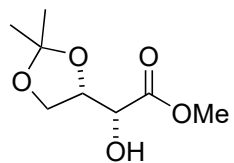


Total synthesis of natural (-)-echinosporin. Determination of the absolute configuration

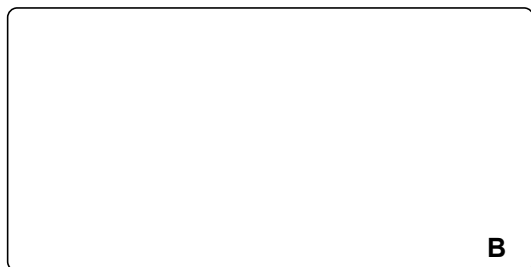
A. B. Smith III, G. A. Sulikowski, K. Fujimoto *J. Am. Chem. Soc.*, **1989**, *111* (20), 8039–8041



1-4

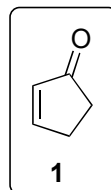


5-8



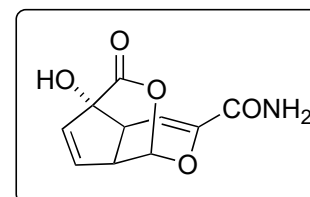
- 1) DHP, PPTS
- 2) DIBAL
- 3) PPTS, MeOH
- 4) H₂SO₄, acetone

- 5) (COCl)₂, DMSO, Et₃N
- 6) TsNHNH₂
- 7) Na, ethylene glycol, 135 °C
- 8) **1**, hν



1) Name the disadvantage of DHP

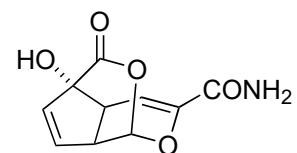
5) Name the reaction in 5, Name 3 alternative name reactions, which include the same reactive intermediate
6/7) Name the reactionsequence 6 and 7



9-12

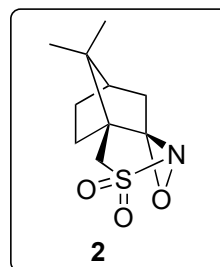


13-16



(-)-echinosporin.

- 9) LDA, Tf₂NH
- 10) Pd(OAc)₂, Et₃N, CO, MeOH
- 11) KHMDS, HMPA, **2**
- 12) H⁺ resin, 50% aq. MeCN



- 13) Pd₂(dba)₃, (Allyl-O)₂CO
- 14) NH₄OH
- 15) Parikh-Doering Oxidation
- 16) Bu₃P, DEAD

13) provide a Mechanism for step 13

15) Name the conditions for Parik-Doering Oxidation

Hint: step 15 include a further reaction