SYNTHESIS AND APPLICATIONS OF CHIRAL QUATERNARY AMMONIUM SALT HYDROGEN BOND DONOR CATALYSTS

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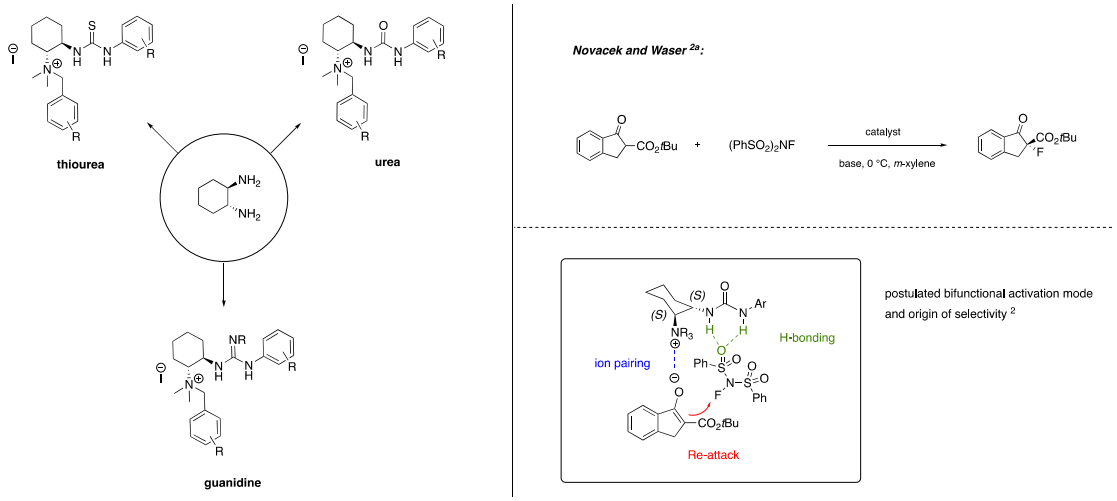
Based on the chiral backbone of *trans*-1,2-cyclohexane diamine a variety of bifunctional ammonium salt catalysts with hydrogen-bonding donor moieties can be synthesized to facilitate asymmetric reactions like the enantioselective α-fluorination of β-ketoesters [1]. Chiral quaternary urea- and thiourea-containing ammonium salt catalysts have already been introduced and proved their applicability in various different asymmetric transformation reactions [2,3]. In addition, we recently researched on the synthesis of chiral quaternary ammonium salt catalysts based on a guanidine hydrogen-bond donor group. In on-going investigations focusing on the optimization and on the applications of catalysts of this sort, we have introduced several promising synthesis routes starting from *trans*-1,2-cyclohexane diamine. This presentation gives an overview on the designed quaternary ammonium salt hydrogen bond catalysts, their synthesis, as well as on their possible applications.



[1] J. Novacek, M. Waser, *Eur. J. Org. Chem.* **2013**, 637-648.

[2] J. Novacek, M. Waser, *Eur. J. Org. Chem.* **2014**, 802-809.

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