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Carbonyl Catalysis Enables a Biomimetic Asymmetric Mannich Reaction

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Carbonyl-Catalyzed Biomimetic Asymmetric Mannich Reaction

Category

Organo- and Biocatalysis

Key words

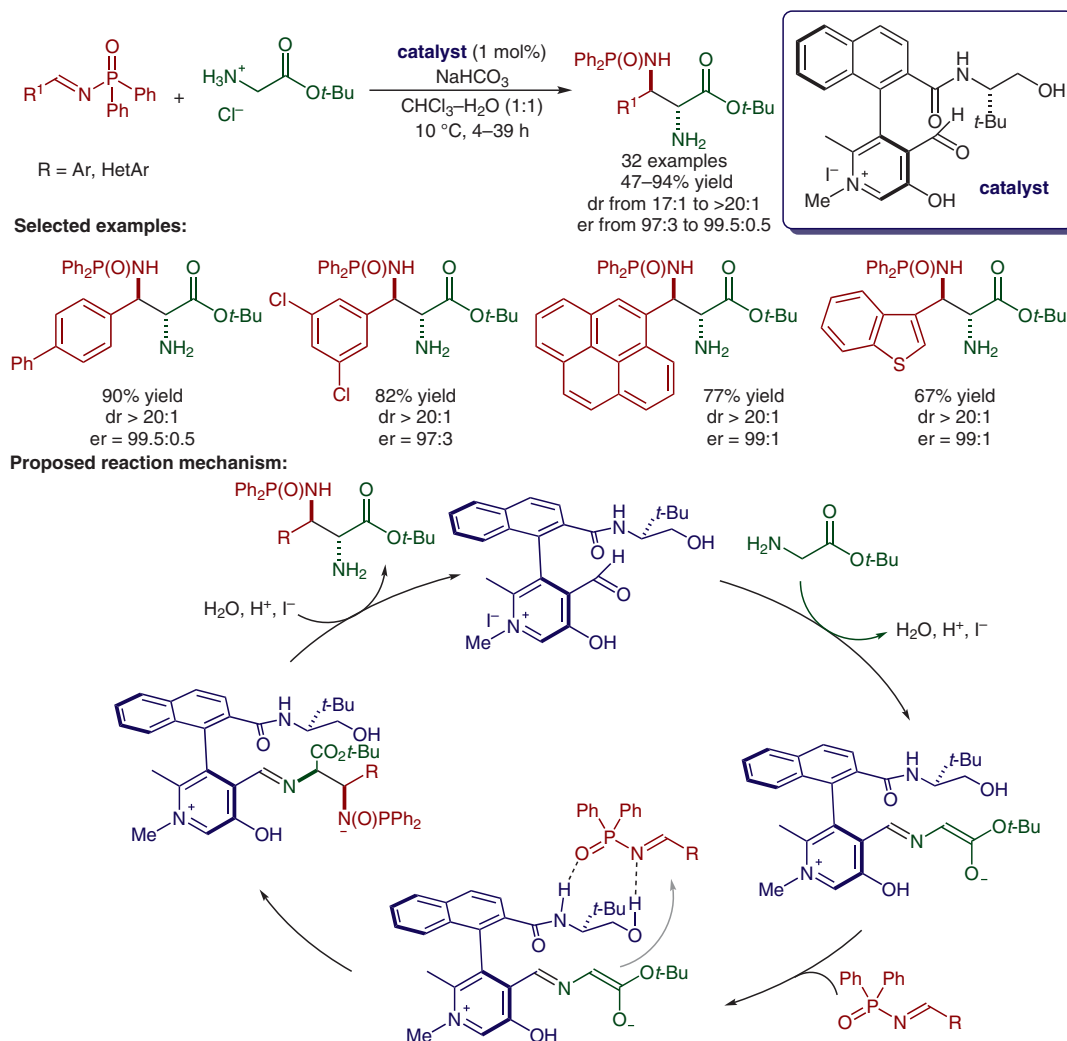
carbonyl catalysis

Mannich reaction

pyridoxal

α,β -diamino acid esters

Synfact
of the month



Significance: The Zhao group reports the activation of primary amines by carbonyls. Using an N-quaternized pyridoxal catalyst for the direct asymmetric Mannich reaction of glycinate with aryl N-diphenylphosphinyl imines, α,β -diamino acid esters were obtained in good yields and excellent stereoselectivities.

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Comment: Based on their recently developed chiral pyridoxal and pyridoxamine catalysts for transamination reactions (*J. Am. Chem. Soc.* **2016**, *138*, 10730), the authors developed a catalyst that activates primary amines through carbonyl catalysis. In contrast to other α -functionalizations of primary amines, this fascinating catalysis strategy does not require protecting-group manipulation.