Zirconium/VANOL-Catalyzed Asymmetric α-Iminol Rearrangement

Significance: There has been no example of asymmetric α-iminol rearrangement so far. Herein, the authors developed an effective catalyst system, a zirconium/VANOL complex, which works well not only with α-iminols as starting material, but also with in situ generated α-iminols from an aldehyde and an aniline.

Comment: The zirconium/VANOL catalyst affords excellent yields and enantioselectivities for a broad range of substrates. Interestingly, N-methyl imidazole coordinated to zirconium dramatically influences the reaction. When there is a para-CF₃ substituent on the phenyl ring, more careful manipulations are required such as inert atmosphere and deoxygenation.