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Asymmetric Synthesis of Lysergic Acid via an Intramolecular (3+2) Dipolar Cycloaddition/Ring-Expansion Sequence
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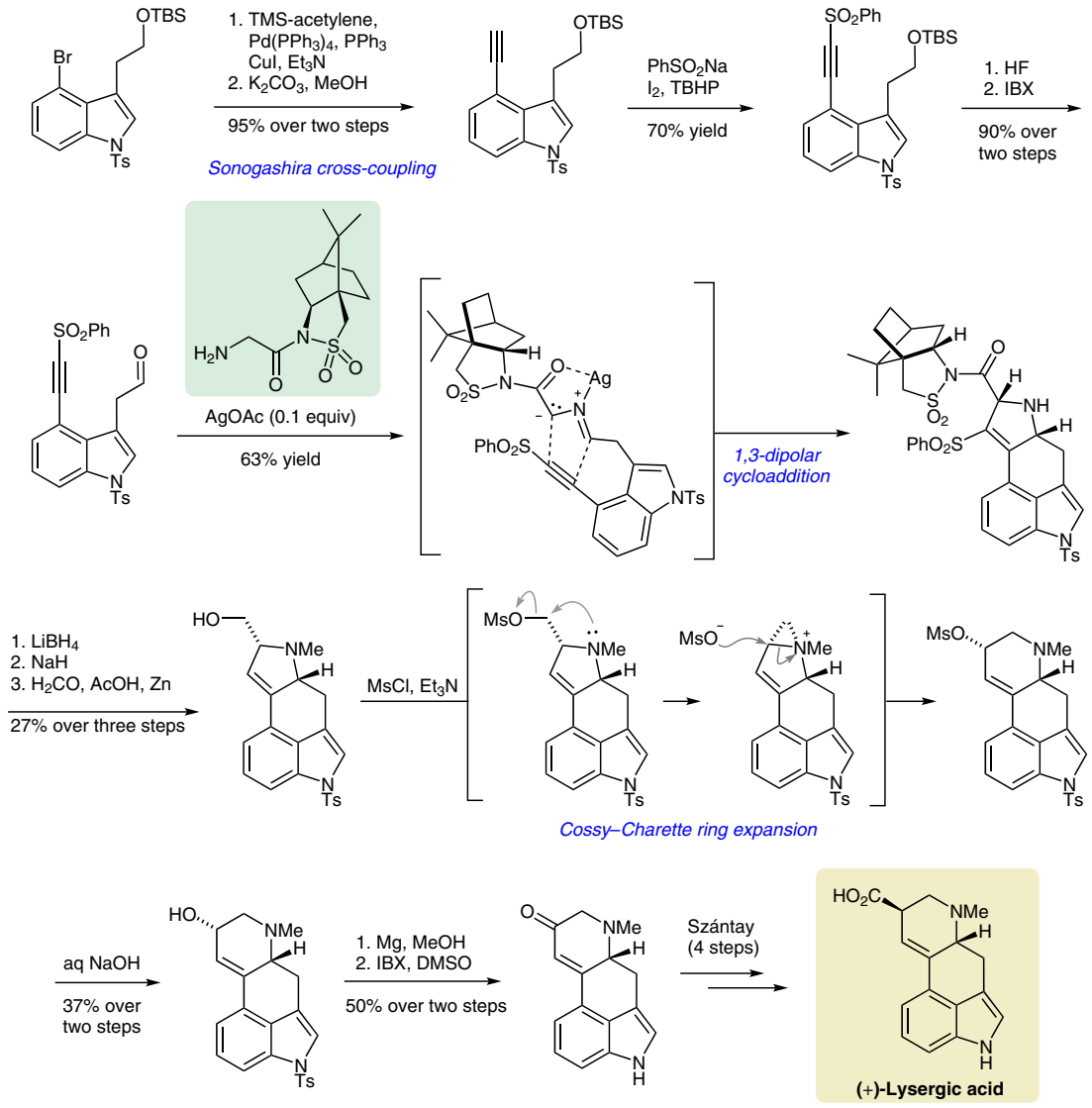
An Asymmetric [3+2] Cycloaddition/Ring-Expansion Sequence Towards Lysergic Acid



Significance: Amide derivatives of lysergic acid have been investigated for the treatment of various neurological disorders. While many syntheses of lysergic acid itself have been disclosed previously, Rathnayake and Garner describe a new strategy to afford the enantiopure piperidine core.

Comment: Using Oppolzer's camphorsultam auxiliary, an intramolecular 1,3-dipolar cycloaddition of the in situ generated azomethine ylide and the alkyne established an enantiopure dihydropyrrole. A subsequent aziridinium-mediated ring expansion then afforded the piperidine core of lysergic acid.

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Key words
1,3-dipolar cycloaddition
Oppolzer's auxiliary
Cossy–Charette ring expansion

Synfact of the Month

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