

COUVE-BONNAIRE Samuel
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Ph-D proposal: *Development of new catalytic access to fluorinated alkenes: application to the production of biomolecules, peptidomimetics and foldamers.*

Position: Full Doctorate (number of position available: 1)

Laboratory: COBRA, CNRS UMR 6014 & FR 3038, INSA Rouen Normandie, IRCOF, 1 rue Tesnière, 76821 Mont-Saint-Aignan, France. (web site: <http://www.lab-cobra.fr/?equipe=synthese-de-biomolecules-fluorees>)

Organofluorine chemistry is an area in tremendous expansion and the market of organofluorine fine chemicals still keeps growing up every year. Fluorinated molecules have applications in almost all areas of science (medicinal chemistry, agrochemistry...) and clearly have a crucial impact on everyday life and on modern societies. Of particular relevance is the emergence of fluorinated alkenes, versatile compounds that have found many applications as, for examples, peptidomimetics, drugs and materials. Despite interesting application in biological/structural study or in medicine, the synthesis of these fluorinated alkenes is however still very challenging and classical methods for their preparation suffer from major limitations, which clearly disallow their full development. There is therefore a strong need for new processes that would tackle this major challenge in chemical synthesis.

In that context, we aim at developing new relevant catalytic pathways towards fluorinated alkenes via modern C-H activation process, metathesis, cross-coupling reaction... These novel methodologies will allow the synthesis of fluoroanalogues of agrochemicals as well as therapeutic agents against various and important diseases (cancer, Duchenne muscular dystrophy...). The fluorinated alkenes will be used as peptide bond surrogate and will be inserted in peptides (in particular neuropeptides) for biological and structural studies. The synthesis of new foldamers based on fluorinated alkene moieties is also envisioned. To support this research program we are looking for an outstanding and highly motivated candidate to pursue his PhD within our group.

Keywords: Organofluorine Chemistry; Peptidomimetics; Catalysis

Recruitment: an outstanding and motivated student graduated in chemistry from a master degree, highly interested by synthetic organic chemistry and catalysis.

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