

Title (en)

METHOD FOR PRODUCING VITAL, BIOLOGICAL SUBSTITUTE TISSUE IN VITRO USING CELL CULTURES AND A SUPPORT

Title (de)

VERFAHREN ZUR IN-VITRO-HERSTELLUNG VON VITALEM, BIOLOGISCHEM ERSATZGEWEBE UNTER VERWENDUNG VON ZELLKULTUREN UND EINEM TRÄGERMATERIAL

Title (fr)

PROCEDE DE PRODUCTION IN VITRO DE TISSU DE REMPLACEMENT BIOLOGIQUE VITAL AU MOYEN DE CULTURES CELLULAIRES ET D'UN SUBSTRAT

Publication

**EP 1326962 A2 20030716 (DE)**

Application

**EP 01987795 A 20011017**

Priority

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Abstract (en)

[origin: DE10053014A1] The invention relates to a method for producing vital, biological substitute tissue in vitro using cell cultures and a support. The inventive method is characterized in that a cell-tissue construct produced from the support and the cell cultures is subjected to a changing mechanical stress, especially a combination of a pulsating flow of a cell culture medium and a pulsating movement of the cell-tissue construct. [origin: DE10053014A1] To produce vital biological substitute tissue in vitro, using cell cultures and a carrier material, where the developed cell culture-tissue structure is treated with a changing mechanical effect, is new. To produce a substitute biological tissue, in vitro, the changing mechanical effects are applied to the cell culture-tissue structure periodically by pulsed pressure as a combination of a pulsed flow and a pulsed movement. The pulsed movement alternates to both sides of the cell culture-tissue structure. The cell culture-tissue structure is tensed horizontally, and moved up and down. The pulsed movement and the pulsed flow have a variable amplitude, preferably at right angles to the surface of the cell culture-tissue structure. The pulsed flow can be directed at right angles to the material surface and also parallel to it. A flow of the cell culture fluid is directed along the surface of the structure in a given direction, while it is subjected to periodic pressures and movements, and the other side of the structure is moistened with cell culture fluid. The moistened side of the structure is treated with suction at intervals, to extract the cell culture fluid to be replaced with fresh fluid. An Independent claim is included for an apparatus to develop substitute tissue material in vitro, with a bioreactor to take the cell culture-tissue structure, where a drive acts on the cell culture medium and a reservoir is connected to the bioreactor by inflow and outflow channels.

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