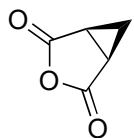
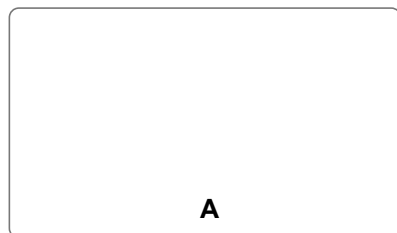


## The total synthesis of indolizomycin

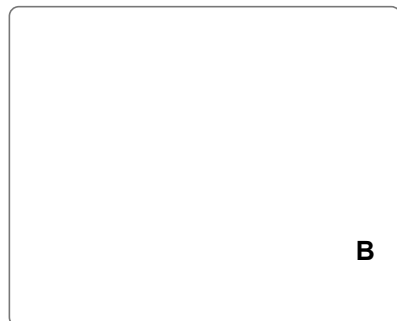
G. Kim, M. Y. Cho-Moyer, S. J. Danishefsky, G. K. Schulte, *J. Am. Chem. Soc.* **1990**, *115*, 30-39.



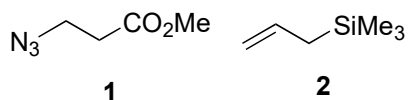
1 – 5



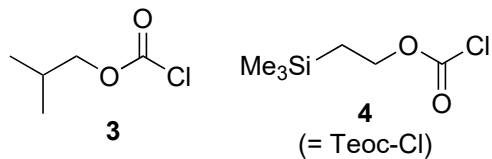
6 – 12



- 1) **1**, PPh<sub>3</sub>
- 2) NaBH<sub>4</sub>, then HCl, MeOH
- 3) **2**, TiCl<sub>4</sub>
- 4) Lawesson's reagent
- 5) NaOH



- 6) **3**, *N*-methylmorpholine
- 7) CH<sub>2</sub>N<sub>2</sub>
- 8) Rh<sub>2</sub>(OAc)<sub>4</sub>
- 9) Raney Ni
- 10) Me<sub>3</sub>OBF<sub>4</sub>, then NaBH<sub>4</sub>
- 11) **4**



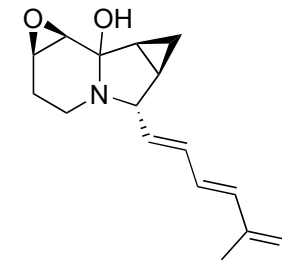
How would you prepare the Starting material?

4) Structure of Lawesson's reagent?

8) Mechanism?

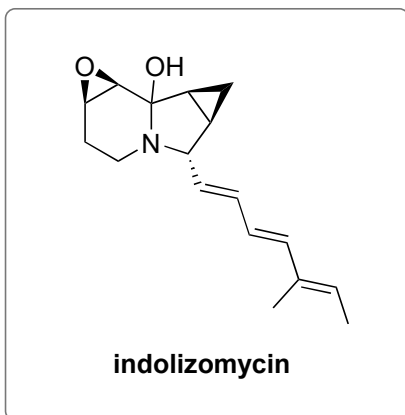
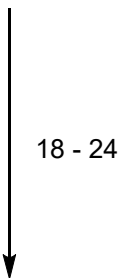
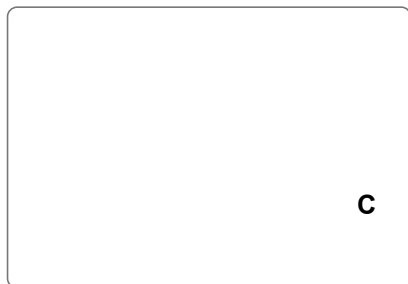
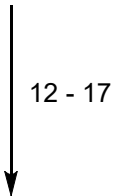
10) Name of the reagent?

11) Name of the reaction? Mechanism?

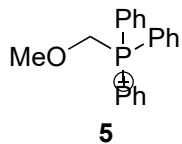


**indolizomycin**

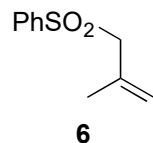
**B**



- 12) H<sub>2</sub>O<sub>2</sub>, NaOH
- 13) H<sub>2</sub>NNH<sub>2</sub>, AcOH
- 14) *m*-CPBA
- 15) TBSOTf, Et<sub>3</sub>N
- 16) O<sub>3</sub>, NaHCO<sub>3</sub>
- 17) **5**, NaHMDS



- 18) O<sub>2</sub>, TPP, PPh<sub>3</sub>, *hν*
- 19) **6**, *n*-BuLi
- 20) Ac<sub>2</sub>O
- 21) Na(Hg)
- 22) HIO<sub>4</sub>
- 23) TPAP, NMO
- 24) TBAF



13) Name of the reaction? Mechanism?

17) Name of the reaction?

18) Mechanism?

19) Name of the reaction?

23) Name of the reaction?

24) Mechanism?