

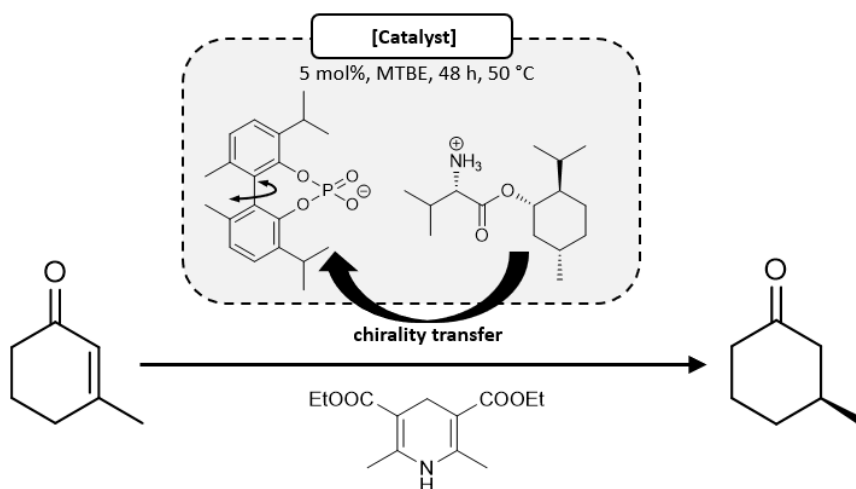
ASYMMETRIC TRANSFER HYDROGENATION OF ENONES VIA COUNTERANION ENHANCED CATALYSIS

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Recently, asymmetric counteranion directed catalysis (ACDC) has emerged as an attractive and useful tool for asymmetric transfer hydrogenations (ATH). In 2006, *B. List* and coworkers demonstrated that high levels of asymmetric induction and excellent yields can be obtained in the ATH of ketones using a chiral ion paired salt composed of a chiral amino acid-based cation and a chiral phosphate anion [1]. However, while this concept of double stereoiduction provides a powerful method, it is also associated with high costs and tedious catalyst synthesis.

Our research focuses on a novel ion paired catalyst based on natural L-amino acids as main source of chirality in combination with racemic, atropisomeric phosphoric acids as counteranion. This catalytic system, in combination with a Hantzsch ester as hydrogen source for biomimetic transfer hydrogenation, enabled high enantioselectivities and excellent yields for a series of α,β -unsaturated cyclohexenones under mild conditions. Moreover, it could be prepared in a much more straightforward and significantly cheaper way compared to the classical ACDC system.



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[1] List, B.; Quellet, S. G.; Martin, N. J. A. *J. Am. Chem. Soc.* **2006**, 128 (39), 13368-13369.