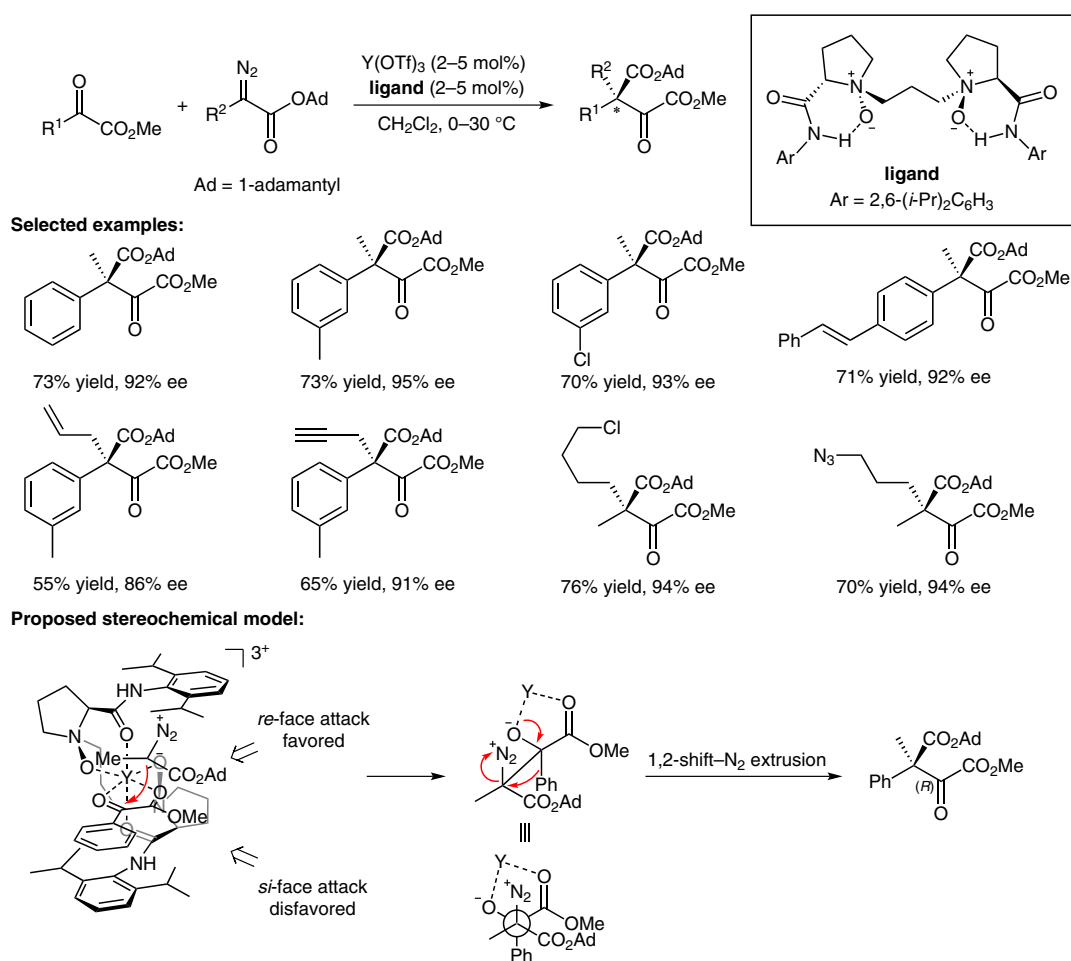


Enantioselective Homologation of α -Keto Esters with α -Diazo Esters



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 α -keto esters with α -diazo esters by using chiral N,N' -dioxide-yttrium(III) complexes. Both aryl- and alkyl-substituted α -keto esters are applicable, providing the corresponding succinate derivatives in good yields and enantioselectivities.

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Comment: The use of bulky adamantyl α -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 α -diazo ester occurs from re -face of the coordinating α -keto ester preferably due to the obstruction of si -face by the aryl group in the N,N' -dioxide ligand.