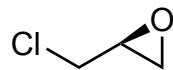


Total Synthesis of Haterumaimide J

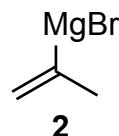
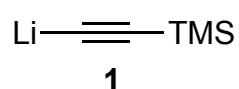
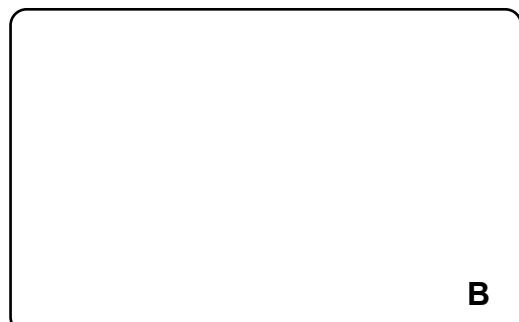
Michalak, S. E.; Nam, S.; Kwon, D. M.; Horne, D. A.; Vanderwal, C. D.
J. Am. Chem. Soc. **2019**, *141*, 9202–9206.



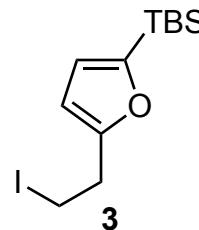
1-4



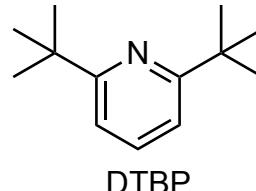
5-8



- 1) BF3-OEt2, THF –78 °C *then* NaOH
- 2) CuI, THF, –78 °C *then* K2CO3, MeOH
- 3) Cp2ZrCl2, Me3Al, CH2Cl2, –45 °C. *then* I2
- 4) triphosgene, pyridine, CH2Cl2, 45 °C



- 5) (DHQD)2PYR, K2OsO2(OH)2, K3Fe(CN)6
- 6) TsCl, DMAP, Et3N, *then* K2CO3, MeOH
- 7) 3, *t*-BuLi, 9-BBN-OMe, Et2O/THF, *then* Pd(dppf)Cl2, K3PO4, DMF
- 8) EtAlCl2, DTBP, CH2Cl2/PhMe, –78 °C



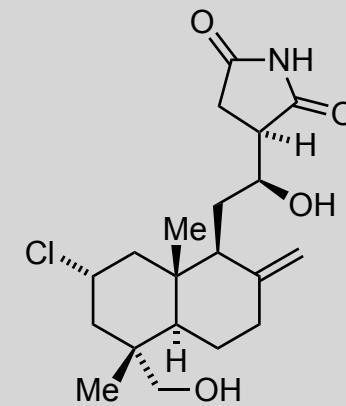
1) Name the starting material.

3) Name the reaction

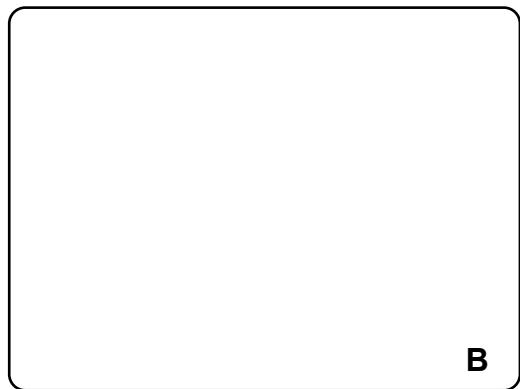
5) Name the reaction - 6:1 syn:anti ratio.

7) Name the reaction, show a mechanism

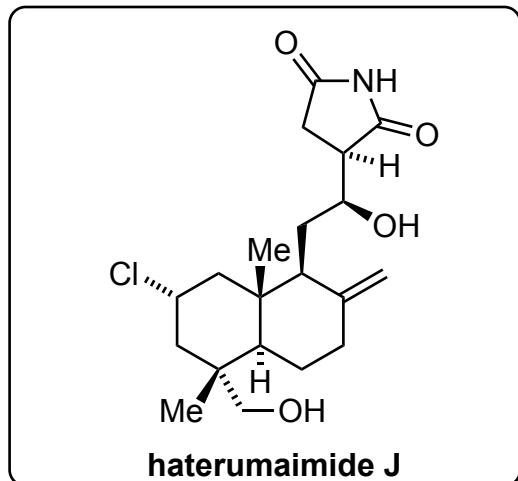
8) Draw a 3 dimensional transition state



9-13

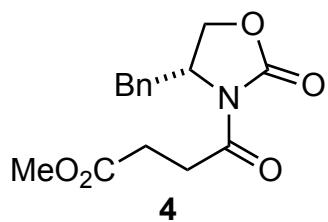


14-16



- 9) TBSCl, imidazole
10) O₂, rose bengal, hν, CH₂Cl₂,
then TBAF, MeI
11) H₂, Pd/C
12) Ph₃P=CH₂
13) DIBAL-H

10) What is the role of rose bengal?



- 14) **4**, Cy₂BOTf, NEt₃, CH₂Cl₂
15) NH₃/MeOH, then NaH, THF
16) HF•pyr