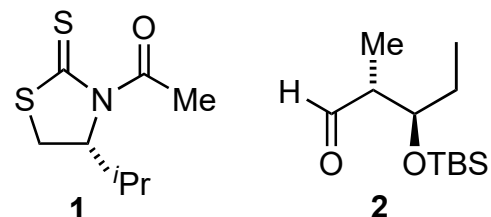


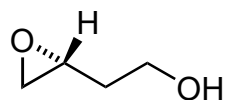
Total Synthesis of Icumazole A Using a Modified Cadiot–Chodkiewicz Coupling

J. Buntine, S. Dasgupta, K. Dorney, O. Rubinstein, M. Salimimarand, J. M. White, M. A. Rizzacasa

Org. Lett. **2024**, *26*, 1062–1066



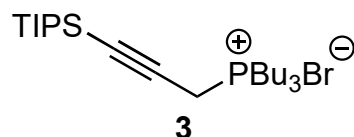
1–10



7–9



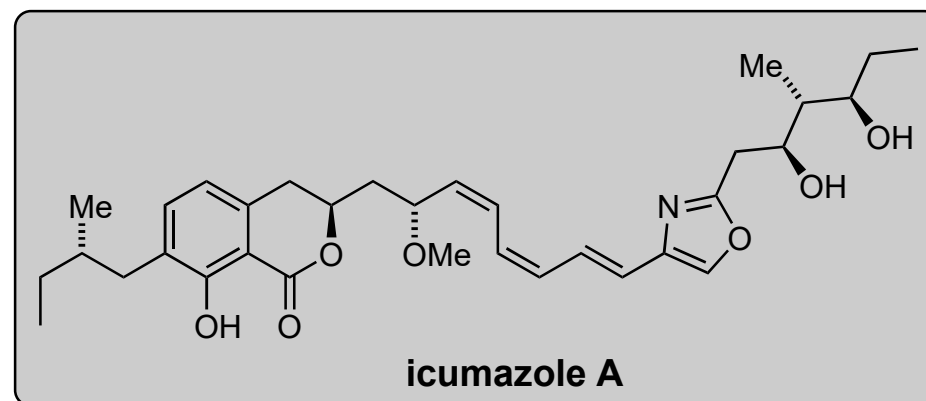
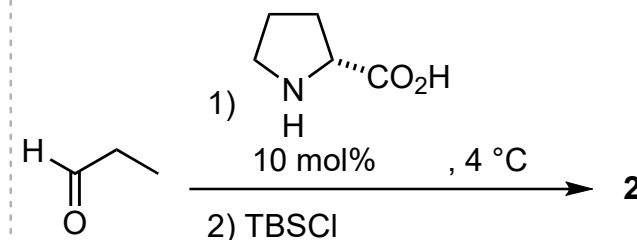
- 1) **1**, TiCl_4 , $i\text{-Pr}_2\text{NEt}$, then **2**
- 2) TBSOTf, 2,6-lutidine
- 3) LiOH , H_2O_2
- 4) L-serine methyl ester, TBTU, HOBT, $i\text{-Pr}_2\text{NEt}$
- 5) Et_2NSF_3 , K_2CO_3
- 6) CuBr_2 , DBU
- 7) DIBAL-H
- 8) **3**, $n\text{-BuLi}$
- 9) TBAF
- 10) $\text{PhI}(\text{OAc})_2$, TBAI



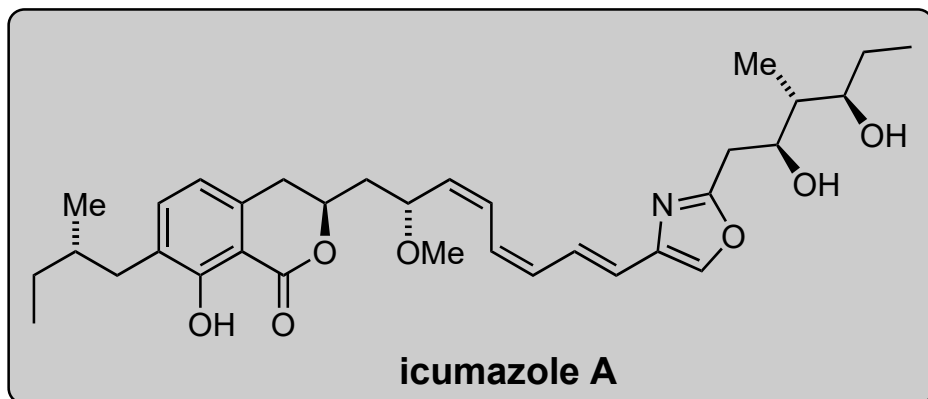
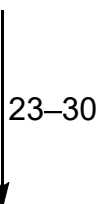
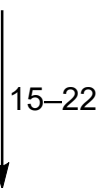
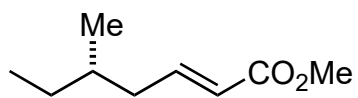
- 11) BnBr , NaH
- 12) vinyl magnesiumbromide, CuI
- 13) TBSCl, imidazole
- 14) O_3 , pyridine, then Me_2S

1) Hint: 4:1 anti / syn mixture

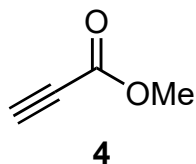
2 was prepared as follows. Draw the Zimmerman-Traxler chair-like transition state to rationalize diastereoselectivity and enantioselectivity



icumazole A



- 15) DIBAL-H
- 16) $\text{Ph}_3\text{P}\cdot\text{HBr}$
- 17) NaHMDS, *then B*
- 18) TBAF
- 19) **4**, Otera's catalyst
- 20) NBS, AgNO_3
- 21) toluene, sealed tube, $180\text{ }^\circ\text{C}$, *then* DDQ
- 22) Pinacolborane, $\text{Pd}(\text{MeCN})_2\text{Cl}_2$, SPhos, *then* NaOH, H_2O_2



- 23) H_2 , Pd/C
- 24) DMP
- 25) **5**, CeCl_3 , LiCl
- 26) *p*-nitrobenzoic acid, Ph_3P , DMEAD, *then* MeONa
- 27) Me_3OBF_4 , proton sponge
- 28) TBAF
- 29) **A**, CuI, $\text{Pd}(\text{Ph}_3\text{P})_2\text{Cl}_2$, Et_3N
- 30) Zn(Cu/Ag)