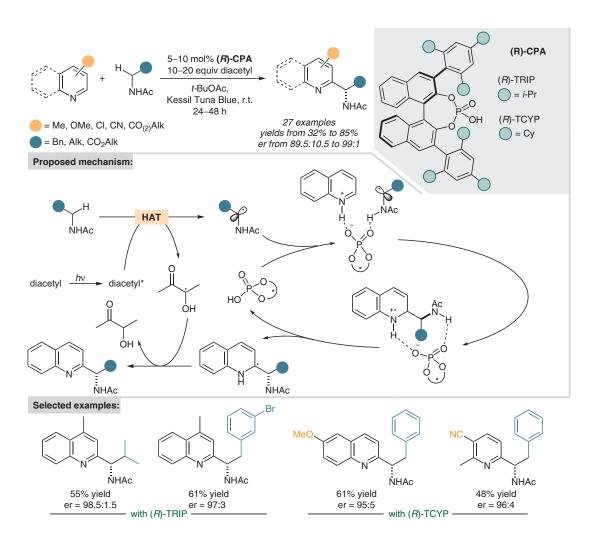
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Hydrogen Atom Transfer-Driven Enantioselective Minisci Reaction J. Am. Chem. Soc. 2021, 143, 4928-4934, DOI: 10.1021/jacs.1c01556.

Enantioselective Minisci-Reaction of N-Heterocycles and Amides through Hydrogen-Atom Transfer



Significance: Phipps and co-workers report a photochemical hydrogen-atom transfer (HAT)-driven enantioselective Minisci reaction of N-heterocycles with amides by using one of a series of chiral phosphoric acids as the chromophore and diacetyl as the terminal oxidant. The corresponding C2-substituted products are obtained in moderate to good yields and with good to excellent enantioselectivities.

Comment: On the basis of their recent experimental and theoretical investigations (J. Am. Chem. Soc. 2020, 142, 21091), the authors address several limitations, including the laborious synthesis of redox-active esters and low-yielding reactions. The successful introduction of easily accessible N-acylated primary amines as sources of α -amino radicals led to the establishment of a more generally applicable system with a broad substrate scope, with diacetyl as an inexpensive chromophore and chiral phosphoric acids to induce enantioselectivity.

SYNFACTS Contributors: Benjamin List, Joyce A. A. Grimm Synfacts 2021, 17(06), 0683 Published online: 18.05.2021 Category

Organo- and Biocatalysis

Key words

hydrogen-atom transfer aza-heterocycles phosphoric acids

Minisci reaction

