Postdoctoral position (12 months)

Emergence@INC funding

Photochemical domino reaction towards tetrahydrothiophene derivatives

https://www.icmmo.u-psud.fr/fr/perso/thomas-boddaert/offre-postdoc/

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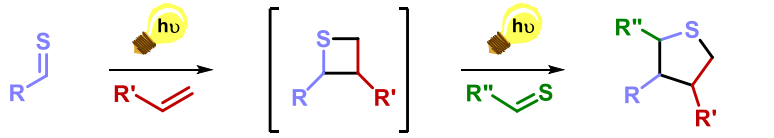
Photochemical transformations are efficient tools for the creation of molecular complexity from simple and readily available starting materials and they provide valuable synthetic access to molecular structures which are difficult to obtain otherwise.[1] In the contemporary requirement of developing eco-compatible processes, light-initiated reactions present considerable advantages since the reagent is a simple photon and they are gratifyingly compatible with multiple bond-forming transformation processes.

For some years, our group are specialized in the development of photochemical transformations towards the synthesis of functionalized small carbo- and heterocyclic molecules, favouring domino processes and skeleton rearrangements.[2] Very recently, we have established an access to tetrahydrothiophene derivatives via a new photochemical domino reaction, including two successive photochemical transformations: a [2+2]-cycloaddition between a thiocarbonyl and an alkene partner (a thia-Paternò-Büchi reaction) and an unprecedented regioselective ring enlargement of the thietane intermediate.[3]



Thietane intermediate *Tetrahydrothiophenes*

The objectives of this project are to extend the scope of this photochemical process, to develop a domino-multicomponent version of this reaction and also to initiate new photochemical cascades. Finally, sulphur analogues of natural products and/or bioactive molecules will be also targeted.

*We are looking for a postdoctoral research fellow starting no later than the **beginning of March 2021.***

Candidate profile: Motivated and autonomous candidate with strong skills (theoretical & experimental) in organic chemistry. No particular knowledge in photochemistry is required.

Application procedure: Curriculum Vitae with contact detail of 2 references able to provide recommendation letters. End of application: **January 10, 2021**.

Contact: Thomas Boddaert (thomas.boddaert@universite-paris-saclay.fr)

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[1] a) Beeler, A. *Chem. Rev.* **2016**, *116*, 9629. b) Bach, T.; Hehn, J. P. *Angew. Chem. Int. Ed.* **2011**, *50*, 1000. c) Hoffmann, N. *Chem. Rev.* **2008**, *108*, 1052.

[2] a) J. Buendia, Z. Chang, H. Eijsberg, R. Guillot, J. Xie, A. Frongia, F. Secci, S. Robin, T. Boddaert, D. J. Aitken, *Angew. Chem. Int. Ed.* **2018**, *57*, 6592. b) Chang, Z.; Boyaud, F.; Guillot, R.; Boddaert, T.; Aitken, D. J. *J. Org. Chem.* **2018**, *83*, 527. c) Melis, N.; Luridiana, A.; Guillot, R.; Secci, F.; Frongia, A.; Boddaert, T.; Aitken, D. J. *Eur. J. Org. Chem.* **2017**, 5896. d) Kassir, A. F.; Ragab, S. S.; Nguyen, T. A. M.; Charnay-Pouget, F.; Guillot, R.; Scherrmann, M.-C.; Boddaert, T.; Aitken, D. J. *J. Org. Chem.* **2016**, *81*, 9983.

[3] Kassir, A. F.; Guillot, R.; Scherrmann, M.-C.; Boddaert, T.; Aitken, D. J. *Org. Lett.* **2020**, *22*, 8522.