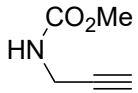
Toatal Synthesis of Leucascandrolide A

Ying Wang, Jelena Janjic, and Sergey A. Kozmin *J. Am, Chem. Soc.* **2002**, *124*, 13670–13671.
Sergey A. Kozmin *Org. Lett.* **2001**, *3*, 755–758.



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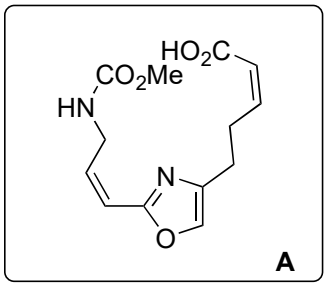
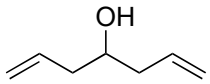
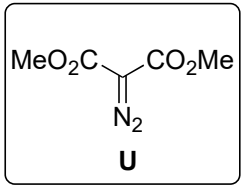
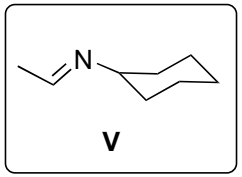


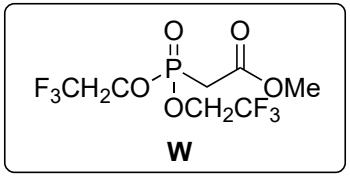


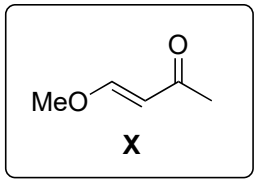
9-17

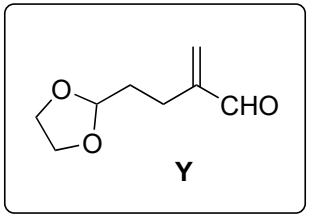
1) *n*-BuLi, TIPSOTf, *then n*-BuLi, TsCN
2) **U**, $Rh_2(OAc)_4$, *then* HF
3) H_2, $Pd/CaSO_4$
4) $LiEt_3BH$
5) PPh_3, CBr_4
6) **V**, Et_2NLi, HMPA
7) **W**, KHMDS
8) LiOH







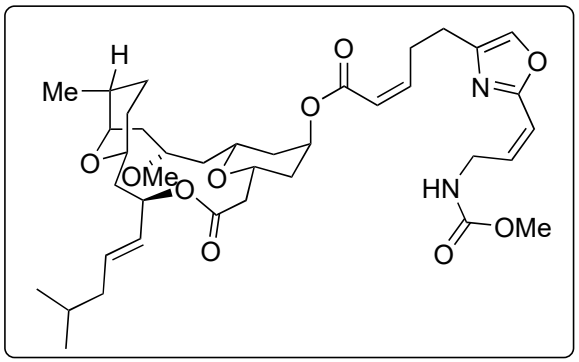


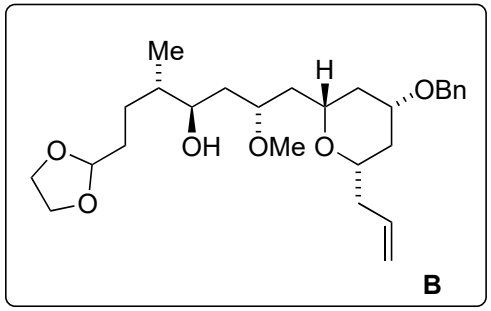


9) **X**, PPTS,
10) TFA, *then* LiOH
11) benzyl 2,2,2-trichloroacetimidate, TfOH
12) **Y**, Cy_2BCl, TEA
13) MeCHO, SmI_2
14) MeOTf, 2,6-di-*t*-Bu-pyridine
15) LAH
16) $(Me_2HSi)_2NH$, H_2PtCl_6
17) TBAF

Name of step 7?
HWE Still-Genari modification

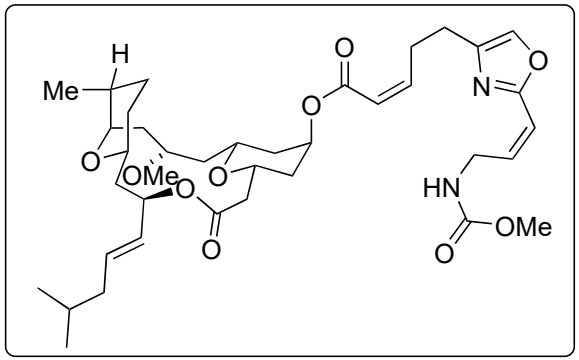
step 11: Name of the reagent?
Bundles reagent
Name of step 13? Explain the selectivity by providing a transition state.
See below
Which conditions lead to the opposite selectivity?
Narasaka–Prasad reduction: Bu_2BOMe, $NaBH_4$



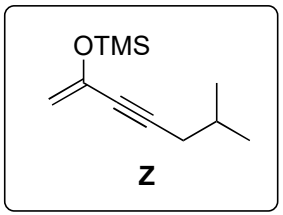


B

18-26

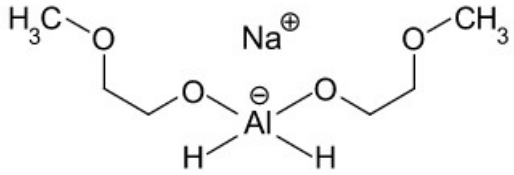


18) cat. H_2SO_4, *then* Ac_2O, pyridine
19) $ZnCl_2$, **Z**
20) L-Selectride
21) OsO_4, NMO
22) Red-Al
23) $Pb(OAc)_4$
24) PCC
25) DDQ
26) DIAD, PPh_3, **A**



Z

Structure of Red-Al?



Step 13: Evans Tishchenko reduction