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Peptide-Catalyzed Diastereo- and Enantioselective Cyclopropanation of Aromatic α,β-Unsaturated Aldehydes
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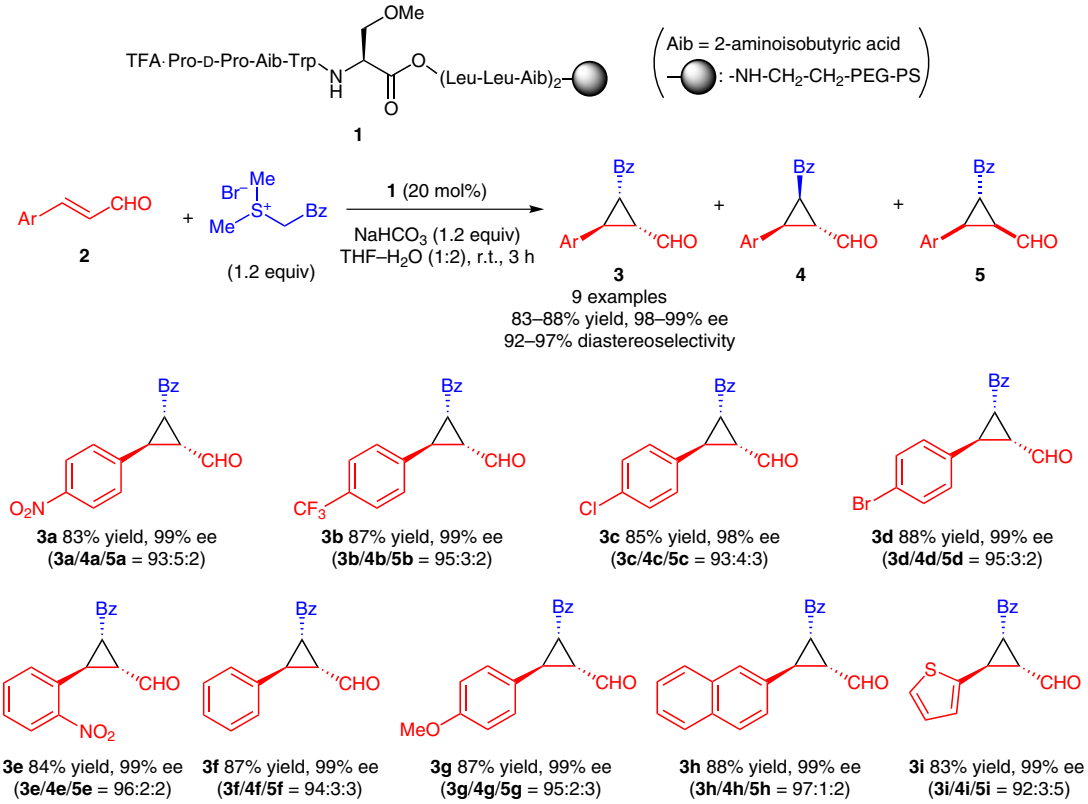
Cyclopropanation of α,β-Unsaturated Aldehydes with a Supported Peptide



Significance: The amphiphilic resin-supported peptide **1** catalyzed the diastereo- and enantioselective cyclopropanation of aromatic α,β-unsaturated aldehydes **2** with dimethylphenacylsulfonium bromide in the presence of $NaHCO_3$ to give the corresponding cyclopropanes **3** in 83–88% yield with 98–99% ee and 92–97% diastereoselectivity (9 examples, eq. 1). In the formation of **3g**, the catalyst was recovered by filtration and reused five times without significant loss of its catalytic performance (1st reuse: 87% yield, 99% ee, 94% diastereoselectivity; 5th reuse: 83% yield, 99% ee, 95% diastereoselectivity).

Comment: The authors have previously reported the preparation of a series of amphiphilic resin-supported peptides and their application to asymmetric hydrogenation (*Org. Lett.* **2008**, *10*, 2035), asymmetric Friedel–Crafts-type alkylation (*Adv. Synth. Catal.* **2012**, *354*, 1280) and asymmetric Michael addition (*Angew. Chem. Int. Ed.* **2012**, *51*, 12786).

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Category

Polymer-Supported Synthesis

Key words

resin-supported peptides

asymmetric cyclopropanation

α,β-unsaturated aldehydes