



## **Ph-D Position in bioorganic chemistry**

**Title:** Dual stimuli responsive drug delivery systems

**Expected starting date:** October 2023

**Partnership:** This is a collaborative research program between COBRA laboratory, from the University of Rouen Normandy, France (Dr. Cyrille Sabot, Bioorganic Chemistry Team) and RCNS, Chemical Biology Research Group, Budapest, Hungary (Dr. Péter Kele), two groups with complementarity research areas. The first 18 months of the thesis will be carried out in Rouen and the last 18 months in Budapest. The group of Rouen is involved in the development of advanced fluorescent probes, which are suitable for biological applications. The Hungarian group focuses on the site-specific modulation of biocompatible photoresponsive systems (i.e., fluorogenic probes, activatable photocages).

**Project's description:** Combination of the complementary forces of the two groups may result in advanced probes and photocage systems that enable imaging and therapeutic applications by the use of orange, red, near infrared (NIR) light as a means of external control with excellent temporal and spatial resolution. Such a spectral range of light is much more advantageous in biological applications due to lower cytotoxicity, higher penetration depth and practically zero autofluorescence of natural fluorophores. Herein we propose the synthesis of orange/red/NIR excitable probes and photocages that involve the Rouen group's recent innovation suitable for efficiently shifting the wavelength range toward the red end of the spectrum. The design also involves the elements of the Hungarian group's recent findings (e.g., *J. Am. Chem. Soc.* **2020**, *142*, 15164), enabling site-specific activation of photoresponsive systems for imaging purposes (probes) or site-specific activation of photocaged drugs for therapeutic purposes.

**Application:** Applications should be sent by e-mail to Dr. Cyrille Sabot (cyrille.sabot@univ-rouen.fr) and should include

- A detailed CV with at least two referees able to be contacted (recommendation letters must be directly sent from the referees to the contact persons)
- A cover letter
- A short research summary