)
Assignee: Genentech, Inc. (San Francisco, CA)
Date of First Priority Issue: Thursday July 18th, 1991

Method of inducing cellular differentiations and altering cell phenotype using ceramide analogs

Patent Number: 5369030
Ceramides are generated from membrane components by the enzyme sphingomyelinase. The importance of ceramides in cell biology is noted by their pro-apoptotic activity in certain cells, as well as ability to induce differentiation. This patent teaches that certain ceramides may be used to guide differentiation of stem cells into various lineages. It may be possible the through taking the concepts...
Inventors: Hannun, Yusuf A. (Chapel Hill, NC); Bielawska, Alicja (Apex, NC)
Assignee: Duke University (Durham, NC)
Date of First Priority Issue: Friday September 11th, 1992

Method of regenerating articular cartilage

Patent Number: 5368051
This patent teaches how to use growth hormone, as well as other factors for the repair of articular cartilage. The method is useful for developing not only therapeutic kits, but also as a stepping stop for new methods of using stem cells, both endogenous and exogeneous in cartilage repair.
Inventors: Dunn, Allan R. (North Miami, FL); Dunn, Susan L. (North Miami, FL)
Assignee: Not Stated
Date of First Priority Issue: Wednesday June 30th, 1993

Enhanced maintenance of pregnancy using leukaemia inhibitory factor in embryo culturing

Patent Number: 5366888
This patent is assigned to Amrad, a company whose patents have recently been used to challenge the WARF patents. The current patent involves the use of LIF in enhancing ability of implanted embryos to develop into normal offspring. The relevance of this patent to embryonic stem cells is that LIF has been used consistently for generation of embryonic stem cells from a variety of species. The...
Inventors: Fry, Richard C. (Altona North, AU); Parr, Ronald A. (Hoppers Crossing, AU)
Assignee: Amrad Corporation Limited (AU)
Date of First Priority Issue: Monday July 9th, 1990

Polypeptide derivatives of human granulocyte colony stimulating factor

Patent Number: 5362853
G-CSF is used clinically for stimulation of neutrophil

production in pateints that have taken chemotherapy, radiation therapy (in some cases), as well as post bone marrow tranplant. This patent covers peptide derivatives of G-CSF that are useful for stimulation of hematopoiesis. It may be interesting to use this patent to compete with currently used G-CSF formulations.
Inventors: Kuga, Tetsuro (Yamaguchi, JP); Miyaji, Hiromasa (Tokyo, JP); Sato, Moriyuki (Tokyo, JP); Okabe, Masami (Shizuoka, JP); Morimoto, Makoto (Shizuoka, JP); Itoh, Seiga (Kanagawa, JP); Yamasaki, Motoo (Tokyo, JP); Yokoo, Yoshiharu (Kanagawa, JP); Yamaguchi, Ka
Assignee: Kyowa Hakko Kogyo Co., Ltd. (Tokyo, JP)
Date of First Priority Issue: Tuesday December 23rd, 1986

Methods for stimulating hematopoietic progenitors using hepatocyte growth factor and lymphokines

Patent Number: 5362716
This patent covers stimulation of hematopoietic stem cells by administration of hepatocyte growth factor with either IL-3 or GM-CSF. Hepatocyte growth factor has been used clinically in a variety of situations including to stimulate angiogenesis. It may be interesting, in light of the claimed pro-hematopoietic stem cell activity of hepatocyte growth factor, to try using this cytokine...
Inventors: Kmiecik, Thomas E. (Frederick, MD); Vande Woude, George F. (Berryville, VA)
Assignee: The United States of America as represented by the Department of Health (Washington, DC)
Date of First Priority Issue: Wednesday December 27th, 1989

Stimulation of stem cell growth by the bryostatins

Patent Number: 5358711
Bryostatin is a drug derived from a type of symbiont bacteria. Although bryostatin has been used in clinical trials for oncology, results have not been excellent. This patent teaches that bryostatin and various derivatives thereof are useful for stimulation of hematopoietic stem cell proliferation. It will be interesting to see if bryostatin works on stimulating stem cell activity of other...
Inventors: May, W. Stratford (Baltimore, MD); Sensenbrenner, Lyle L. (Grosse Pointe Park, MI)
Assignee: Johns Hopkins University (Baltimore, MD)
Date of First Priority Issue: Monday November 23rd, 1987

Conditioned medium useful for sustaining growth of colonic crypt cells

Patent Number: 5316937
Colonic crypt cells are a population of self renewing stem cells that are depleted after radiation and in some situations chemotherapy due to their rapid basal proliferation. In this patent a method of stimulating crypt cell proliferation is disclosed through administration of a conditioned media. This patent may be useful for identifying the active ingredient in the conditioned media and...
Inventors: Whitehead, R. H. (Victoria, AU); Burgess, Anthony (Victoria, AU); Zhang, Hui-Hua (Victoria, AU)
Assignee: Ludwig Institute for Cancer Research (NY)
Date of First Priority Issue: Monday March 16th, 1992

Method for protecting bone marrow against chemotherapeutic drugs using transforming growth factor beta 1

Patent Number: 5278145
TGF-beta is an inhibitor of hematopoietic stem cell proliferation. It is known that autologous TGF-b is involved in keeping stem cells in a quiescent G0 state. This patent teaches the systemic administration of TGF-b before administration of a chemotherapeutic drug so as to protect the stem cells from damage.
Inventors: Keller, Jonathan R. (Frederick, MD); Ruscetti, Francis W. (Rockville, MD); Wiltrout, Robert (Frederick, MD)
Assignee: The United States of America as represented by the Department of Health (Washington, DC)
Date of First Priority Issue: Thursday June 29th, 1989

Hemolymphopoietic growth factors, process for purifying and producing hemolymphopoietic growth factors and pharmaceutical compositions made therefrom

Patent Number: 5264418
This patent claims a hematopoietic stem cell growth factor called HLGF. This factor seems to synergize with other stem cell stimulator factors such as G-CSF, GM-CSF, and IL-3. The modern identify of this factor will be of interest since it may be developed into a therapeutic.
Inventors: Quesenberry, Peter J. (Charlottesville, VA); McNiece, Ian K. (Charlottesville, VA)
Assignee: The University of Virginia Alumni Patents Foundation (Charlottesville, VA)
Date of First Priority Issue: Friday January 24th, 1986

Uteroferrin and rose proteins for stimulating hematopoietic cells

Patent Number: 5258367
This patent teaches that uteroferrin (placental Type V acid phosphatase) is a stimulator of hematopoietic stem cells. Uteroferrin is made during pregnancy and is associated with iron transport. The use of uteroferrin

for hematopoiesis may be a potent new way of approaching the problem of neutropenia.
Inventors: Bazer, Fuller W. (Gainesville, FL); Gross, Samuel (Gainesville, FL)
Assignee: University of Florida (Gainesville, FL)
Date of First Priority Issue: Friday June 29th, 1990

Primitive cell colony stimulating factors and lymphohematopoietic progenitor cells

Patent Number: 5256560
There are numerous stem cell types in the bone marrow. Specific stem cells of the hematopoietic lineage were originally identified as being CD34+. In this patent, a CD34-stem cell is claimed that produces growth factors capable of stimulating hematopoiesis. This patent may be a really great candidate for developing since at first appearance it does not seem to be under...
Inventors: Lawman, Michael J. P. (Gainsville, FL); Ohmann, Helle B. (Saskatchewan, CA); Attah-Poku, Samuel K. (Saskatchewan, CA); Heise-Qualtiere, Janette (Saskatchewan, CA)
Assignee: University of Saskatchewan (Saskatoon, CA)
Date of First Priority Issue: Friday October 7th, 1988

CD4.sup.+, latently HIV-1-infected hematopoietic progenitor cells

Patent Number: 5256534
This patent covers a model of HIV infection. Specifically HIV infected stem cells of the hematopoietic type are infected and infection remains latent. HIV treatments may be assessed using this model of "stem cell" HIV infection.
Inventors: Butera, Salvatore T. (Stone Mountain, GA); Folks, Thomas M. (Lithonia, GA); Perez, Victor L. (Rio Piedras, PR)
Assignee: The United States of America as represented by the Department of Health (Washington, DC)
Date of First Priority Issue: Friday August 9th, 1991

Maturation of hemopoietic cells

Patent Number: 5246699
This patent teaches a really interesting way of stimulating myelopoiesis by exposing myeloid precursor cells to a compound called IgE binding factor. Myeloid precursors are important for generation of neutrophils and therefore protecting from opportunistic diseases. Stimulation of myeloid cells by this approach may be useful for immune modulation as well, some papers suggest that myeloid...
Inventors: Debre, Patrice (Paris, FR); Mossalayi, Mohammad D. (Boussy St Antoine, FR)
Assignee: Ciba-Geigy Corporation (Ardsley, NY)
Date of First Priority Issue: Wednesday May 9th, 1990

Method for in vitro culture of mammalian cells

Patent Number: 5223428
This patent teaches methods of culturing and expanding cells, including stem cells, through a unique culture system that uses hollow fiber technology. Since tissue culture is usually performed under static conditions and very derived from the in vivo situation, numerous failures to expand stem cells can be explained. The culture system of this invention seeks to provide a more in vivo like...
Inventor: Rose, Sam (San Francisco, CA)
Assignee: Baxter International Inc. (Deerfield, IL)
Date of First Priority Issue: Tuesday December 14th, 1982

SCL: a hematopoietic growth and differentiation factor

Patent Number: 5214133
This patent is for a transcription factor associated with stem cell activity. The factor is a basic helix-loop-helix transcription factor called SCL/Tal1. It is expressed in cells that possess hematopoietic stem cell activity and controls numerous genes associated with stem cell functions. Modification of activity of this transcription factor may be used theoretically for manipulation...
Inventors: Kirsch, Ilan R. (Potomac, MD); Begley, C. Glenn (North Carlton, AU)
Assignee: The United States of America as represented by the Secretary of the (Washington, DC)
Date of First Priority Issue: Friday November 17th, 1989

IL-4 and TNF induce mAb 6G10-recognized expression on bone marrow stromal cells

Patent Number: 5206345
This patent covers a molecule associated with adhesion of cells to the endothelium that is induced by IL-4 and TNF and is recognized by the antibody 6G10 . This molecule may be important in order to alter migration not only of stem cells but also in situations where migration of cells is sought to be avoided such as cancer.
Inventors: Masinovsky, Boris (Bellevue, WA); Gallatin, William M. (Mercer Island, WA); Simmons, Paul J. (Seattle, WA)
Assignee: Fred Hutchinson Cancer Research Center (Seattle, WA)
Date of First Priority Issue: Thursday August 2nd, 1990

Pharmaceutical composition of BUF-5 for treating anemia

Patent Number: 5200395
This patent covers the use of a peptide called BUF-5 for the treatment of anemia. Based on the literature we could not find what exactly BUF-5 is. This could be a

very interesting patent for treatment not only of various forms of anemia, but also other hematological diseases in which stimulation of the erythrocyte progenitor is beneficial.
Inventors: Eto, Yuzuru (Kawasaki, JP); Koyama, Naoto (Kawasaki, JP); Ejima, Daisuke (Kawasaki, JP); Washitake, Masayo (Kawasaki, JP); Shibai, Hiroshiro (Kawasaki, JP)
Assignee: Ajinomoto Company, Inc. (Tokyo, JP)
Date of First Priority Issue: Sunday October 18th, 1998

Method for improving autologous transplantation

Patent Number: 5199942
Anyone performing autologous hematopoietic stem cell transplants should watch out for this patent !! This patent teaches essentially autologous transplantation with ex vivo expansion of stem cells. Numerous companies and scientists are doing or have done clinical investigations which potentially infringe on this patent.
Inventor: Gillis, Steven (Mercer Island, WA)
Assignee: Immunex Corporation (Seattle, WA)
Date of First Priority Issue: Friday June 7th, 1991

Method for enhancing the implantation and differentiation of marrow-derived mesenchymal cells

Patent Number: 5197985
Mesenchymal stem cells are a topic of intense investigation and subject to several clinical trials, including by Osiris Therapeutics who are currently in Phase III for treatment of graft versus host disease. This is one of the older patents on mesenchymal stem cells that teaches the differentiation of mesenchymal stem cells into bone forming cells. This is performed through the use of...
Inventors: Caplan, Arnold I. (Cleveland Heights, OH); Haynesworth, Stephen E. (Cleveland Heights, OH)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Friday November 16th, 1990

Isolation and preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood and methods of therapeutic use

Patent Number: 5192553
This is a patent on freezing cord blood stem cells. This is an important patent since it is generating revenue. The company Pharmastem used this patent and several others in order to position itself in the cord blood industry. Additionally, this patent stood the test of litigation.
Inventors: Boyse, Edward A. (Tucson, AZ); Broxmeyer, Hal E. (Indianapolis, IN); Douglas, Gordon W. (New York, NY)
Assignee: Biocyte Corporation (New York, NY)
Date of First Priority Issue: Thursday November 12th, 1987

Method for stimulating transplanted bone marrow cells

Patent Number: 5187193
This patent teaches the in vivo use of dithiocarbamate for hematopoietic reconstitution after bone marrow transplantation or myelosuppression. The dithiocarbamate or its analogs that are mentioned in the patent may be administered systemically without adverse effects.
Inventors: Borch, Richard F. (Pittsford, NY); Schmalbach, Therese K. (Newton, MA)
Assignee: University of Rochester (Rochester, NY)
Date of First Priority Issue: Monday September 12th, 1988

Composition and method for supporting bone marrow transplantation

Patent Number: 5186931
This patent provides a composition of cytokines for stimulating hematopoiesis after a bone marrow transplant, as well as for the in vitro stimulation of hematopoiesis. The composition involves B cell differentiation factor and some commonly used cytokines today.
Inventors: Kishimoto, Tadamitsu (Nakano Tondabayashi-shi, Oosaka-fu, JP); Hirano, Toshio (Ibaraki, JP); Akiyama, Yukio (Kawasaki, JP); Okano, Akira (Kawasaki, JP); Matsui, Hiroshi (Kawasaki, JP); Takahara, Yoshiyuki (Kawasaki, JP)
Assignee: Ajinomoto Co., Inc. (Tokyo, JP); Kishimoto, Tadamitsu (Tondabayashi, JP)
Date of First Priority Issue: Wednesday August 6th, 1986

Preparation of pure cultures of post-mitotic human neurons

Patent Number: 5175103
This patent covers one of the few stem cell therapies that actually entered clinical trials. The patent is for a teratocarcinoma cell line that is induced to differentiate into neurons with retinoic acid (and/or other factors) and then stops proliferating and can be used for cell therapy in stroke. The technology was eventually developed clinically by Layton Biosciences. Administration of the...
Inventors: Lee, Virginia (Philadelphia, PA); Pleasure, Samuel (Philadelphia, PA)
Assignee: Trustees of University of Pennsylvania (Philadelphia, PA)
Date of First Priority Issue: Monday October 21st, 1991

Propagatable, new combinant cells for cellular replacement therapy

Patent Number: 5175004

This is a very interesting patent for generation of new cells and new stem cells. This patent is way ahead of its time. It teaches to take recipient cells from a degenerated organ, "rejuvenate" the cells by transplanting the nucleus of the old cell into a cytoplasm of a newer cell, generating a histocompatible cell population through this fusion, and transplanting the cells back into a...

Inventor: Matsumura, Kenneth N. (Berkeley, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Tuesday December 27th, 1988

Apparatus for removing fluid from an umbilical cord

Patent Number: 5171527

This patent provides a medical device for rapidly extracting cord blood from an umbilical cord. This may be useful for collection of cord blood stem cells, which is a common practice in current medicine.

Inventors: Knippscheer, Hermann (Baldwin, NY); Richard, Daniel D. (Sedona, AZ)
Assignee: Cryo-Cell International, Inc. (Baldwin, NY)
Date of First Priority Issue: Friday January 26th, 1990

Method for stimulating production of bone marrow cell growth factors using dithiocarbamates

Patent Number: 5169765

This patent teaches that dithiocarbamate and its analogues have the ability to stimulate bone marrow production of hematopoietic growth factors. Dithiocarbamate may be used according to the invention for stimulation of hematopoietic cells to produce growth factors, and subsequently the dithiocarbamate may be taken off the cells. While this patent seems like a really interesting method of...

Inventors: Borch, Richard F. (Pittsford, NY); Schmalbach, Therese K. (Newton, MA)
Assignee: University of Rochester (Rochester, NY)
Date of First Priority Issue: Tuesday September 12th, 1989

Method of treating hematologic diseases and pharmaceutical composition to be used therefor

Patent Number: 5166180

This patent teaches ways to increase hematopoiesis through administration of some chemical compositions. The patent has 2 independent claims that essentially cover these compositions. This seems like an interesting patent but I need to actually look up and see if these compositions have been developed or not.

Inventor: Jenkins, Vernon K. (Houston, TX)
Assignee: Duphar International Research B.V. (Weesp, NL)
Date of First Priority Issue: Tuesday November 1st, 1988

In vitro propagation of embryonic stem cells

Patent Number: 5166065

This patent was used to argue that the WARF patents were anticipated. The patent has two independent claims. The first covering a method of isolating embryonic stem cells, and the second covering a method of maintaining embryonic stem cells. Both independent claims use leukemia inhibitory factor to allow for the ex vivo growth of stem cells without loss of pluripotency.

Inventors: Williams, Robert L. (Warrandyte, AU); Gough, Nicholas M. (North Balwyn, AU); Hilton, Douglas J. (Warrandyte, AU)
Assignee: Amrad Corporation Limited (Kew, AU)
Date of First Priority Issue: Friday April 8th, 1988

Method for the treatment of grafts prior to transplantation using TGF-.beta .

Patent Number: 5135915

This is a patent covering the de-immunization of an organ by treatment with TGF-b before transplantation. The organs that may be used include heart, liver, spleen, pancreas, thyroid lobe, lung, kidney, intestine, blood vessel, and esophagus. The use of TGF bet to decrease immunogenecity is supported by other observations that this molecule inhibits expression of MHC, which is one of the...

Inventors: Czarniecki, Christine W. (San Francisco, CA); Palladino, Michael A. (Foster City, CA); Shefter, Eli (San Francisco, CA)
Assignee: Genentech, Inc. (South San Francisco, CA)
Date of First Priority Issue: Friday October 14th, 1988

Human stem cells and monoclonal antibodies

Patent Number: 5130144

This patent is similar to 5035994 and 4965204 by Civin. Essentially the current patent has 3 independent claims that cover similar subject matter as the other two mentioned patents. Specifically, "A method of transplanting stem cells comprising: (a) providing a suspension of human cells comprising pluripotent lympho-hematopoietic stem cells substantially free of mature lymphoid and myeloid...

Inventor: Civin, Curt I. (Baltimore, MD)
Assignee: The Johns Hopkins University (Baltimore, MD)
Date of First Priority Issue: Saturday June 2nd, 1984

Hair growth regulating composition comprising epithelium cell supernatant-derived growth factor

Patent Number: 5130142

This patent teaches the production of a chemical composition useful for growing hair in bald people. The composition is made from media conditioned by growing epithelial cells. The composition is mitogenic to dermal papilla cells and 3T3 fibroblasts but not to epidermal cells. The molecular weight of the active ingredient is > 3 kDa.

Inventors: Wong, Teresa K. (Cincinnati, OH); Warren, Raphael (Cincinnati, OH)

Assignee: The Practer & Gamble Company (Cincinnati, OH)

Date of First Priority Issue: Wednesday October 31st, 1990

Method for treating thrombocytopenia

Patent Number: 5126325

This patent covers the use of B cell differentiation factor (BCDF) for treatment of thrombocytopenia. This may be interesting if the BCDF is still not characterized. It may be an interesting new way of stimulating hematpoietic stem cells to preferentially go towards the path of a specific lineage. I do have a feeling, however that the BCDF is actually IL-6.

Inventors: Kishimoto, Tadamitsu (Tondabayashi-shi, Osaka-fu, JP); Hirano, Toshio (Ibaraki, JP); Kimura, Hideo (Fukushima, JP); Ishibashi, Toshiyuki (Fukushima, JP); Akiyama, Yukio (Kawasaki, JP); Okano, Akira (Kawasaki, JP)

Assignee: Ajinomoto Co., Inc. (Tokyo, JP); Kishimoto, Tadamitsu (Tondabayashi, JP)

Date of First Priority Issue: Friday January 13th, 1989

Tetrapeptide inhibiting the entry into cycle of hemopoietic stem cells processes for its preparation, and its uses

Patent Number: 5114926

This invention covers the synthethized form of a tetrapeptide that inhibits bone marrow stem cell entery into cell cycle. The original inhibitory activity was derived from fetal calf bone marrow as a biological "soup" but in this patent synthesis and structure are revealed. The use of agents that inhibit stem cell entry into cell cycle could occur when chemotherapy or radiation is...

Inventors: Frindel, Emilia (Paris, FR); Lenfant, Maryse (Gif Sur Yvette, FR); Guigon, Martine (Neuilly, FR); Bakala, Johanna (Paris, FR)

Assignee: Institut National De La Sante Et De La Recherche Medicale (Paris, FR); Institut Gustave Roussy (Paris, FR)

Date of First Priority Issue: Friday July 18th, 1986

Homogeneous mammalian hematopoietic stem cell composition

Patent Number: 5087570

This patent covers the use of the stem cell antigen (SCA-1) for determination of murine hematopoieitic stem cells. The patent has 1 independent claim that covers "A cell composition consisting essentially of as the cellular population viable murine hematopoietic Sca-1+ stem cells from a genetically identical or congenic source."

Inventors: Weissman, Irving L. (Stanford, CA); Spangrude, Gerald J. (N/A); N/A (VIC 3050, AU); Muller-Sieburg, Christa (San Diego, CA); Heimfeld, Shelly

Assignee: Unknown Assignee(s)

Date of First Priority Issue: Wednesday October 5th, 1988

Human hematopoietic stem cell

Patent Number: 5061620

This is another patent on the hematopoietic stem cell. It is filed later than Civin's, that is why this is an interesting patent. Furthermore it actually mention's Civin's patent "U.S. Pat. No. 4,714,680 describes a composition comprising human stem cells. " In any case, this current patent has 3 independent claims. The first covers "A cellular composition comprising human...

Inventors: Tsukamoto, Ann (Palo Alto, CA); Baum, Charles M. (Menlo Park, CA); Aihara, Yukoh (Hiratsuka, JP); Weissman, Irving (Palo Alto, CA)

Assignee: SyStemix, Inc. (Palo Alto, CA)

Date of First Priority Issue: Friday March 30th, 1990

Human stem cells and monoclonal antibodies

Patent Number: 5035994

This patent futher strengthens Civin's claim (no pun intended) on the hematopoietic stem cell. The first independent claim covers "A method of isolating a population of human cells containing pluripotent lympho-hematopoletic stem cells" through ANY ANTIBODY that bind to the antigen that is recognized by the antibody deposited with ATCC under Accession No. HB-8483. The second...

Inventor: Civin, Curt I. (Baltimore, MD)

Assignee: The Johns Hopkins University (Baltimore, MD)

Date of First Priority Issue: Monday January 5th, 1987

Potentiation of erythropoiesis

Patent Number: 5032507

This patent covers the discover that follicle stimulating hormone releasing protein (FRP) can potentiate the activity of erythropoitin in terms of induce erythropoiesis. The patent covers this concept from three perspectives in its three independent claims. The first perspective is "a method for determining the erythrodifferentiation-potentiating capacity of hematopoietic stem...

Inventors: Yu, John (San Diego, CA); Yu, Alice L. (San Diego, CA); Vaughan, Joan (San Diego, CA); Rivier, Jean E. F. (La Jolla, CA); Vale, Jr., Wylie W. (La Jolla, CA)

Assignee: The Salk Institute for Biological Studies (San Diego, CA); The Regents of the University of California (Berkeley, CA); Scripps Clinic and Research Foundation (La Jolla, CA)

Date of First Priority Issue: Sunday December 13th, 1987

Gene transfer using transformed, neodetermined, embryonic cells

Patent Number: 5032407

This patent teaches that embryonic yolk sac, midbrain, and forbrain cells may be gene transfected with a useful gene and utilized as a vector for delivery of the gene to an area of need.

Inventors: Wagner, Thomas E. (Athens, OH); Reed, Michael A. (Athens, OH); Corn, Barbara J. (Athens, OH)

Assignee: Ohio University Edison Animal Biotechnology Center (Athens, OH)

Date of First Priority Issue: Friday January 16th, 1987

Preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood

Patent Number: 5004681

This patent covers freezing of cord blood for future use. The patent has one independent claim covering the composition of a cryopreservant, together with viable fetal or neonatal hematopoietic cells. PharmaStem is the successor to Biocyte Corporation, the assignee of this patent. This patent, together with patents 5 192 553, 6 461 645, 6 569 427 and 6 605 275 are used by Pharmastem to...

Inventors: Boyse, Edward A. (New York, NY); Broxmeyer, Hal E. (Indianapolis, IN); Douglas, Gordon W. (New York, NY)

Assignee: Biocyte Corporation (New York, NY)

Date of First Priority Issue: Friday December 11th, 1987

Bone marrow suppressing agents

Patent Number: 4976950

This patent has 2 independent claims, the first covering a method of suppressing the bone marrow, the second covering a sterile injectable capable of suppressing the bone marrow. The method by which this patent teaches to suppress the bone marrow is through administration of a sterile composition containing the radionuclide Yttrium-90 complexed with at least one macrocycle aminophosphonic acid...

Inventors: Simon, Jaime (Angleton, TX); Garlich, Joseph R. (Lake Jackson, TX); Wilson, David A. (Richwood, TX); McMillan, Kenneth (Richwood, TX)

Assignee: The Dow Chemical Company (Midland, MI)

Date of First Priority Issue: Monday December 19th, 1988

Human stem cells and monoclonal antibodies

Patent Number: 4965204

This patent is a division of application Ser.No. 670,740, filed Feb.6, 1984 which issued on Dec. 22, 1987 as U.S. Pat. No. 4,714,680 and was described below. This patent is similar to 4,714,680 with the exception that the one independent claim in this patent covers in more detail the antibody which is now known to recognize CD34. Essentially, this is the first time that an antibody has been...

Inventor: Civin, Curt I. (Baltimore, MD)

Assignee: The Johns Hopkins University (Baltimore, MD)

Date of First Priority Issue: Tuesday December 22nd, 1987

Cellular enhancer for expressing genes in undifferentiated stem cells

Patent Number: 4959313

This patent covers a specific DNA enhancer sequence that is activated uniquely in embryonic stem cells. Such an enhancer is useful for numerous genetic engineering techniques, as well as, I believe, for generation of transgenic animals.

Inventor: Taketo, Makoto (Bar Harbor, ME)

Assignee: The Jackson Laboratory (Bar Harbor, ME)

Date of First Priority Issue: Monday June 22nd, 1987

Method for the stimulation of bone marrow cells

Patent Number: 4946437

This patent is a novel way to expand bone marrow cells ex vivo through contacting the bone marrow with a family of compounds. The single issued independent claim covers "A method for the transplantation of bone marrow cells" and the method involved contacting with a specific family of compounds. The first dependent claim states one member of this family of compounds as being...

Inventors: Sredni, Benjamin (Beni Brak, IL); Albeck, Michael (Ramat Gan, IL)
Assignee: Bar-Ilan University (Ramat-Gan, IL)
Date of First Priority Issue: Friday February 12th, 1988

Process for replicating bone marrow in vitro and using the same

Patent Number: 4721096

This patent is broad reaching in that it covers the ex vivo expansion of bone marrow for treating a pateint whose bone marrow has been comprised. Essentially, this patent was ahead of its time since numerous companies are trying to perform this process even today. Essentially the patent's since independent claim covers extraction of bone marrow, ex vivo replication so that hematopoietic...
Inventors: Naughton, Brian A. (Yorktown Heights, NY); Naughton, Gail K. (Yorktown Heights, NY)
Assignee: Marrow-Tech Incorporated (Albany, NY)
Date of First Priority Issue: Friday April 18th, 1986

Human stem cells

Patent Number: 4714680

This is one of the most important patents in the history of stem cell IP. It essentially covers the hematopoietic CD34+ stem cell. The patent has 3 independent claims, the first covering a population of hematopoietic cells in general, the second covering hematopoietic cells from blood, and the third covering hematopoietic cells which are recognized by a specific antibody, whose target was...
Inventor: Civin, Curt I. (Baltimore, MD)
Assignee: The Johns Hopkins University (Baltimore, MD)
Date of First Priority Issue: Saturday June 2nd, 1984

Primary bioassay of human tumor stem cells

Patent Number: 4411990

Cancer stem cells have been known to exist for decades, as seen by the present patent whose actual first priority date is july 7, 1978. Unfortunately, research into cancer stem cells is only recently gaining attention. The cancer stem cell is the populatin which some believe is responsible for maintaining the tumor mass, while the other 99% of cancer cells are differentiated and have...
Inventors: Salmon, Sydney E. (Tucson, AZ); Hamburger, Anne W. (Potomac, MD)
Assignee: University Patents, Inc. (Norwalk, CT)
Date of First Priority Issue: Tuesday January 1st, 1980

Enhanced growth medium and method for culturing human mammary epithelial cells

Patent Number: 4423145

This patent covers ways of growing mammary epithelial tissue in vitro. It teaches that such cells can be grown through dissociating stromal cells using enzymez and mechanical means so as to obtain a population of clumps of epithelial cells. The epithelial cells are then grown in a conditioned media that is either conditioned by human fetal intestine epithelial cells or human bladder epithelial...
Inventors: Stampfer, Martha R. (Oakland, CA); Smith, Helene S. (Oakland, CA); Hackett, Adeline J. (Orinda, CA)
Assignee: Unknown Assignee(s)
Date of First Priority Issue: Sunday July 5th, 1981

Method for producing substance capable of stimulating differentiation and proliferation of human granulopoietic stem cells

Patent Number: 4342828

This patent teaches how to make a hematopoietic-stimulatory substance through taking out blood, extracting monocytes and macrophages, culturing them with a glycoprotein from urine, and collecting/concentrating the resulting composition, which is useful for stimulating the proliferation and differentiation of human granulopoietic stem cells. This may be an interesting way to generate growth...
Inventors: Takaku, Fumimaro (Utsunomiya, JP); Ogasa, Katsuhiro (Yokohama, JP); Kuboyama, Morio (Tokyo, JP); Yanai, Nobuya (Tokyo, JP); Yamada, Muneo (Kodaira, JP); Watanabe, Yoshiteru (Tokyo, JP)
Assignee: Morinaga Milk Industry Co., Ltd. (Tokyo, JP); The Green Cross Corp. (Osaka, JP)
Date of First Priority Issue: Friday July 20th, 1979

Method of expanding hematopoietic stem cells, reagents and bioreactors for use therein

Patent Number: 5,728,581

This patent provides bioreactors and specific culture conditions for the in vitro and ex vivo expansion of hematopoietic stem cells. The patent discloses cytokines, oxygen tensions, and nutrients useful for expansion of cells.
Inventors: Schwartz, Richard Merrill (San Mateo, CA); Tucker, Sean Newton (San Francisco, CA); Chary, Srikanth Ranga (Fremont, CA); Kuo, Suzanne Chang (Cupertino, CA)
Assignee: Systemix, Inc. (Palo Alto, CA)
Date of First Priority Issue: Tuesday January 1st, 1980

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after myocardial infarction." N Engl J Med **355**(12): 1222-32.
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