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Catalytic Asymmetric Direct-Type 1,4-Addition Reactions of Simple Amides
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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

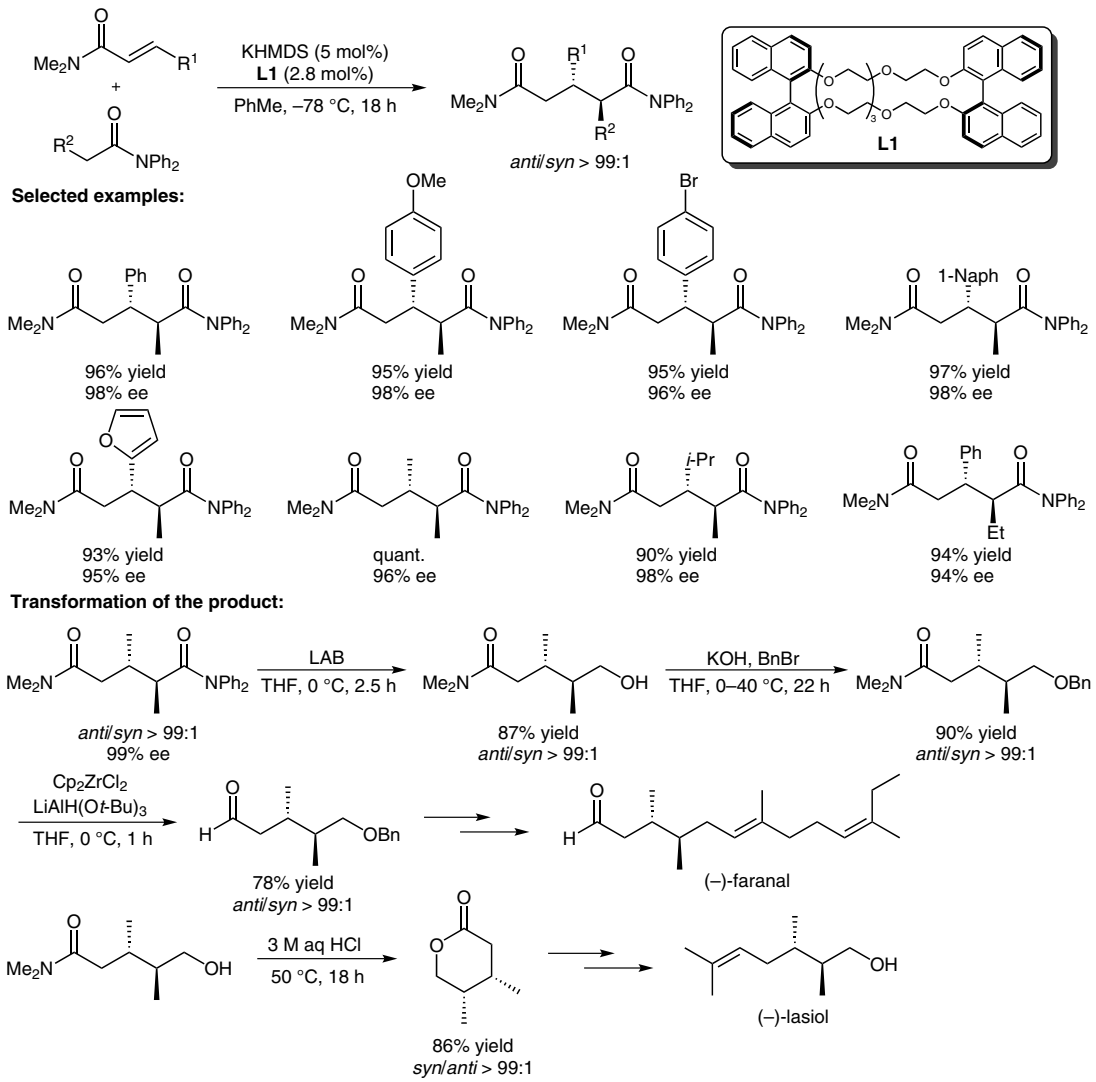
Key words

1,4-addition

chiral crown ethers

potassium

Enantioselective 1,4-Addition of Amides with α,β-Unsaturated Carbonyls



Significance: Kobayashi and co-workers present asymmetric direct 1,4-addition reactions of simple amides with α,β-unsaturated carbonyl compounds catalyzed by a combination of a potassium base and a chiral crown ether. A series of 1,5-dicarbonyl compounds were prepared with excellent stereoselectivities (*anti*/*syn* > 99:1, up to 98% ee).

Comment: A macrocyclic chiral crown ether was found to be effective for the chiral modification of the potassium cation, and the desired reaction proceeded in excellent yields with outstanding diastereo- and enantioselectivities. The products can be converted into useful derivatives, including the formal syntheses of natural products.

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