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Total Synthesis of Bipolamine I
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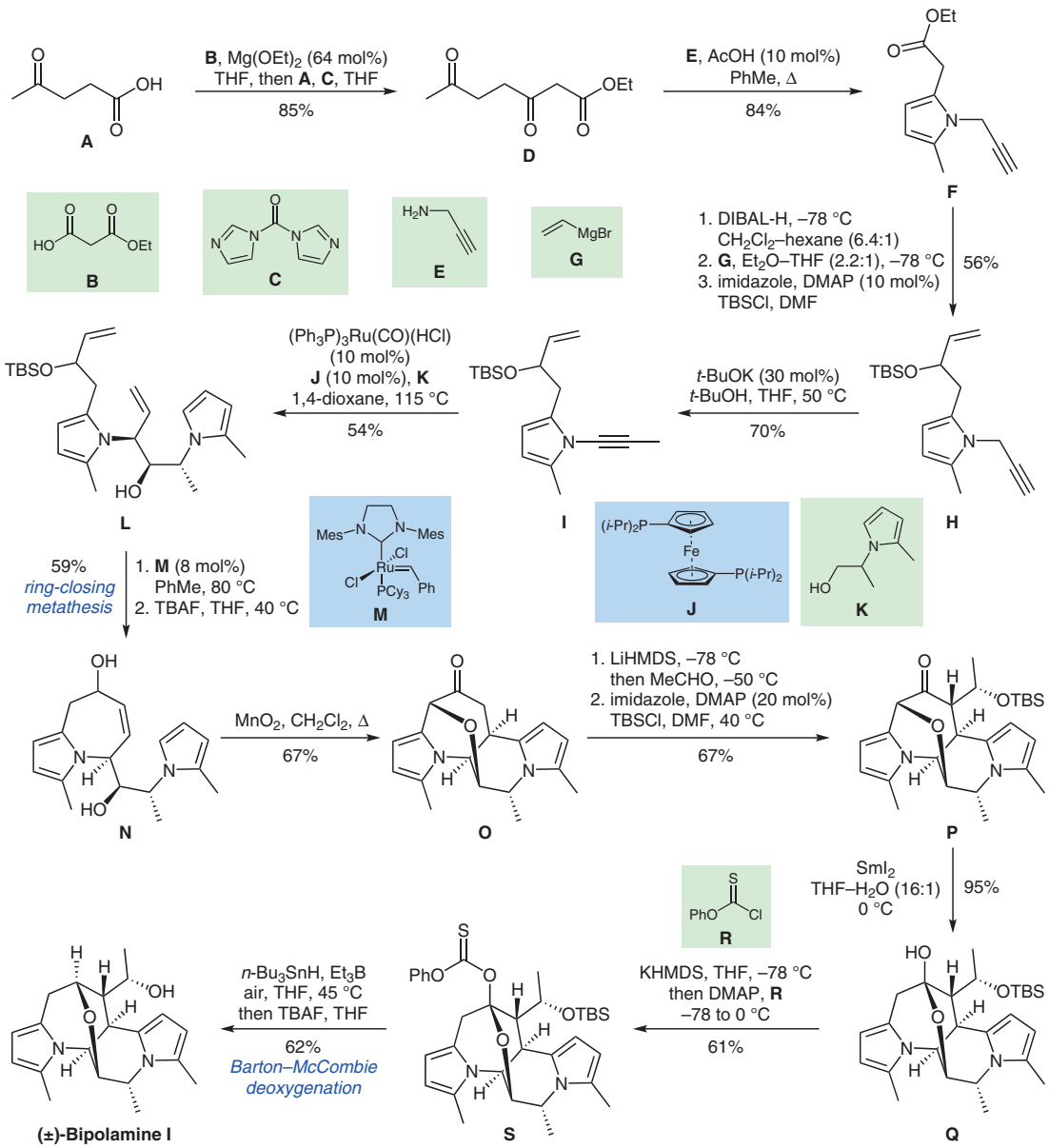
Total Synthesis of Indolizidine Alkaloid (±)-Bipolamine I



Significance: Pierce and Qiu report the first total synthesis of (±)-bipolamine I. The polypyrrole-containing subclass of indolizidine alkaloids is active against a variety of Gram-positive and -negative bacterial pathogens.

Comment: Cycloheptenol **N** is accessed in nine steps from acid **A**. The sequence features allylation of **I** with **K**, followed by ring-closing metathesis of **L**. MnO_2 oxidation of **N** results in formation of bridged ether **O**, and treatment with SmI_2 leads to hemiacetal **Q**. A final Barton deoxygenation affords (±)-bipolamine I.

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Category
Synthesis of Natural Products

Key words
(±)-bipolamine I
indolizidine alkaloids
ring-closing metathesis
Barton–McCombie deoxygenation
samarium(II) iodide

Synfact of the Month