

Title (en)
AUTOMATED MANUFACTURING OF THREE-DIMENSIONAL CELL MATRICES WITH NANOFIBRES OF CONTROLLED ALIGNMENT AND UNIFORM CELL DISTRIBUTION

Title (de)
AUTOMATISIERTE HERSTELLUNG VON DREIDIMENSIONALEN ZELLMATRIZEN MIT NANOFASERN MIT KONTROLLIERTER AUSRICHTUNG UND GLEICHMÄSSIGER ZELLVERTEILUNG

Title (fr)
FABRICATION AUTOMATIQUE DE MATRICES DE CELLULES TRIDIMENSIONNELLES AVEC DES NANOFIBRES À ALIGNEMENT CONTRÔLÉ ET DISTRIBUTION UNIFORME DE CELLULES

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Abstract (en)
The present invention relates to a system and process for automatically manufacturing three-dimensional cell matrices with nanofibres of controlled alignment and uniform cell distribution throughout the thickness. The system of the present invention comprises a module for forming nanofibres by electrospinning, a module for collecting the nanofibres comprising two collecting cylinders (6,30), a module for deposition of the collected nanofibres comprising a deposition table (10) with linear movements (22) and rotation (24), a module for electropulverisation of cells comprising a capillary tube for electropulverisation of cells (13). The formation of the cell matrices occurs from the alternating linear movements of the deposition table (10) between the position of the nanofibre collection module and the electropulverisation module where the cells are seeded on the two-dimensional mesh layers of nanofibres. The present invention has application in the field of tissue engineering, in particular in regenerative medicine.

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