

Antimitotic drugs, e.g. Taxanes, are widely used in cancer chemotherapy. Their role is to disturb the microtubules depolymerisation – which play a many essential functions in the cell, e.g. they are involved in the intracellular transport, cell shaping and mitosis. Their functions are strictly regulated by the cell and disturbing their dynamic often leads to the cell death. The importance of microtubules in cell division makes microtubules the targets for low- molecular mass antimitotic agents. However, one of the biggest problems of using antimitotic drugs in cancer chemotherapy is the development of resistance to anticancer drugs. One of the most important of these seems to involve the transmembrane transport proteins which are responsible for the efflux of xenobiotics or secondary metabolites outside the cell. Their overexpression in cancer cells leads to resistance to many anticancer drugs. The objective of our project is to create new compounds which will be able to not only kill cancer cells at low concentrations but also to overcome the multidrug-resistant phenotype of cancer cells.