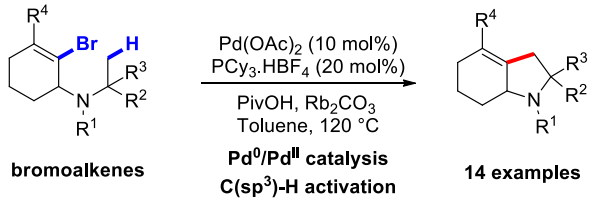
Development and applications of C(sp^3)–H Alkenylation

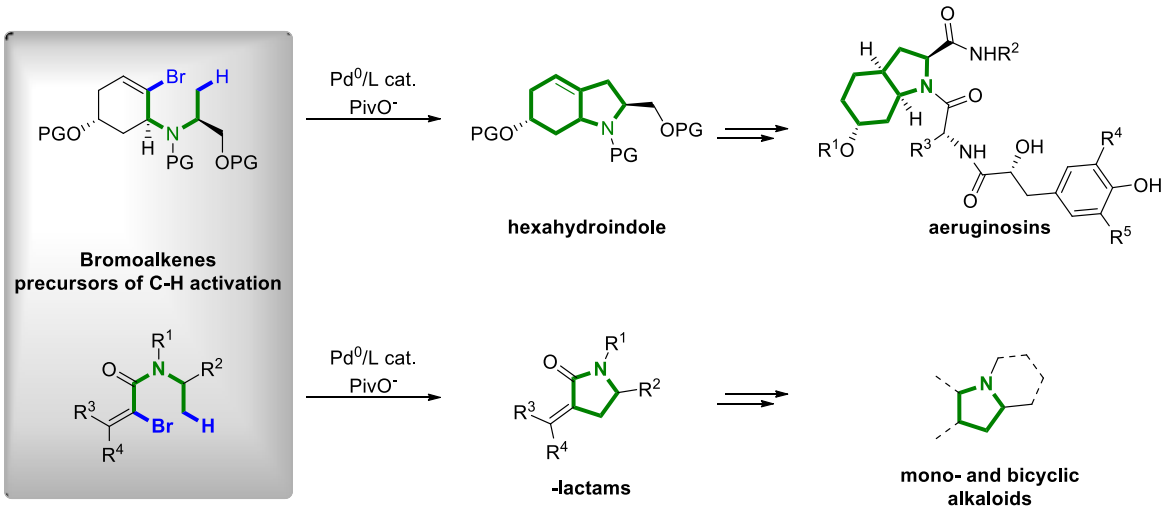
D. Dailler, G. Danoun, P. M. Holstein, J. Vantourout, O. Baudoin*

Department of Chemistry, University of Basel, St. Johanns-Ring 19, CH-4056 Basel, Switzerland
*olivier.baudoin@unibas.ch

In the last decade, the transition metal-catalyzed intramolecular activation of unactivated C-H bonds has emerged as powerful method to transform otherwise inert entities.[1] Within this field, we recently developed a straightforward access to hexahydroindoles by intramolecular C(sp^3)-H alkenylation starting from bromoalkenes.[2]



In this communication, we will report access to alkaloids by use of this intramolecular C(sp^3)-H alkenylation. Firstly, the combination of this methodology with a directed C(sp^3)-H arylation allowed to achieve a divergent synthesis of aeruginosins.[3] In a second part, the development of a modular C(sp^3)-H alkenylation leading to β-lactams,[4] which are prevalent scaffolds found in numerous bioactive natural molecules, will be described.



[1] R. Jazzar, J. Hitce, A. Renaudat, J. Sofack-Kreutzer, O. Baudoin, *Chem. Eur. J.*, **2010**, *16*, 2654.
[2] J. Sofack-Kreutzer, N. Martin, A. Renaudat, R. Jazzar, O. Baudoin, *Angew. Chem. Int. Ed.* **2012**, *51*, 10399.
[3] a) D. Dailler, G. Danoun, O. Baudoin, , *Angew. Chem., Int. Ed.* **2015**, *54,* 4919; b) D. Dailler, G. Danoun, B. Ourri, O. Baudoin, *Chem. Eur. J.* **2015**, *21*, 9370
[4] P. M. Holstein, D. Dailler, J. Vantourout, J. Shaya, A. Millet, O. Baudoin, *Angew. Chem. Int. Ed.* **2016**, *55*, 2805