



PSEVS

PÔLE SCIENTIFIQUE D'EVRY VALS DE SEINE

Technology Watch

Tissue Engineering

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FRENCH NEWS

Graftys Entreprise Innovante

Abstract: Pour son développement Graftys a été accompagnée par OSEO Paca par le biais de plusieurs programmes d'aide à l'innovation (mise au point d'un dispositif combiné destiné au traitement local de l'ostéoporose et à la prévention des fractures,...), de garantie de ses prêts bancaires.

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Catherine Picart, chercheuse au LMGP distinguée par le European Research Council

Abstract: Après avoir été nommée membre de l'IUF en 2007, Catherine Picart est à nouveau distinguée par la communauté scientifique. Ce statut de « jeune chercheur ERC » lui permettra d'obtenir des moyens matériels et humains significatifs pour mener son projet d'élaboration des matériaux avancés dit « biomimétiques ».

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WORLD NEWS

Wound Treating Stem Cell Gel Embarks on Clinical Trial

Abstract: DSC127—a gel compound (from Derma Sciences) that has been shown to trigger the body into utilizing its own stem cells more productively—may revitalize mesenchymal stem cells found in bone marrow in order to effectively heal chronic wounds, burns, and scars.

[Read more ...](#)

CRYO SAVE GROUP : Save Group N.V. rings the opening bell to celebrate its first full year on Euronext

Abstract: Cryo-Save Group N.V., Europe's leading adult stem cell storage bank, has rung the opening bell at NYSE Euronext Amsterdam today to mark its first full year of being listed on the exchange.

[Read more ...](#)

Cytomedix collects first \$147K from \$10M funding agreement

Abstract: Cytomedix Inc., a company selling regenerative therapies for wound and tissue repair, has received the first \$146,853 from a \$10 million funding agreement with Chicago-based Lincoln Park Capital, according to a regulatory filing.

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Cardium awarded grant under qualifying therapeutic discovery project program

Abstract: Cardium Therapeutics announced that it was awarded a cash grant of approximately \$245,000 under the U.S. Government's Qualifying Therapeutic Discovery Project ("QTDP") program to further its Generx clinical development program.

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CryoLife posts record third quarter revenues of \$28.4 million

Abstract: CryoLife, Inc. an implantable biological medical device and cardiovascular tissue processing company, announced its results for the third quarter of 2010. Revenues for the third quarter increased 1 percent to a third quarter record of \$28.4 million compared to \$28.2 million for the third quarter of 2009.

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CMU's Bone Tissue Engineering Center receives defense department research grant to help injured soldiers

Abstract: CMU's Jeffrey O. Hollinger, director of the center, and Professor Krzysztof Matyjaszewski have received a three-year, \$2.9 million U.S. Department of Defense research grant to develop a therapy that would aid amputees, specifically wounded soldiers. The therapy aims to prevent bone nodules from forming in the muscle at the site of amputation, a painful condition that makes it difficult for amputees to wear limb prostheses.

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Shrink Nanotechnologies unveils videos of stemdisc450 prototype growing human embryonic stem cells

Abstract: Shrink Nanotechnologies, Inc., an innovative nanotechnology company developing products and licensing opportunities in the alternative energy industry, medical diagnostics and sensors and biotechnology research and development tools businesses, revealed working videos of its first product offering – the StemDisc450™, a high-yield, low cost, patent-pending cell culturing biomedical research tool.

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UCB and Plasticell partner to identify compounds for SC research and cell therapeutics

Abstract: U.K. stem cell technologies firm Plasticell is to provide UCB with services based on its CombiCult™ screening technology to help identify new indications for compounds in stem cell biology, differentiation and potentially tissue regeneration.

[Read more ...](#)

CorMatrix® Cardiovascular awarded \$2.3M in grants for continued research and advancements in regenerative ECM® Technology

Abstract: CorMatrix Cardiovascular, Inc., a medical device company dedicated to developing and delivering unique extracellular matrix (ECM) biomaterial devices that harness the body's innate ability to repair damaged cardiovascular tissue, today announced that the Company has been awarded \$2.3 million in grants under the U.S. Government's Qualifying Therapeutic Discovery Project (QTDP) program to advance the development of their unique ECM technology.

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Cytograft Tissue Engineering, Inc. - Product Pipeline Analysis

Abstract: This report is a source for data, analysis and actionable intelligence on the Cytograft Tissue Engineering, Inc. portfolio of pipeline products. The report provides detailed analysis on each pipeline product with information on the indication, the development stage, trial phase, product milestones, pipeline territory, estimated approval date, and estimated launch date.

[Read more ...](#)

Boost of almost €10 million for regenerative medicine research in Ireland

Abstract: In a major boost for regenerative medicine research in Ireland, Minister for Enterprise, Trade, and Innovation, Batt O'Keeffe announced this week the funding of almost €10 million for the Regenerative Medicine Institute (REMEDI) at NUI Galway.

[Read more ...](#)

Agenta Wins \$1.1M SBIR Grant to Develop Regenerative Membrane for Oral Surgery

Abstract: Regenerative therapies firm Agenta Biotechnologies received a \$1.1 million grant from the NIH and National Institute of Dental and Craniofacial Research to further develop a biologically activated membrane designed to help promote soft tissue healing associated with oral surgery.

[Read more ...](#)

PDS™ Flexible Plate, a Unique Absorbable Implant, for Nasal Reconstruction, Now Available in the U.S.

Abstract: Reinforcing its commitment to the aesthetic medical market, Mentor Worldwide LLC today introduced PDS™ Flexible Plate – the absorbable implant that provides structural support and streamlines cartilage management during nasal reconstruction procedures.

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Dr. Sarvetnick to lead UNMC's regenerative medicine efforts

Abstract: Nora Sarvetnick, Ph.D., a stem cell researcher and transplant immunologist at the University of Nebraska Medical Center, has been named director of the Nebraska Regenerative Medicine Project.

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Bacterin International Holdings, Inc. Reports Third Quarter 2010 Financial Results

Abstract: Bacterin International Holdings, Inc., a developer of anti-infective coatings for medical applications and revolutionary bone graft material, today reported financial results for its third quarter ended September 30, 2010.

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Biomedical warp knit project aids diabetes research

Abstract: Narrow fabrics machinery manufacturer Comez has developed an innovative electronic double needle bar warp knitting machine for use in an Italian regional government funded biomedical textiles project. The Panagenesi project aims to help cure diabetes by optimizing the implanting of human pancreatic islands through the use of fibrin scaffold to aid in the success of pancreatic transplants.

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Nanoengineers aim to grow tissues with functional blood vessels

Abstract: San Diego NanoEngineers won a grant from the National Institutes of Health (NIH) to develop the tools to manufacture biodegradable frames around which heart tissues – functional blood vessels included – will grow. Developing methods for growing tissues that mimic nature's fine-grained details, including vasculature, could lead to breakthroughs in efforts to grow replacement cardiac tissues for people who have suffered a heart attack. The work could also lead to better systems for growing and studying cells, including stem cells, in the laboratory.

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Biomerix in distribution deal with Medline Industries

Abstract: Medical technology company Biomerix Corp. which makes innovative hernia repair products, has signed an exclusive distribution agreement with Medline Industries Inc., a major US manufacturer and distributor of medical and surgical products.

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RepRegen™ raises £1.03m in additional capital from existing investors Imperial Innovations, Longbow Capital and others

Abstract: RepRegen™ Ltd the 'smart biomaterials' company, announced today that it has raised £1.03 million (\$1.6 million). The financing was led by existing investor Imperial Innovations and included Longbow Capital and other investors. Proceeds will be used to further the product development pipeline: including regulatory approvals, commercialization programs and preparation for relevant post market clinical studies.

[Read more ...](#)

Regenerative Medicine Workshops to Debut at TERMIS

Abstract: Tying in with this year's conference theme, "Where Discovery Meets Innovation," two new pre-conference workshops will debut at this year's TERMIS-North America 2010 Conference and Expo (December 5-8, 2010) in Orlando.

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SCIENTIFIC PUBLICATIONS

Cell-Based Treatments: Advanced Therapies and Transplants

Abstract: The introduction of Regulation 1394/2007/EC managing the use of tissue engineering products for the purpose of repairing, regenerating, or replacing missing tissue and cells has created a gray area where transplant and medicinal products overlap.

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Tissue Engineering Strategies for Immature Teeth with Apical Periodontitis

Abstract: Regenerative endodontic treatment on immature teeth with apical periodontitis is promising but still not well-established. The purpose of this study was to explore novel strategies to engineer a vital support structure within a root canal space by a combination of induced blood clot, exposure of dentin matrix, and a cross-linked collagen scaffold.

[Read more ...](#)

Diffusion of biologically relevant molecules through gel-like tissue scaffolds

Abstract: Encapsulation of living cells into gel-like matrices that are capable of maintaining their viability over an extended time period is starting to play a major role in medicine in applications such as, cell-based sensors, cellular therapy, and tissue engineering.

[Read full text ...](#)

Improved seeding of chondrocytes into polyglycolic acid scaffolds using semi-static and alginate loading methods

Abstract: Cell seeding and attachment in three-dimensional scaffolds is a key step in tissue engineering with implications for cell differentiation and tissue development. In this work, two new seeding methods were investigated using human chondrocytes and polyglycolic acid (PGA) fibrous mesh scaffolds.

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Regenerated Silk Fibroin Nanofibrous Matrices Treated with 75% Ethanol Vapor for Tissue-Engineering Applications

Abstract: As an excellent biocompatible and biodegradable protein polymer, silk fibroin (SF) has found wide applications, particularly serving as therapeutic agent for tissue-engineering applications, on which both post-spin treatment and sterilization processing are crucial to drug-loaded matrices. To find a safe, effective and appropriate post-spin treatment and sterilization approach for drug-loaded biomaterial matrices is one of the major problems in the field of tissue engineering at present.

[Read more ...](#)

Finite Element Method (FEM), Mechanobiology and Biomimetic Scaffolds in Bone Tissue Engineering

Abstract: In this paper, a review of the studies that through a combined use of finite element method and mechano-regulation algorithms described the possible patterns of tissue differentiation in biomimetic scaffolds for bone tissue engineering is given.

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Low-level laser therapy: a useful technique for enhancing the proliferation of various cultured cells

Abstract: The aim of this work is to review the available literature on the details of low-level laser therapy (LLLT) use for the enhancement of the proliferation of various cultured cell lines including stem cells. A cell culture is one of the most useful techniques in science, particularly in the production of viral vaccines and hybrid cell lines. However, the growth rate of some of the much-needed mammalian cells is slow. LLLT can enhance the proliferation rate of various cell lines.

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PATENTS

Systems, Methods And Compositions For Optimizing Tissue And Cell Enriched Grafts

Applicants: CYTORI THERAPEUTICS INC

Abstract: Disclosed herein are methods and systems for the concentration of cells from a cell suspension into unprocessed tissue, such as adipose tissue. Also disclosed herein are systems for optimizing hydration of tissue and cell enriched grafts.

Biomaterials For Track And Puncture Closure

Applicants: INCEPT LLC

Abstract: Embodiments include coatings for adherence of biomaterials to a tissue. Systems and methods for adapting such coated materials to vascular access closure are further proved.

Compositions And Methods For Modulating Stem Cells And Uses Thereof

Applicants: OTTAWA HOSPITAL RES INST

Abstract: There are provided compositions and methods for modulating stem cell division decisions, in particular, division symmetry. It has been demonstrated that wnt7a acts through frizzled-7 receptor expressed on the surface of adult stem cells, e.g. satellite stem cells, to activate the planar cell polarity (PCP) pathway, thereby promoting symmetrical expansion of stem cells. The compositions and methods of the invention are useful, for example, in modulating stem cell division symmetry in vitro and in vivo, in replenishing and expanding the stem cell pool, and in promoting the formation, maintenance, repair and regeneration of tissue.

Multiphasic Microfibers For Spatially Guided Cell Growth

Applicants: UNIV MICHIGAN

Abstract: A multiphasic microfiber for a three-dimensional tissue scaffold and/or cellular support is provided in one aspect that includes at least one biocompatible material. The multiphasic microfiber optionally has a first phase and at least one distinct additional phase and is formed by electrohydrodynamic jetting. Further, such microfibers optionally have one or more biofunctional agents, which may be surface-bound moieties provided in spatial patterns. Multiphasic microfibers formed in accordance with the disclosure may form, in some cases, three-dimensional fiber scaffolds with precisely engineered, micrometer-scaled patterns for cellular contact guidance, which may thus support and/or promote cellular growth, proliferation, differentiation, repair, and/or regeneration for tissue and bioengineering applications.

Thermoresponsive, Biodegradable, Elastomeric Material And Uses Therefor

Applicants: UNIV PITTSBURGH

Abstract: Provided are novel biocompatible copolymers and compositions comprising the copolymers. The copolymers are non-toxic and typically have an LCST below 37 DEG C. Compositions comprising the copolymers can be used for wound treatment, as a cellular growth matrix or niche and for injection into cardiac tissue to repair and mechanically support damaged tissue. The copolymers comprise

numerous ester linkages so that the copolymers are erodeable in situ. Degradation products of the copolymers are soluble and non-toxic. The copolymers can be amine-reactive so that they can conjugate with proteins, such as collagen. Active ingredients, such as drugs, can be incorporated into compositions comprising the copolymers.

Multi-Axial Tension Apparatus And Method For Engineering Tissues

Applicants: MASSACHUSETTS INST TECHNOLOGY

Abstract: Multi-axial tension devices, tension device/scaffold material assemblies and methods of using the devices to form tissues are described. The multi-axial tension device contains two end pieces, at least one longitudinal rod, and two mounting portions, and preferably one or more hoops. Preferably, the end pieces contain connectors for releasably connecting to the mounting portions. A biocompatible, bioerodible or bioabsorbable scaffold material may be attached to the mounting portions to form a tension device/scaffold material assembly. In use, the tension device applies tension to a cell-seeded scaffold in the longitudinal direction and radially outward from the center of the scaffold material. The tension devices may be used to form a variety of different tissues, such as a vascular conduit, a valved vascular conduit, a tendon, a ligament, and skin. In a preferred embodiment, the cell-seeded scaffold is used to generate a valved conduit for use as a pulmonary valve replacement.

Collagen-Binding Synthetic Peptidoglycans For Wound Healing

Applicants: PURDUE RESEARCH FOUNDATION

Abstract: Methods and compositions for promoting wound healing in a patient by administering a collagen-binding synthetic peptidoglycan to the patient are described. Additionally, methods and compositions are described for decreasing scar formation in a patient by administering a collagen-binding synthetic peptidoglycan to the patient.

Composite Tissue-Engineered Intervertebral Disc With Self-Assembled Annular Alignment

Applicants: UNIV CORNELL

Abstract: The present invention relates to a tissue-engineered intervertebral disc (IVD) suitable for total disc replacement in a mammal and methods of fabrication. The IVD comprises a nucleus pulposus structure comprising a first population of living cells that secrete a hydrophilic protein and an annulus fibrosis structure surrounding and in contact with the nucleus pulposus structure, the annulus fibrosis structure comprising a second population of living cells and type I collagen. The collagen fibrils in the annulus fibrosis structure are circumferentially aligned around the nucleus pulposus region due to cell-mediated contraction in the annulus fibrosis structure. Also disclosed are methods of fabricating tissue-engineered intervertebral discs.

Dynamic Vibrational Method And Device For Vocal Fold Tissue Growth**Applicants:** UNIV DELAWARE

Abstract: Dynamic vibrational methods and devices for inducing differentiation of stem cells into vocal fold fibroblast-like cells or for generating vocal fold-like tissue from cultured cells. Also provided are matrices providing sustained release of growth factors, and bioreactors generating and delivering a high frequency vibration with in-plane shear stress to cultured cells.

Bioelectric Implant And Method**Applicants:** INGENIUM LLC

Abstract: Bioelectric implants are provided in three distinct embodiments, namely a bone/tissue anchor, a suture construction, and a plate. The bioelectric implants function in dual capacities as both fixation devices, and as galvanic cells for the production of electrical energy used for therapeutic purposes in tissue regeneration and healing. The bioelectric anchor may take the general form of a screw or pin having a hollow interior or cavity that extends through the body of the anchor. A coating can be applied to the cavity to form the anode portion of the galvanic cell. The outer surface of the anchor serves as a cathode. Bodily fluids and tissue act as an electrolyte to facilitate the chemical reactions necessary for the galvanic cell. For the suture construction, one or more strands of

material are the cathode, and one or more strands of peripheral surrounding material act as the anode.

Composition For Manufacturing A Scaffold For Tissue Engineering, And A Method Of Making It**Applicants:** UNIV NANYANG

Abstract: The invention relates to a composition comprising a mixture of at least one degradable hydrogel and at least one kind of degradable and surface cross-linked particle. The at least one kind of degradable and surface cross-linked particle comprises a material which degrades faster than the degradable hydrogel. The composition can further comprise one or more species of living cells. The invention relates also to a method of manufacturing the composition, as well as to a method of manufacturing a scaffold for tissue engineering using the composition.

Composition And Method Of Preparation Of Polysaccharide Gel-Based Artificial, Biodegradable Skin Scaffolds**Applicants:** CENTRAL MICHIGAN UNIVERSITY

Abstract: The present application provides compositions and methods of preparing polysaccharide hydrogel compositions. The polysaccharide hydrogel compositions can be assembled into artificial, biodegradable skin scaffolds for use in treating wound or skin injuries.

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2405 route des Dolines, BP 65
06560 Valbonne Sophia Antipolis
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