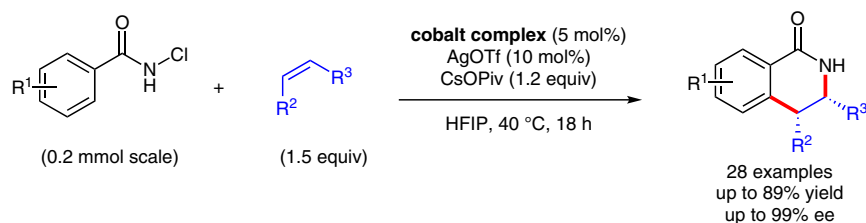


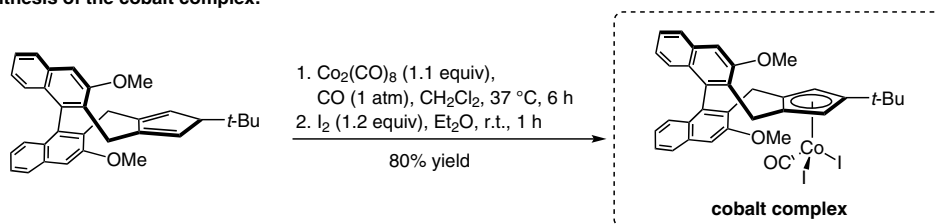
K. OZOLS, Y.-S. JANG, N. CRAMER* (ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, SWITZERLAND)

Chiral Cyclopentadienyl Cobalt(III) Complexes Enable Highly Enantioselective 3d-Metal-Catalyzed C–H Functionalizations
J. Am. Chem. Soc. **2019**, *141*, 5675–5680.

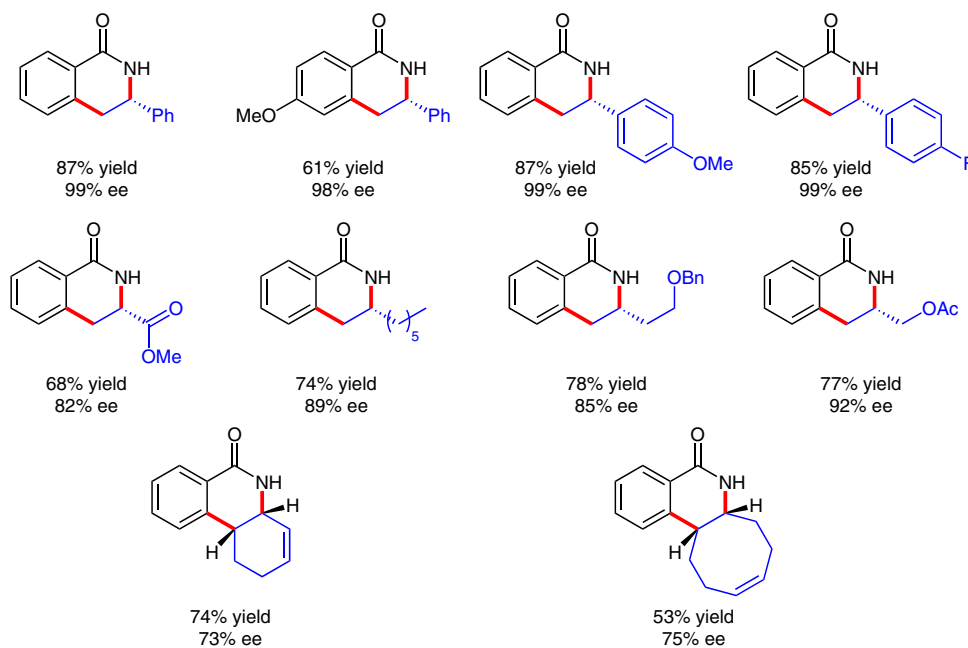
Asymmetric C–H Functionalization Using Chiral Cp^xCo(III) Catalysis



Synthesis of the cobalt complex:



Selected examples:



Significance: This work is an important advance in catalytic C–H functionalizations for the following reasons: (1) it is the first example of asymmetric C–H functionalization using a chiral Cp^x-ligand-bound Co(III) complex; (2) it outperforms competing rhodium-catalyzed methods; (3) reactions with alkyl alkenes give regioisomeric products opposite to those with rhodium complexes.

Comment: The authors systematically studied the effect of various substituents on the Cp^x ligand in the C–H functionalization of chlorobenzamides, a benchmark for chiral CpRh(III) catalysis. The presence of the *tert*-butyl group greatly influences the approach of the olefin, whereas the naphthyl backbone acts to orient and align the metallocene.

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