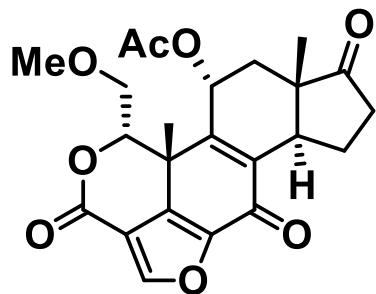
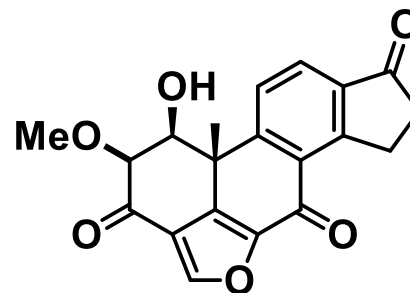


Total Synthesis of Wortmannin and Viridin



(+)-Wortmannin



Viridin

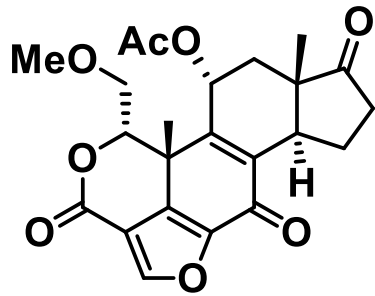
Chideraa Nwachukwu

Roberts group

Synthesis Club

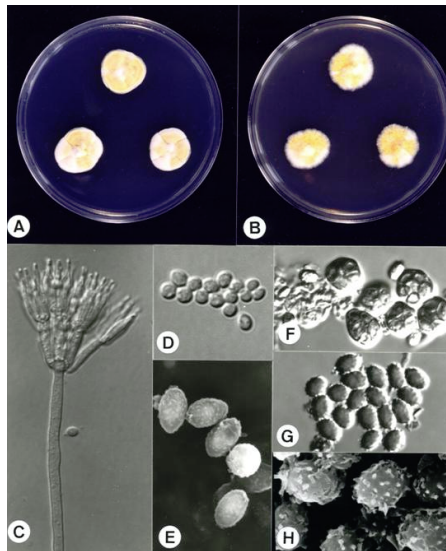
27 February 2019

Wortmannin



(+)-Wortmannin

- ❖ Antifungal and anti-inflammatory antibiotics
- ❖ Phosphoinositide 3-kinases (PI3Ks) inhibitor with $IC_{50} = 5\text{nM}$

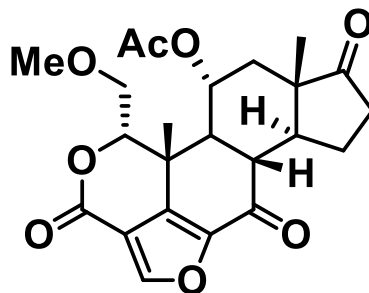


- ❖ Isolated from culture filtrates of *Penicillium* and *Myrothecium* species in 1972

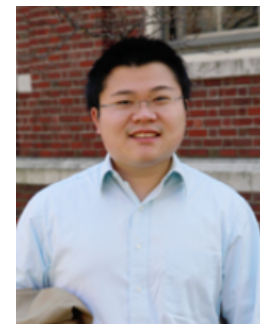
Wortmannin



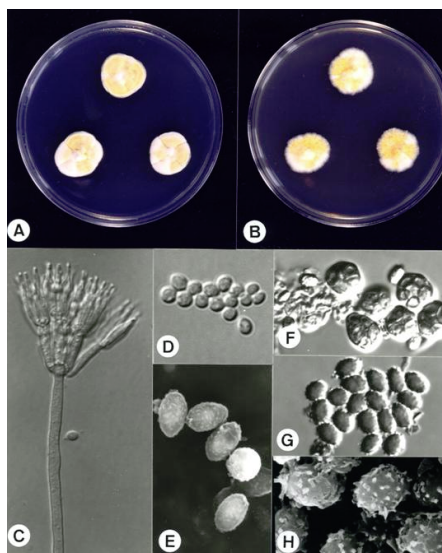
Shibasaki completed
the first total synthesis
in 1996



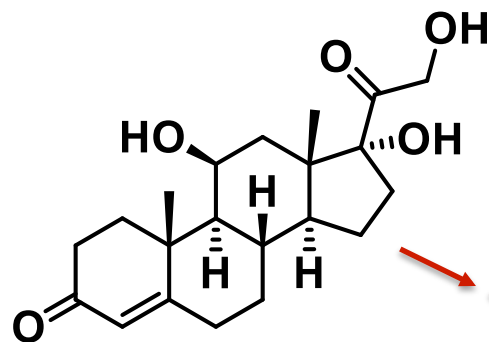
(+)-Wortmannin



Most recent total synthesis by Luo
in 2017

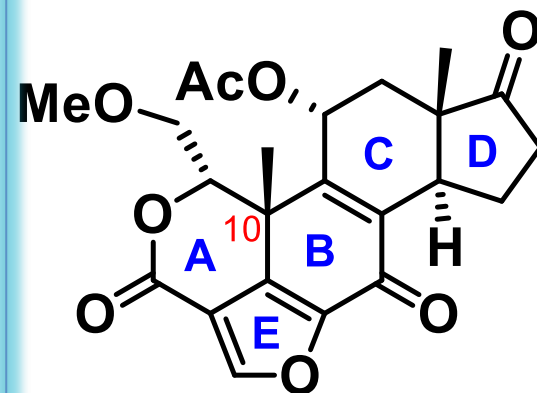


Wortmannin

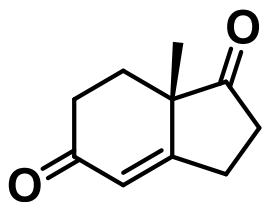


Hydrocortisone

30 steps



(+)-Wortmannin

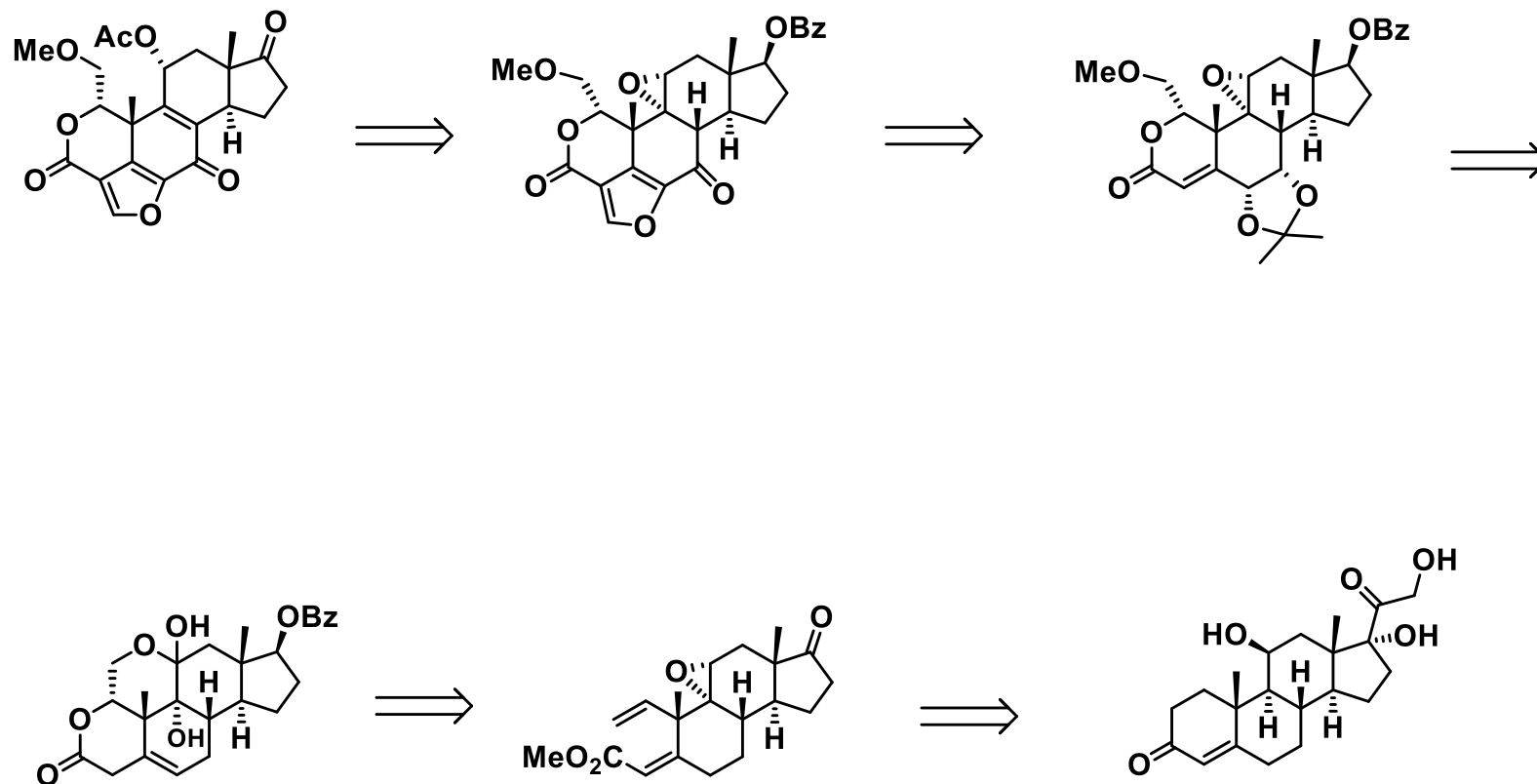


(+)-Hajos Parrish ketone

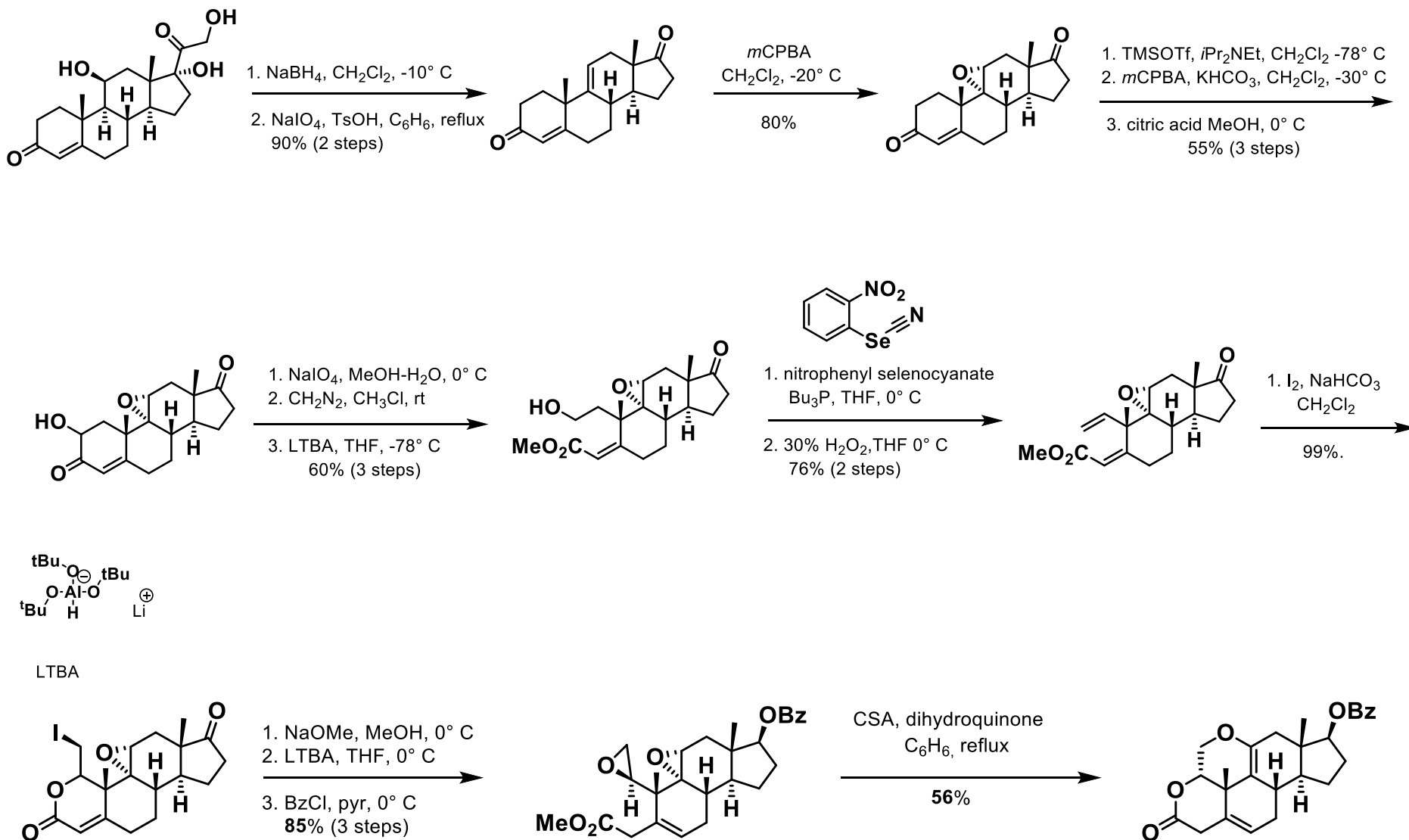
17 steps



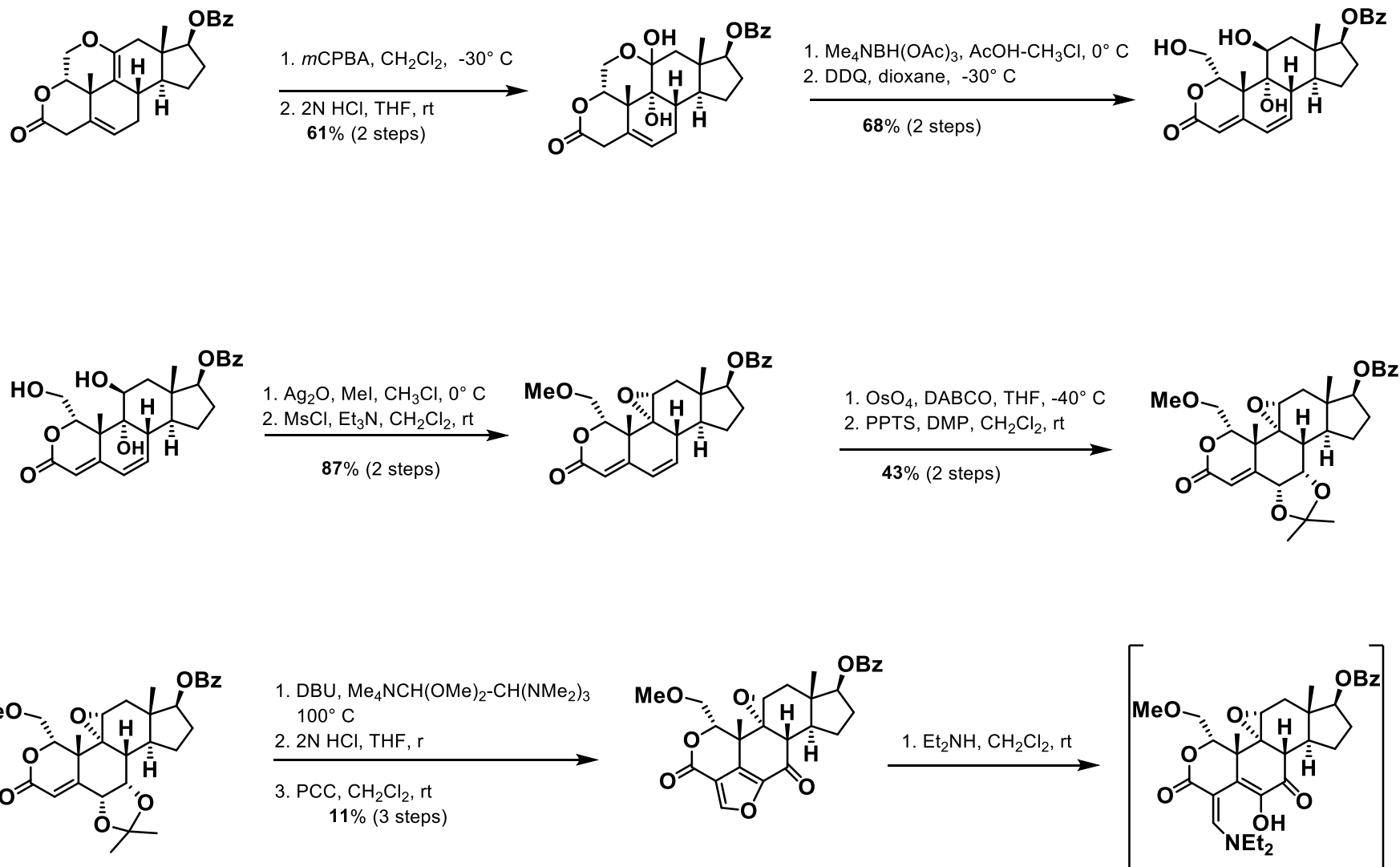
Synthesis by Shibasaki



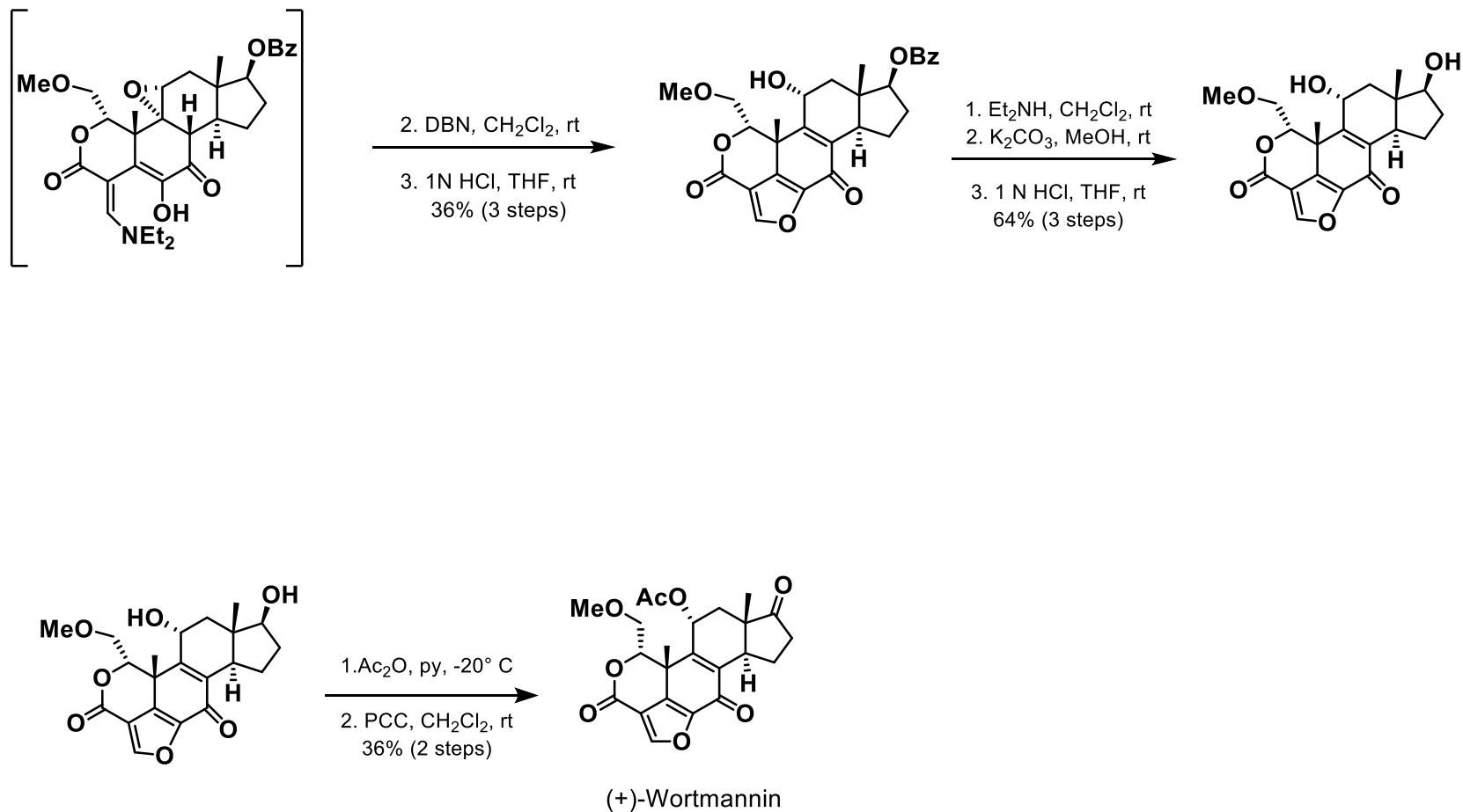
Synthesis by Shibasaki



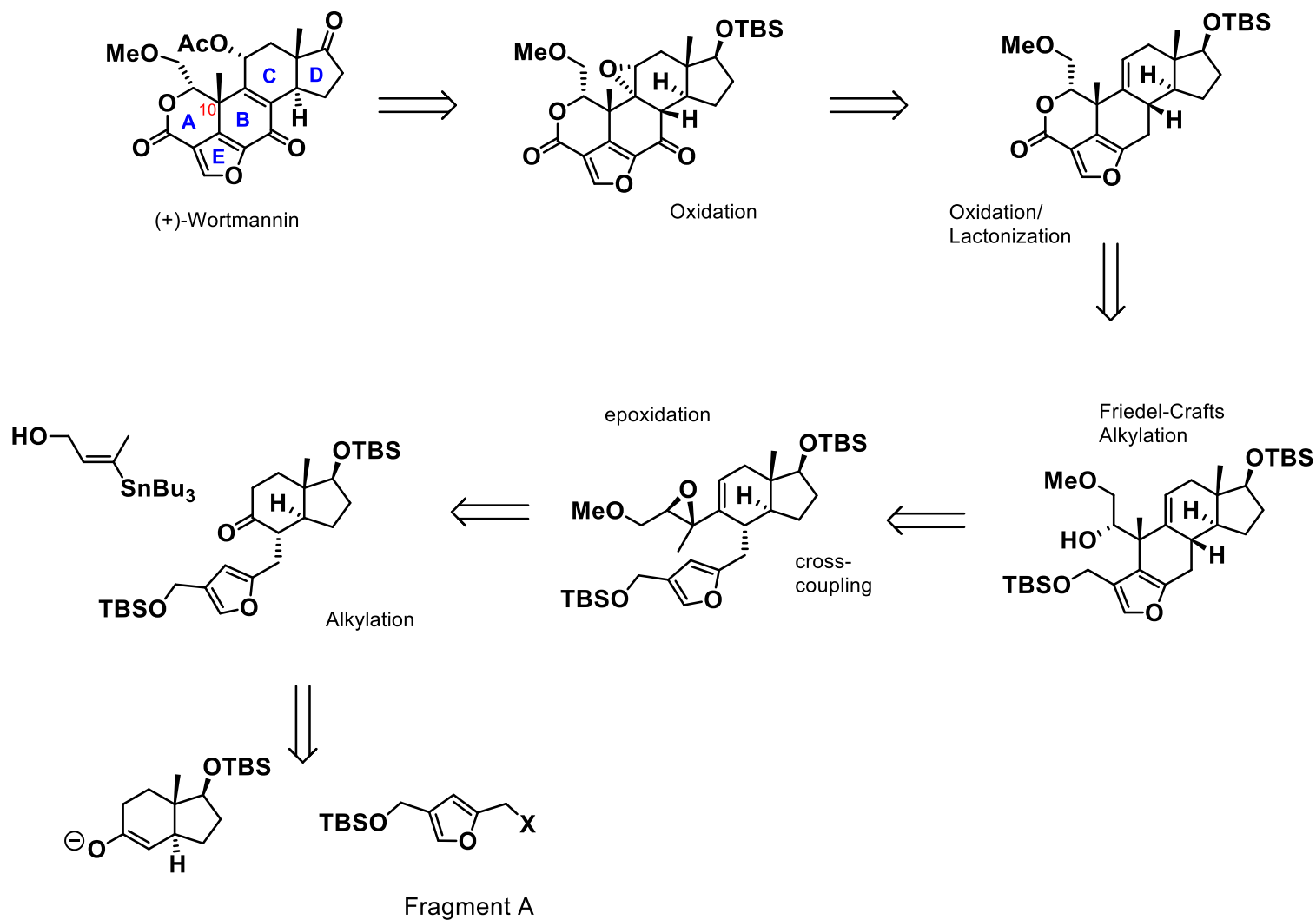
Synthesis by Shibasaki



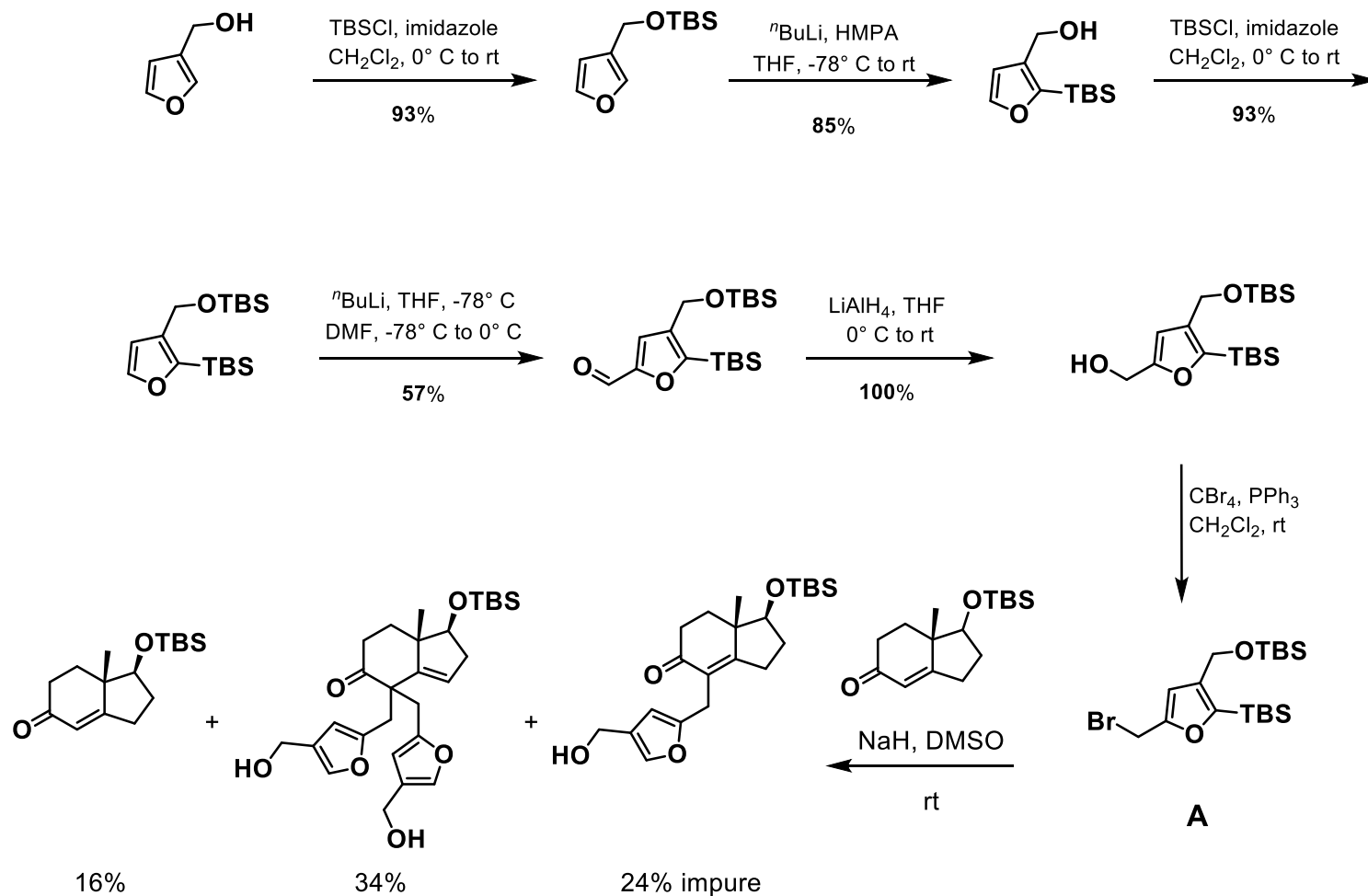
Synthesis by Shibasaki



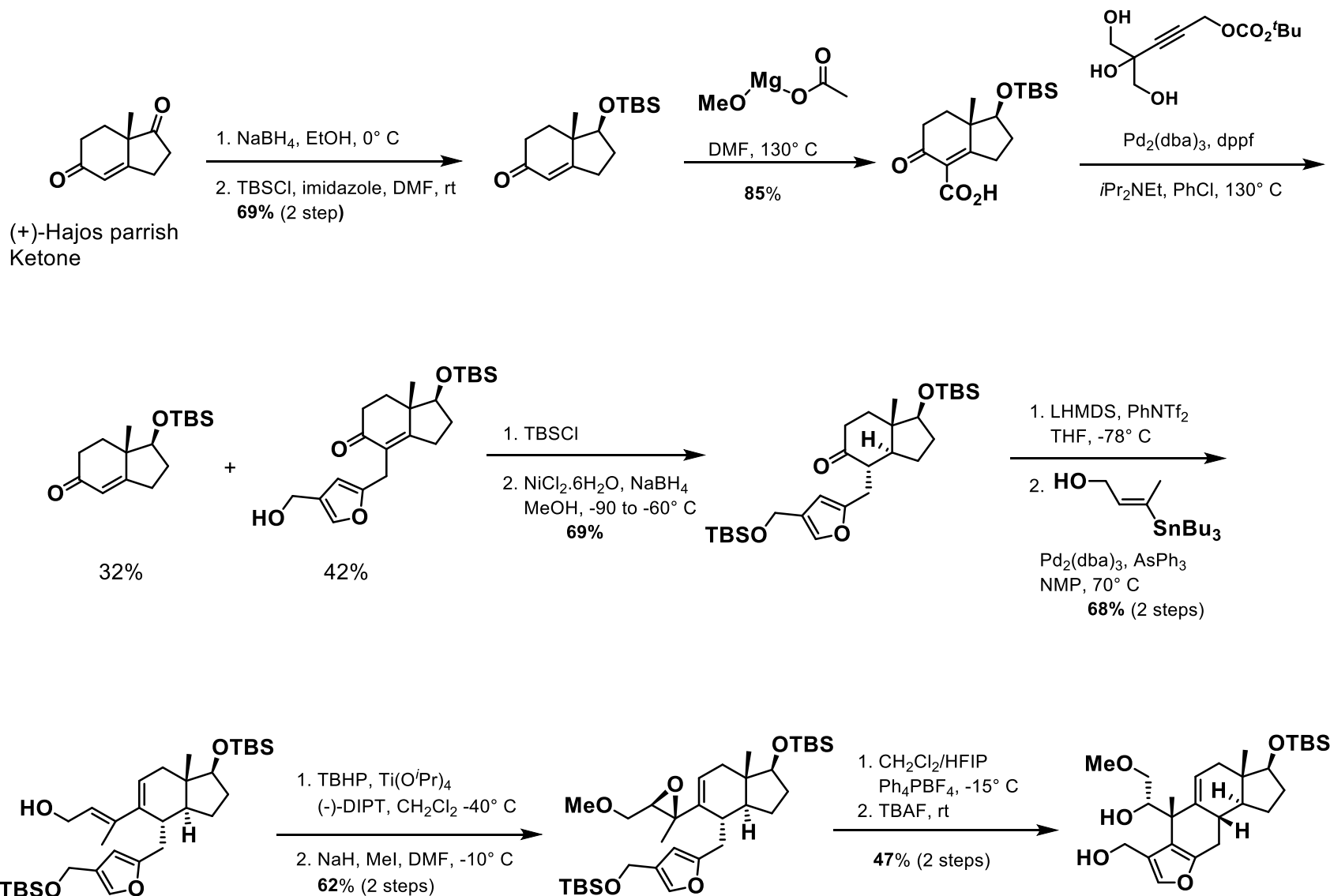
Synthesis by Luo



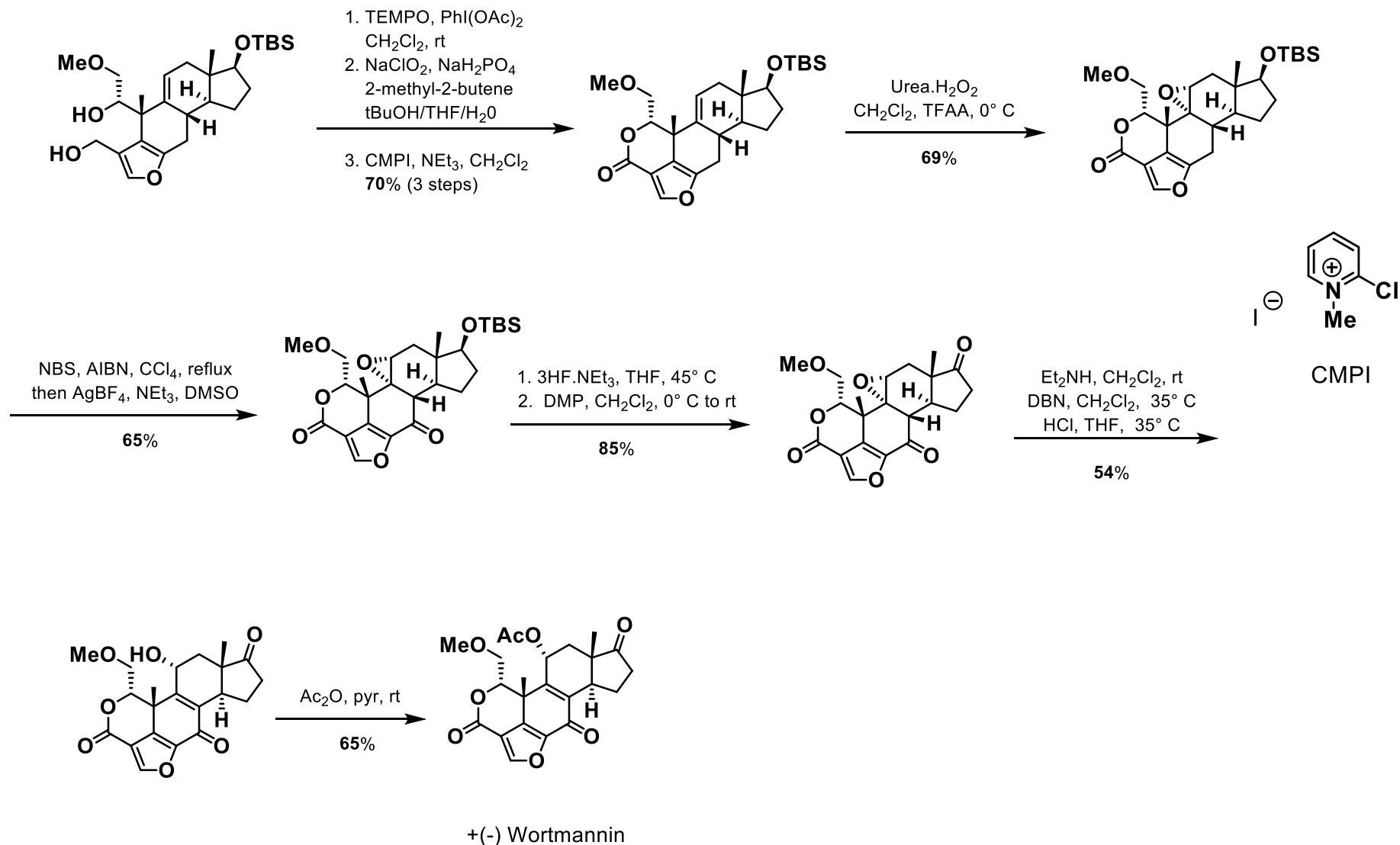
Synthesis of Fragment A



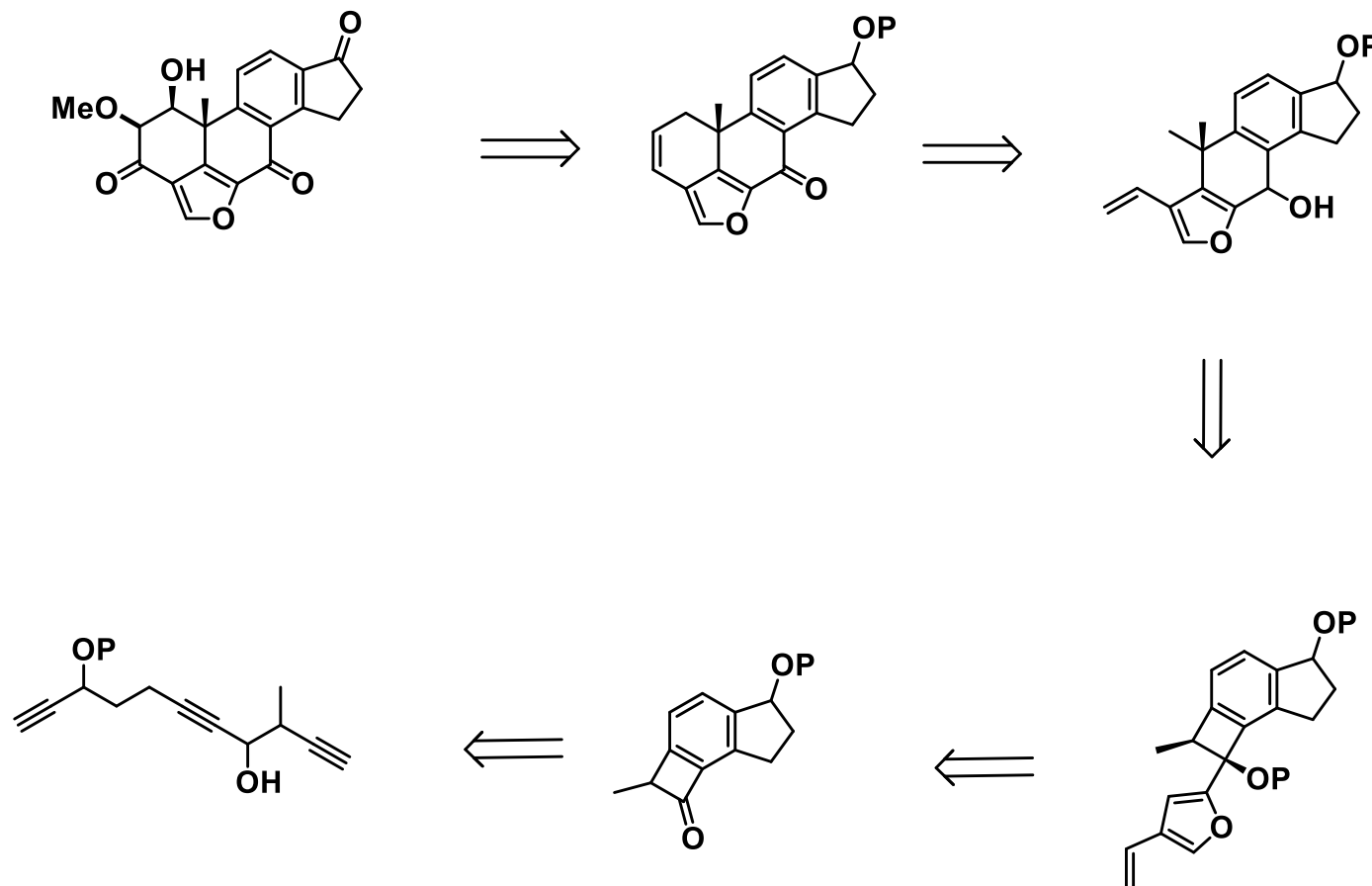
Synthesis by Luo



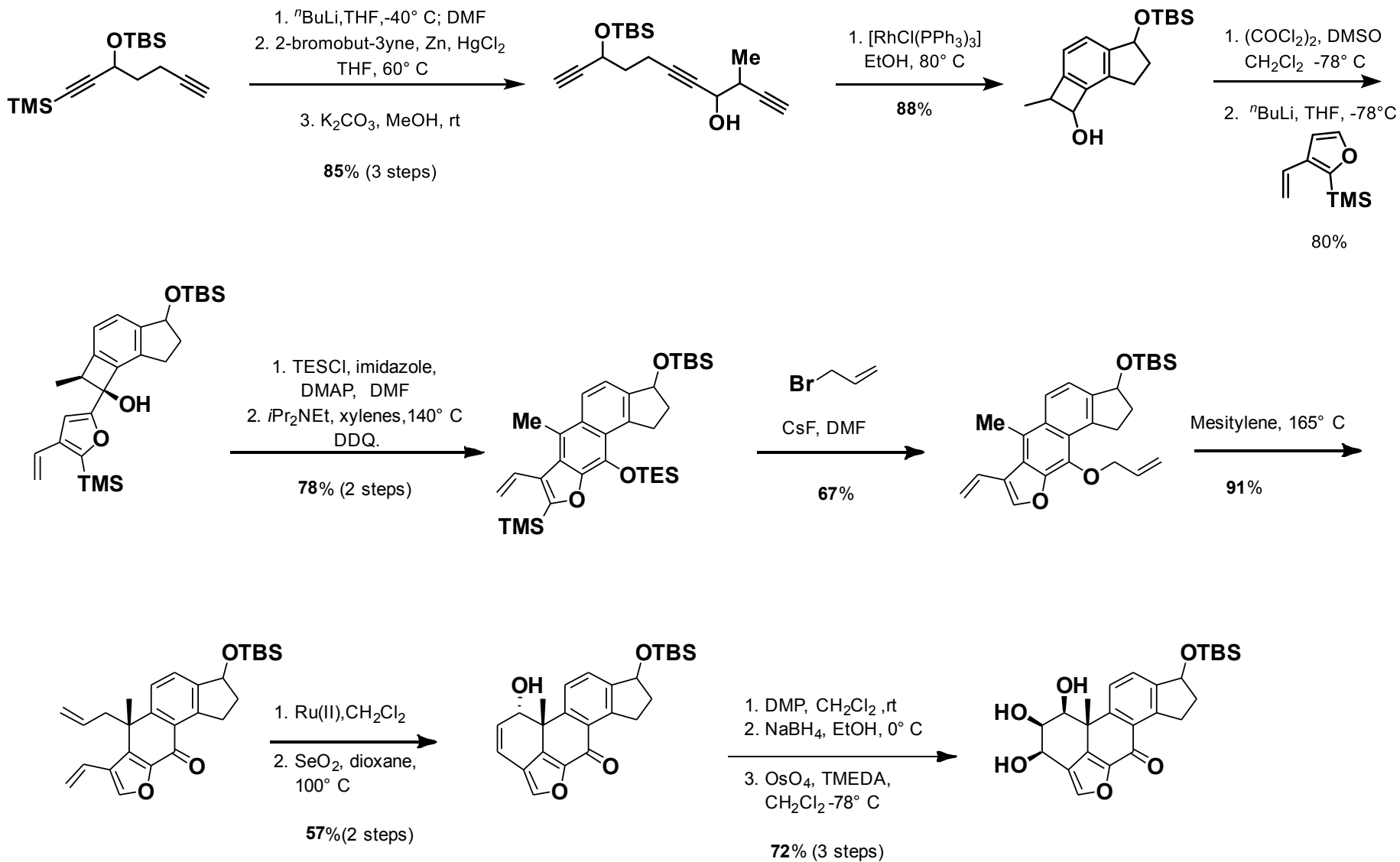
Synthesis by Luo



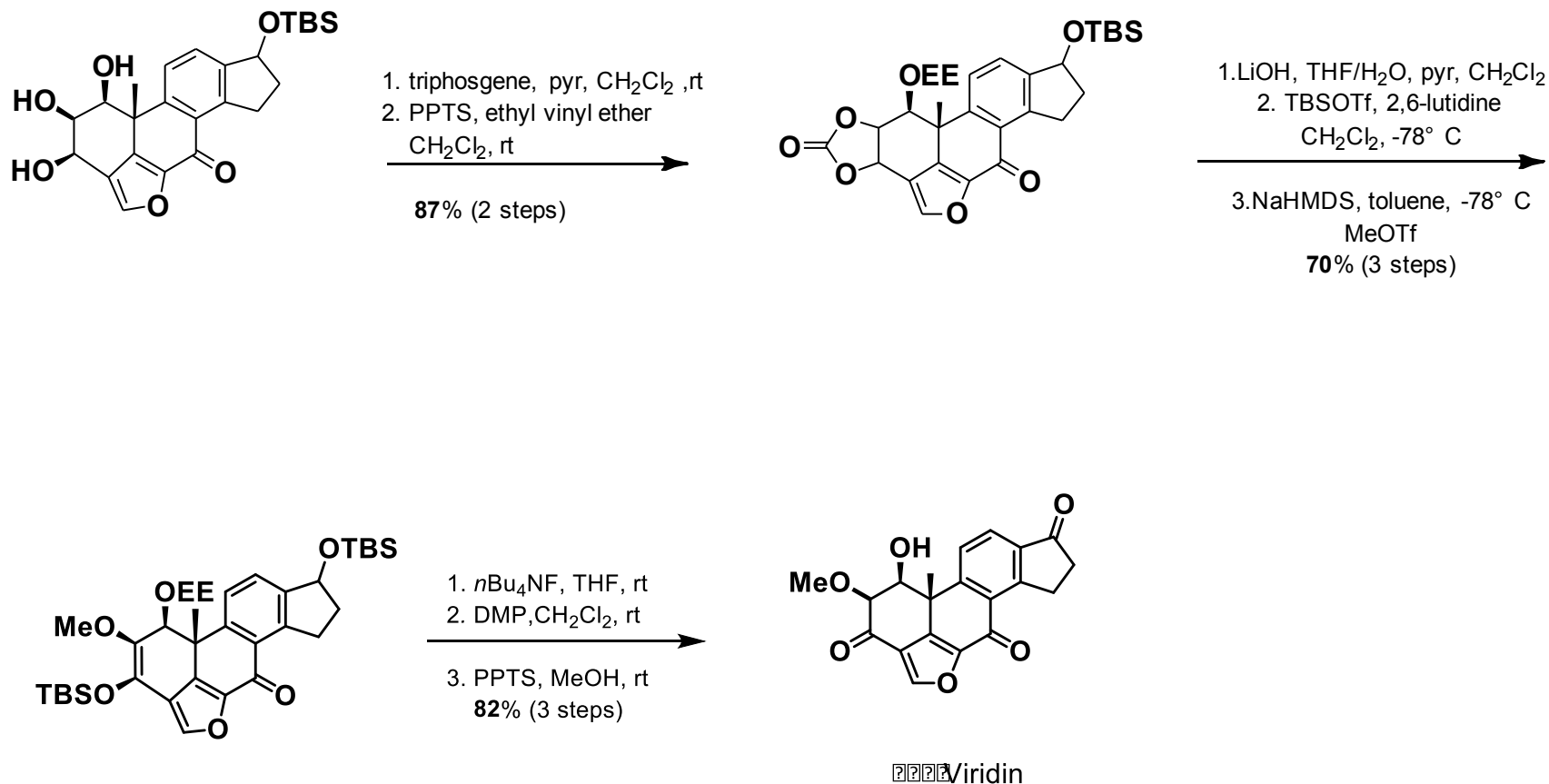
Retrosynthesis of Viridin



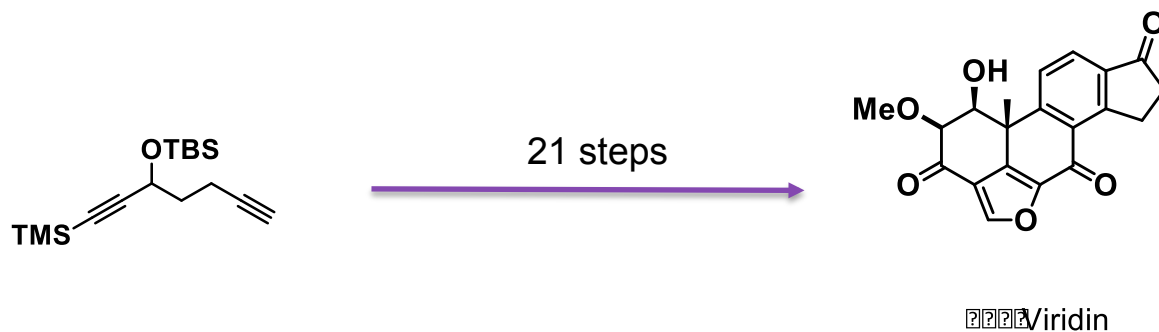
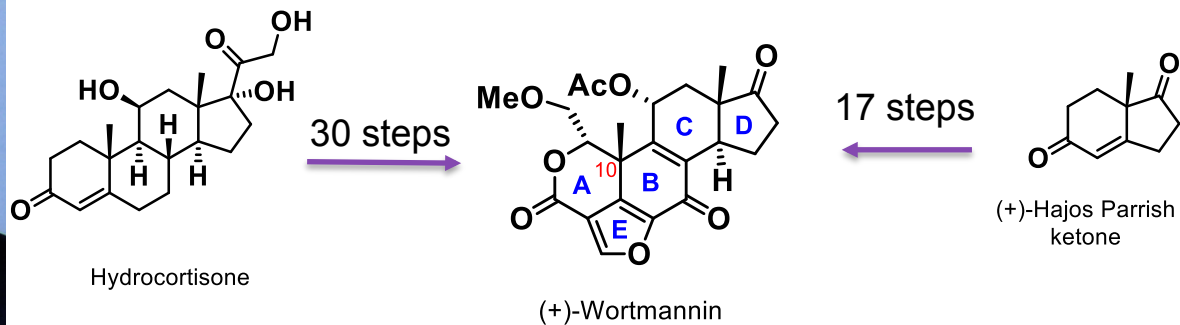
Synthesis of Viridin



Synthesis of Viridin



Summary



Guo, Y.; Quan, T.; Luo, T. *J. Am. Chem. Soc.* **2017**, *139*, 6815–6818

Sato, S.; Nakada, M.; Shibasaki, M. *Tetrahedron Lett.* **1996**, *37*, 6141-6144.

Anderson, E. A.; Alexanian, E. J.; Sorenson, E. J. *Angew.Chem.Int.Ed.* **2004**, *43*, 1998–2001