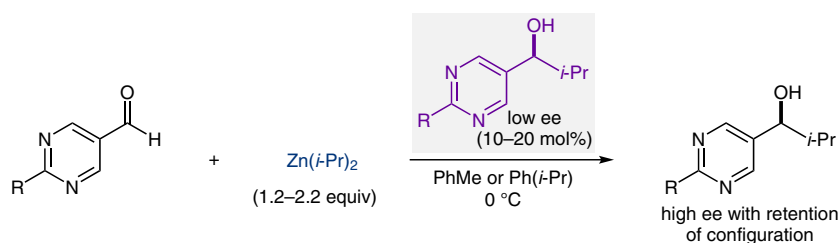
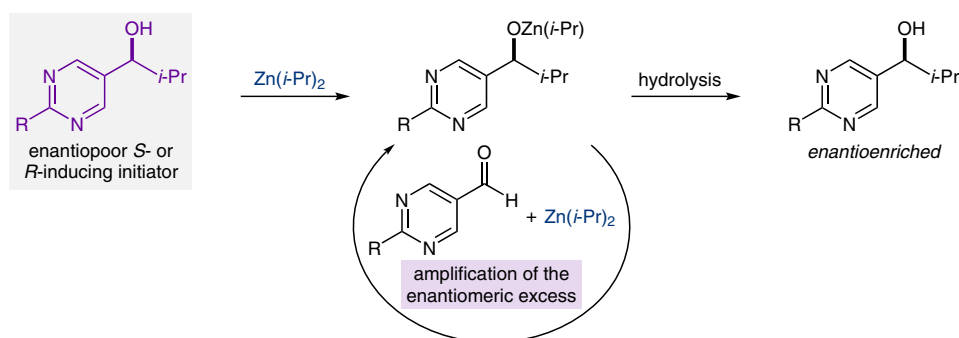


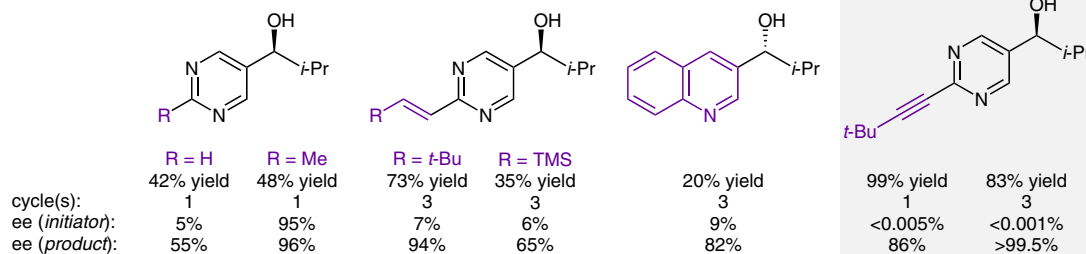
## The Soai Reaction: The Origin of Asymmetry- Amplifying Autocatalysis



### Proposed mechanism:



### Selected examples:



**Significance:** In 1995, Soai and co-workers reported an autocatalyzed, asymmetric alkylation of pyrimidine-5-carbaldehydes employing dialkylzinc reagents and catalytic amounts of scalemic product pyrimidyl alkanols. The transformation furnishes the enantioenriched alkylated products, hence establishing the concept of chiral amplification. This phenomenon contributed to the understanding of the origin of biological homochirality.

**Comment:** Starting from an enantiopoor initiator, successive asymmetric autocatalytic cycles provide access to the almost enantiopure pyrimidyl alcohols. Diisopropylzinc is used as sole alkylating agent, although various substituted pyrimidine aldehydes were selectively converted (*J. Am. Chem. Soc.* **1996**, *118*, 471 and *Angew. Chem. Int. Ed.* **2003**, *42*, 315). Numerous studies for the elucidation of the mechanism of this transformation have been disclosed (*J. Am. Chem. Soc.* **2020**, *142*, 18387 and *Front. Chem.* **2020**, *8*, 615800).