



## Post-doctoral fellowship - IBMM - Montpellier

### *Fluorinated Cyclopropane Amino Acids: from Synthesis to Structural Implication in Peptides for Biological Applications.*

- **Duration** 18 months. Start date October 2024 - January 2025.
- **Funding** Agence Nationale de la Recherche
- **Candidate profile** PhD in Chemistry from less than 3 years

#### PROJECT DESCRIPTION

This project is dedicated to the development of new constrained amino acids based on the cyclopropane amino acid (ACC) characteristic, in order to study the impact on conformational properties and lipophilicity when they are incorporated into peptides. Model peptides will be synthesized and analyzed in term of conformations by comparing theoretical results from molecular modeling calculations (in collaboration) and experimental results from structural identifications by NMR and CD. The results obtained will lead to the design and synthesis of optimized compounds with a view of therapeutic applications. The final objective is to use these non-natural amino acids in peptides of biological interest to improve binding and enzymatic stability. All the original ACC supplied by our partner will be introduced into neurotensin as a model active peptide, and the binding and half-life of the analogues obtained will be measured. The best candidates will be tested *in vivo* on pain model in mice in collaboration. The biological results will be confronted with the conformations in order to develop a rationale, which would allow a prediction of the selectivity.

**Key words:** constrained amino acids - peptide synthesis - NMR - conformation analysis.

#### PROFILE AND SKILLS REQUIRED

The candidate must have a Ph.D. in chemistry for less than three years and have demonstrated skills in organic synthesis, purification and characterization of products (NMR, LCMS, and semi-preparative HPLC). Experience in solid supported synthesis will be appreciated but not compulsory. Knowledge in conformation analysis (NMR, CD) will be an added value. The ability to work as part of a multidisciplinary research team as well as effective communication and writing skills are important, as the project benefits from a collaborative approach bringing together chemists, theoreticians and biologists.

#### FUNDING AND LOCATION

The recruited candidate will join **the team «Stereoselective Synthesis & Modified Amino Acids»** headed by Dr Florine Cavelier at IBMM-DAPP (Institute of biomolécules Max Mousseron, Amino Acids and Peptides Department), located in the Pôle Chimie Balard in Montpellier. The project will be carried out in collaboration with the ANR consorsium. Remuneration is based on the CNRS salary scale.

**To apply:** Send a cover letter, CV and two letters of reference to [emmanuelle.remond@umontpellier.fr](mailto:emmanuelle.remond@umontpellier.fr) and [florine.cavelier@umontpellier.fr](mailto:florine.cavelier@umontpellier.fr)