in differentiation medium were examined by RT-PCR, some specific factors represented three embryonic germ layers were determined in vitro (NF-M, keratin, enolase, cAct and amylase).

Conclusion: The established hES cells derived from frozen-thawed blastocysts can be maintained on feeder-free condition without loss of human cell characteristics.

P-12 In vitro Differentiation of Human Embryonic Stem Cells into Cardiomyocytes

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Objective: This study was to investigate differentiation of human embryonic stem (hES) cells into cardiomyocytes according to treatment factors and culture duration.

Materials and Methods: To differentiate into cardiomyocytes, embryoid bodies induced from established hES (MB03) cells were cultured in 0.75% DMSO, 0.75% DMSO + 1 μM retinoic acid (RA), 1 μM retinoic acid (RA) and 10 ng/ml bFGF added DMEM (+10% hyclon FBS) medium for 1, 2 and 3 weeks. To demonstrate differentiation into cardiomyocytes, we did RT-PCR with primers about cardiomyocytes once a week for 3 weeks.

Results: In RT-PCR, MLC-2A and MLC-2V as cardiomyocyte markers were expressed in all groups from 1 week. Especially, cardiac actin was just expressed in 0.75% DMSO treatment from 2 weeks.

Conclusion: This study showed that DMSO has an effect on differentiation of hES cells into cardiomyocytes from 1 week to 2 weeks.

P-13 Functional Cardiomyocytes Formation Derived from Parthenogenetic Mouse Embryonic Stem Cells

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Objective: This study was to establish the use of parthenogenetic mouse ES cells as a reproducible differentiation system for mouse cardiomyocytes.

Materials and Methods: To induce differentiation, parthenogenetic mouse ES cells were dispersed by dissociation and the formation of ES cell aggregates in differentiation medium. After 7 days in differentiation culture, the embryoid bodies (EBs) were plated onto gelatin-coated dish. Cultures were observed daily using an inverted light microscope to determine the day of contraction onset and total duration of continuous contractile activity for each contracting focus. The effects of dimethyl sulfoxide (DMSO) and