***In silico and in vitro* characterization of Organic Anion Transporting Polypeptides involved in tumor survival and inflammatory processes**

The role of Organic Anion Transporting Polypeptides (OATPs) in drug pharmacokinetics, in cancer research and in inflammatory processes has been appreciated considerably in the last few years. OATPs are plasma membrane glycoproteins mediating the uptake of large, organic molecules (hormones, bile acids and numerous drugs, e.g. antiviral and anticancer drugs, statins, etc.).

Despite their important roles in physiological and pathological processes, detailed biochemical characterization of OATPs has not yet been performed.

In this project we will combine experimental and computational expertise of two research groups of the Hungarian Academy of Sciences, the MTA-SE Molecular Biophysics Group at Semmelweis University and the Membrane Protein Research Group at the Research Centre for Natural Sciences. During this project we will mine databases in order to define clinically relevant drugs potentially interacting with OATPs. These compounds will then be tested in *in vitro* assays, developed in the frame of this project, for interaction with OATPs. As a continuation of this collaboration, the 3D model of OATPs will also be generated in order to reveal structure-function relationships. Moreover, regulatory factors important in OATP expressional regulation will also be checked both with computational methods and at experimental level.

Our results may promote our understanding about the role of OATPs in various pathological processes and support the development of new, OATP based anti-cancer and anti-inflammatory therapies.

