B. M. TROST,* P. J. MORRIS, S. J. SPRAGUE (STANFORD UNIVERSITY, USA)
Palladium-Catalyzed Diastereo- and Enantioselective Formal [3 + 2]-Cycloadditions of Substituted Vinylcyclopropanes
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**Category**

**Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions**

**Key words**

**palladium**

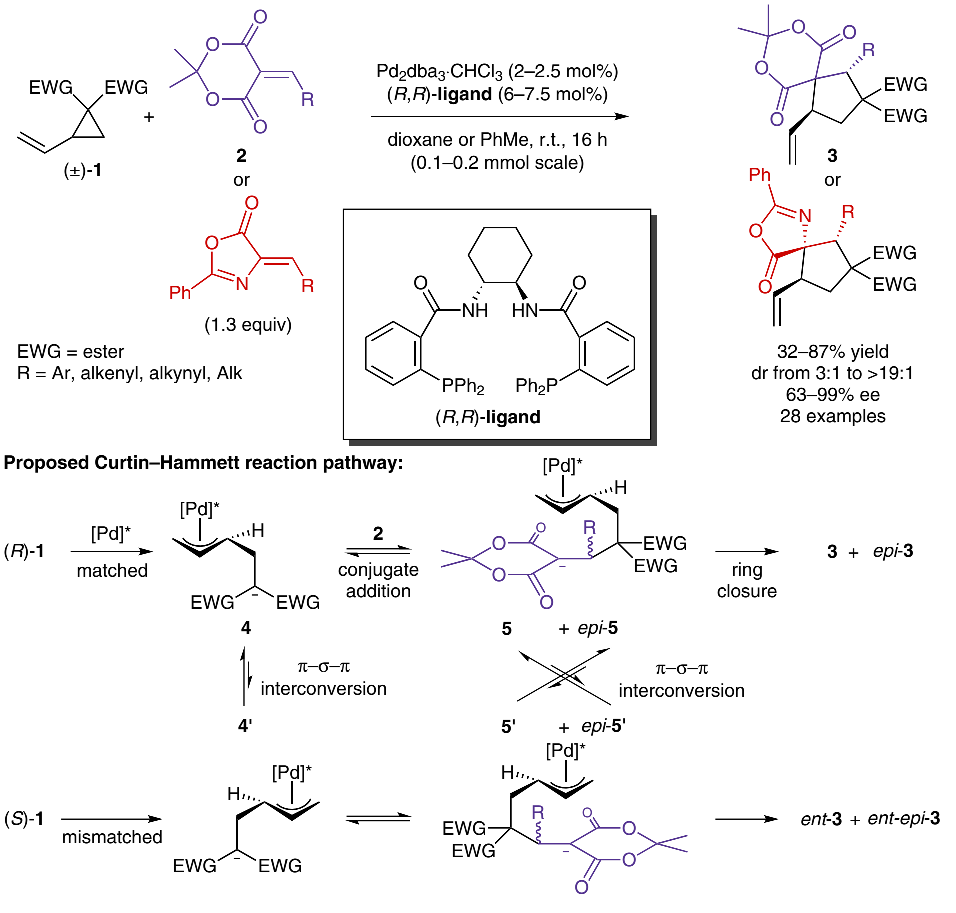
**Trost ligand**

**vinylcyclopropanes**

**formal [3+2] cycloaddition**

**cyclopentanes**

# Palladium-Catalyzed Asymmetric Formal [3+2] Cycloaddition



**Significance:** A palladium-catalyzed asymmetric formal [3+2] cycloaddition of vinylcyclopropanes to electron-poor olefins is reported using the Trost ligand. The developed method can access highly substituted cyclopentanes with high diastereo- and enantioselectivity with moderate to high yield.

**Comment:** As the vinylcyclopropanes **1** used are racemic, the authors propose that the reaction occurs under Curtin–Hammett conditions for this stereo-convergent reaction. Notably, the effects of π–σ– π interconversion and the reversibility of the conjugate addition establish pre-equilibria of diastereomeric reactive intermediates **4** and **5**, consequently favoring the formation of **3**.

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