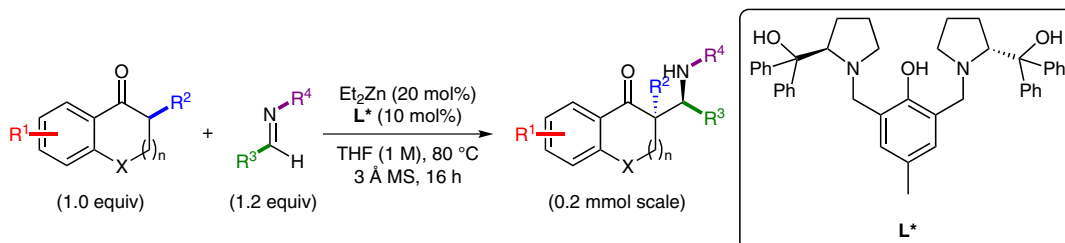
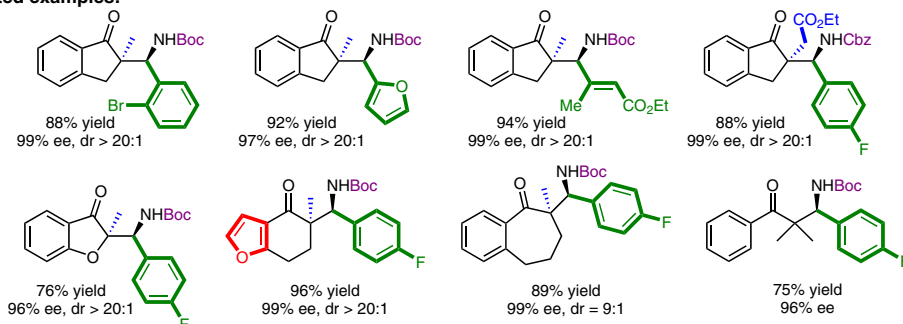


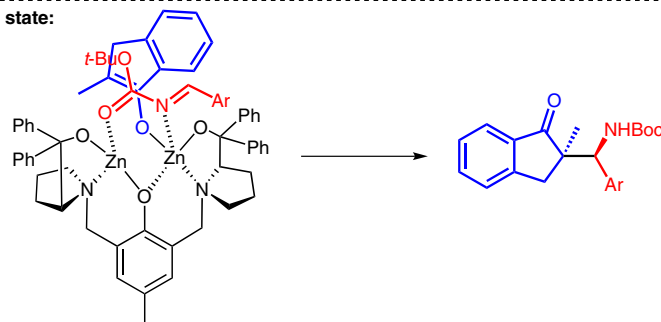
Zinc-Catalyzed Asymmetric Mannich Reaction Forming β -Amino Ketones



Selected examples:



Proposed transition state:



Significance: The asymmetric formation of all-carbon quaternary stereocenters in an efficient and atom economical manner has been of interest for decades. Trost and co-workers are able to display a highly asymmetric Mannich reaction forming β -amino ketones bearing a quaternary carbon stereocenter, utilizing the Zn-ProPhenol catalytic system previously prepared in the group.

Comment: The zinc-catalyzed Mannich reaction forming β -amino ketones proceeded in excellent yield, diastereo- and enantioselectivity. The reaction tolerated a wide range of functional groups including heteroaromatics, seven-membered rings, and sterically encumbered imines. The two-point binding of the Boc-imine to the catalyst, as seen in the proposed transition state, explains the stereochemical outcome of the reaction.