

Title (en)
FLOW-THROUGH BIOREACTOR WITH GROOVES FOR CELL RETENTION

Title (de)
DURCHFLUSS-BIOREAKTOR MIT RILLEN ZUR ZURÜCKHALTUNG VON ZELLEN

Title (fr)
BIOREACTEUR A ECOULEMENT CONTINU DOTE DE RAINURES DE RETENTION DES CELLULES

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Application
EP 95912718 A 19950303

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• US 34910294 A 19941202

Abstract (en)
[origin: WO9524464A1] The invention is a flow-through bioreactor for the retention and culture of cells in perfused media. The bioreactor is a generally rectangular vessel with inlet and outlet ports in the lid allowing for media flow along the longitudinal axis of the vessel. The inner surface of the bottom wall of the bioreactor has a plurality of generally rectangular grooves having a length, a depth, and a width. The grooves are positioned in the bottom wall such that their length is transverse to the longitudinal axis of the vessel, allowing media flow across the width of the grooves. Cells settle into the grooves, where they proliferate and differentiate, without entering the bulk flow of media through the vessel, thus avoiding loss of cells due to media flow. The invention also provides a method for the perfusion culture of hematopoietic cells whereby a suspension of either unselected hematopoietic mononuclear cells or CD34+ selected cells is placed in the bioreactor and cultured without loss of non-adherent stem/progenitor cells. Various cytokines can be added to the culture medium such that the cells in the grooves form colony-forming units (CFU-GM, BFU-E, CFU-Mix), long-term culture initiating cells (LTC-IC), and granulocytic precursors (blast cells, promyelocytes, myelocytes, metamyelocytes).

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