

Post-Doctoral Position

Organic Synthesis

■ Details

Workplace : Institut CARMen (UMR CNRS 6064), INSA Rouen Normandie (Rouen, France)

Contrat period : 12 months (renewable)

Expected starting date : in the course of 2026

Salary & Funding : ~ 2900 € gross / month & ANR-25-CE07-4944 (# F-PhoRDiol)



■ **Contexte :** Due to its intrinsic properties, when a fluorine atom is incorporated into an organic molecule, its physicochemical and biological properties could be modulated.^[1] As a result, fluorinated molecules have found numerous applications, especially in the pharmaceutical industry (20-30% of marketed drugs contain at least one fluorine atom).^[2] In this context, fluorinated analogues of “common” carbohydrates have received substantial attention, leading thus to applications in biochemistry and medicinal chemistry.^[3] However, the synthesis and use in medicinal chemistry of fluorinated analogues of so-called “rare” sugars, despite being frequently found in biologically active products, remain limited.

■ **Project :** The proposed postdoctoral fellowship is part of a joint research project between two French teams from the **Institut CARMen (ex-COBRA)** (« **Hétérocycles** » and « **Synthèse de Biomolécules Fluorées** ») located at the University of Rouen Normandy and an Italian team (« **PhotoGreen Lab**») located at the University of Pavia. These teams are respectively involved in the synthesis of rare sugars,^[4] the development of new radical fluorination reactions,^[5] and theoretical calculations.^[6] The experimental work will consist of: **a)** exploiting radical deoxyfluorination reactions developed in our laboratory for the synthesis of fluorinated analogues of “rare” sugars; **b)** studying their reactivity in glycosylation reactions; **c)** studying the chemical stability of glycosylated products.

■ **Key-words :** organic synthesis, fluorine chemistry, radical chemistry, carbohydrate chemistry, photochemistry.

■ References :

- [1] D. O'Hagan, *Chem. Soc. Rev.* **2008**, *37*, 308–319.
- [2] M. Inoue, Y. Sumii, N. Shibata, *ACS Omega* **2020**, *5*, 10633–10640.
- [3] a) E. Leclerc, X. Pannecoucke, M. Ethève-Quekquejeu, M. Sollogoub, *Chem. Soc. Rev.* **2013**, *42*, 4270–4283; b) B. Linclau, A. Ardá, N.-C. Reichardt, M. Sollogoub, L. Unione, S. P. Vincent, J. Jiménez-Barbero, *Chem. Soc. Rev.* **2020**, *49*, 3863–3888; c) R. Hevey, *Chem. Eur. J.* **2021**, *27*, 2240–2253.
- [4] A. Geulin, Y. Bourne-Branchu, K. Ben Ayed, T. Lecourt, A. Joosten, *Chem. Eur. J.* **2023**, *29*, e202203987.
- [5] a) É. Vincent, J. Brioché, *Chem. Eur. J.* **2024**, *30*, e202401419; b) A. Ngo Ndimba, É. Vincent, J. Brioché, *Eur. J. Org. Chem.* **2022**, *2022*, e202201165; c) É. Vincent, J. Brioché, *Eur. J. Org. Chem.* **2021**, *2021*, 2421–2430; d) J. Brioché, *Tetrahedron Lett.* **2018**, *59*, 4387–4391.
- [6] a) T. Wan, L. Capaldo, D. Ravelli, W. Vitullo, F. J. de Zwart, B. de Bruin, T. Noël, *J. Am. Chem. Soc.* **2023**, *145*, 991–999; b) T. Wan, Ł. W. Ciszewski, D. Ravelli, L. Capaldo, *Org. Lett.* **2024**, *26*, 5839–5843.

■ **Candidate profile :** We are looking for a candidate with a PhD in organic chemistry (synthetic methodology or total synthesis) and who has: solid theoretical knowledge in organic chemistry; excellent experimental skills; a strong interest in research and experimental work. The candidate will need to be curious, organized and autonomous in his/her work, and to demonstrate good adaptability. Experience in radical chemistry and/or glyco-chemistry will be considered as an asset but is not mandatory.

■ **Application procedure :** CV, cover letter, research summary and contact details of 2 references able to provide recommendation letters. Please, send all the document by email to Dr Antoine Joosten (antoine.joosten@insa-rouen.fr) and Dr Julien Brioché (julien.brioché@univ-rouen.fr)

Applications will be reviewed and interviews conducted until the position is filled.

Please do not hesitate to contact us for further information.