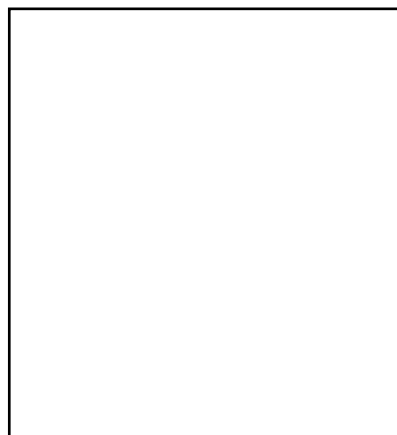
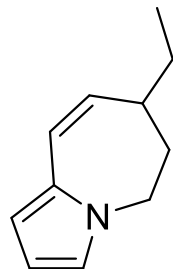


Total Synthesis of Binolamine I

Yama-Orita and Hayashi, *J. Org. Chem.* 2002, 67, 12638-12641.



Come from a family of polypyrrole alkaloids

Bipolamines were found in a gene cluster known as

ATCC48331

Bipolamines could have potential as antimicrobial agents with an increase of antibiotic resistance

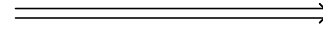
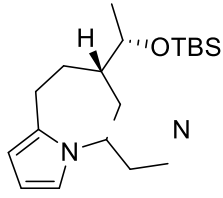
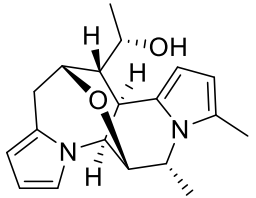
Pentacyclic structure and 7 stereogenic centers with 2 electron-rich pyrroles

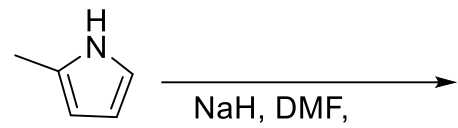
Jennifer LaPoff

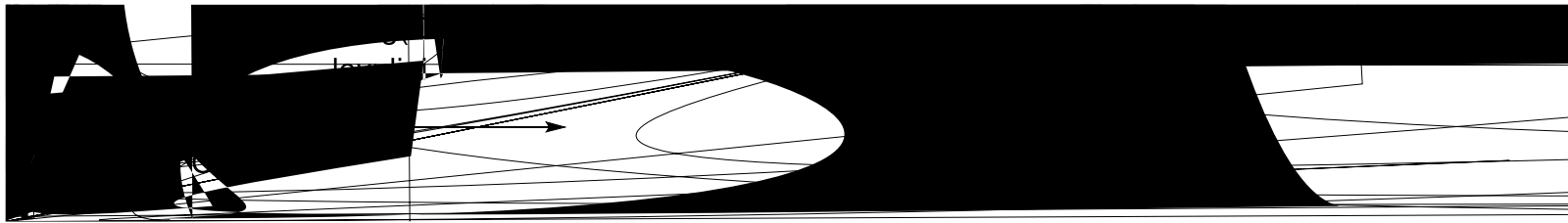
Liu Group

November 16th, 2022

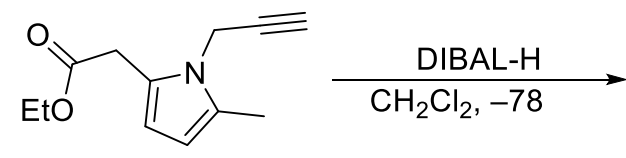
Retrosynthetic Analysis



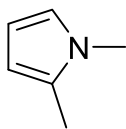




Paal-Knorr Pyrrole

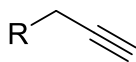


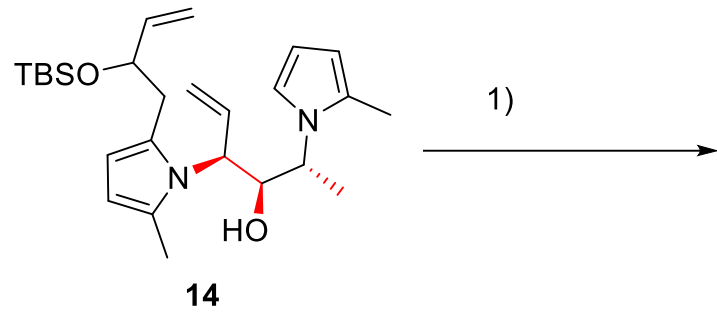
Lewis



dr = 3.7:1
anti-syn: anti-anti

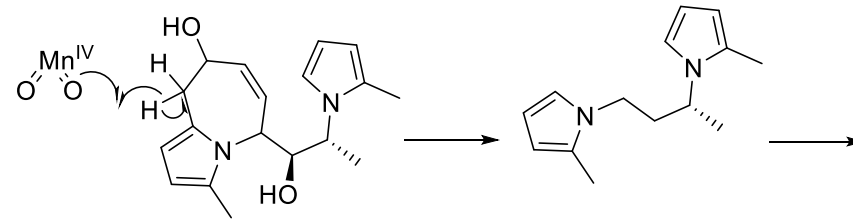
Krische's

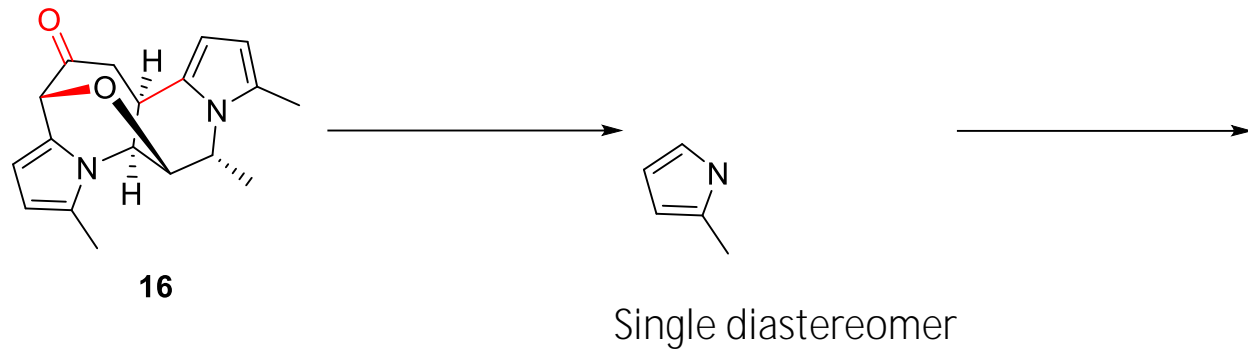




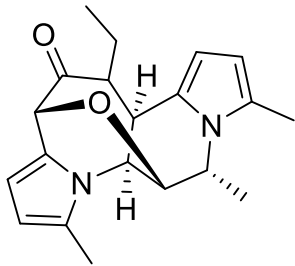
Single diastereomer

$L_nRu=$



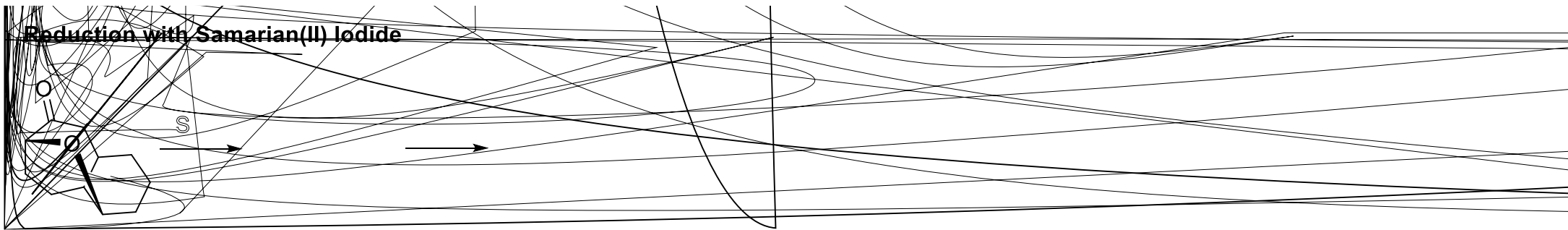


Lewis

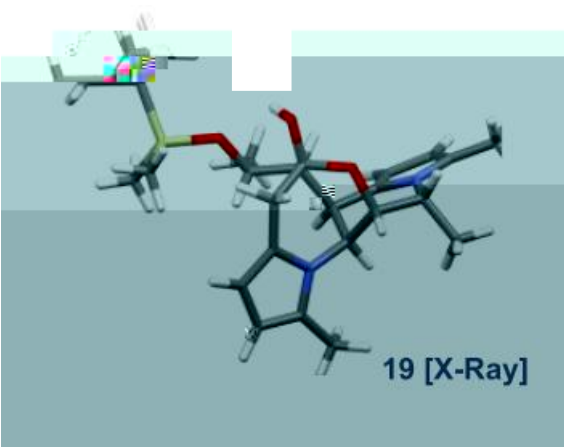
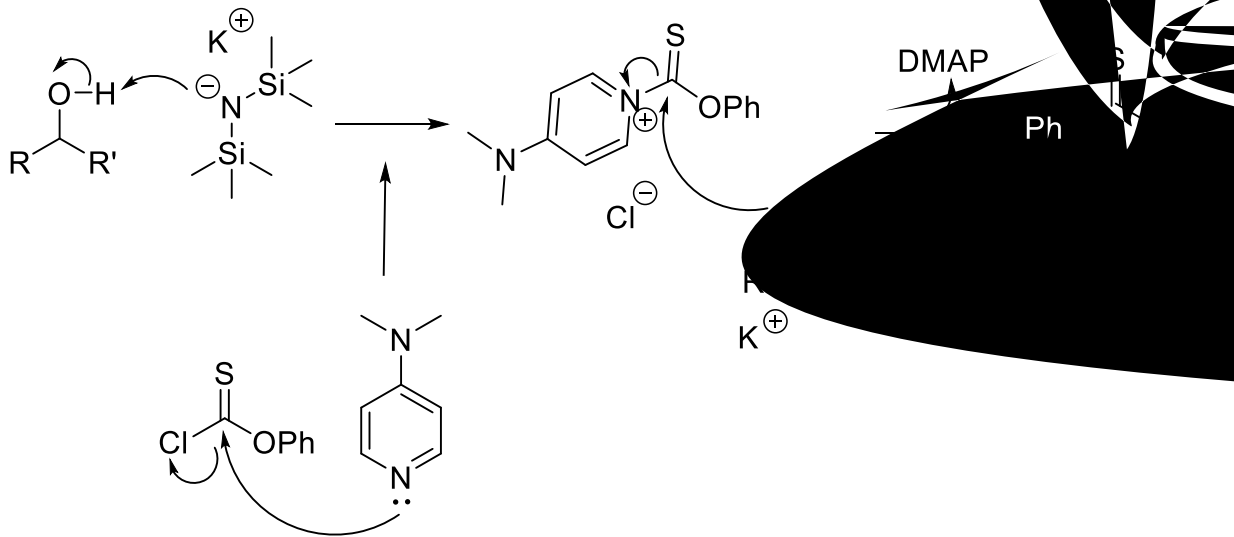


18

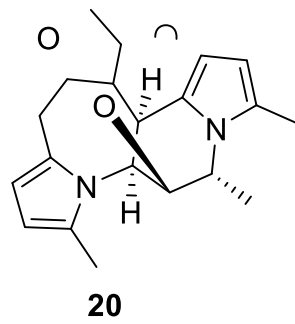
Reduction with Samarium(II) Iodide



Thiocarbonation



19 [X-Ray]



15 steps overall