

## عنوان مقاله:

The effect of mouse embryonic fibroblast in direct differentiation of mouse embryonic stem cells

## محل انتشار:

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## خلاصه مقاله:

Background: Since embryonic stem (ES) cells have the dual ability to proliferate indefinitely and differentiate into multiple tissue types, ES cells could potentially provide an unlimited cell supply for human transplantation. Objective: In order to study the differentiation of mouse embryonic stem (mES) cells, they were cultured in suspension by using ES media without Leukemia Inhibitory Factor (LIF) to induce spontaneous differentiation. Cellular morphology of differentiated derivatives was then evaluated. Materials and Methods: Undifferentiated mES from our laboratory were cultured in three different settings by using ES media containing 0.1% / 1mM trypsin/EDTA and removing LIF; in the absence of murine embryonic fibroblast (MEF) feeder cells (group 1), in the presence of MEF feeder cells with a density of  $0.5 \times 10^5$  cells/ml (group 2), and  $0.5 \times 10^6$  cells/ml (group 3). Five days after the initiation of cell culture, and inducing mES cells to form embryoid bodies (EBs), they were removed from dish by centrifugation, and then they were cultured on collagen coated dishes for 20 days. The dishes were fixed and stained by Wright-Gimsa method at the end of the study period. Results: In group 1, mES cells showed spontaneous differentiation to all derivatives of three germ cells, including: epithelia like, fibroblast like and neuron-like cells. In group 2, almost all ES cells were found to be differentiated into granular progenitor cells including hematopoietic cell lineages. In group 3, various morphologies including nerve cell lineages and fibroblast like cells were detected. Conclusion: Differentiation of mES cells can be a dose response process, depending on the factors that may be released from MEF feeder layer to ES media in a coculture system. Our results indicated that in the presence of low numbers of MEF cells, mES cells can spontaneously differentiate into hematopoietic cell lineages.

## کلمات کلیدی:

Embryonic stem cells, Embryoid bodies, Mouse embryonic fibroblast, Coculture, Differentiation

## لینک ثابت مقاله در پایگاه سیویلیکا:

