عنوان مقاله:

Specific MicroRNAs Modulate The Early Stage Of HADSCs–Derived Hepatogenesis

محل انتشار:

سومین کنگره بین المللی و پانزدهمین کنگره ملی ژنتیک ایران (سال: 1397)

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خلاصه مقاله:

MicroRNAs (miRNAs) are a new class of endogenous small RNAs that play essential regulatory roles in self-renewability and differentiation of mesenchymal stem cells (MSCs). However little is known about miRNAs involved in the hepatic differentiation of adipose derived mesenchymal stem cells (hADSCs). The aim of the present study was to examine the miRNAs expression profiles at the early stage of hepatic differentiation of hADSCs. HADSCs were isolated and cultured. They were differentiated toward hepatocyte like cells by a two-step protocol. Hepatic differentiation of hADSCs was characterized by biochemical assays for glycogen synthesis and urea production, analysis the morphology of differentiated cells and real-time PCR for hepatocyte specific genes (ALB, AFP, CK18 and CK19). The miRNA expression profiles were then obtained through a miRNA microarray analysis. The comparison of miRNA profiling of hADSCs following the induction of hepatogenic differentiation at day 7 with undifferentiated hADSCs revealed 134 miRNAs that were differentially expressed by at least 2-fold change, and these miRNAs included 91 upregulated miRNAs and 43 downregulated miRNAs. Top 5 ranking miRNAs in volume with significant cut-off, $|FC| \geq 2$ or $|FC| \leq 2$, were hsa-miR-1273g-3p, hsa-miR-4454, hsa-miR-3178, hsa-miR-16-5p and hsa-miR-4497.In conclusion, in this study, we identified a set of miRNAs that may play key roles in the regulation of the hepatogenic differentiation of hADSCs in the early stages. Our results may provide a basis for the further investigations into the molecular mechanisms of action of miRNAs in hADSC hepatogenesis.

کلمات کلیدی:

human adipose-derived mesenchymal stem cells, microRNA, hepatogenesis, microarray