

Clear cell renal cell carcinoma (ccRCC) is the most common type of kidney cancer, responsible for approximately 80% of cases. ccRCC forms tumors highly vascularized and at the time of diagnosis the metastatic disease is found in 30% of patients. Although targeted therapy mean survival time of patients diagnosed with metastases is from three months to two years. Therefore, it is important to understand the mechanisms responsible for the growth, progression and metastasis of clear cell renal cell carcinoma to develop more effective treatments.

In the proposed project we would like to combine existing knowledge about MCPIP1 and our preliminary results indicating a crucial role of MCPIP1 protein in inhibiting the development of ccRCC. In our study we will use cell lines derived both from the primary and secondary tumor, normal endothelial cells and animal models and tissues from patients with clear cell renal carcinoma.

During realisation of the project we will investigate the role of MCPIP1 protein for the processes of growth and survival of cancer cells and study whether its presence inhibits the process of metastasis formation in *in vitro* and *in vivo* models. We will check how MCPIP1 protein influences the secretion of angiogenic factors, the interaction of tumor cells with normal endothelial cells and the stimulation of blood vessels development. We will also examine whether MCPIP1 plays a regulating role in the expression of microRNAs and proteins involved in angiogenesis. We will evaluate whether the level of MCPIP1 protein varies during tumor progression and stage of the disease in patients with clear cell renal carcinoma.

Our study may help in understanding the importance of MCPIP1 protein in the development and progression of clear cell renal cell carcinoma, and the mechanisms responsible for a good vascularisation of the tumors and insensitivity of cancer cells to therapy. The early identification of ccRCC metastatic potential may be beneficial for a more precise prediction of clinical outcomes and may ultimately be used to identify subsets of patients that may benefit from specific targeted therapies. In the future, results of the project could lead to creating new treatment strategies for the cure of renal cancer. Results obtained in this project will be presented at national and international meetings in the field of tumor biology, angiogenesis, metastasis and treatment. They will be published in international journals with high citation index.