

M. YAMADA*, K. AZUMA, M. YAMANO (TAKEDA PHARMACEUTICAL COMPANY LIMITED, OSAKA, JAPAN)

Highly Enantioselective Direct Asymmetric Reductive Amination of 2-Acetyl-6-Substituted Pyridines

Org. Lett. **2021**, 23, 3364–3367, DOI: 10.1021/acs.orglett.1c00848.

Ruthenium-Catalyzed Enantioselective Reductive Amination

Category

Metals in Synthesis

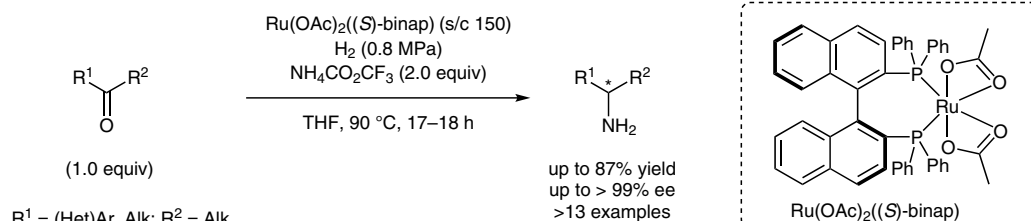
Key words

ruthenium catalysis

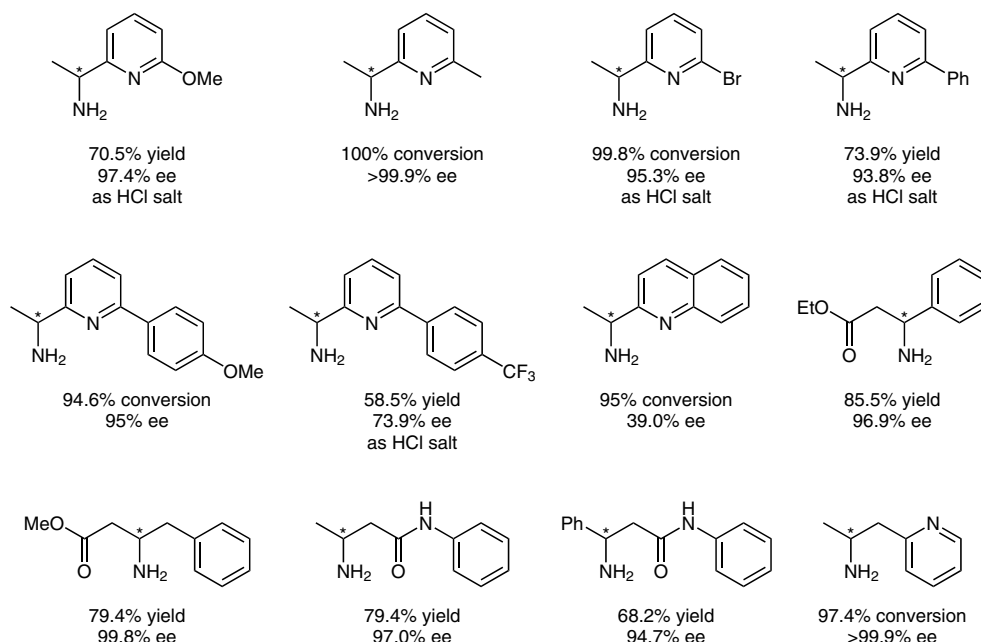
reductive amination

asymmetric synthesis

Synfact
of the
Month



Selected examples:



Significance: The authors report a ruthenium-catalyzed reductive amination of ketones. $Ru(OAc)_2((S)\text{-binap})$ is used as catalyst and ammonium trifluoroacetate as the nitrogen source; hydrogen pressures of 0.8 MPa are needed. The procedure allows the formation of chiral amines in high enantiomeric excess and quantitative conversions. Sensitive functional groups such as esters and amides are tolerated.

Comment: Reductive aminations are widespread reactions in the pharmaceutical industry. This direct asymmetric reductive amination allows for the generation of chiral secondary amines from ketones, which has been challenging before. Diaryl-ketones, fused ring ketones, and 2-acetyl-6-pyridone showed no reaction under these conditions

SYNFACTS Contributors: Paul Knochel, Johannes H. Harenberg

Synfacts 2021, 17(07), 0767 Published online: 17.06.2021

DOI: 10.1055/s-0040-1720440; Reg-No.: P07021SF

© 2021, Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany