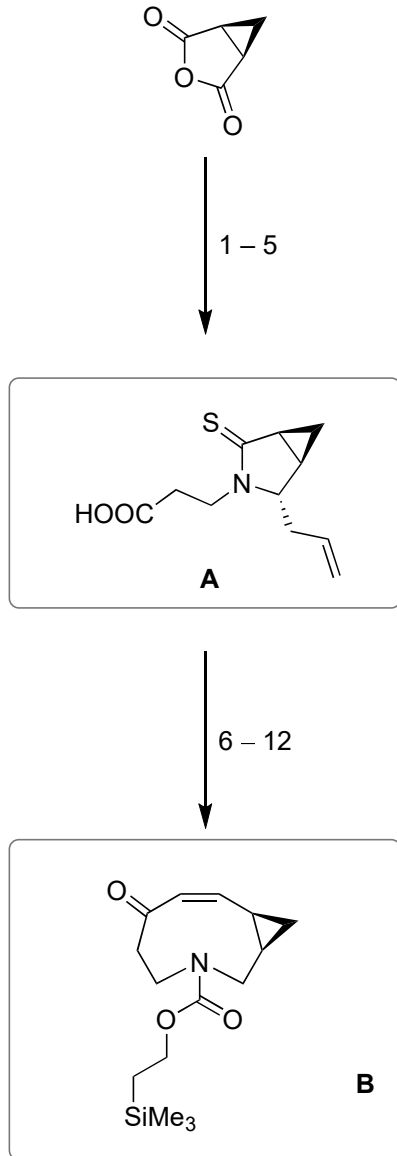
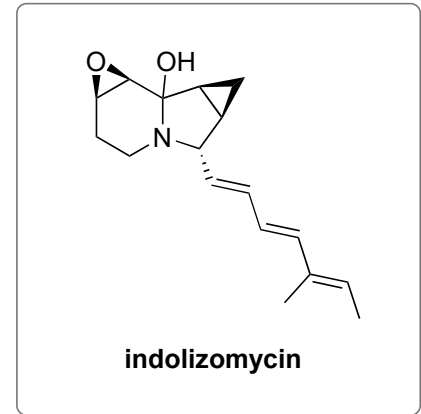
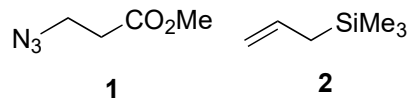


# The total synthesis of indolizomycin

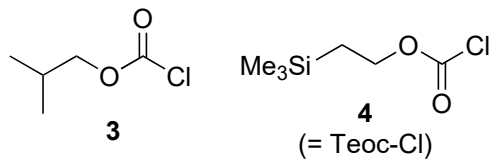
G. Kim, M. Y. Cho-Moyer, S. J. Danishefsky, G. K. Schulte, *J. Am. Chem. Soc.* **1990**, *115*, 30-39.



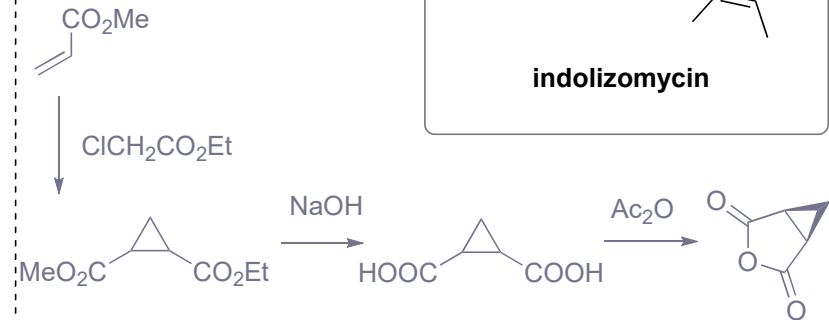
- 1) **1**, PPh<sub>3</sub>
- 2) NaBH<sub>4</sub>, then HCl, MeOH
- 3) **2**, TiCl<sub>4</sub>
- 4) Lawesson's reagent
- 5) NaOH



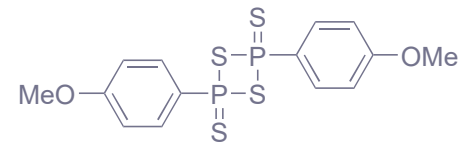
- 6) **3**, *N*-methylmorpholine
- 7) CH<sub>2</sub>N<sub>2</sub>
- 8) Rh<sub>2</sub>(OAc)<sub>4</sub>
- 9) Raney Ni
- 10) Me<sub>3</sub>OBF<sub>4</sub>, then NaBH<sub>4</sub>
- 11) **4**



How would you prepare the Starting material?

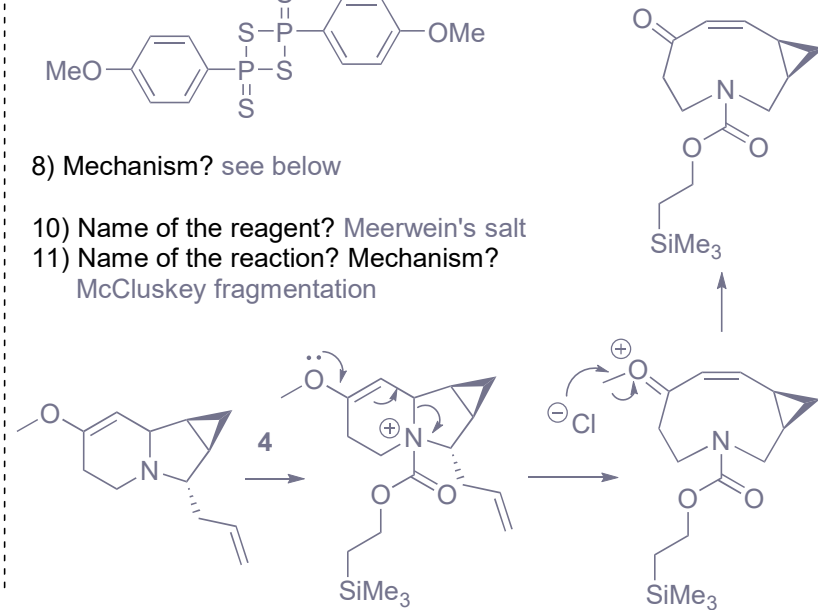


4) Structure of Lawesson's reagent?

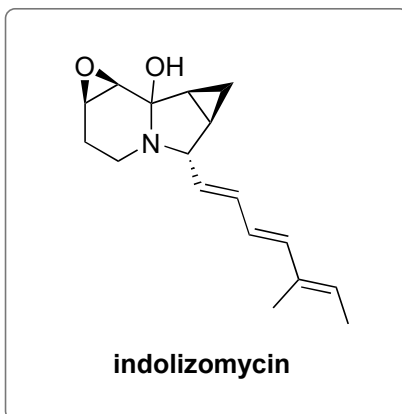
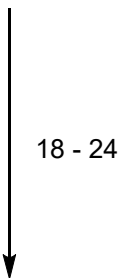
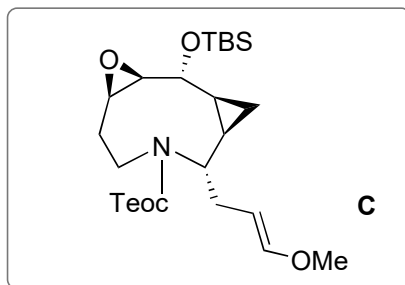
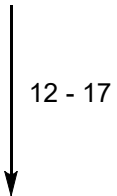


8) Mechanism? see below

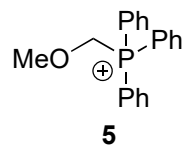
- 10) Name of the reagent? Meerwein's salt
- 11) Name of the reaction? Mechanism?  
McCluskey fragmentation



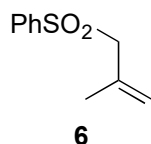
**B**



- 12)  $\text{H}_2\text{O}_2$ , NaOH
- 13)  $\text{H}_2\text{NNH}_2$ , AcOH
- 14) *m*-CPBA
- 15) TBSOTf,  $\text{Et}_3\text{N}$
- 16)  $\text{O}_3$ ,  $\text{NaHCO}_3$
- 17) **5**, NaHMDS

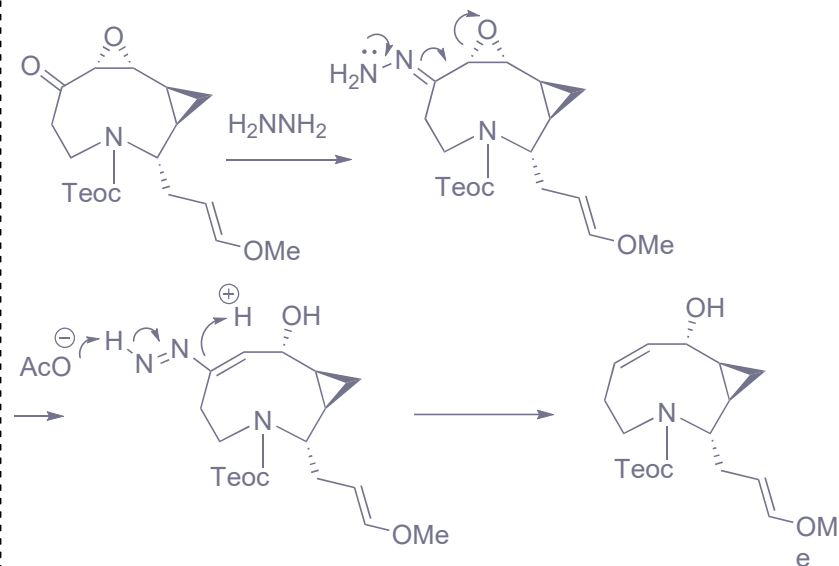


- 18)  $\text{O}_2$ , TPP,  $\text{PPh}_3$ , *h\nu*
- 19) **6**, *n*-BuLi
- 20)  $\text{Ac}_2\text{O}$
- 21) Na(Hg)
- 22)  $\text{HIO}_4$
- 23) TPAP, NMO
- 24) TBAF



13) Name of the reaction? Mechanism? Wharton Fragmentation

17) Name of the reaction? Wittig-olefination



18) Mechanism?

19) Name of the reaction? Julia olefination

23) Name of the reaction? Ley oxidation

24) Mechanism?

