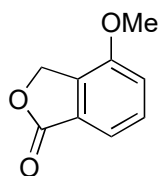
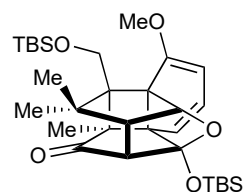


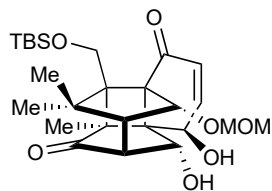
Total synthesis of the complex taxane diterpene canataxpropellane
 F. Schneider, K. Samarin, S. Zanella, T. Gaich, *Science* **2020**, 367, 676-681



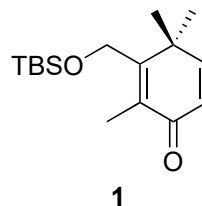
1-2



3-10



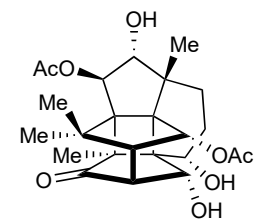
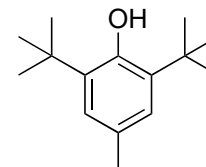
- 1) NaHMDS, then TBSCl, then **1**, r.t.
- 2) $h\nu$ (254 nm), r.t.



- 3) TBAF
- 4) $\text{Ca}(\text{BH}_4)_2$
- 5) MOMCl, DIPEA
- 6) LiAlH_4
- 7) $(\text{COCl})_2$, DMSO, NEt_3
- 8) KOtBu
- 9) O_2 , $h\nu$ (>530 nm), Rose Bengal B
- 10) BHT, KOAc, then silica gel

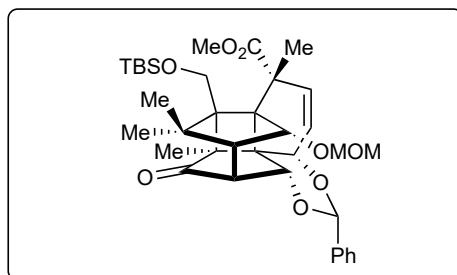
- 9) Which reactive species is generated?
 Singlet oxygen that undergoes [4+2] cycloaddition with the diene

- 10) Give a structure of BHT. Which role it plays?
 BHT reductively cleaves the peroxide

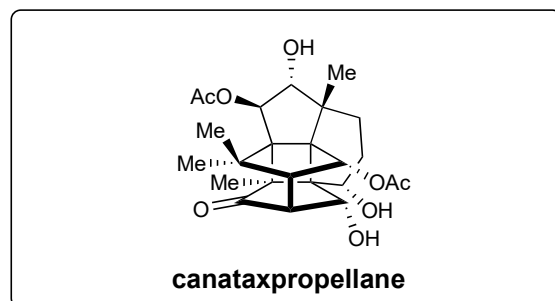


canataxpropellane

11-18



19-26



- 11) IBX, DMSO
- 12) $\text{Me}_4\text{NBH}(\text{OAc})_3$
- 13) $\text{PhCH}(\text{OMe})_2$, PTSA
- 14) L-Selectride
- 15) KHMDS, *then* Comins' reagent
- 16) CO, $\text{Pd}(\text{PPh}_3)_4$, NEt_3 , MeOH
- 17) Mg, MeOH
- 18) KHMDS, 18-crown-6, MeI

- 19) LiAlH_4 , *then* TBAF
- 20) $(\text{COCl})_2$, DMSO, NEt_3
- 21) TiCl_4 , Zn, pyr.
- 22) Ac_2O , DMAP, pyr.
- 23) $\text{BrB}(\text{catechol})$
- 24) K_2CO_3 , MeOH
- 25) Ac_2O , DMAP, pyr.
- 26) H_2 , Pd/C

17) Classify the reaction
It's a dissolving metal reduction

21) Name of the reaction?
Pinacol coupling