A. KHAN, L. YANG, J. XU, L. Y. JIN, Y. J. ZHANG* (SHANGHAI JIAO TONG UNIVERSITY AND YANBIAN UNIVERSITY, YANJI, P. R. OF CHINA)

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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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.