Q. XIE, G. DONG* (UNIVERSITY OF CHICAGO, USA)
Aza-Matteson Reactions via Controlled Mono- and Double-Methylene Insertions into Nitrogen–Boron Bonds
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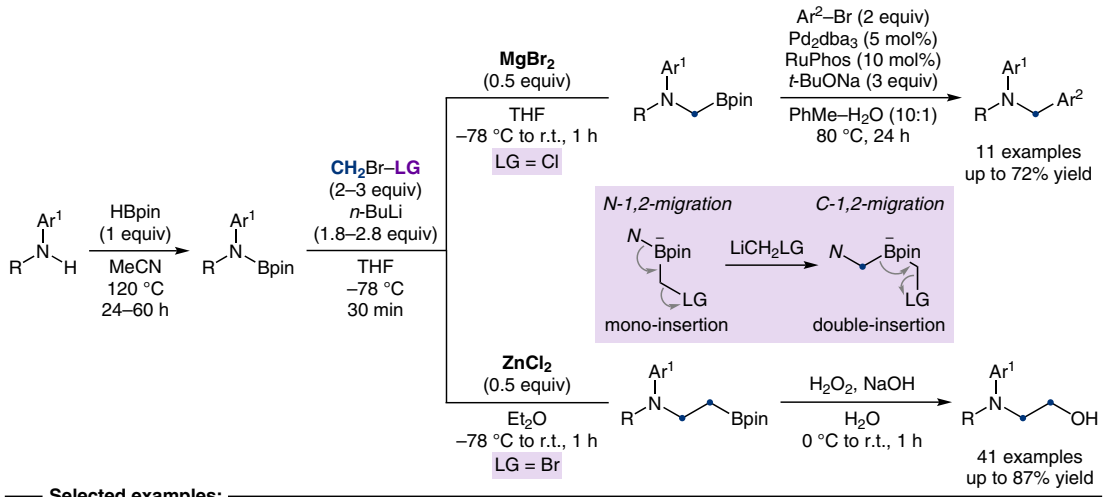
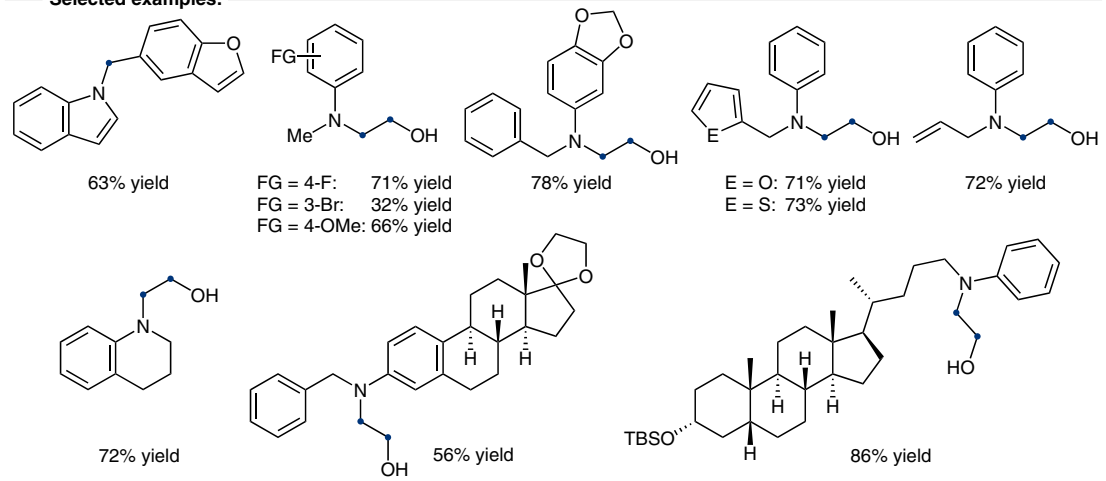
Aza-Matteson Homologations: Selective Mono- and Double-Carbenoid Insertions into Aminoboranes



Selected examples:



Significance: In 1963, Donald S. Matteson developed a valuable strategy allowing for carbenoid insertions into C–B bonds. While this homologation reaction has been thoroughly investigated, its extension to N–B bonds remained unexplored. The authors describe an aza-Matteson homologation leading to the selective construction of various α- and β-substituted amines, which are versatile, synthetically useful building blocks for further transformation.

Comment: Starting from readily accessible aminoboranes, the aza-Matteson reaction provides access to various α- and β-substituted amines in good yields. By the choice of the Lewis acid and leaving group attached to the carbenoid, selective mono- or double-methylene insertion is achieved. The synthetic utility of the method was demonstrated by the derivatization of biologically active compounds.

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Category
Metals in Synthesis

Key words
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Matteson homologation
methylene insertion
tertiary amines

Synfact of the Month