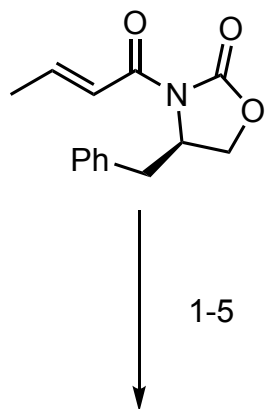
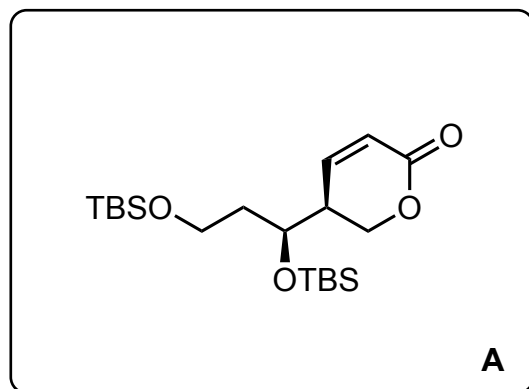


## Total Synthesis of the Marine Diterpenoid Blumiolide C

Hamel, C.; Prusov, E. V.; Gertsch, J.; Schweizer, W. B.; Altmann, K-H. *Angew. Chem. Int. Ed.* **2008**, *47*, 10081–10085

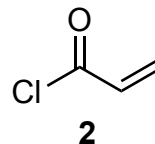
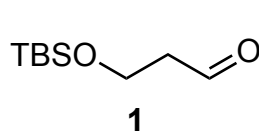


1-5

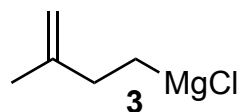


6-10

- 1)  $\text{Bu}_2\text{BOTf}$ ,  $\text{Et}_3\text{N}$ , then **1**
- 2) TBSOTf, 2,6-lutidine
- 3)  $\text{LiBH}_4$ , MeOH (1 equiv)
- 4) **2**,  $\text{Et}_3\text{N}$ , DMAP
- 5) Grubbs II



- 6) **3**, CuI
- 7) CSA
- 8) DMSO,  $(\text{COCl})_2$ ,  $\text{Et}_3\text{N}$
- 9) Vinylmagnesium chloride,  $\text{ZnCl}_2$
- 10) PMBTCA, PPTS (3 mol%)

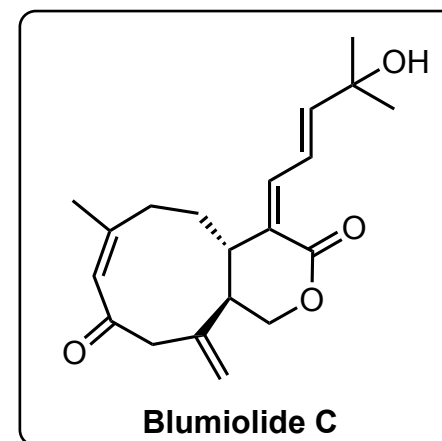


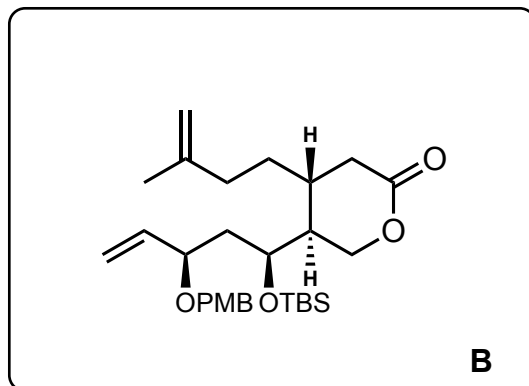
1) What's the name of this reaction?  
Please explain the diastereoselectivity and draw the transition state

5) Grubbs II structure?

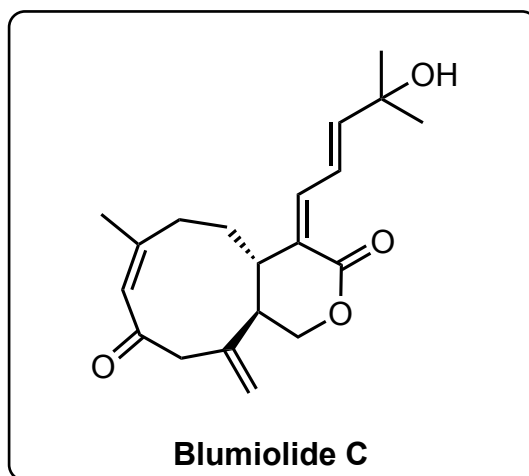
7) *Hint*: Only one deprotection occurs

10) Please draw the structures of PMBTCA and PPTS

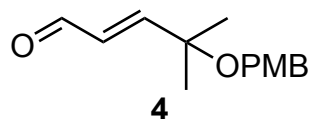




11-23

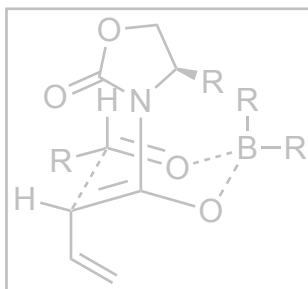


- 11) Hoveyda-Grubbs II
- 12) DIBAL-H
- 13) MeOH, PPTS (5 mol%)
- 14) TBAF
- 15) TPAP, NMO
- 16) MeMgBr
- 17) Martin's sulfurane
- 18) aq HF
- 19) TPAP, NMO
- 20) LDA, *then* **4**
- 21) neat DCC, CuCl<sub>2</sub>
- 22) DDQ
- 23) DMP

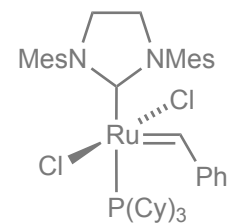


17) Please draw the structure of Martin's sulfurane and propose a mechanism

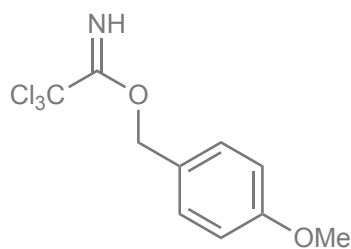
1) *Evans asymmetric aldol reaction*



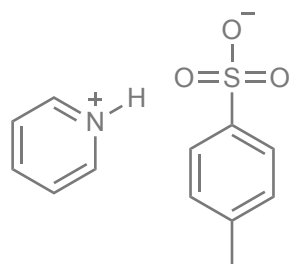
5) Grubbs II



10)



PMBTCA  
*p*-methoxybenzyl trichloroacetimidate



PPTS

17) doi:10.1002/9780470638859.conrr413

