

Original Catalytic Approaches To Access Fluorinated Molecules

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The Organofluorine chemistry is a fascinating research field in rapid expansion. Beyond the strong interest that represents fluorinated molecules in materials science, pharmaceuticals and agrochemicals as well as modern drug design,¹ innovation is still required to push further the boundaries of knowledge in this appealing research field and to achieve new synthetic challenges.² Besides, the development of more sustainable transformations and among them, reactions based on transition metal catalyzed direct C-H bond functionalization have reshaped the field of organic chemistry over the last decade.³ In that context, aiming at designing new tools to access original fluorinated molecules, our group developed approaches combining organofluorine chemistry and transition metal catalyzed C-H bond functionalization.⁴ Such advances were possible thanks to the design of original reagents.⁵

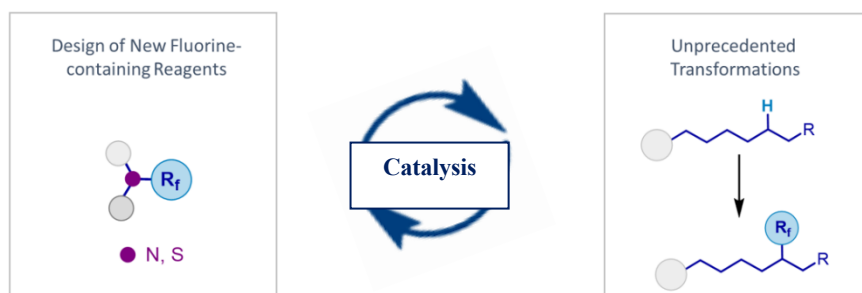


Figure 1. Overview of our research interests

References:

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- [2] Inoue, M.; Sumii, Y.; Shibata, N. Contribution of Organofluorine Compounds to Pharmaceuticals. *ACS Omega* **2020**, 5, 10633-10640 and references therein.
- [3] Special issue on C-H activation, *Chem. Rev.* **2017**, 117, 8481-9520.
- [4] a) Barday, M.; Blicke, R.; Ruyet, L.; Besset, T. Remote trifluoromethylthiolation of alcohols under visible light. *Tetrahedron* **2020**, 76, 131153. b) Ruyet, L.; Lapuh, M. I.; Koshfi, V. S.; Földesi, T.; Jubault, P.; Poisson, T.; Novák, Z.; Besset, T. Z-Selective Pd-catalyzed 2,2,2-trifluoroethylation of acrylamides at room temperature. *Chem. Commun.* **2021**, 57, 6241-6244.
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Tatiana Besset obtained her PhD in chemistry (2009) at Grenoble University with Dr. Greene. She then moved to the WWU Münster as a postdoctoral fellow in the group of Prof. Glorius. In 2011, she joined the group of Prof. Reek at Amsterdam University, as an industrial postdoctoral fellow (Eastman company). From 2012-2021, she was a CNRS Associate Researcher (habilitation in 2018) in the "Fluorinated Biomolecules Synthesis" group at the laboratory COBRA (UMR 6014, Rouen, France) and she was promoted Director of Research CNRS in 2022. Her research career has been recognized with different awards and honors such as ERC Starting Grant (2017), Bronze medal of the CNRS (Young Investigator Award 2018), Jean Pierre Sauvage 2018 Prize awarded by the Division of Organic Chemistry (DCO) of "Société Chimique de France" (SCF) and the Thieme Chemistry Journals Award (2020). In 2022, she was elected as Chemistry Europe Fellow Class 2020/21 and early 2023, she received the 2023 RSC Fluorine Prize. Her research involves the design of new transformations involving transition-metal catalysis (C-H bond activation) and the development of new strategies in organofluorine chemistry.



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