

论著

atRA对新生大鼠纹状体神经干细胞增殖和分化的影响

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摘要 目的: 研究全反式视黄酸 (atRA) 对体外培养的NSCs分裂增殖和分化的作用及其机制。方法: 分离培养新生SD大鼠纹状体神经干细胞 (NSCs), 免疫荧光细胞染色加以鉴定; 采用不同组合配方的培养液培养细胞, FCM检测atRA对NSCs细胞周期分布和增殖的影响; 利用免疫荧光鉴定和分化细胞的分类计数法, 判定atRA对NSCs分化的影响。结果: 细胞周期分析表明, atRA处理组G0/G1期细胞数量显著增加, PI值小于对照组。atRA处理组与对照组的NSCs, 经诱导分化后产生的细胞类型有显著差异, atRA处理组产生的神经元是对照组的2.5倍。结论: atRA能抑制NSCs细胞增殖, 并抵消生长因子对NSCs的促有丝分裂作用, atRA还促进NSCs向神经元方向分化。

关键词 [全反式视黄酸](#); [干细胞](#); [细胞增殖](#); [细胞分化](#)

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Influence of all-trans retinoic acid on proliferation and differentiation of neural stem cells from new born rat striatum

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Abstract

AIM: To study the effect and mechanism of all-trans retinoic acid (atRA) on neural stem cell (NSCs) proliferation and differentiation from new born Sprague-Dawley rat striatum. METHODS: NSCs were isolated from the brains of new born Sprague-Dawley rat striatum, and the features of cells were characterized by immunofluorescence staining. The effects of different culture medium on cell cycle distribution and proliferation of NSCs were determined by flow cytometry (FCM). The effects of atRA on differentiation of NSCs were determined by immunofluorescence staining and classified count of differentiated cells. RESULTS: FCM assay indicated that atRA inhibited the proliferation of NSCs. The percentage of cells in G0/G1 phase in atRA treatment group was significantly higher than that in control, and the proliferation index (PI) was significantly low. The percentage of neurons differentiated from NSCs in atRA group was 2.5 times of the control group after induced by adding 10% FCS in culture medium. CONCLUSION: atRA counteracts the effects of bFGF on the promotion of mitosis and inhibition of differentiation of NSCs. atRA also promotes NSCs to differentiate into neurons in vitro.

Key words [All-trans retinoic acid](#) [Stem cells](#) [Cell proliferation](#) [Cell differentiation](#)

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