

## Master Research Project

### Engineering multimodal scaffolds for target diagnosis

Noninvasive imaging of the expression of endothelial cell surface markers or adhesion-promoting molecules in vivo represents an opportunity for identifying early signs of tumor angiogenesis, and chronic and acute inflammation processes such as arthritis and atherosclerosis. Keeping in mind that these types of diseases are becoming a major global health burden particularly with the aging of the global population, their earlier diagnosis and treatments are critical. Not surprisingly, in the last years there has been a tremendous demand for development of new noninvasive targeted molecular imaging probes that will allow 1) earlier diagnostics and therefore, treatment of diseases, and 2) the evaluation of therapeutic procedures and drug efficacy.

The goal of this research project is to develop peptide-based probes that will bind to specific cell adhesion molecules, induced on the surface of endothelial cells in response to inflammatory cytokines, and will contain reactive points to attach different contrast agents for imaging.

A student enrolling in this project will acquire expertise in molecular modeling tools; peptide chemistry and in vitro screening techniques to select the best candidates. The student will design, synthesize, purify and characterize different probes and study their binding affinities to the target cell adhesion molecules.

Supervisor: Dr. Olga Iranzo ([oiranzo@itqb.unl.pt](mailto:oiranzo@itqb.unl.pt))

Area: Chemistry – Biochemistry

Location: ITQB (Bioinorganic Chemistry and Peptide Design Laboratory) – Oeiras