



Laboratoire COBRA  
Bioorganic chemistry team  
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### **POSTDOCTORAL POSITION IN ORGANIC CHEMISTRY (24 months)**

**TITLE:** Synthesis of a next generation of crosslinkers to gain insight into infectious diseases

**KEY WORDS:** Organic chemistry, crosslinker, heteromultifunctional reagent

**FUNDING:** ANR (French national funding agency for research)

**EXPECTED STARTING DATE:** March-April 2022

**PROJECT:** Understanding key molecular mechanisms of infectious diseases is the first step towards the development of vaccines and treatments. One critical step of the infection processes is the interaction between the pathogen and its target host cells. Dissecting this interaction at the molecular and thus protein level is therefore of the utmost importance.

A number of multifunctional chemical platforms (crosslinkers) have been reported to irreversibly trap weak and transient protein interactions and allow detailed mapping of interaction interfaces by LC-MS-MS. These tools are generally divided into two classes according to their ability to react either with specific residues (Lysine or Cysteine) or with any nearby residues regardless of their nature (Anal Chem, 2015, 87, 1853-60). Whilst these strategies are particularly effective for *in vitro* applications, the complexity of the crosslinked peptide mixture to be analyzed by LC-MS-MS is dramatically increased by the presence of two distinct biological organisms raising the technological challenge to a new limit.

This project carried out in collaboration with biologist partners (Pasteur Institute, Paris), will aim at synthesizing a next generation of (photo)crosslinkers to facilitate the identification of crosslinked peptides for *in vivo* applications.

**CANDIDATE PROFILE:** We are looking for outstanding and highly motivated candidates with a good background and expertise in organic chemistry, and an interest in working at the interface between chemistry and biology.

**APPLICATION PROCEDURE:** A detailed curriculum vitae, a short research summary, and two contacts able to provide a recommendation letter have to be sent to:

[cyrille.sabot@univ-rouen.fr](mailto:cyrille.sabot@univ-rouen.fr) & [pierre-yves.renard@univ-rouen.fr](mailto:pierre-yves.renard@univ-rouen.fr).