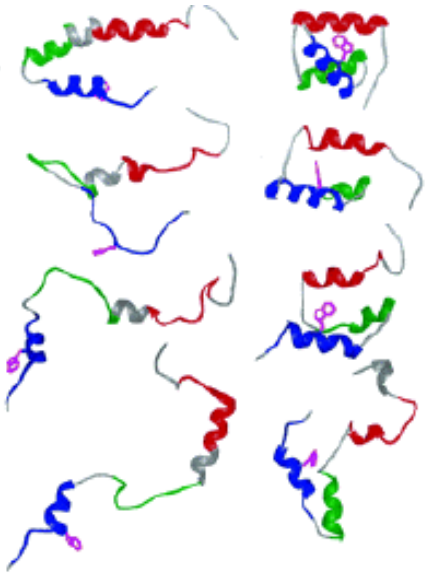
Master Student Research Project

Scaffolds for synthetic biology

Synthetic biology is the engineering of biology: the synthesis of complex, biologically based (or inspired) systems which display functions that do not exist in nature. In essence, synthetic biology designs 'biological systems' in a rational and systematic way.

This new field enables the expansion of the chemistry of life and finds applications in diverse areas as biomedicine (new diagnostic and therapeutic tools), biopharmaceuticals and biomaterial engineering.

In this project, the aim is to create new scaffolds for synthetic biology, specifically in the field of protein engineering. The developed scaffolds can be used for protein purification, enzyme inhibition, research reagents for protein capture and detection, diagnostic imaging and targeted therapy.



A student enrolling on this project will acquire expertise in molecular modeling tools, combinatorial protein and molecule engineering, high-throughput screening techniques for the selection of the best scaffolds as well as polypeptide/protein characterization methods.

The student will design, synthesize and characterize a scaffold for a particular biopharmaceutical target and test it with biological samples supplied by industrial partners.

Supervisors: Dr. Olga Iranzo (oiranzo@itqb.unl.pt)

Dr. Ana Cecília Roque (cecilia.roque@dq.fct.unl.pt)

Area: Biotechnology - Biochemistry – Chemistry

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

REQUIMTE (Biomolecular Engineering Laboratory, DQ, FCT – UNL)