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Enantioselective Total Synthesis of (–)-Strychnine
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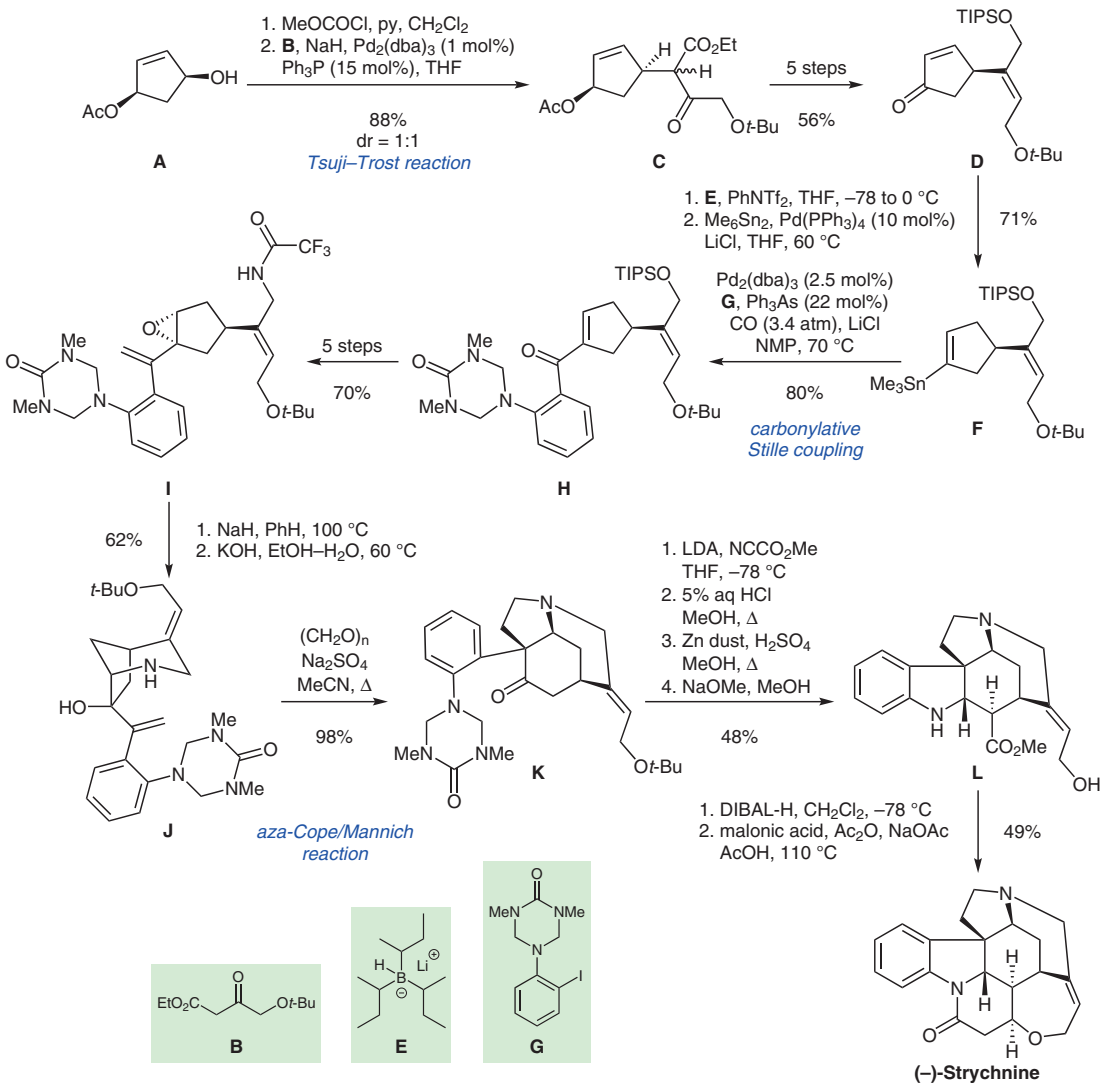
Total Synthesis of (–)-Strychnine



Significance: (–)-Strychnine is a highly neurotoxic plant alkaloid first isolated in 1818 from *Strychnos ignatii*. Due to the complex structure, it has played a pivotal role in the development of classical structural chemistry and chemical synthesis. The herein highlighted work by Overman and co-workers constitutes the first asymmetric total synthesis of (–)-strychnine.

Comment: One-pot conjugate reduction/triflylation and Pd-catalyzed stannylation furnished organstannane **F** which served as a key fragment in the ensuing carbonylative Stille coupling with iodide **G**. A clever solution was devised to deal with the bowl-shaped geometry of tertiary amine **K**. Aza-Cope/Mannich cascade readily forged the corresponding tricycle in a single step and excellent yield. Further elaboration to (–)-strychnine was achieved via the known Wieland–Gumlich aldehyde.

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Category
Synthesis of Natural Products

Key words
(–)-strychnine
alkaloid
neurotoxin
Tsuji–Trost reaction
carbonylative Stille coupling
aza-Cope/Mannich reaction
Wieland–Gumlich aldehyde