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Synthesis of (+)-Ribostamycin by Catalytic, Enantioselective Hydroamination of Benzene
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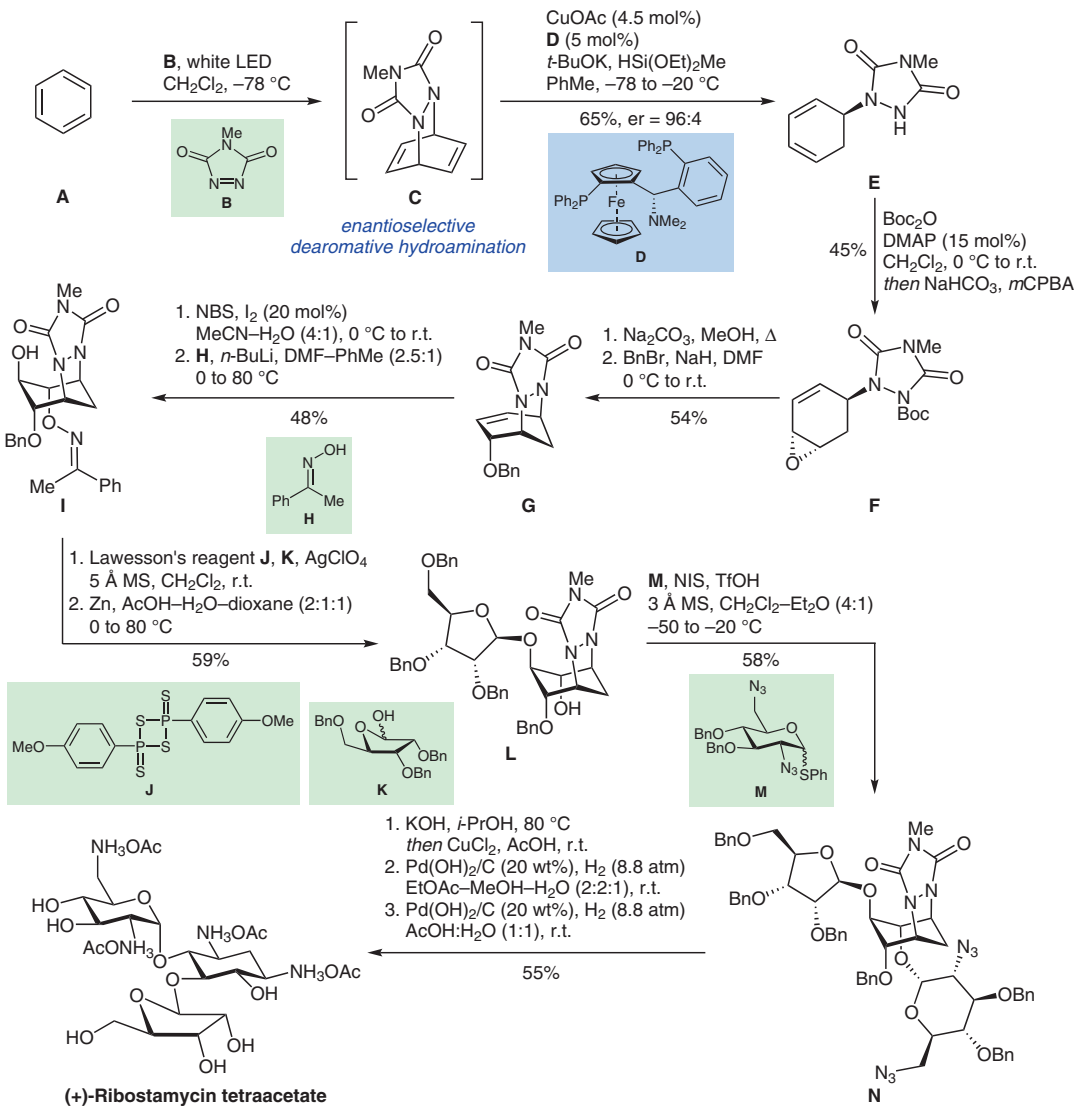
Total Synthesis of (+)-Ribostamycin



Significance: Sarlah, Liu, and co-workers developed a rapid route to access (+)-ribostamycin, an aminoglycoside (AG) featuring a central 1,3-diaminocyclohexanetriol moiety. AGs are a well-known class of carbohydrate-derived antibiotics, which suppress protein synthesis by binding to prokaryotic rRNA.

Comment: The key step in the construction of (+)-ribostamycin is an initial enantioselective dearomative hydroamination of benzene. Deprotection of urazole **F** initiates an intramolecular epoxide opening forming an urazole-bridged heterobicyclic system **G**. After two glycosylation reactions, the urazole is fragmented and a global reduction releases the natural product without the need for further purification.

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Category
Synthesis of Natural Products and Potential Drugs

Key words
(+)-ribostamycin
aminoglycosides
dearomative hydroamination
glycosylation
urazole

Synfact of the Month