Design, synthesis and in vitro evaluation of peptidic complement inhibitors of the compstatin family with improved target and species binding properties.

Description:

Peptide-based complement inhibitors of the compstatin family have recently entered the clinic (Empaveli, Apellis; approved in 2021). Despite the clinical use, some aspects of the target interaction profile are not fully resolved and the narrow species specificity limits translational studies of the compound class. This project aims at the development of compstatin derivatives with selectivity for mouse complement, and potentially other species, and/or with enhanced PK/PD properties for human complement.

Methods used during the project include:
- Automated solid-phase peptide synthesis and chemical modifications
- Purification of peptides using liquid chromatography
- Characterization of the drug-target interaction using methods such as SPR, BLI, MST, or ITC
- Evaluation of lead compounds in established and optimized bioassays
- Phage Display

We are looking for a master student who is interested in the design and synthesis of peptide therapeutics and in testing their own peptides for activity and affinity in state-of-the-art assays. The combination of compound synthesis and bioassays provides a great insight into laboratory work in general and into lead optimization cycles in particular.