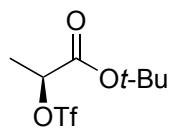
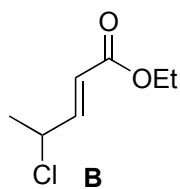


Total Synthesis of Carolacton, a Highly Potent Biofilm Inhibitor

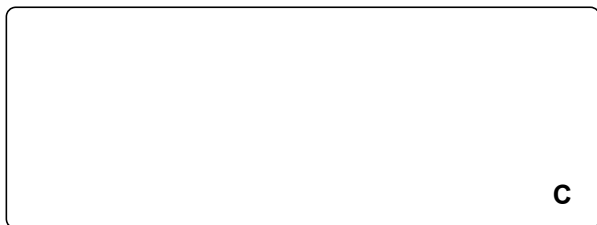
T. Schmidt, A. Kirschning, *Angew. Chem. Int. Ed.* **2012**, *51*, 1063–1066.



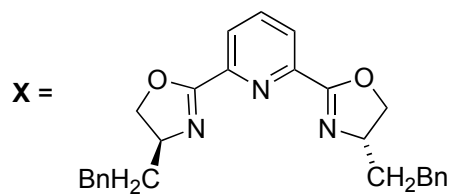
1 - 5



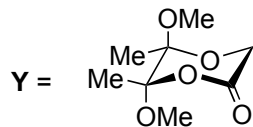
7 - 10



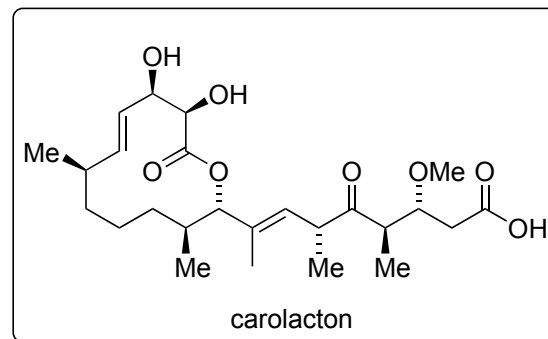
- 1) ZnCl_2 , then CCCC=C MgCl
- 2) LiAlH_4
- 3) TIPSCl, imidazole
- 4) O_3 , then NaBH_4
- 5) 2,6-lutidine, PPh_3 , CBr_4
- 6) Zn , I_2



- 7) NiCl_2 -glyme, **X**, then **B**, then **A**
- 8) DIBAL-H
- 9) MnO_2
- 10) **Y**, LHMDS



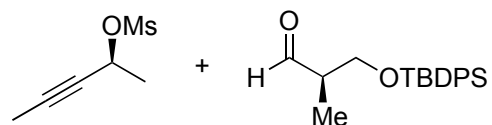
Step 10: Name of the reaction? Draw a transition state!



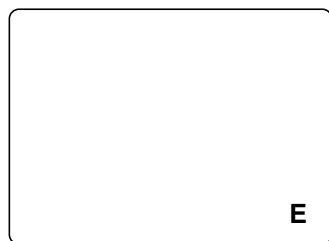
11 - 13
↓



- 11) CSA, MeOH
- 12) 2,2-dimethoxypropane, PPTS
- 13) (COCl)₂, DMSO, Et₃N



14 - 16
↓

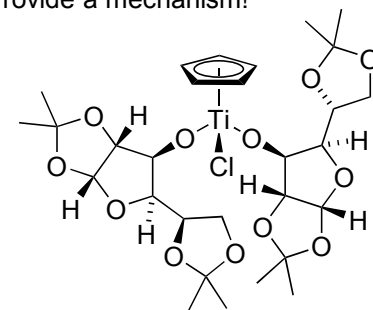


- 14) InI, Pd(dppf)Cl₂·CH₂Cl₂
- 15) TBAF
- 16) 4-methoxybenzaldehyde dimethyl acetale, PPTS

17 - 21
↓

- 17) DIBAL-H
- 18) (COCl)₂, DMSO, NEt₃
- 19) *t*-butyl acetate, LDA, Ti-complex
- 20) Me₃OBF₄, proton sponge
- 21) [Cp₂ZrClH], then I₂

Step 14: Name of the reaction?
Provide a mechanism!

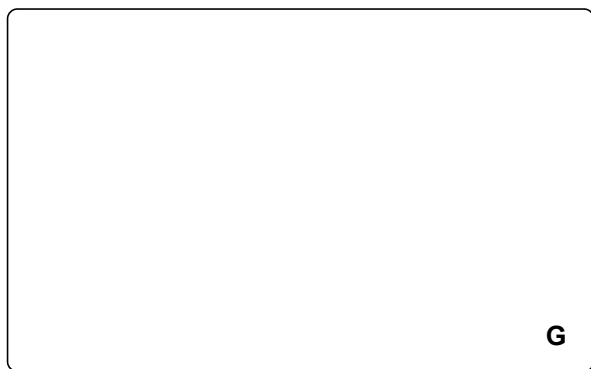


Ti-complex

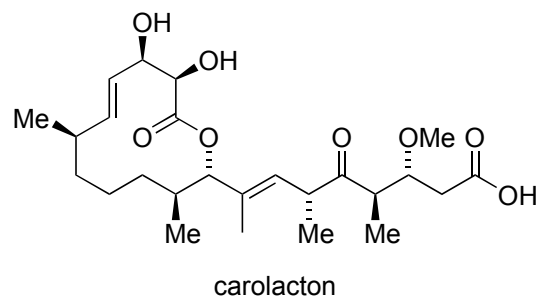
Step 19: Name of the reaction!



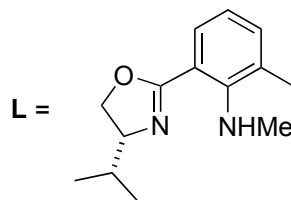
22 - 24
↓



25 - 27
↓



22) CrCl_2 , **L**, proton sponge, then $\text{NiCl}_2(\text{dppp})$, **D**, **F**
23) 1M LiOH
24) MNBA, DMAP



25) TESOTf, 2,6-lutidine, then TBAF
26) DDQ, then DMP
27) PPTS