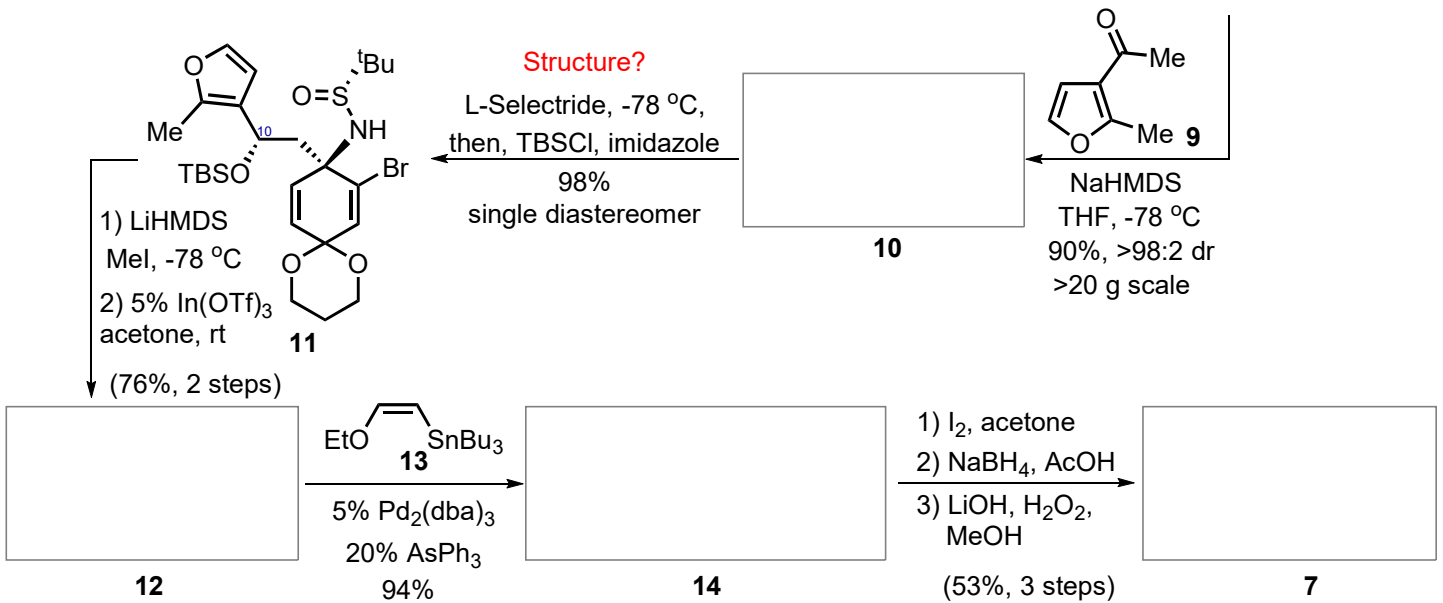
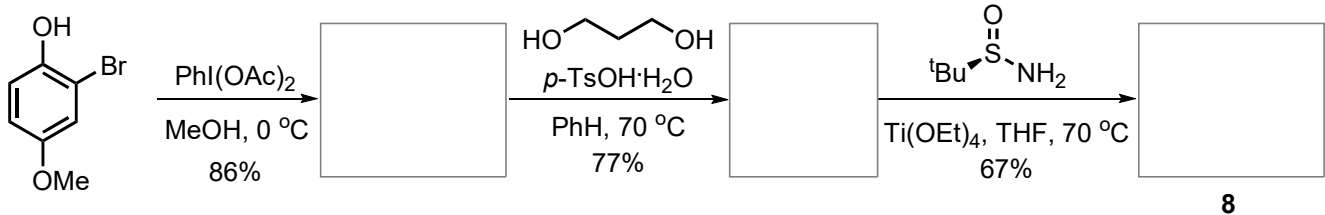
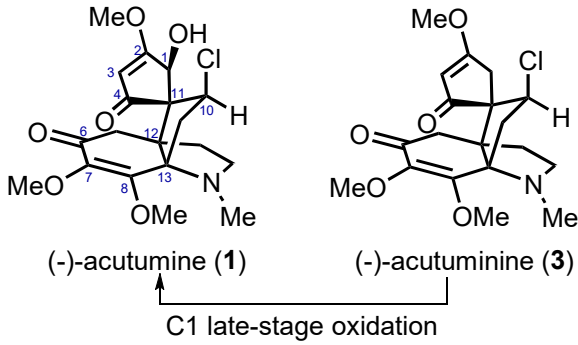


# Enantioselective Synthesis of (-)-10-Hydroxyacutuminine

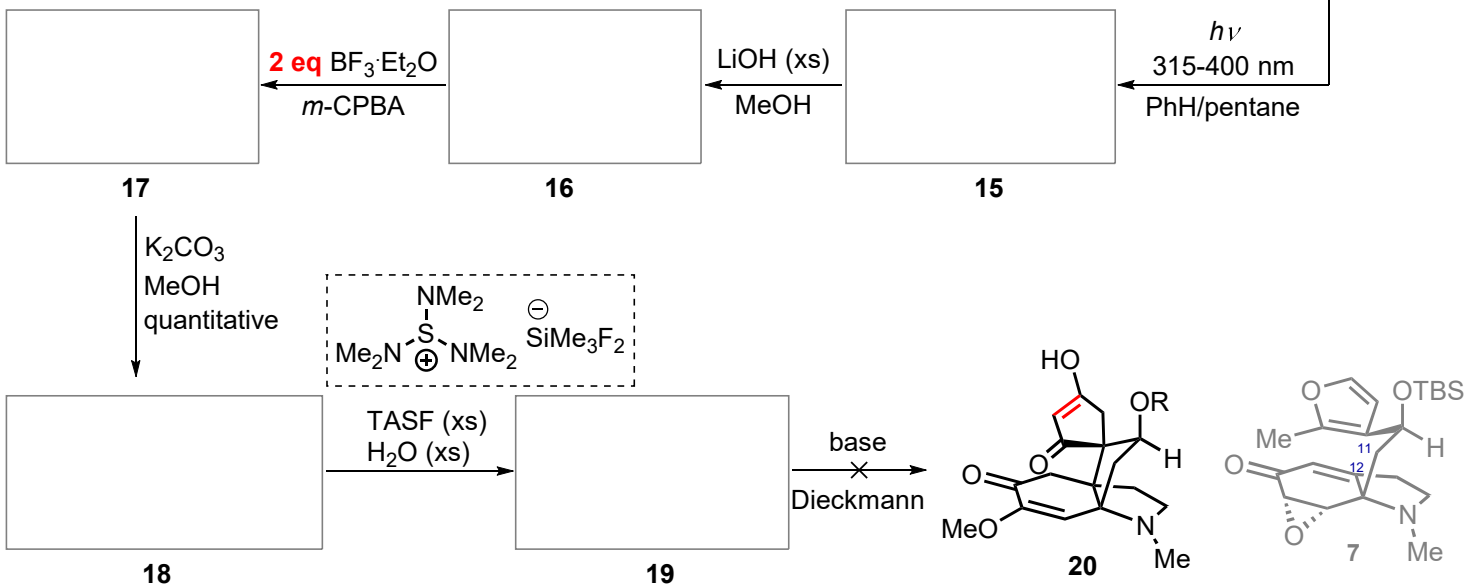
10.1002/anie.202117480

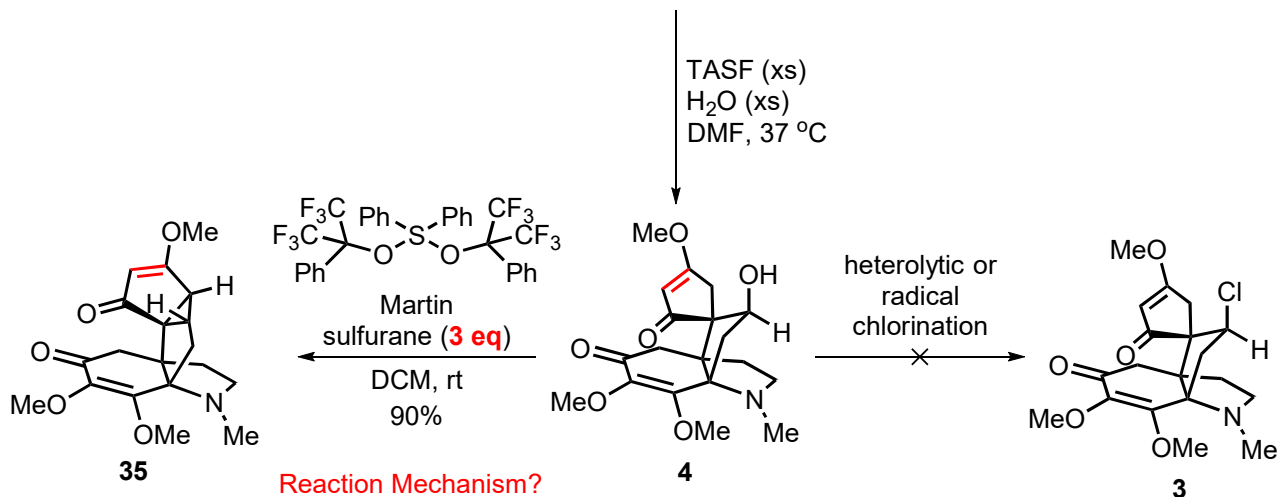
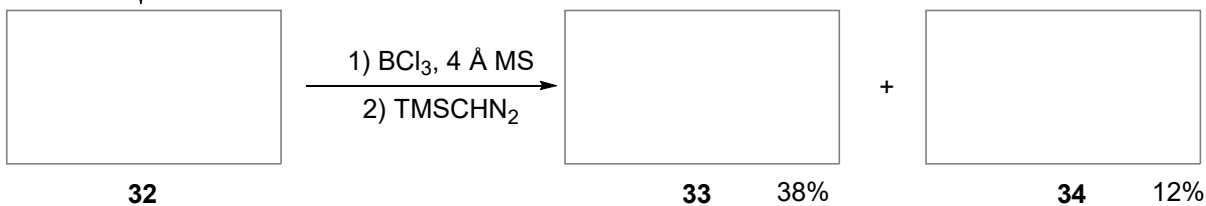
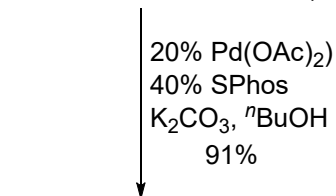
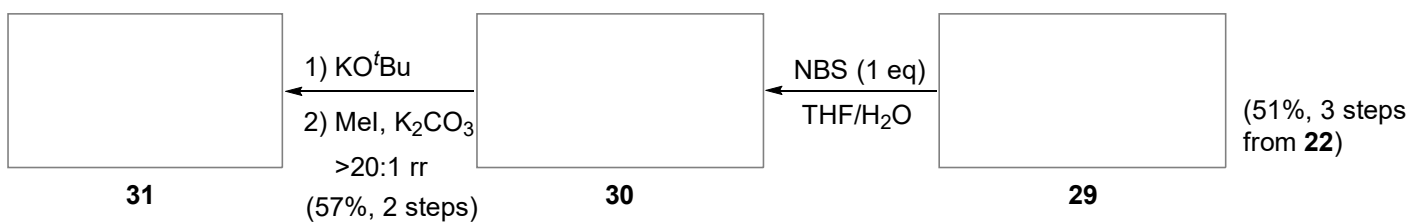
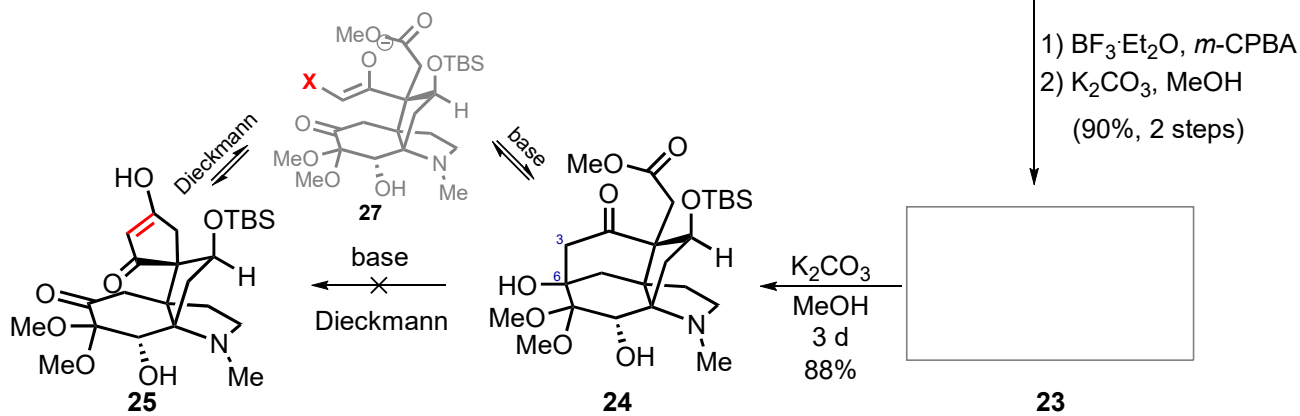
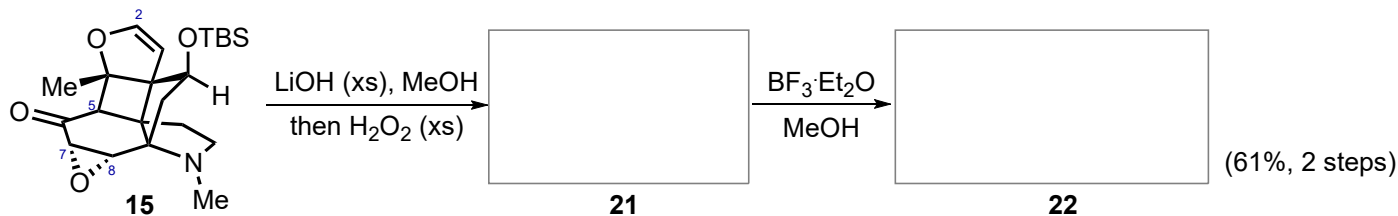
17.03.2022

- first isolated from the Chinese moonseed plant in 1929
- structure solved by single-crystal X-ray diffraction in 1967
- selective T-cell cytotoxicity and anti-amnesic activity
- densely functionalized [4.3.3]propellane cores
- a spirofused cyclopentenone and vicinal quaternary centers



## Reaction Mechanism?



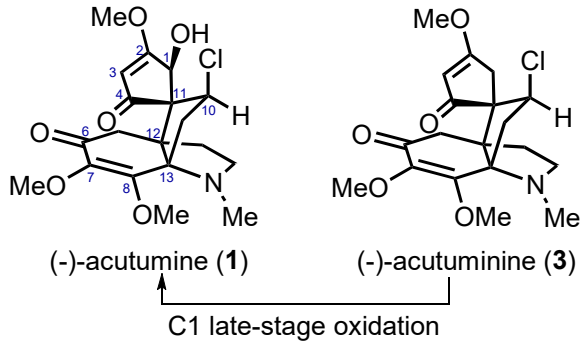


Reaction Mechanism?

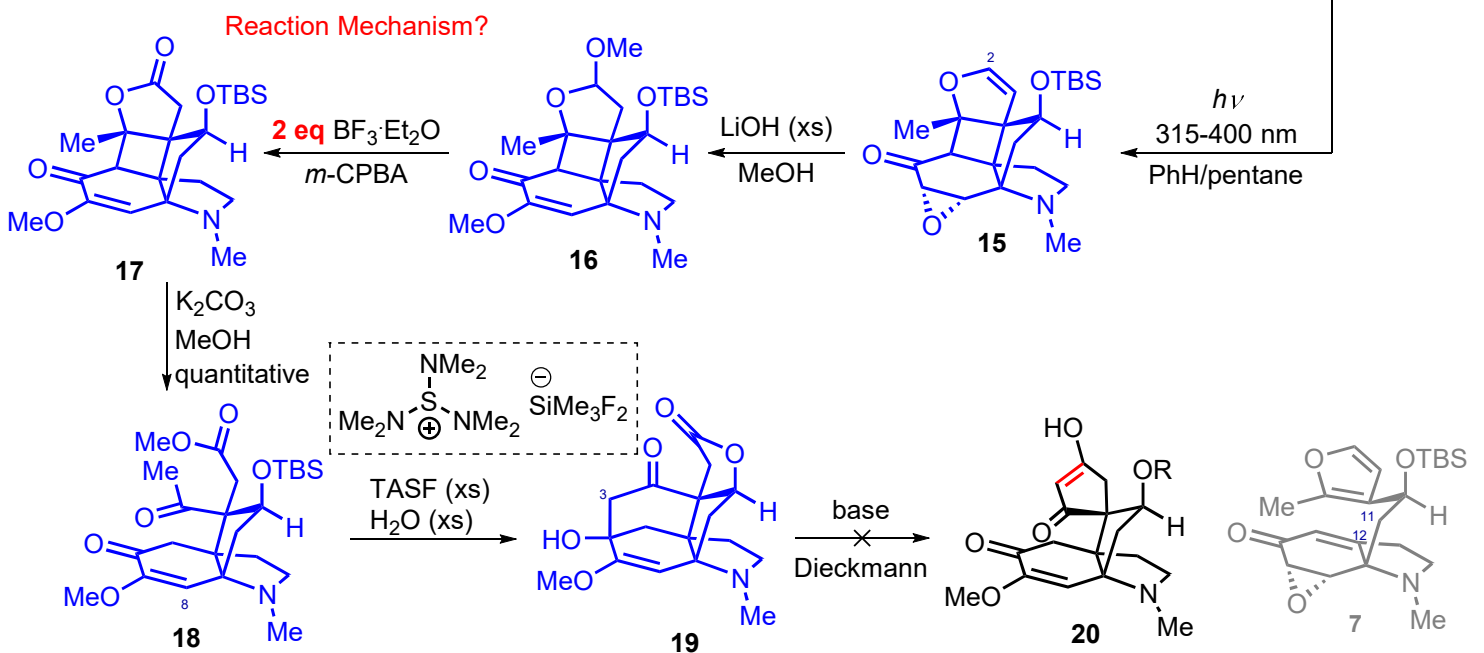
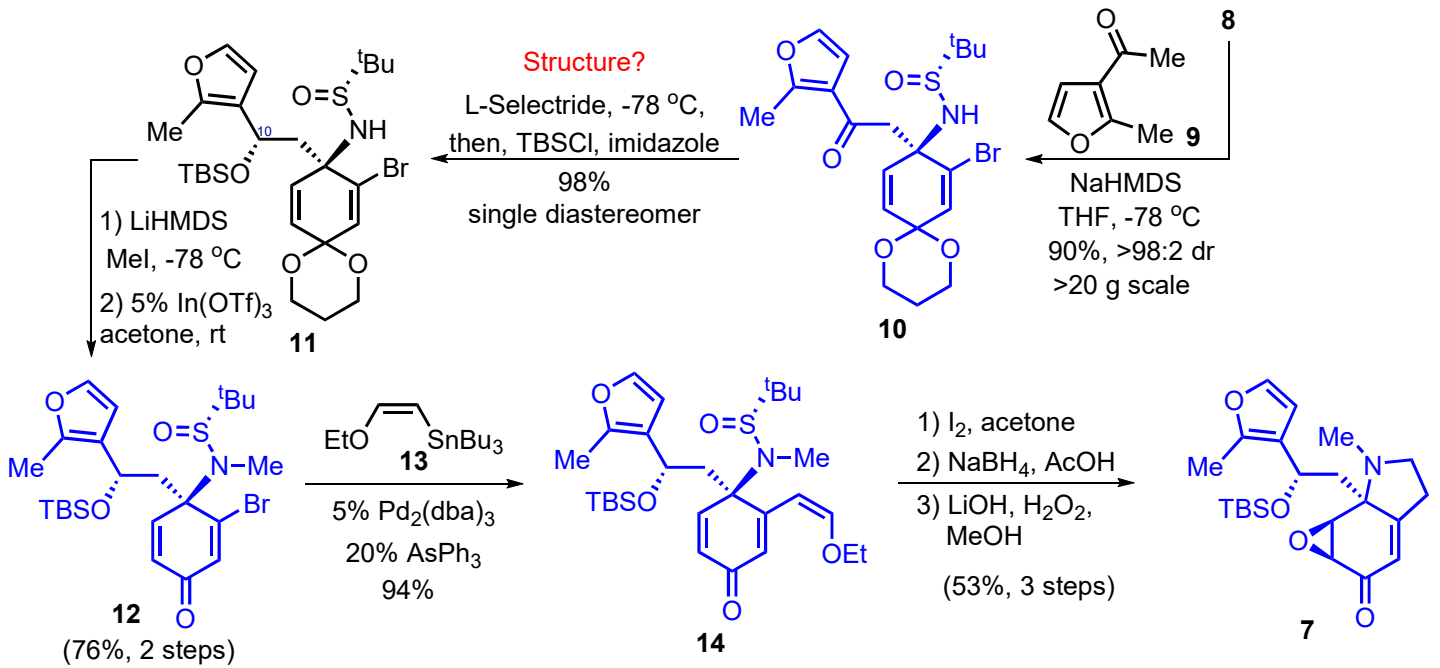
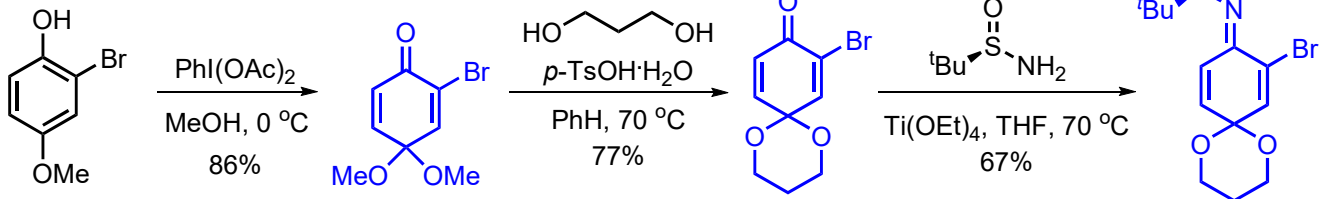
# Enantioselective Synthesis of (-)-10-Hydroxyacutuminine (Solution)

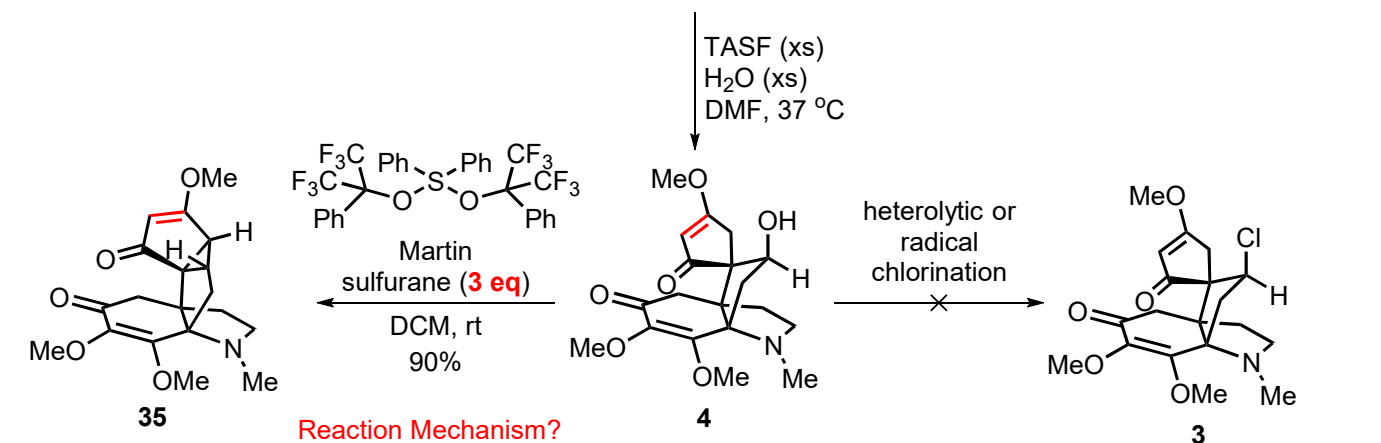
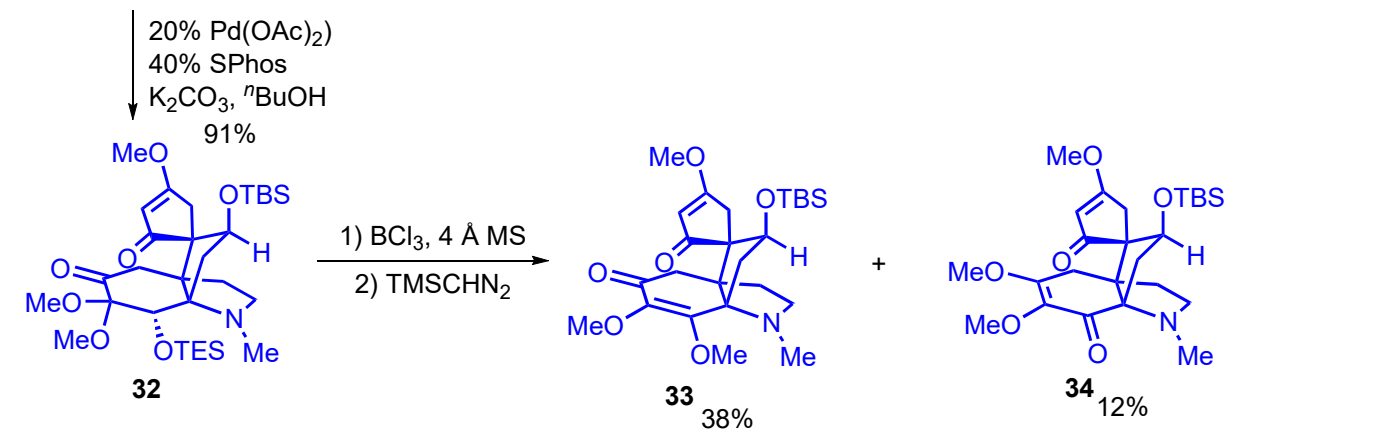
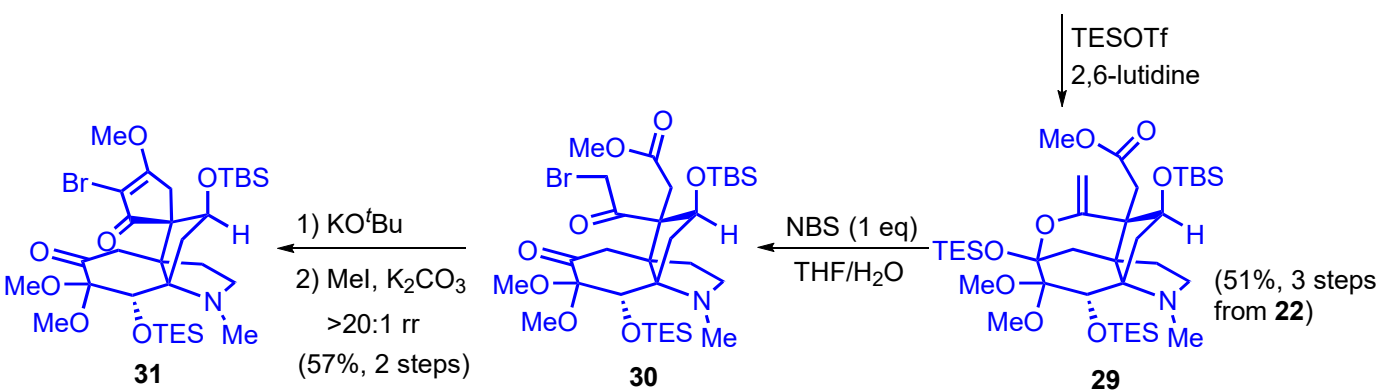
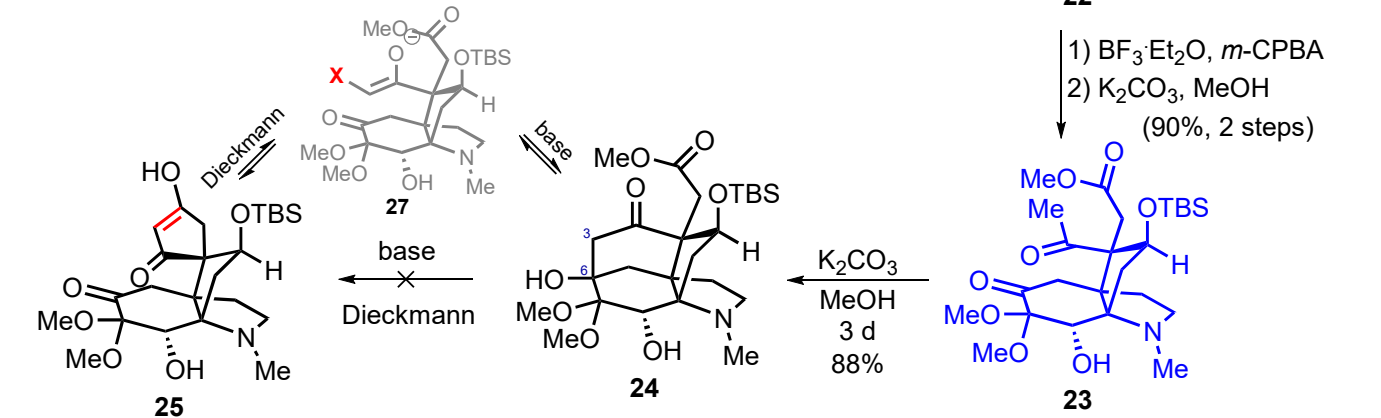
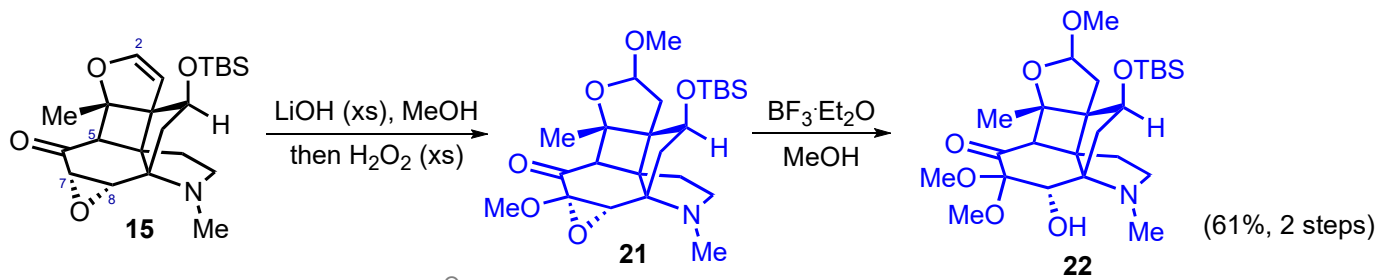
10.1002/anie.202117480

17.03.2022



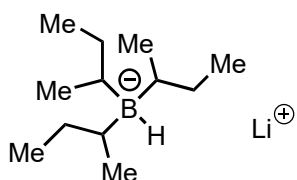
- first isolated from the Chinese moonseed plant in 1929
- structure solved by single-crystal X-ray diffraction in 1967
- selective T-cell cytotoxicity and anti-amnesic activity
- densely functionalized [4.3.3]propellane cores
- a spirofused cyclopentenone and vicinal quaternary centers





Reaction Mechanism?

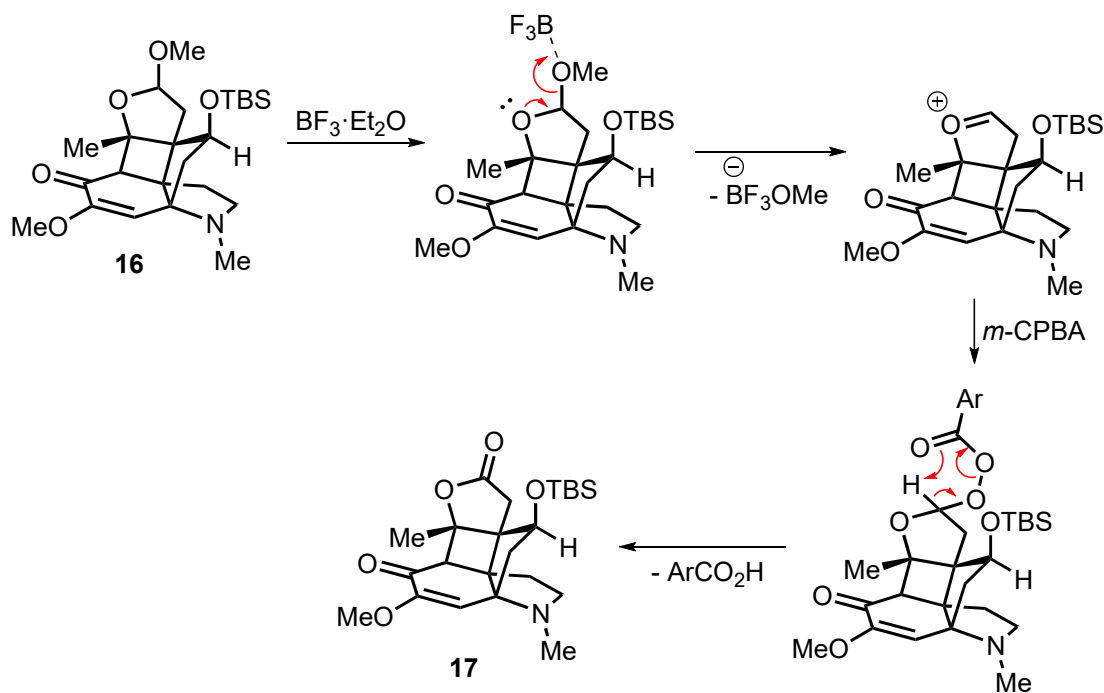
### Structure of L-Selectride:



### Reasons for using 2 eq BF<sub>3</sub>·Et<sub>2</sub>O:

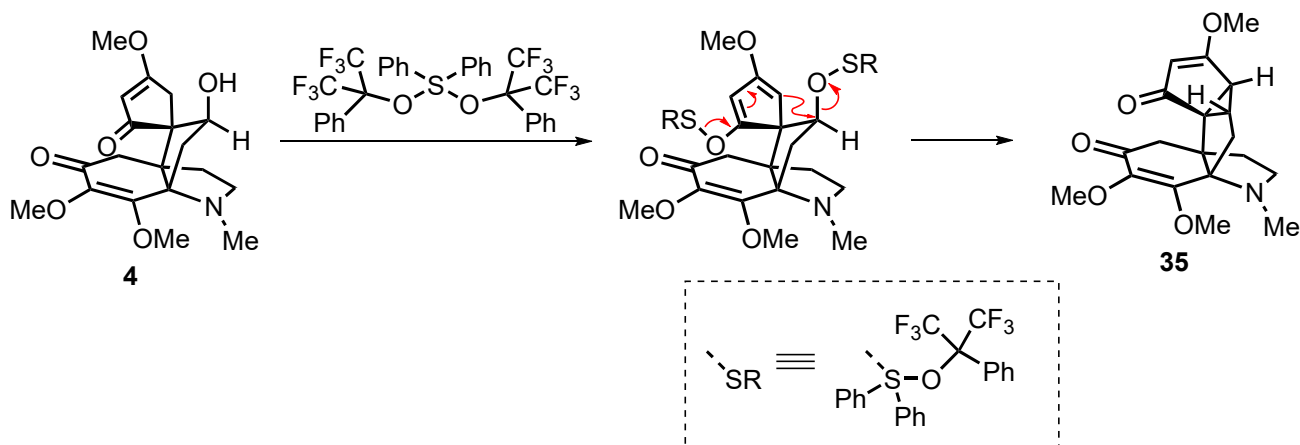
utilizing two equivalents of BF<sub>3</sub>·Et<sub>2</sub>O to mask the basic amine, which is otherwise rapidly oxidized by *m*-CPBA.

### Reaction Mechanism of **16** to **17**:



Ref: P. A. Grieco, T. Oguri, Y. Yokoyama, *Tetrahedron Lett.* **1978**, *19*, 419–420.

### Reaction Mechanism of **4** to **35**:



Ref: S. E. Reisman, J. M. Ready, M. M. Weiss, A. Hasuoka, M. Hirata, K. Tamaki, T. V. Ovaska, C. J. Smith, J. L. Wood, *J. Am. Chem. Soc.* **2008**, *130*, 2087–2100.