The Effect of Insulin on Schwann Cell Differentiation of Rat Epidermal Neural Crest Stem Cells

Pariya Khodabakhsh*, Leila Dargahi, Safura Pournajaf *and* Maryam Bazrgar

Shahid Beheshti University of Medical Sciences, Iran

Abstract

Schwann cells (SCs) play a crucial role in successful nerve repair and regeneration in both the peripheral and central nervous systems and promise to be a useful tool for cell-based therapies, disease modelling and drug discovery. Therefore, establishment of a procedure to obtain activated, highly proliferative SCs, in an appropriate time for clinical applications, is a prerequisite. However, the sources of SCs are limited both for studies of SC development and biology and for the development of treatments for SC-associated diseases. It is previously showed that epidermal neural crest stem cells (EPI-NCSCs) are a biologically relevant source for generating large and highly pure populations of SCs. Insulin is a peptide growth factor that regulates the transport, synthesis and storage of substances required for growth and differentiation of various kinds of developing cells. Regarding to the role of insulin in myelinating SC differentiation, in present study, we aim to examine the impact of insulin, on the cell viability and SC differentiation of EPI-NCSCs, isolated from bulge of rat hair follicles, through MTT and real-time quantitative PCR analysis, respectively.

Biography:

Pariya Khodabakhsh has completed her doctorate in pharmacy at the age of 25 years from Islamic Azad University of Pharmaceutical Sciences in 2014. She is a fifth-year Ph.D candidate in pharmacology at Shahid Beheshti University of Medical Sciences. She has authored numerous papers in national and international journals and conferences. Her current areas of research interest include neurodegenerative diseases, regenerative medicines and neuropharmacology.

Speaker Publications:

1. "Abe, N., Borson, S. H., Gambello, M. J., Wang, F., & Cavalli, V. (2010). Mammalian target of rapamycin (mTOR) activation increases axonal growth capacity of injured peripheral nerves. The Journal of Biological Chemistry, 285, 28034– 28043.
2. "Amniattalab, A., & Mohammadi, R. (2017). Functional, histopathological and immunohistichemical assessments of cyclosporine A on sciatic nerve regeneration using allografts: A rat sciatic nerve model. Bulletin of Emergency And Trauma, 5, 152– 159.
3. "Basi, G. S., Jacobson, R. D., Virag, I., Schilling, J., & Skene, J. H. (1987). Primary structure and transcriptional regulation of GAP-43, a protein associated with nerve growth. Cell, 49, 785– 791.
4. "Blanchard, J. W., Eade, K. T., Szucs, A., Lo Sardo, V., Tsunemoto, R. K., Williams, D., … Baldwin, K. K. (2015). Selective conversion of fibroblasts into peripheral sensory neurons. Nature Neuroscience, 18, 25– 35.
5. "Brokhman, I., Gamarnik-Ziegler, L., Pomp, O., Aharonowiz, M., Reubinoff, B. E., & Goldstein, R. S. (2008). Peripheral sensory neurons differentiate from neural precursors derived from human embryonic stem cells. Differentiation, 76, 145– 155.

9th International Conference on Brain Disorders & Therapeutics; August 21-22, 2020.

Abstract Citation:

Pariya Khodabakhsh, The effect of insulin on schwann cell differentiation of rat epidermal neural crest stem cells, Brain Disorders 2020, 9th International Conference on Brain Disorders & Therapeutics; August 21-22, 2020.

(https://braindisorders.neuroconferences.com/abstract/2020/the-effect-of-insulin-on-schwann-cell-differentiation-of-rat-epidermal-neural-crest-stem-cells)