## عنوان مقاله:

Biological behaviors of muscarinic receptors in mesenchymal stem cells derived from human placenta and bone marrow

## محل انتشار:

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## خلاصه مقاله:

Objective(s): Cells perform their functional activities by communicating with each other through endogenous substances and receptors. Post-translation, stem cells function properly in new host tissue by carrying specific cell surface receptors. We aimed to characterize muscarinic receptor subtypes in mesenchymal stem cells (MSCs) together with osteogenic and adipogenic differentiation markers.Materials and Methods: mRNA levels of 5 muscarinic receptor subtypes (CHRM1 to 5), BMP-6, and PPARγ during osteogenic and adipogenic differentiation, under the effect of atropine blockade, were measured in MSCs obtained from human fetal membrane (FM) and bone marrow (BM). Additionally, the effect of atropine on differentiation in the 1st, 2nd, and 3rd passages of MSCs, obtained from human FM and BM, were analyzed by RT-qPCR.Results: CHRM1 mRNA levels increased in the FM group, while decreasing in the BM group. We found significant decreases in CHRM3 and CHRM5 mRNA levels in FM and BM groups, respectively. Atropine had variable effects based on cell source and receptor type. BMP-6 mRNA levels in differentiated osteogenic cells increased significantly compared to undifferentiated cells in both FM and BM groups. In MSCs derived from both sources, PPARγ mRNA levels in differentiated adipogenic cells increased significantly. Atropine showed no effect on MSCs differentiation.Conclusion: These results indicate that expressions of muscarinic receptors in MSCs derived from BM and FM can vary and these cells keep the potential of osteogenic and adipogenic differentiation in vitro. Besides, atropine had no effect on adipogenic and osteogenic differentiation of MSCs.

## کلمات کلیدی:

Atropine, bone marrow, Cell differentiation, Gene expression, Human placenta, Mesenchymal stem cells, Muscarinic receptors

## لینک ثابت مقاله در پایگاه سیویلیکا: