DEVELOPING NEW ENABLING TECHNOLOGIES FOR THE FUTURE OF CHEMICAL SYNTHESIS

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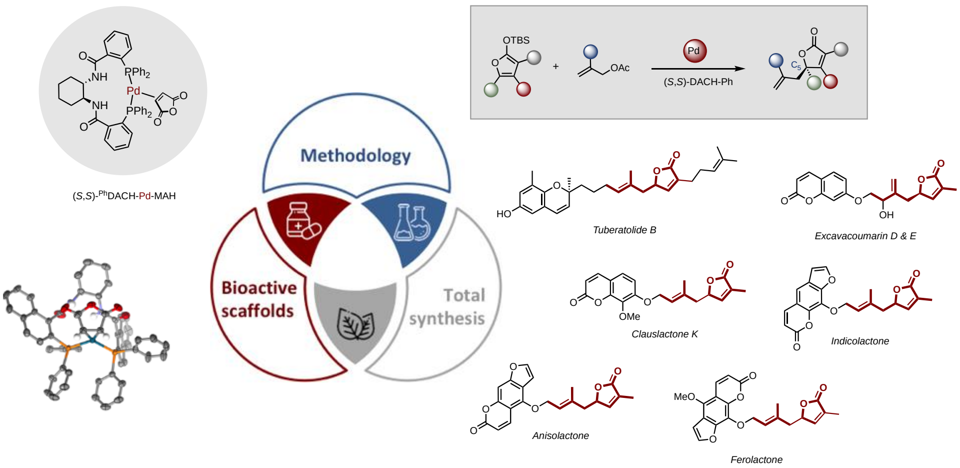
For the past two decades, the group has been focused on developing new synthetic tools with a special emphasis given to structural and functional diversity as well as chirality. These methods span within the areas of asymmetric transition metal catalysis, organocatalysis, photoredox catalysis and, more recently, bio-hybrid catalysis. I will be presenting some of the group's most recent results. In particular, I will delve into some ***photoredox chemistry using 3D printed reactors***,[1] some ***asymmetric catalysis using DNA-based artificial metalloenzymes***, [2] and some ***palladium-catalysed asymmetric allylic alkylation (Pd-AAA) chemistry applied to natural products***;[3] three topics that are at the centre of our research.



References

[1] For some photoflow chemistry developed in the group, see: (a) J. Zhang *et al. Org. Lett.* **2024** (*in press*). (b) E. Selmi-Higashi *et al. Org. Lett*. **2021**, *23*, 4239.

[2] For some bio-hybrid catalysis developed in the group, see: (a) N. Duchemin *JACS Au* **2022**, *2*, 1910. (b) J. Mansot *et al. Chem. Eur. J*. **2020**, *26*, 3519. (c) J. Mansot *et al. Chem. Sci.* **2019**, 2875. (d) N. Duchemin *et al. Angew. Chem. Int. Ed.* **2018**, *57*, 11786. (e) N. Duchemin *Chem. Commun*. **2016**, *52*, 8604. (f) K. Amirbekyan *et al.* M. *ACS Catal*. **2016**, *6*, 3096. (g) E. Benedetti *et al*. *Chem. Commun*. **2015**, *51*, 6076. (h) J. Wang *et al. Angew. Chem. Int. Ed*. **2013**, *52*, 11546.

[3] For some Pd-AAA chemistry developed in the group, see: (a) T. Keenan *et al. Nat. Commun. **2023**, 14, 8058.* (b) F. Richard *et al. Nat. Synth.* **2022**, *1*, 641. (c) M. Dolé Kerim *et al. J. Org. Chem*. **2020**, *85*, 12514. (d) T. Katsina *et al. Org. Lett*. **2019**, *21*, 9348. (e) S. Aubert *et al*. *Org. Lett*. **2019**, *21*, 2231. (f) T. Song *et al*. *Org. Lett*. **2019**, *21*, 603. (g) T. Song *et al. Chem. Eur. J*. **2018**, *24*, 8076. (h) M. Nascimento de Oliveira *et al. Chem. Eur. J*. **2018**, *24*, 4810. (i) M. Nascimento de Oliveira *et al*. *Org. Lett*. **2017**, *19*, 14. (j) H. Elhachemia *et al. Chem. Commun*. **2016**, *52*, 14490. (k) J. Fournier *et al*. *Angew. Chem. Int. Ed*. **2013**, *52*, 1257. (l) J. Fournier *et al. Angew. Chem. Int. Ed*. **2012**, *51*, 7562.