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Biography Cyrille Sabot received his PhD in Chemistry under the guidance of Dr. Charles Mioskowski at the University of Strasbourg in 2007. After 2 postdoctoral research positions with Prof. Sylvain Canesi at the University of Québec at Montreal (2007-2009) and with Dr. Andrew Greene at the University of Grenoble-Alpes (2009-2010), he has obtained a permanent position at CNRS at the University of Rouen Normandy in 2010. His current research fields include the development of chemical tools for bioconjugation (chemoselective ligation, target-guided synthesis, protein modification), and the synthesis of compounds of interest through new synthetic methodologies.

Abstract title: From organic methodology to the development of chemoselective ligations

Abstract Our research team is currently involved in the development of bioconjugation reactions and chemoselective ligations, as illustrated by the following examples. Photoaffinity probes are valuable tools for the identification of protein targets of small molecules. They are generally constituted of a photoactivable function, a ligand and a bioorthogonal functional group in order to attach the future fluorescent or affinity tag. In this context, we developed a fluorogenic affinity probe based on a benzophenone–quinoxalinone hybrid system prepared through a recent meta-free ring contraction strategy. This tool enabled a one-step protein capture and fluorescent scaffold formation.

Maleimide-based cycloadditions have been used for the design of biomolecular systems and tailor-made materials that are finding widespread utility in biotechnology, polymer and materials science. In this context, we developed a one-pot maleimide-based irreversible cycloaddition/aromatization strategy forming a single and fluorescent linker which has found different applications in bioorganic chemistry.