

عنوان مقاله:

Calcitriol modulates the effects of bone marrow-derived mesenchymal stem cells on macrophage functions

محل انتشار:

مجله علوم پایه پزشکی ایران، دوره 18، شماره 7 (سال: 1394)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Bahman Mansouri Motlagh - *Department of Microbiology, Veterinary Faculty, Urmia University, Urmia, Iran*

Nahideh Afzale Ahangaran - *Department of Microbiology, Veterinary Faculty, Urmia University, Urmia, Iran*

Seyyed Meysam Abtahi Froushani - *Department of Microbiology, Veterinary Faculty, Urmia University, Urmia, Iran*

خلاصه مقاله:

Objective(s): Some evidence showed that calcitriol has an important role in regulating growth and differentiation of mesenchymal stem cells (MSCs). However, the interaction between mesenchymal stem cells and macrophage is not clear yet. The current study was done to investigate the in vitro effects of calcitriol on the interactions between bone marrow-derived MSCs and rat macrophages. **Materials and Methods:** MSCs were isolated from rat bone marrow and pulsed with different concentrations of calcitriol (50, 100 and 200 nanomolar) for 24, 48 and 72 hr. Then, mesenchymal stem cells were co-cultured with macrophages for 4 hr. Finally, macrophages were evaluated for ability to uptake neutral red, phagocytosis activity against opsonized yeast, respiratory burst and viability. **Results:** Our data showed that bonemarrow-derived MSCs pulsed with calcitriol may cause a significant increase in uptake of neutral red and phagocytic activity of opsonized heat killed baker's yeast. Moreover, treatment of MSCs with calcitriol enhanced macrophage viability. Nevertheless, the respiratory burst of macrophages was significantly reduced in macrophages co-cultured with calcitriol-treated MSCs compared to control group. **Conclusion:** Calcitriol may accelerate and potentiate anti-inflammatory M2 macrophage polarization by MSCs

کلمات کلیدی:

Calcitriol, Macrophage, Mesenchymal stem cell

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