

THE ROLE OF EXTRACELLULAR VESICLES IN IMMUNOREGULATION

Edit Buzás, Katalin Szabó-Taylor, Tamás Szabó G, Borbála Aradi, Xabier Osteikoetxea, Andrea Németh, Mária Szente-Pásztói, Barbara Sódar, Bence György and András Falus

Department of Genetics, Cell- and Immunobiology, Budapest

Research in the past one and a half decade has drawn attention to the multifaceted roles of extracellular vesicles in immunoregulation. Extracellular vesicles are generated in an evolutionarily conserved manner, and an increasing body of evidences supports the complex interactions of microbe-derived vesicles and the host organism. On the other hand, extracellular vesicles secreted by cells of our immune system interact with pathogens, and play a role in the antimicrobial defense.

Most data regarding the role of extracellular vesicles in immunoregulation stem from the field of tumor immunology. Tumor cell derived extracellular vesicles inhibit the cytotoxic activity of CD8 + T cells and NK cells, and carry on their surface among others TGF β 1-et, NKG2D ligands, FASL and/or TRAIL. Extracellular vesicles exert their cellular effects in concert with soluble mediators. The combinatorial effect of extracellular vesicles and soluble mediators may be synergistic, additive or antagonistic. The effect of extracellular vesicles unites paracrine and juxtacrine regulations, and may significantly contribute to the functions of the regulatory networks of the immune system. Furthermore, extracellular vesicles may play a role in all phases of inflammation and in the regulation of lymphocyte migration. Moreover, extracellular vesicles provide novel therapeutical tools for translational medicine opening new perspectives for the diagnosis, prevention and /or therapy of diseases with immune pathomechanism.