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

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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,\textsuperscript{[1]} affording products in modest to good enantioselectivity when a chiral pyridine-oxazoline (PyOx) ligand is employed.\textsuperscript{[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.

\[ \text{Het}^{\text{N}}\text{CO}_2\text{H} + \text{Br}^{\text{Ar}} \xrightarrow{\text{NiBr}_2\text{DME, PyOx ligand}} \text{Het}^{\text{N}}\text{Ar}, \text{Cs}_2\text{CO}_3, \text{Acetone Blue LEDs light} \]
