

Recently one of the most promising anti-cancer therapies become immunotherapy. The method relies on activation of patient's immune system e.g. with oncolytic viral vectors. The method has been recognized by many scientists and clinicians as highly innovative and promising in cancer treatment. It utilizes genetically modified or naturally occurring viruses, which selectively replicate only in cancer cells. In contrast to gene therapy, oncolytic virus is not only a carrier of intended genes but as well inducer of cell lysis (oncolyses). Viruses destroy cancer cells and activate innate and adaptive immune responses against cancer.

By arming oncolytic virus with immune-stimulatory transgene we can enhance anti-cancer properties of vector. Modern technologies permit development of more potent immunological responses through incorporation of immune-stimulatory particles. Local production of such molecules in tumour microenvironment can improve anti-tumour immune responses in host by recruiting e.g. CD8<sup>+</sup> T and NK cells.

The purpose of this project is to develop new and more effective treatment modality against mesothelioma utilizing combinatory therapy: oncolytic adenovirus coding for costimulatory molecule ICOS ligand – T cell activating factor with anti-PD-1 (check point inhibitor). The other goal of the project is to investigate mechanism of action (MoA), immunological responses and tumour biology, focusing on possible correlation between immunological assets and potential efficacy generated by the treatment.