P5: REGIONAL VARIATIONS IN THE MICROMECHANICAL AND BIOCHEMICAL PROPERTIES OF THE OVINE AORTA

Phakakorn Panpho, Riaz Akhtar, Jill Madine, Mark Field

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used as culturing substrates, which restrict cell migration although enabling biochemical communication. 2. All the established culture systems presented viable and proliferative cell populations over time. Interestingly, the tri-culture system preserved the synthesis values much higher than the co-cultures, mostly of collagen. On the immunofluorescence micrographs were observed the maintenance of cell type-specific proteins expression, even in the presence of another cell type. Quantification of Growth Factors (GFs) on conditioned media of the co- and tri-culture systems demonstrated a synergistic interplay between Vascular Endothelial GF (VEGF) and basic Fibroblast GF (Bfgf). The VEGF was mainly expressed by smooth muscle cells, which leads to increasing levels in the co- and tri-culture systems. A similar trend is observed for Bfgf, expectedly produced by the fibroblasts cells. By its side, the platelet derived GF levels remain unaltered among conditions. This study demonstrated the fundamental importance of the intercellular crosstalk between endothelial, smooth muscle and fibroblastic cells. It reinforces the potential of a tri-culture system in the development of tissue engineered blood vessel substitutes.

References

P4 MECHANISM OF PROANGIOGENIC ACTIVITY OF MITOCORRECTIN ON ENDOTHELIAL CELLS IN VITRO
Tetiana Nikolaenko, Victoria Nikulina, Liudmyla Garmanchuk, Oleksandra Makarenko
Taras Shevchenko National University of Kyiv, ESC "Institute of biology and medicine", Kyiv, Ukraine

Background: Investigations of different effective treatment modalities of infectious and inflammatory complications of stroke remain relevant. Normalization of vascularization, impaired due to hypoxia, is an important component of ischemic disease treating. The aim of our work was to study the mechanism of action of mitocorrectin on endothelial cells in vitro.

Methods: Active ingredient of mitocorrectin is a set of oligopeptides and amino acids isolated from cell mitochondria of the liver, brain and the pancreas (10:10:1) of pigs. As an experimental model was used endothelial cell line (PAEC), which was incubated at the standard conditions. Cytoxic/proliferative effect on cultured cells was determined using cytofluorometric analysis and MTT-test.

Results: Our studies have shown that mitocorrectin increased of endothelial cell by 25% and decreased apoptotic cells almost 2 times compared with the control. Cytotrophicfluometry analysis revealed an increase 1.8-fold in the population of proliferative cells pool under the influence of mitocorrectin. The most pronounced mitogenic and antiapoptotic effect of mitocorrectin on the endothelial cells was at concentrations of 0.1 – 1/1/mL. Thus, these doses may be the most therapeutically effective in restoring vascularization in post-stroke period. In addition, long-term cultivation of cells in the 2D-culture when exposed to mitocorrectin, more intensive formation of the capillary-like structures compared with controls, which may indicate vascular morphogenesis.

Conclusions: Thus, a study suggests that mitocorrectin shows a positive proangiogenic effect on endothelial cell line and this drug can be quite effective to restore vascularization, which is important in post-stroke period at ischemic complications.