



## MEDIUM CONTAINING PIPECHOLIC ACID AND GAMMA AMINO BUTYRIC ACID AND CULTURE OF EMBRYONIC STEM CELLS

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### The Invention

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, gamma amino butyric acid, pipecholic acid, lithium and transforming growth factor beta are added to the medium in which the stem cells are cultured, the stem cells will remain undifferentiated indefinitely through multiple passages, even without feeder cells or conditioned medium.

### Additional Information

#### For More Information About the Inventors

- [James Thomson](#)

#### Tech Fields

- [Pluripotent Stem Cells : Culture](#)

For current licensing status, please contact Andy DeTienne at [adetienne@warf.org](mailto:adetienne@warf.org) or 608-960-9857