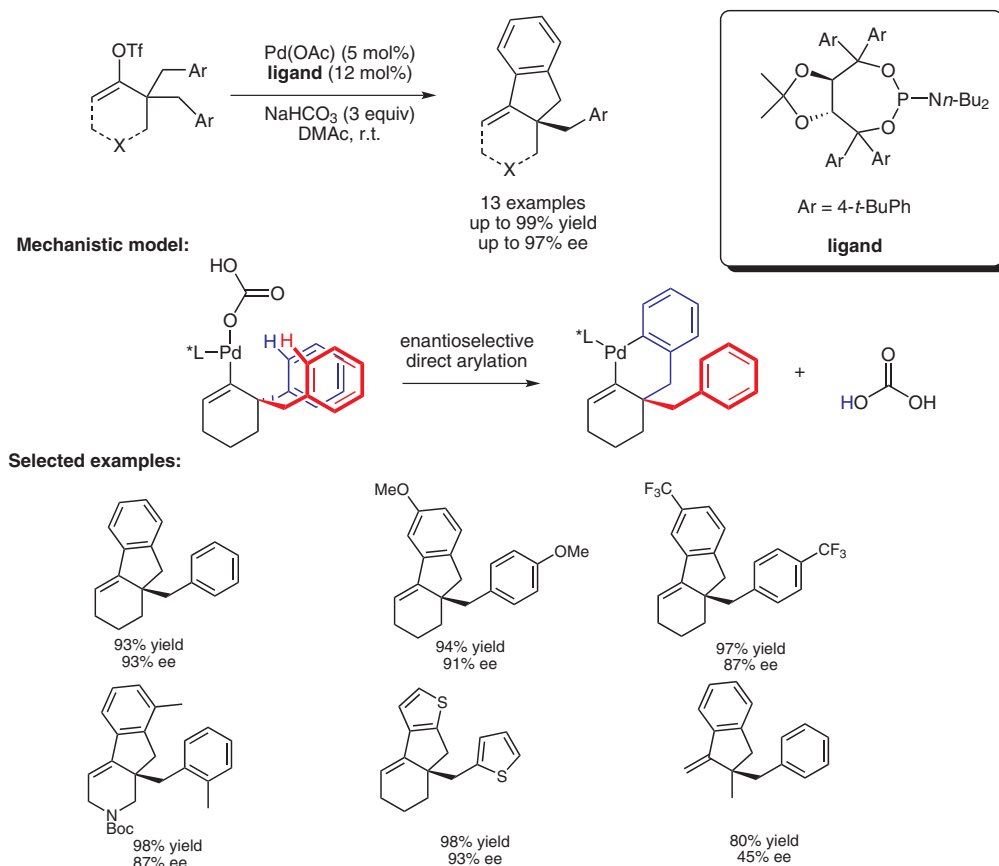


Synthesis of Indanes by Enantioselective Direct Arylation



Significance: Transition-metal-catalyzed C–H functionalization reactions are becoming increasingly practical; however, highly enantioselective variants are rare (see Review below). The authors have identified a catalytic system which allows for the desymmetrization of enantiotopic aryl C–H bonds using a palladium-catalyzed direct arylation.

Review: R. Giri, B.-F. Shi, K. M. Engle, N. Mangel, J.-Q. Yu *Chem. Soc. Rev.* **2009**, *38*, 3242-3272.

Comment: The key step in the catalytic cycle is proposed to involve a concerted metalation–deprotonation (CMD) reaction. The use of a chiral monodentate ligand is required to induce enantioselectivity, and bulky taddol-based phosphoramidite ligands were optimal. The reaction is performed at room temperature using NaHCO₃ as a base, making the process exceptionally mild.