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(54) **Title**: CELLULAR DIFFERENTIATION PROCESS AND ITS USE FOR BLOOD VESSEL BUILD-UP

(57) **Abstract**: The present invention relates to the use of specific oxygen concentrations for implementing a process of differentiation of stem, provided that said stem cells are not humanembryonic stemcells, and seeded on a support, in an appropriate culture medium, wherein said differentiation leads to: -either a first group of specialized differentiated cells under normoxic conditions, and in an appropriate culture medium, -or a second group of specialized differentiated cells under hypoxic conditions, in a culture medium of the same nature as the one used for obtaining the first group of specialized differentiated cells, said first and second groups of specialized differentiated cells retaining the functional properties of the corresponding specialized differentiated cells respectively obtained through a biological natural process.