Asymmetric α-Alllylation of Aldehydes with Simple Allylic Alcohols

Significance: List and co-workers developed an enantioselective direct α-allylation of α-branched aldehydes with allylic alcohols generating products with all-carbon quaternary stereogenic centers in high yields and excellent enantioselectivities. The general reaction scale for this transformation is 0.2 mmol.

Comment: It is suggested that the high enantioselectivity for the described transformation arises from an asymmetric counteranion-directed catalysis (ACDC) complex – three different catalytic species are involved: [Pd(PPh₃)₄], the chiral Brensted acid TRIP, and benzhydryl amine.