Total Synthesis of Aplysiasecosterol A

Zhaohong Lu, Xiang Zhang, Zhicong Guo, Yu Chen, Tong Mu, and Ang Li

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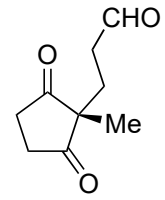


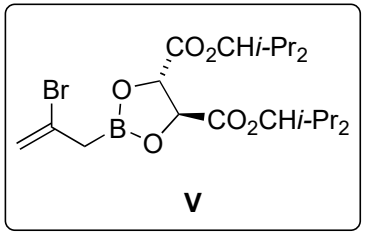
1-4

A

5-8

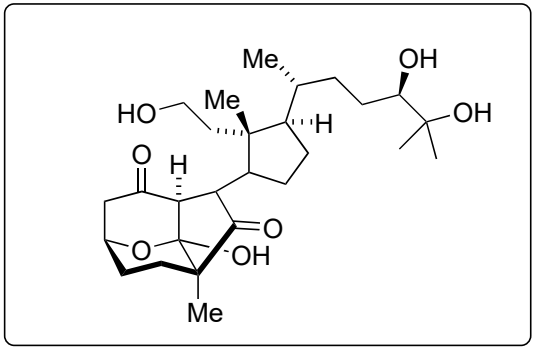
B

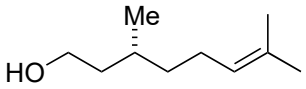
1) **V**
2) BnOH, MsOH
3) TMSOTf, NEt_3
4) IBX, MPO



V

5) $(TMS)_3SiH$, 1,1'-azobis(cyanocyclohexane)
6) KHMDS, TMSCl
7) NBS
8) O_3, SMe_2





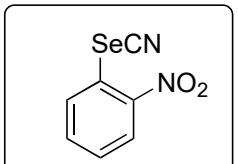
9-13

C

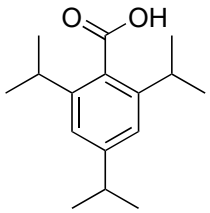
14-17

D

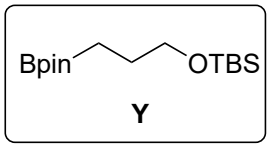
9) AD-mix-β, $MsNH_2$
10) acetone, TsOH
11) **W**, Bu_3P, *m*-CPBA
12) O_3, $NaBH_4$
13) **X**, PPh_3, DIAD



W

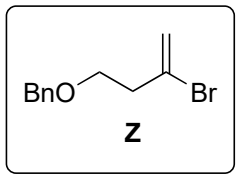


X



Y

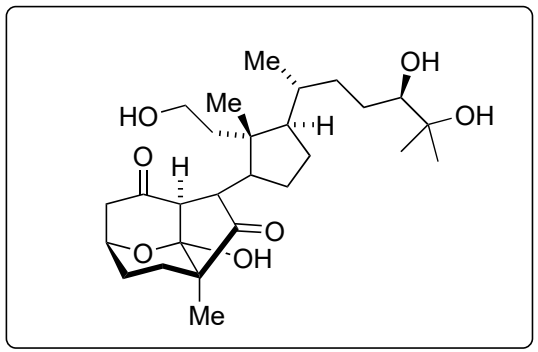
14) (+)-sparteine, *s*-BuLi, **Y**
15) **Z**, *t*-BuLi, NaOMe, I_2
16) TBAF, AcOH
17) DMP



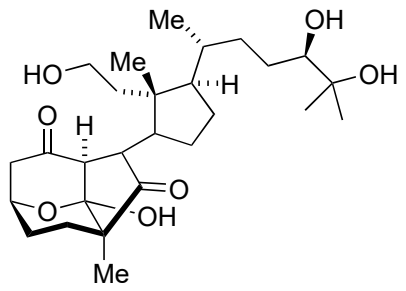
Z

step 13: Name of the reaction?

step 15: draw the mechanism



18-22



Aplysiasecosterol A

18) **B**, Et_3B, air, Bu_3SnH
19) Burgess reagent
20) $Fe(dpm)_3$, $Ph(i\text{-}PrO)SiH_2$
21) aq. $HClO_4$
22) $Pd(OH)_2/C$, H_2

step 18: draw the mechanism