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(54) Title: CULTURING HUMAN EMBRYONIC STEM CELLS

(57) Abstract: Previous methods for culturing human embryonic stem cells have required either fibroblast feeder cells or a medium, which has been exposed to fibroblast feeder cells in order to maintain the stem cells in an undifferentiated state. It has now been found that if high levels of fibroblast growth factor are used in a medium with gamma amino butyric acid, pipecholic acid, lithium and lipids, the stem cells will remain undifferentiated indefinitely through multiple passages, even without feeder cells or conditioned medium. A humanized matrix of human proteins can be used as a basement matrix to culture the cells. New lines of human embryonic stem cells made using these culture conditions, the medium and the matrix, will never have been exposed to animal cells, animal products, feeder cells or conditioned medium.

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