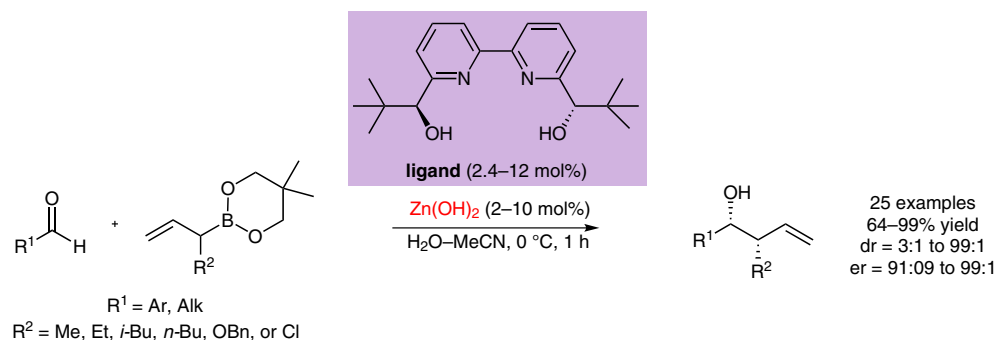
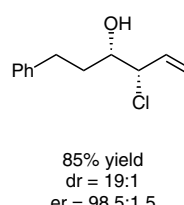
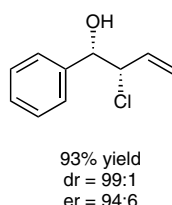
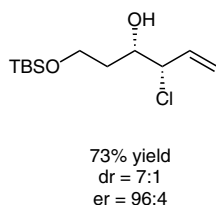
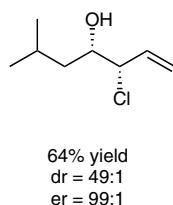
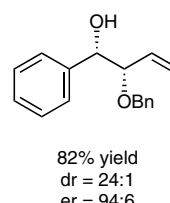
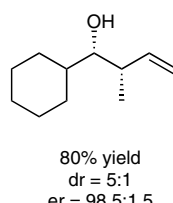
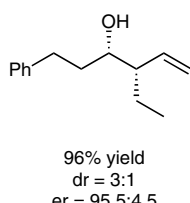
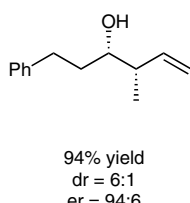


Zinc-Catalyzed Asymmetric α -Alkylallylation of Aldehydes



Selected examples:



Significance: Asymmetric allylation of aldehydes is an efficient method for the preparation of allylic alcohols, which are useful intermediates in the synthesis of complex molecules. In this report, a combination of Zn(II) and a chiral phenanthroline-diol ligand catalyzes the addition of allylboronates to aldehydes. High yields, diastereoselectivity and enantioselectivity are obtained, even in the case of α -alkylallylation and α -chloroallylation.

Comment: Based on kinetic studies, the authors propose that the rate-determining step of the reaction is transmetalation from B to Zn, leading to an active γ -substituted allylzinc species. Remarkably, this reaction takes place at 0 °C and in aqueous media. An interesting X-ray crystal structure of the ligand complexed with ZnBr_2 was reported, providing insight into the origin of enantioselectivity.