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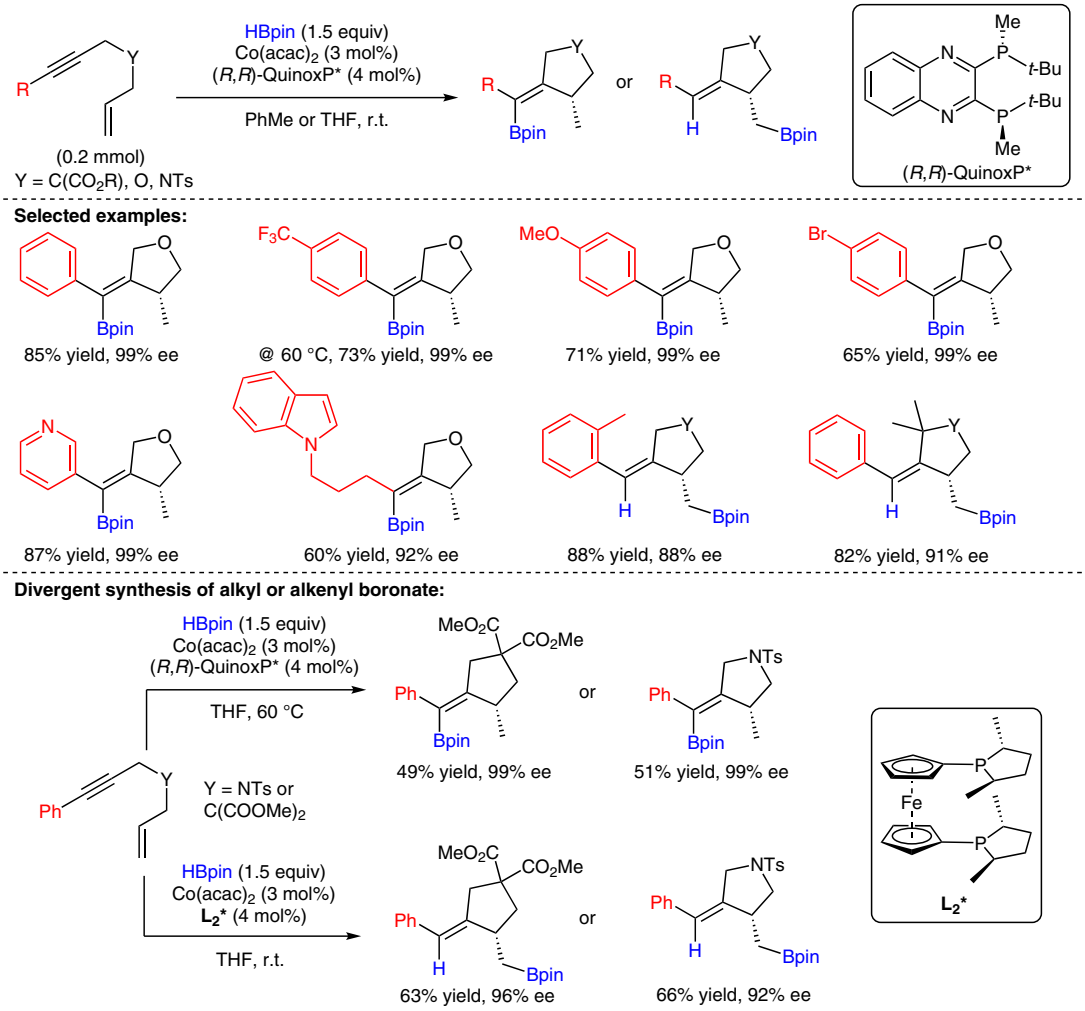
S. YU, C. WU, S. GE* (NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE)
Cobalt-Catalyzed Asymmetric Hydroboration/Cyclization of 1,6-Enynes with Pinacolborane
J. Am. Chem. Soc. **2017**, *139*, 6526–6529.

Cobalt-Catalyzed Asymmetric Hydroboration–Cyclization



Significance: The development of cobalt catalysis has led to the discovery of efficient bis-phosphine cobalt complexes that are useful in asymmetric synthesis. Installation of boryl groups is an important strategy in synthesis because of the versatility of the carbon–boron bond. Herein, the Ge group reports an enantioselective tandem hydroboration–cyclization, generating five-membered heterocycles containing an alkyl or alkenyl boronate.

Comment: By using the QuinoxP ligand, the alkenyl boronate was obtained in good yields and with excellent enantioselectivites with variations of the electronic character of the neighboring aromatic group. However, sterically encumbered substrates yielded the alkyl boronate products. Additionally, the authors could generate either the alkyl or alkenyl boronate by changing the ligand, maintaining good enantioselectivity for both reactions.

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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

cobalt catalysis
hydroboration
alkyl boronates
alkenyl boronates