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EFFECT OF LAMININ ON NEUROTROPHIC FACTORS EXPRESSION IN SCHWANN-LIKE CELLS INDUCED FROM HUMAN ADIPOSE-DERIVED STEM CELLS *IN VITRO*

Mina Tadjalli¹, Giti Zarinfard¹ and Shahnaz Razavi²¹School of Veterinary Medicine, Shiraz University, Iran²School of Medicine, Isfahan University of Medical Sciences, Iran

The Schwann-like cells can be considered as promising in stem cell therapies, at least in experimental models. Human adipose-derived stem cells (ADSCs) are induced into Schwann-like cells (SC-like cells) and are cultured on either a plastic surface or laminin-coated plates. The findings here reveal that laminin is a critical component in extracellular matrix (ECM) of SC-like cells at *in vitro*. The survival rate of SC-like cells on a laminin matrix are measured through MTT assay and it is found that this rate is significantly higher than that of the cells grown on a plastic surface ($P < 0.05$). Schwann cell markers and the myelinogenic ability of SC-like cells at the presence versus absence of laminin are assessed through immunocytochemistry. The analysis of GFAP/S100 β and S100 β /MBP markers indicate that laminin can increase the differentiated rate and myelinogenic potential of SC-like cells. The expression levels of SCs markers, myelin basic proteins (MBP), and neurotrophic factors in two conditions are analyzed by real-time reverse transcription polymerase

chain reaction(RT-PCR).The findings here demonstrated that gene expression of SCs markers, MBP, and brain-derived neurotrophic factors (BDNF) increase significantly on laminin compared to plastic surface ($P < 0.01$). In contrast, the nerve growth factor(NGF) expression is down regulated significantly on laminin-coated plates ($P < 0.05$). The obtained data suggest that production of neurotrophic factors in SC-like cell in presence of laminin can induce appropriate microenvironment for nerve repair in neurodegenerative diseases.

Biography

Dr. Tadjalli is a professor of Histology and Zarinfard is a graduate student at the department of Histology School of Veterinary Medicine, Shiraz University, Shiraz and Dr. Razavi is a professor of Histology Isfahan University of Medical Science, Isfahan, Iran. Her research interest includes Histology, stem cell, regeneration.

mtadjalli6@yahoo.com