عنوان مقاله:

Comparative expression of Notch receptors in hESC- retinal progenitor cells and neural tube

محل انتشار:

بیستمین کنگره ملی و هشتمین کنگره بین‌المللی زیست‌شناسی ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Atefeh Atefi - *Department of Cellular Biotechnology, Cell Science, Research Center, Royan Institute for Biotechnology, ACECR, Isfahan, Iran*

Fereshteh Karamali, - *Department of Cellular Biotechnology, Cell Science, Research Center, Royan Institute for Biotechnology, ACECR, Isfahan, Iran*

Pendar Shojaei kojouri - *Department of Cellular Biotechnology, Cell Science, Research Center, Royan Institute for Biotechnology, ACECR, Isfahan, Iran*

Mohammad hossein Nasr Esfahani - *Department of Cellular Biotechnology, Cell Science, Research Center, Royan Institute for Biotechnology, ACECR, Isfahan, Iran*

خلاصه مقاله:

Notch signaling pathway is activated by direct interactions with ligand-expressing cells. During neurogenesis, Notch activity is required to maintain the progenitor state of cells. In fact, Notch signaling regulates proliferation and differentiation balance by symmetric and asymmetric cell division. Taking into consideration that the RPCs progeny is very important during retinal development and there are no much experimental evidence for the expression level of Notch receptors in hRPCs. In this study, the Notch receptors expression was analyzed in RPCs derived from hESCs during in vitro maintenance. So in the current study, RPCs were derived from hESC and the expression of Notch receptors was analyzed during in vitro maintenance of hESC-RPCs. we differentiated hESCs to RPCs and analyzed the expression of Notch receptors during in vitro maintenance. The hESC line (RH6, passage 39-50) and Stem cells of apical papilla (SCAP) (passage 6- 10) were cultured as previously described. In order to differentiate hESCs to RPCs, we used SCAPs as an induction factor in a co-culture system. Following one month, neural tube-like structures (NT) appeared. They were mechanically isolated and passaged on matrigel coated plates and were monitored until passage 3. To assess Notch receptors expression, total RNA was isolated from two stages NT and RPCs (P3). The quantitative PCR was performed using specific primers. We investigated whether the hESC-RPC exhibited expression of Notch 1 and Notch 2, NTs and RPCs expressed Notch 1 greatly more than Notch 2. Although, the expression of Notch 1 and Notch 2 was reduced from NTs to RPCs. In this study, the expression of Notch 1 and Notch 2 by RPCs and NTs differentiated from hESCs was evaluated and they both had higher expression of NTs. It is worth mentioning that these results might be dependent on cell niche and maintenance culture conditions which may affect the progeny level of RPCs.

کلمات کلیدی:

Notch receptor, Human embryonic stem cell, Retinal progenitor cell, Neural tube-like structure