

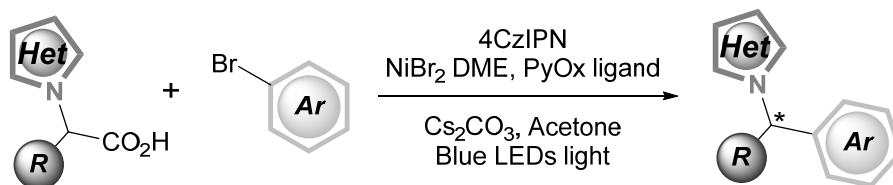
ENANTIOSELECTIVE SYNTHESIS OF N-BENZYLIC HETEROCYCLES: A NICKEL- AND PHOTOREDOX-DUAL CATALYSIS APPROACH

Cristofer Pezzetta^{a,b}, Davide Bonifazi^b, and Robert W. M. Davidson^a

^aDr. Reddy's Laboratories, 410 Science Park, Milton Road, Cambridge CB4 0PE, UK

^bSchool of Chemistry, Cardiff University, Park Place Main Building, Cardiff CF10 3AT, UK

A dual nickel- and photoredox-catalysed modular approach for the preparation of enantioenriched *N*-benzylic heterocycles is presented. α -Heterocyclic carboxylic acids are reported as suitable substrates for a decarboxylative cross-coupling with aryl bromides,[1] affording products in modest to good enantioselectivity when a chiral pyridine-oxazoline (PyOx) ligand is employed.[2] The presence of a directing group on the heterocyclic moiety is shown to be beneficial, affording improved stereocontrol in a number of cases. Similar effects can be observed when running the reaction at lower temperatures. A range of drug-like products is thus easily obtained from commercial starting materials.



[1] Seminal work: Z. Zuo, D. T. Ahneman, L. Chu, J. A. Terrett, A. G. Doyle and D. W. C. MacMillan, *Science*, **2014**, 345, 437.

[2] First examples of enantioselective Ni-photoredox cross-couplings are included in: (a) Z. Zuo, H. Cong, W. Li, J. Choi, G. C. Fu and D. W. C. MacMillan, *J. Am. Chem. Soc.*, **2016**, 138, 1832; (b) J. C. Tellis, D. N. Primer and G. A. Molander, *Science*, **2014**, 345, 433.