P-15 Parthenogenetic Mouse Embryonic Stem (mES) Cells have Similar Characteristics to in vitro Fertilization mES Cells

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Objective: This study was to compare the characteristics of parthenogenetic mES (P-mES) cells and in vitro fertilization mES cells.

Materials and Methods: Mouse oocytes were recovered from superovulated 4wks hybrid F1 (C57BL/6xCBA/N) female mice. The oocytes were treated with 7% ethanol for 5 min and 5 μg/ml cytochalasin-B for 4 h. For IVF, the oocytes were inseminated with epididymal sperm of hybrid F1 male mice (1×10^6/ml). IVF and parthenogenetic embryos were cultured in M16 medium for 4 days. Cell number count in blastocysts was carried out differential labelling using propidium iodide (red) and bisbenzimide (blue). To establish mES cells, blastocysts in IVF and parthenogenetic groups were treated immunosurgery and recovered ICMs were cultured in LIF added DMEM culture medium. To identify mES cells, the surface markers alkaline phosphatase, SSEA1, 3, 4 and Oct4 staining in replated ICM colonies were examined. Also, the number of chromosome was checked in P-mES and mES.

Results: In vitro development rates were blastocysts derived from parthenogenetic group (14.5%) lower than IVF group (68.0%). And, cell numbers of ICM of parthenogenetic blastocysts (12.1) were lower than those of IVF blastocysts (23.0). Three ICM colony recovered from parthenogenetic 9 blastocysts and 1 ICM colony recovered from IVF 26 blastocysts were sub-cultured, continuously replated during 20 passage and 11 passage culture duration without differentiation. Using surface markers staining, alkaline phosphatase, SSEA1, 3, 4 and Oct4 in P-mES and mES colony were examined, Sub-cultured two groups colonies were strong positively stained by alkaline phosphatase. and SSEA1 staining, and negatively stained by SSEA3, 4 staining. Also, the number of chromosome was normal in ES colony from two groups.

Conclusion: This study suggested that P-mES cell can be successfully established and that those cell lines have similar characteristics to IVF mES cells.

P-16 In vitro Neural Cell Differentiation Derived from Human Embryonic Stem Cells: II. Generation of Specific Neurons from Neural Progentor Cells Treated with BDNF and PDGF

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Objective: This study was to investigate generation of the specific neural cell in vitro from the neurosphere derived from human embryonic stem (hES, MB03) cells.

Materials and Methods: For neural progenitor cell formation derived from hES cells, we produced