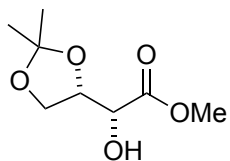
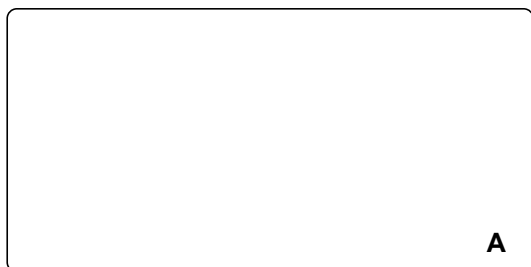


# Total synthesis of natural (-)-echinosporin. Determination of the absolute configuration

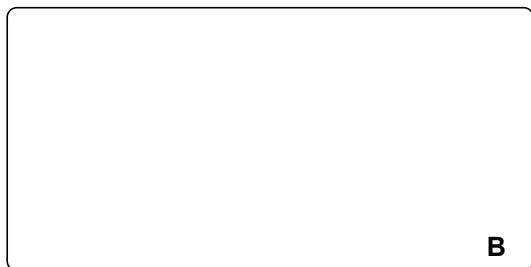
A. B. Smith III, G. A. Sulikowski, K. Fujimoto *J. Am. Chem. Soc.*, **1989**, *111* (20), 8039–8041



1-4

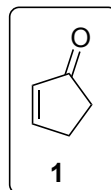


5-8



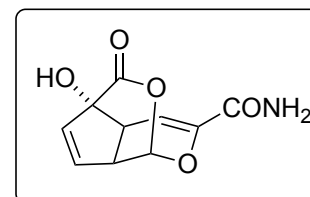
- 1) DHP, PPTS
- 2) DIBAL (1 equiv.)
- 3) PPTS, MeOH
- 4) H<sub>2</sub>SO<sub>4</sub>, acetone

- 5) (COCl)<sub>2</sub>, DMSO, Et<sub>3</sub>N
- 6) TsNHNH<sub>2</sub>
- 7) Na, ethylene glycol, 135 °C
- 8) **1**, hν



1) Name the disadvantage of DHP

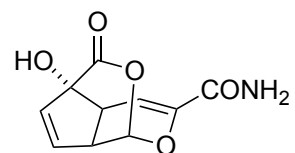
5) Name the reaction in 5, Name 3 alternative name reactions, which include the same reactive intermediate  
6/7) Name the reactionsequence 6 and 7



9-12

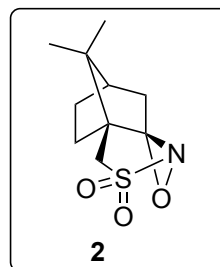


13-16



(-)-echinosporin.

- 9) LDA, Tf<sub>2</sub>NH
- 10) Pd(OAc)<sub>2</sub>, PPh<sub>3</sub>, Et<sub>3</sub>N, CO, MeOH
- 11) KHMDS, HMPA, **2**
- 12) H<sup>+</sup> resin, 50% aq. MeCN



- 13) Pd<sub>2</sub>(dba)<sub>3</sub>, (Allyl-O)<sub>2</sub>CO
- 14) NH<sub>4</sub>OH
- 15) Parikh-Doering Oxidation
- 16) 3.6 N HCl, 2 days
- 17) Bu<sub>3</sub>P, DEAD

13) provide a Mechanism for step 13

15) Name the conditions for Parikh-Doering Oxidation  
Hint: step 15 include a further reaction