IJAE
Vol. 118, n. 2 (Supplement): 116, 2013
ITALIAN JOURNAL OF ANATOMY AND EMBRYOLOGY

Expression of phospholipase C genes in cultured endothelial cells

Lo Vasco VR [1], Leopizzi M [2], Azzara G [2], Cannizzaro C [2], Dante D [3], Della Rocca C [2] and Businaro R [2]

[1] Dept. Sensory Organs, University of Rome "La Sapienza", Rome, Italy
[2] Dept. Sciences and Medical-Surgical Biotechnologies (Polo Pontino) and
[3] Dept. Physiology and Pharmacology "V. Erspamer", University of Rome "La Sapienza", Rome, Italy

During inflammation, endothelial cells (EC) are the first elements to be exposed to mediators circulating in the bloodstream. EC react with finely tuned responses mediated by different pathways, including the Phosphoinositide (PI) signal transduction system. The PI pathway contributes to a variety of cell functions, including hormone secretion, neurotransmitter signal transduction, cell growth, membrane trafficking, ion channel activity, cytoskeleton regulation, cell cycle control, apoptosis, embryonic development, organogenesis, and cell/tissue polarity. The Phosphoinositide-specific phospholipase C (PI-PLC) enzymes contribute to the regulation of the spatio-temporal balance of molecules belonging to the PI system. Thirteen mammalian PI-PLC enzymes have been identified, divided into six sub-families on the basis of amino acid sequence, domain structure and mechanism of recruitment. Isoforms within sub-families share sequence similarity, common domain organization, and general regulatory mechanism. The expression of PI-PLCs is strictly tissue specific, and evidences suggest that it varies under different conditions, such as tumor progression or cell activation. We obtained the complete panel of expression of PI-PLC isoforms in human umbilical vein endothelial cells (HUVEC), a widely used experimental model for EC. Then, we analyzed the mRNA concentration of PI-PLCs in LPS treated HUVEC by using the multiliquid bioanalyzer methodology after 3, 6, 24 48 and 72 hours from LPS administration. Marked differences in the expression of most PI-PLC codifying genes were evident.

Key words
HUVEC, Signal transduction, Inflammation, Phospholipase C, gene expression.