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# Fetal hepatocyte stimulate differentiation of human mesenchymal stem cells into hepatocytes *in vitro*

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**It has been showed that human mesenchymal stem cells (MSCs) have the capacity for self-renewal and differentiation into diverse cell types under certain condition. Transdifferentiation of MSCs into hepatocytes has also been demonstrated both *in vitro* and *in vivo*. However, it remains obscure whether human fetal hepatocytes could influence the hepatic differentiation on human MSCs. Here, we investigate the effects of human fetal hepatocyte on differentiation of human MSCs into hepatocytes. Fetal hepatocytes from medical abortion and adult human MSCs labeled with Hoechst33342, were co-cultured directly and/or separately in a dual chamber dish. Differentiated cells were characterized both morphologically and functionally by their capacity to express markers with specificity for hepatic cell lineage. Results from immunofluorescent staining demonstrated that the differentiated cells have the ability of expressing AFP, cytokeratin 18 and cytokeratin 19, and increased with time of differentiation. In additional, the differentiated cells had functional properties of hepatocytes, such as glycogen storage, was evaluated by Periodic Acid-Schiff(PAS) Staining. This phenomenon did not appear when fetal hepatocytes were separated from human MSCs in a dual chamber dish. In conclusion, the direct interaction of fetal hepatocyte with adult human MSCs can stimulate differentiation of the latter into hepatocyte-like cell, which may serve as a cell source for cell therapy of hepatic tissues.**

***Keywords*:** mesenchymal stem cell, hepatocytes, differentiation, cellular therapy
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