

NANOPHOTO: Targeted Nanosystems for Improving Photodynamic Therapy and Diagnosis of Cancer

Head: **prof. dr. Janko Kos**

The researchers of the Programme group Pharmaceutical Biotechnology: Knowledge for Health at the Faculty of Pharmacy, University of Ljubljana participate in the project of 7th EU Framework Programme NANOPHOTO. Other groups are: University of Padova (Italy), University of Groningen (The Netherlands), University College London (Great Britain) and company Biotitec (Jena, Germany). Duration of the project is from 2008 to 2011, the total value is 3.24 milj EUR. The co-ordinator of the project is dr. Elena Reddi from the University of Padova, the head at the Faculty of Pharmacy is prof. Janko Kos.

The overall objective of this project is the development of one or more nanosystems loaded with Foscan® and conjugated to cancer cell specific ligands for improving the efficacy and selectivity of photodynamic therapy (PDT) and to optimise a fluorescence-based tumour imaging approach. A great improvement of the therapy can come from the availability of a carrier able to seek cancer cells and deliver Foscan® selectively to them. Three types of nanosystems, namely, liposomes, silica nanoparticles and poly(lactide-co-glycolide) copolymer nanoparticles, have been selected as potential nanocarriers for the selective delivery of Foscan®. The selection is mainly based on the different chemical nature of these systems, which can affect biocompatibility. During the first part of the project each type of nanosystem will be optimised through in vitro and in vivo tests and leader nanocarriers will be selected and conjugated to cancer cells specific ligands (folic acid, EGF, antibodies) for increasing the selective delivery of Foscan®.