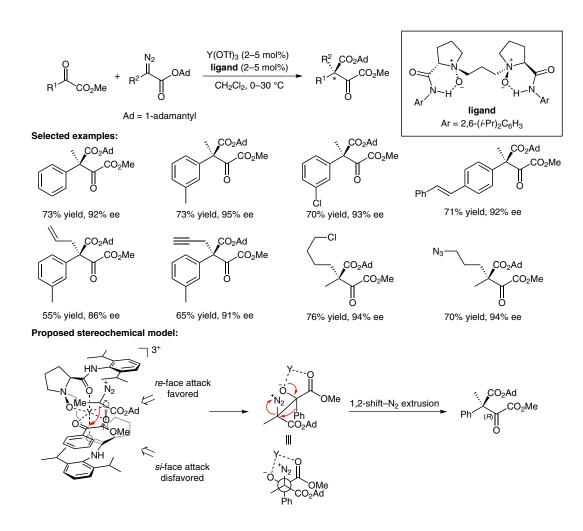
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Catalytic Asymmetric Homologation of  $\alpha$ -Ketoesters with  $\alpha$ -Diazoesters: Synthesis of Succinate Derivatives with Chiral Quaternary Centers

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## Enantioselective Homologation of $\alpha$ -Keto Esters with $\alpha$ -Diazo Esters



Significance: The Lewis acid catalyzed homologation of carbonyl compounds with diazo compounds can realize synthetically useful carbon chain extension. The authors achieve the asymmetric homologation of acyclic  $\alpha$ -keto esters with α-diazo esters by using chiral N,N'-dioxide-yttrium(III) complexes. Both aryl- and alkyl-substituted  $\alpha$ -keto esters are applicable, providing the corresponding succinate derivatives in good yields and enantioselectivities.

SYNFACTS Contributors: Hisashi Yamamoto, Yusuke Ano Synfacts 2014, 10(1), 0055 Published online: 13.12.2013 DOI: 10.1055/s-0033-1340454; Reg-No.: H16113SF

**Comment:** The use of bulky adamantyl  $\alpha$ -diazo esters can suppress the formation of undesired by-products. Steric hindrance on the 2,6-positions of the phenyl ring in the ligand is also essential to improve both enantioselectivity and reactivity. The attack of  $\alpha$ -diazo ester occurs from re-face of the coordinating  $\alpha$ -keto ester preferably due to the obstruction of si-face by the aryl group in the N,N'-dioxide ligand.

## Category

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

## **Key words**

diazo esters α-keto esters yttrium