Formal synthesis of Sarain A: Intramolecular cycloaddition of an eight-membered cyclic nitrone to construct the 2-azabicyclo [3.3.1]nonane framework¹

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Presented by Zhilin Hou CEM852 2018.3.17

Angew. Chem. Int. Ed. 2015, 54, 7367 -7370



Background

- Sarain A is a marine alkaloid isolated from the sponge Reniera sarai in 1986 by Cimino and co-workers.²
- This alkaloid shows antitumor, antibacterial, and insecticidal activities.³
- X-ray crystallography of the corresponding diacetate and NMR techniques⁴ have revealed that sarain A is a pentacyclic compound which contains 13- and 14-membered macrocyclic rings and a 2-azabicyclo[3.3.1]nonane framework fused with a pyrrolidine ring to form a 2,8-diazatricyclo[5.4.0.0^{4, 11}] undecane core.

[2]Bull. Soc. Chim. Belg. 1986, 95, 783-800
[3]Comp. Biochem. Physiol. 1992, 103, 293 - 296
[4]Tetrahedron 1989, 45, 3863 - 3872.



Retrosynthesis





J.Am. Chem. Soc. 1995, 117, 7562 - 7563







Synthesis of compound 17







Tetrahedron Lett. 1993, 34, 7043 - 7044



ÓBoc



































Thank you for your attention

