

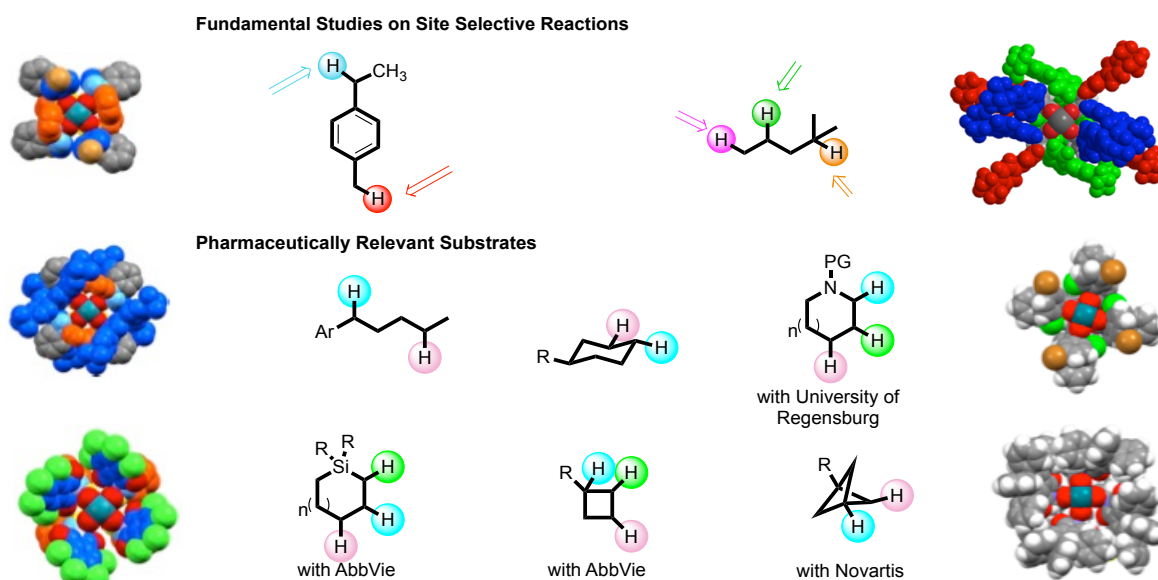
Collaborative Approach for Catalyst-Controlled Site-Selective and Enantioselective C-H Functionalization

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One of the signature challenges of the NSF Center for Chemical Innovation on Selective C-H Functionalization (CCHF) has been the design of catalysts to control site selective C-H functionalization reactions. Dirhodium tetracarboxylates have been very effective in this regard because the carboxylate ligands self-assemble on coordination to the dirhodium to generate high symmetry chiral catalysts of defined shape and size. This presentation will describe the development of these catalysts and their utilization in donor/acceptor carbene-induced C-H functionalization. The synthetic utility of this methodology will be illustrated by various applications to the synthesis of natural products and chiral scaffolds of pharmaceutical interest.



Background References

1. H. M. L. Davies and K. Liao, "Dirhodium tetracarboxylates: privileged catalysts for selective intermolecular C-H functionalization" *Nature Rev. Chem.* **3**, 347-360 (2019).
2. H. M. L. Davies, "Finding opportunities from surprises and failures. Development of rhodium-stabilized donor/acceptor carbenes and their application to catalyst-controlled C-H functionalization" *J. Org. Chem.* **84**, 12722 (2019).