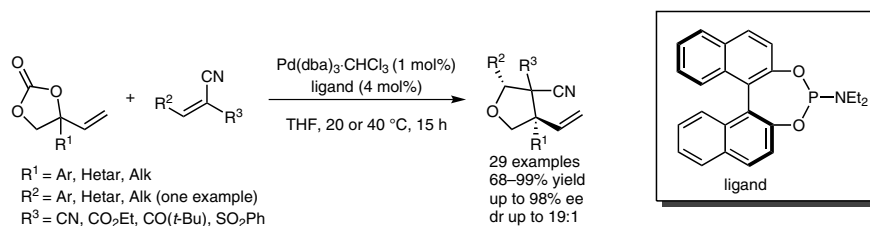


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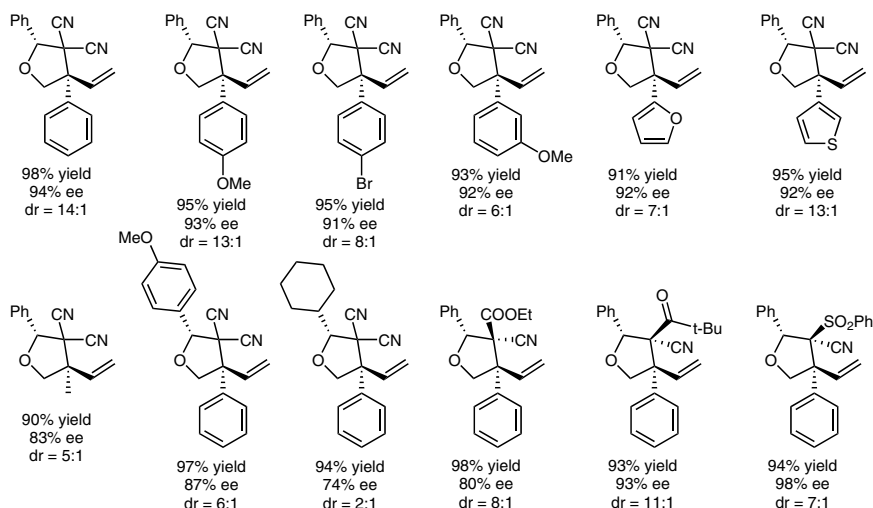
Palladium-Catalyzed Asymmetric Decarboxylative Cycloaddition of Vinylethylene Carbonates with Michael Acceptors: Construction of Vicinal Quaternary Stereocenters
Angew. Chem. Int. Ed. **2014**, *53*, 11257–11260.

Asymmetric Synthesis of Tetrahydrofurans Bearing Multiple Stereocenters

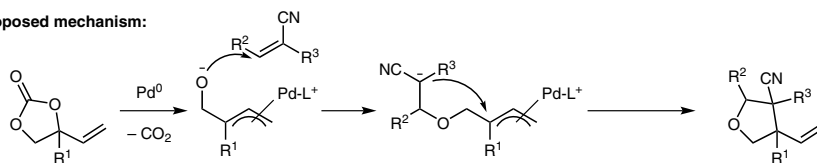


Selected examples:

Yield of combined diastereomers



Proposed mechanism:



Significance: Transition-metal-catalyzed reactions that form multiple stereocenters in a single operation are particularly challenging with respect to absolute and relative stereocontrol. The authors report an efficient reaction between vinylethylene carbonates and doubly activated Michael acceptors, yielding tetrahydrofurans bearing two or three stereocenters, with good to high enantioselectivity.

SYNFACTS Contributors: Mark Lautens, Thomas Johnson
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DOI: 10.1055/s-0034-1379274; Reg-No.: L12714SF

Comment: This reaction is an innovative variation on the theme of decarboxylative allylation (see Review below). The reaction shows a high functional group tolerance with respect to both reaction partners and proceeds under mild conditions. Although the total yields are consistently high, the diastereomeric ratios are variable. The reaction was scaled-up to 2.2 mmol scale.

Review: J. A. Tunge and co-workers *Chem. Rev.* **2011**, *111*, 1846–1913.