

Recent patent applications in three-dimensional cell culture

Patent number	Description	Assignee	Inventor	Priority application date	Publication date
US8828679B2	A method for detecting a biological signal of a three-dimensional cell culture construct, including: providing a three-dimensional cell culture construct that contains at least two cell layers laminated to each other and a sensor particle capable of detecting a biological signal and observing the sensor particle optically.	Japan Science and Technology Agency (Saitama, Japan), Okano K, Akashi M, Matsusaki M	Matsusaki M, Akashi M, Okano K	11/11/2008	9/9/2014
US20140206022A1	A method of culturing a three-dimensional matrix comprising (i) a test matrix polymer and a population of cells in a nutrient medium, using an apparatus where the three-dimensional matrix comprises top and bottom surfaces, and the apparatus is configured to allow contact of the nutrient medium on the top surface and bottom surface of the three-dimensional matrix and (ii) assaying the population of cells for differentiation, where detection of differentiation is indicative of the test matrix polymer stimulating differentiation of a population of cells.	Allergan (Irvine, CA, USA)	Nuti GM, Verardo MR, Messina DJ	12/17/2012	7/24/2014
US20140106395A1	A hanging droplet plate that has a predetermined number of droplet compartments for receiving a droplet of liquid. A circumferential microfluidic wetting barrier is arranged to surround a respective cavity that prevents spreading of a droplet beyond the microfluidic wetting barrier. One additional circumferential microfluidic wetting barrier is arranged to surround circumferential microfluidic wetting barrier. A wettable area is arranged between two adjacent microfluidic wetting barriers.	Fattinger C, laiza P, Kissling T, Voegelin D, Zumstein T, Mcginnis C	Fattinger C, laiza P, Kissling T, Voegelin D, Zumstein T, Mcginnis C	3/3/2011	4/17/2014
US20140087440A1	A system for cultivating three-dimensional biological cells, comprising a diamagnet, an upper lifter magnet, and a culture chamber containing a culture medium and several bioattractive magnetized core particles, where the culture chamber is positioned relative to the diamagnet and upper lifter magnet to facilitate levitation of the magnetized core particles.	University of South Florida (Tampa, FL, USA), Becker JL, Coffin SB	Becker JL, Coffin SB	6/30/2003	3/27/2014
US8633022B2	Hydrogelating agents and hydrogels having novel chemical structures and composition. The hydrogel has an oligo- or poly(ethylene glycol) moiety, which is known to be biocompatible, and can be used in three-dimensional cell culture, separation/purification of cells and proteins, and controlled release of, for example, a proteinaceous pharmaceutical product.	The Ritsumeikan Trust (Kyoto, Japan), Asahi Kasei Kabushiki Kaisha (Osaka, Japan), Tamiaki H, Ogawa K, Toma K	Tamiaki H, Ogawa K, Toma K	2/24/2009	1/21/2014
US8603806B2	A cell culture apparatus comprising vessels formed of a material that is useful in radiation emitting, light transmission, fluorometric and/or colorimetric assays; and a cell support structure containing a scaffold having porosity to permit the transmission of radiant energy through it, and to facilitate three-dimensional cell growth.	The Ohio State University Research Foundation (Columbus, OH, USA), Yang S-T, Zhang X, Wen Y	Yang S-T, Zhang X, Wen Y	11/2/2005	12/10/2013
US8551771B2	A gel molding apparatus with a vessel that has solution chambers, comprising a lid plate, columns that project from a top surface of the lid plate, and a perforated plate having through-holes.	Chung Gung University (Taoyuan, Taiwan), Wu M-H, Tsai W-C	Wu M-H, Tsai W-C	4/24/2009	10/8/2013
US8463418B2	Methods for fabricating a porous three-dimensional cell culture construct for biomedical applications. The system has modeling software for transforming a virtual design into virtual cross-sections.	3D BioTek (Hillsborough, NJ, USA), Liu Q, Lau WK	Liu Q, Lau WK	8/22/2007	6/11/2013
US8450105B2	A method of preparation of a mechanically reversible gel involving combining a silanol species comprising at least two silanol groups per molecule and a hydrophilic hydroxyl species comprising at least two hydroxyl groups per molecule. The gel's biocompatibility and convenience of use facilitates three-dimensional cell culture and fundamental studies of cell behavior in a more biologically relevant environment.	Agency for Science Technology and Research (Connexis, Singapore), Ying JY, Pek S, Wan ACA	Ying JY, Pek S, Wan ACA	5/4/2006	5/28/2013

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