

Understanding of proteins function is one of the fundamental task of contemporary bioscience, allowing for diagnosis and therapy of various diseases. The project focuses on revealing of the molecular role of FHF (FGF homologous factors), proteins' group belonging to the family of fibroblast growth factors (FGFs). FHF are considered as intracellular molecules that are not involved in signal transduction. They have been shown to be important as regulators of ion channels in nervous and cardiac tissues, however, in contrast to other FGFs, their functions in other cell types have not been yet discovered. Our preliminary data indicate, for the first time, that FHF may act outside the cell, being able to activate FGF receptor, initiate signal transduction and protect the cell against apoptosis. Therefore, within the project we will study various aspects of FHF biology and the role of these proteins in different locations. The planned research includes a wide, multidisciplinary approaches such as genetic engineering, proteomics techniques, protein-protein interaction measurements and advanced methods of cell biology and microscopy. Thanks to them, we will thoroughly characterize cellular functions of FHF and largely expand the knowledge on biology of FHF proteins. The results of project will contribute to the better understanding of the molecular mechanisms of FHF action, facilitating the design of novel therapeutic strategies.