NEW NON-RETRACTABLE BIOMATERIAL FOR CELL CULTURE

A non-retractable, synthetic, biodegradable and biocompatible biomaterial based on an interpenetrating polymer network (IPN) technology allowing 2D and 3D cell colonization in particular for High Through Put (HTS) cell culture plates.

ERGANEO
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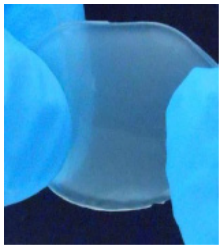
PRESENTATION

The biomaterial is based on a synthetic interpenetrating polymer network (IPN) of a UV controlled co-reticulated proteic polymer (fibrin based) and synthetic polymer (based on polyethylen glycol) with a fibrin gel obtained in the same medium through an enzymatic reaction. This biomaterial does not shrink over time and allows 2D or 3D cellular colonization making it a perfect in vitro extra-cellular matrix model for cell based assays.
This biomaterial can take any wanted shape and size, especially it can be poured at the bottom of culture plate wells without retraction of the gel matrix including High Throughput Screening (HTS) plates. This biomaterial can be easily produced following a "one pot-one shot" process enabling a constant batch to batch quality. In addition it can also be easily handled and stored as it can be lyophilisated and sterilized. This biomaterial is an ideal matrix for cellular growth using different gel thickness on all formats of cell culture plates (even HTS) allowing the development of customized in vitro cell based assays.



Homogeneous, translucent and self-supported material

Synthetic biomaterial - Copolymer - Fibrin gel - Non-retractable matrix - 2D and 3D cell culture - In vitro cell based assay

APPLICATIONS

2D or 3D matrix for in vitro cell based assays
Research or preclinical customized in vitro screening tool

COMPETITIVE ADVANTAGES

- Maximize bioavailabity of drugs at their site of action
- Sprayable or injectable via thin catheters
- Ease of production (liquid at room temperature)
- Made of approved components
- Possibility to adjust the thermosensitive hydrogel composition to modulate its mechanical properties

INTELLECTUAL PROPERTY

US & CA patent application US20150166735

PUBLICATIONS

Fibrin-based interpenetrating polymer network biomaterials with tunable biodegradability. Apr 2015. Polymer. L. Bidault, V. Larreta-Garde.
New fibrin-polymer interpenetrating networks: a potential support for human skin construct. ICAMS 2014. V. Larreta-Garde, O. Fichet.
Self-Supported Fibrin-Polyvinyl Alcohol Interpenetrating Polymer 2 Networks: An Easily Handled and Rehydratable Biomaterial. Sept 2013. Biomacromolecules L. Bidault, V. Larreta-Garde.

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DEVELOPMENT PHASE

- ☑ In vitro tests (mechanical properties, biocompatibility, cell based assays...) successfully performed on different format of cell culture plates (even for HTS)