Recent patents related to the manufacture and repair of organs and organoids

Patent number	Description	Assignee	Inventor	Date
US 9,765,301	A liver organoid, uses thereof and a method for obtaining it.	Royal Netherlands Academy of Arts and Sciences (Utrecht, Netherlands)	Huch Ortega M, Clevers JC	9/19/2017
US 9,764,516	A method of making an organ or tissue that involves (i) providing a first dispenser containing a structural support polymer and a second dispenser containing a live-cell-containing composition; (ii) depositing a layer on said support from said first and second dispensers, consisting of a structural support polymer and said cell-containing composition; and (iii) iteratively repeating the deposition step a number of times to form a plurality of layers one upon another, with separate and discrete regions in each of the layers comprising either the support polymer or the cell-containing composition, to thereby provide a composite three-dimensional structure that contains both structural support regions and cell-containing regions.	Wake Forest University Health Sciences (Winston-Salem, NC, USA)	Kang H-W, Lee SJ, Atala A, Yoo JJ	9/19/2017
US 9,763,877	Adult and neonatal stem cell therapy to treat diabetes through repair of the gastrointestinal tract.	EndoCellutions (Marshfield, MA, USA)	Duffy NF Jr., McGillicuddy A	9/19/2017
US 9,756,849	Compositions, methods, systems/devices and media for maintaining a harvested organ in a functioning and viable state prior to implantation. The organ apparatus includes a preservation chamber for storing the organ during the preservation period. A perfusion circuit is provided with a first line for providing an oxygenated fluid to the organ and a second line for carrying depleted fluid away from the organ. The perfusion apparatus also includes a device operably associated with the perfusion circuit for maintaining the organ at a substantially normothermic temperature.	US Department of Veterans Affairs (Washington, DC)	Hassanein WH, Khuri S, Crittenden MD, Birjinuik V	9/12/2017
US 9,752,116	A composition comprising a plurality of cell aggregates for use in the production of engineered organotypic tissue by organ printing. A method of making a plurality of cell aggregates, consisting of centrifuging a cell suspension to form a pellet, extruding the pellet through an orifice, and cutting the extruded pellet into pieces. The apparatus for making cell aggregates comprises an extrusion system and a cutting system. In a method of organ printing, a plurality of cell aggregates are embedded in a polymeric or gel matrix and allowed to fuse to form a desired three-dimensional tissue structure.	The Curators of the University of Missouri (Columbia, MO, USA); MUSC Foundation for Research Development (Charleston, SC, USA)	Forgacs G, Jakab K, Neagu A, Mironov V	9/5/2017
US 9,744,267	A method for rapidly preparing stem cell and physiologically acceptable matrix compositions for use in tissue and organ repair. In contrast to previous tissue-engineering materials, the stem-cell-matrix compositions do not require long-term incubation or cultivation *in vitro* prior to use in *in vivo* applications. The stem cells can be from numerous sources and may be homogeneous, heterogeneous, autologous and/or allogeneic in the matrix material.	University of Pittsburgh—of the Commonwealth System of Higher Education (Pittsburgh, PA, USA)	Chancellor MB, Huard J, Capelli CC, Chung S, Sacks MS	8/29/2017
US 9,738,860	Methods and materials for making complex, living, vascularized tissues for organ and tissue replacement, especially complex and/or thick structures, such as liver tissue. Tissue lamina is made from animal cells in an apparatus that comprises a first mold or polymer scaffold, a semi-permeable membrane, and a second mold or polymer scaffold. The semi-permeable membrane is disposed between the first and second molds or polymer scaffolds; the first and second molds or polymer scaffolds are fastened together and have means that define microchannels positioned toward the semi-permeable membrane.	General Hospital Corp. (Boston); Charles Stark Draper Laboratory (Cambridge, MA, USA)	Vacanti JP, Shin Y-MM, Ogilvie J, Sevy A, Maemura T, Ishii O, Kaazempur-Mofrad MR, Borenstein JT, King KR, Wang C-C, Weinberg E	8/22/2017
US 9,706,769	An organ perfusion apparatus and method for monitoring, sustaining and/or restoring the viability of organs and for preserving organs for storage and/or transport. The method includes perfusion of the organ at hypothermic and/or normothermic temperatures.	Organ Recovery Systems (Des Plaines, IL, USA)	Taylor M, Brassil J	7/18/2017
US 9,127,254	An epithelial organoid comprising an aggregate of epithelial cells predominantly expressing markers associated with differentiated cell types, and an aggregate that assumes a structure or performs a function associated with an epithelial organ or a fragment thereof. Also, a method of treating a subject in need of repair or replacement of an organ or part of an organ, or with a disease or disorder that impairs or abrogates function(s) of the liver, kidney, pancreas, thyroid or pituitary gland.	Ben-Gurion University of the Negev Research and Development Authority (Beer Sheva, Israel)	Cohen S, Dvir-Ginzberg M	9/8/2015
US 8,298,822	A method for forming epithelial cells that consists of aggregating stem cells from differentiated exocrine gland tissue to obtain an organoid body, and differentiating at least one portion of the organoid body or a tissue body grown from it to obtain epithelial cells.	Fraunhofer Society for the Advancement of Applied Research (Munich)	Kruse C, Fuhr G, Wedel T	10/30/2012

Source: United States Patent and Trademark Office (http://www.uspto.gov).