

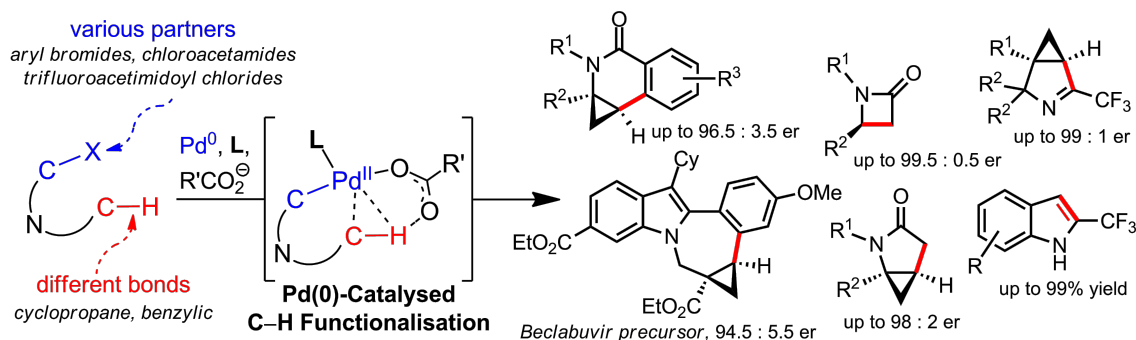
Exploration of Pd(0)-Catalysed C(sp³)-H Functionalisation Beyond Aryl Halides

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Nitrogen-containing heterocycles are prevalent motifs in biologically active compounds.¹ Transition metal catalysed enantioselective C-H functionalisations have become attractive alternatives for the selective synthesis of such scaffolds.² In the past years, the enantioselective synthesis of benzannulated *N*-heterocyclic building blocks *via* intramolecular Pd(0)-catalysed C(sp³)-H bond arylation has been extensively investigated.³ In this context, we have developed intramolecular aminocyclopropane arylations towards dihydroisoquinolinones and the Beclabuvir ring system.⁴

Our recent studies broaden the scope of Pd(0)-catalysed C-H functionalisations by using electrophilic partners other than aryl halides. Readily accessible chloroacetamides are efficiently functionalised, yielding valuable chiral b- and g-lactams in high yields and enantioselectivities with formation of a C(sp³)-C(sp³) bond.^{5,6} Furthermore, indoles and versatile chiral imines bearing a CF₃-group are obtained by C-H functionalisation of trifluoroacetimidoyl chlorides.⁷



[1] E. Vitaku, D. T. Smith, J. T. Njardarson, *J. Med. Chem.* **2014**, *57*, 10257

[2] C. G. Newton, S.-G. Wang, C. C. Oliveira, N. Cramer, *Chem. Rev.* **2017**, DOI: 10.1021/acs.chemrev.6b00692

[3] O. Baudoin, *Acc. Chem. Res.* **2017**, *50*, 1114

[4] J. Pedroni, T. Saget, P. A. Donets, N. Cramer, *Chem. Sci.* **2015**, *6*, 5164-5171

[5] J. Pedroni, M. Boghi, T. Saget, N. Cramer, *Angew. Chem. Int. Ed.* **2014**, *53*, 9064

[6] J. Pedroni, N. Cramer, *Angew. Chem. Int. Ed.* **2015**, *54*, 11826

[7] J. Pedroni, N. Cramer, *Org. Lett.* **2016**, *18*, 1932