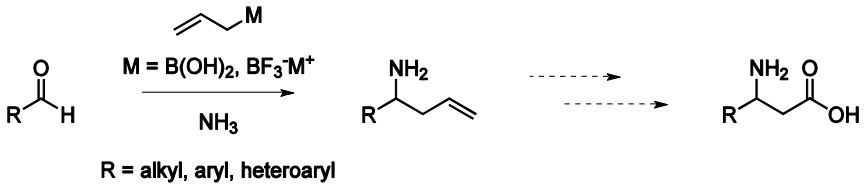
Chiral Amines from Ammonia

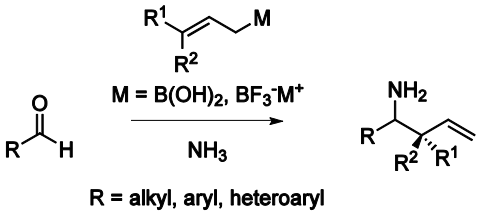
Amines are useful compounds with numerous applications in the pharmaceutical, agrochemical, and material industries. A preferred method of production is to use naturally abundant and inexpensive ammonia. Kanata Chemical Technologies is excited to offer Carbonyl Addition for the production of amines using ammonia, yielding achiral and chiral amines.

Carbonyl Addition with Ammonia

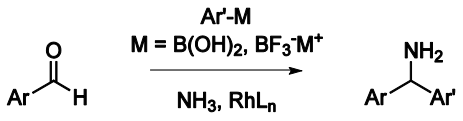
This amination technology from Kanata Chemical Technologies utilizes the addition of an organoboron compound to a carbonyl partner (aldehyde/ketone) in the presence of ammonia. This transformation affords carbamines in good to high yields. In carbonyl additions of allyl boronic acid or trifluoroborate to aldehydes in the presence of ammonia, homoallylic amines are produced. These useful intermediates can lead to high-value end-products such as β-amino acids.



In carbonyl additions of crotyl boronic acids or trifluoroborates to aldehydes in the presence of ammonia, 3,3-disubstituted homoallylic amines are produced with high diastereoselectivities (dr >95:5).



In analogous fashion, carbonyl additions of allyl or crotyl trifluoroborates to ketones in the presence of ammonia afford more substituted derivatives with similar performance. In Rh-catalyzed addition of aryl boronic acids or organotrifluoroborates to aldehydes in the presence of ammonia, secondary amines are produced. Optically pure secondary amines can be realized using Rh systems with chiral ligands.



For additional information on our amination capabilities, please contact us at chemistry@kctchem.com.

KANATA CHEMICAL TECHNOLOGIES

Kanata Chemical Technologies Inc.
101 College Street, Office 230, MaRS Centre, South Tower, Toronto, ON M5G 1L7, Canada
t 416.673.8169 f 416.981.7814 e chemistry@kctchem.com
www.kctchem.com