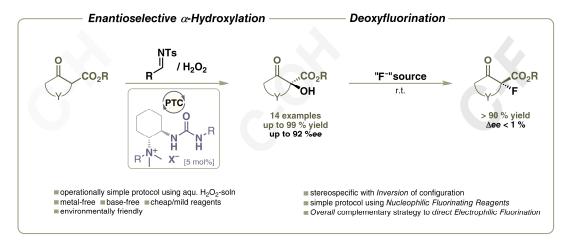
## DACH-BASED BIFUNCTIONAL UREA/AMMONIUM SALT CATALYZED ASYMMETRIC $\alpha$ -HYDROXYLATION OF $\beta$ -KETOESTERS

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The  $\alpha$ -hydroxy- $\beta$ -oxo ester functionality is a common structural motif found in a variety of natural products, agrochemicals and pharmaceuticals, such as kjellmanianone, vindoline, indoxacarb, and doxycycline[1]. The enantioselective construction of  $\alpha$ -hydroxy- $\beta$ -dicarbonyl structures by means of direct  $\alpha$ -oxidation of prochiral 1,3-dicarbonyls with electrophilic oxygen-transfer reagents has emerged as an important synthesis strategy[2]. However, organocatalytic approaches using cheap and environmentally benign oxidants, like oxygen[3] or hydrogen peroxide[4] remain scarce. Herein, we present a novel enantioselective bifunctional organocatalyzed tosylimine-mediated  $\alpha$ -hydroxylation of 1-indanone-derived  $\beta$ -ketoesters under base-free conditions using hydrogen peroxide as oxidant. Furthermore, an operationally simple, stereospecific (with *inversion*) deoxyfluorination protocol of enantioenriched  $\alpha$ -hydroxy- $\beta$ -ketoesters using nucleophilic NCF-reagents (DAST, diethylaminosulfur trifluoride) was developed.



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