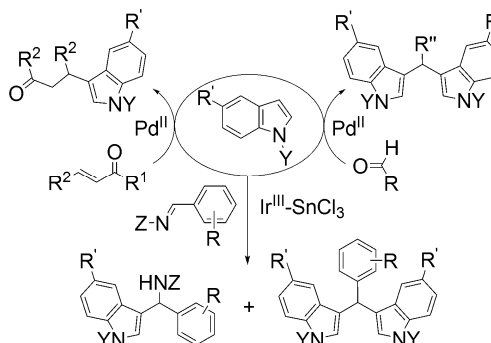


Efficient C-3 Selective Functionalization of Indoles: Mono/Bimetallic Catalysis Approach

Swapna Sarita Mohapatra, Sujit Roy

Organometallics & Catalysis Laboratory, School of Basic Sciences, Indian Institute of Technology, Bhubaneswar, Odisha – 751013, India

Functionalization of indoles has been widely investigated since structural motifs bearing the 'indole core' are frequently found in pharmaceuticals, natural products, and other functional synthetics [1]. In this regard, metal-catalyzed or organocatalytic routes have assumed distinct significance. Within the broader realm of multimetallic catalysis, we have been working into transition metal/tin based motif and delivered a number of selective, atom-economic and bench-friendly strategies [2]. In the present work, we report the functionalization of indoles using bimetallic Ir^{III}-SnCl₃ and monometallic Pd^{II} catalyst. The bimetallic catalyst [Ir(COD)(SnCl₃)Cl(μ-Cl)]₂ promoted the reaction of electron-rich indoles with aldimines giving rise to functionalized amines and triheteroarylmethanes [2]. On the other hand, facile C-3 alkylation of indoles with electrophiles like carbonyls and enones was achieved using the monometallic catalyst [PdCl₂(MeCN)₂]. The major advantage of such a reaction is that it does not require any co-catalyst, acid, base, additive, or external ligand and is totally insensitive to air and moisture.



Reference:

1. Bandini, M.; Eichholzer, A. *Angew. Chem. Int. Ed.*, **2009**, *48*, 9608.
2. Das, D.; Mohapatra, S. S.; Roy, S. *Chem. Soc. Rev.* **2015** (ASAP article).
3. Chatterjee, P. N.; Maity, A. K.; Mohapatra, S. S.; Roy, S. *Tetrahedron.* **2013**, *69*, 2816.