Convergent Route to *ent*-Kaurane Diterpenoids: Total Synthesis of Lungshengenin D and 1α6α-Diacetoxy-*ent*-kaura-9(11),16-dien-12,15-dione

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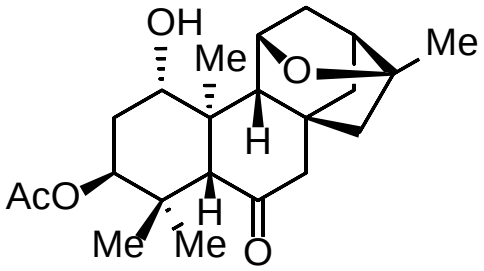
Presented by: Chris Peruzzi



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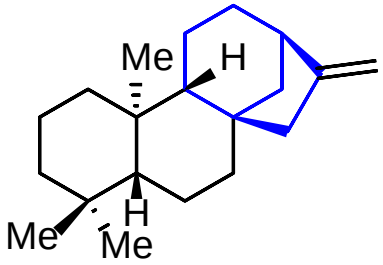
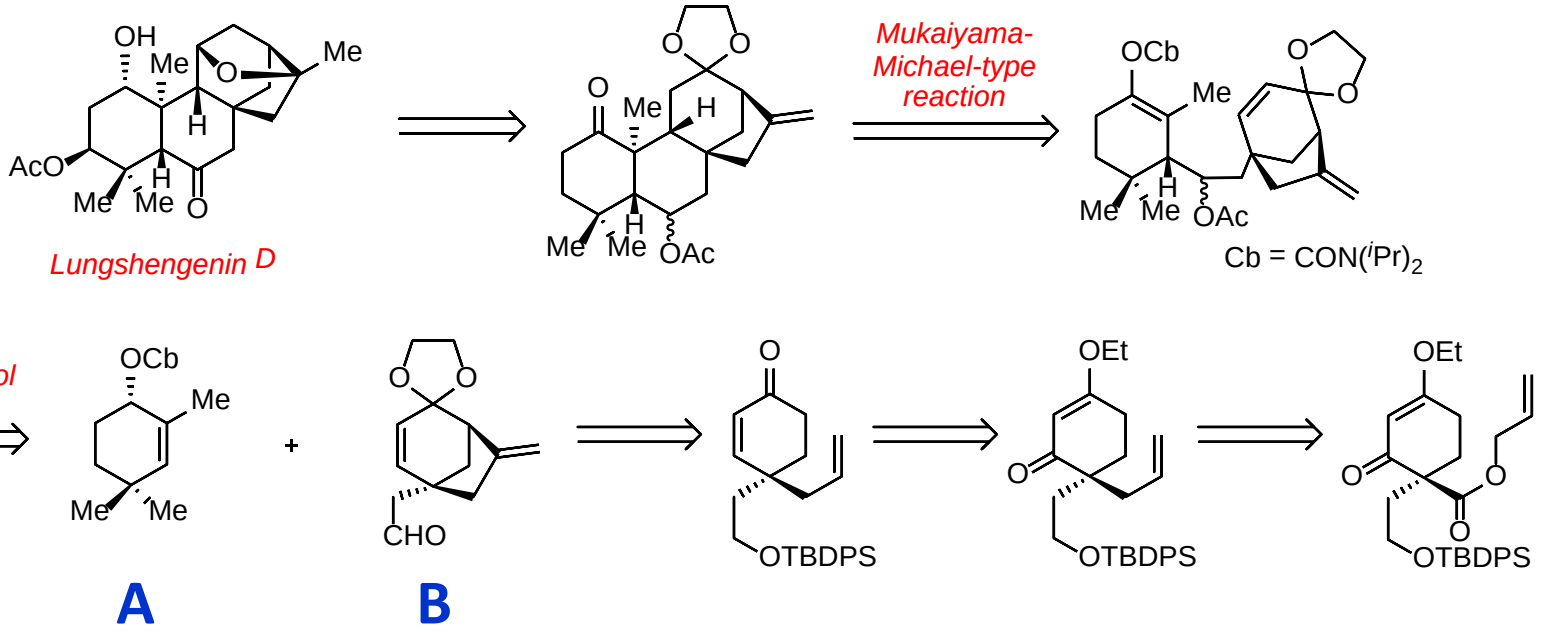
Ent-kaurane Diterpenoids

- Discovered in 1961 in Kauri trees of New Zealand
- >1000 *ent*-kauranes isolated
- Preliminary studies show anti-tumor, anti-infective and immunosuppressive properties of these natural products

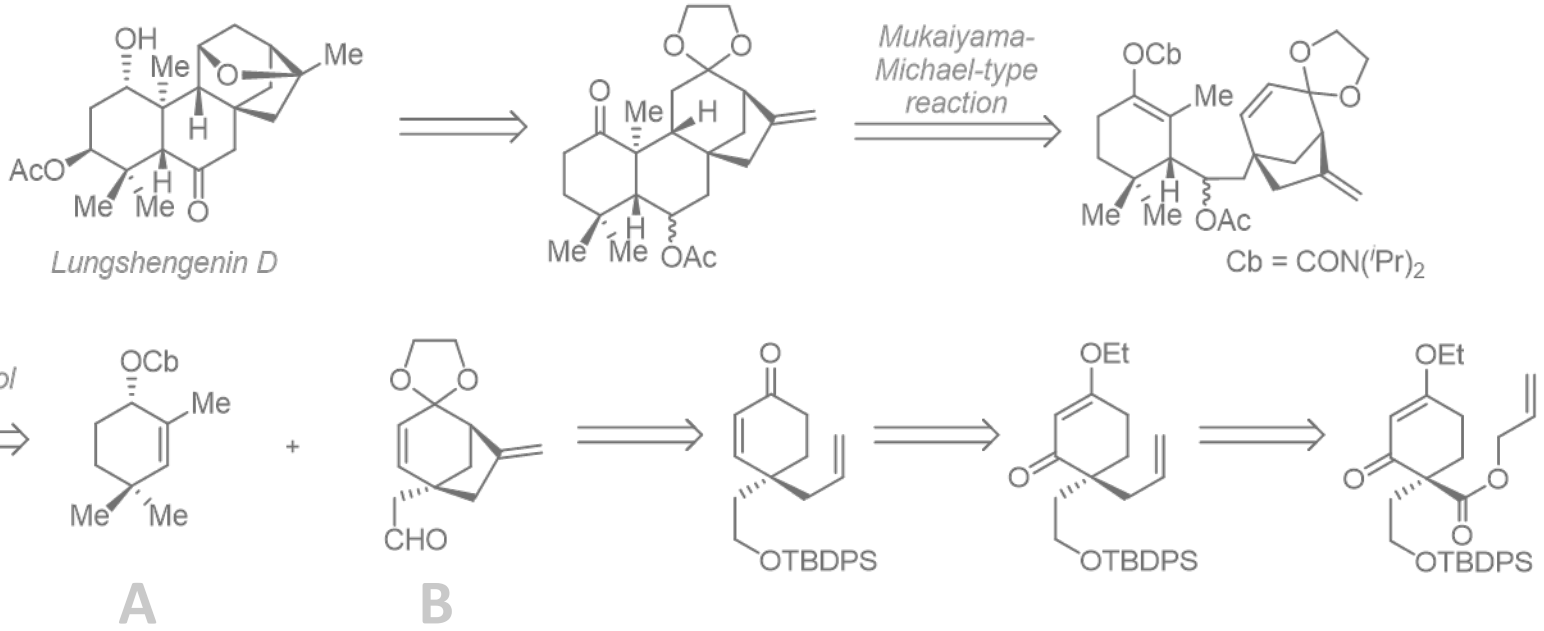


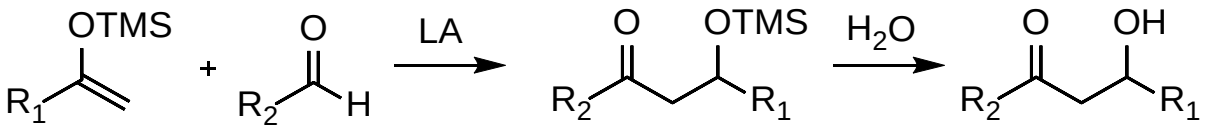
ent-kaurane

Retrosynthetic Analysis



Retrosynthetic Analysis





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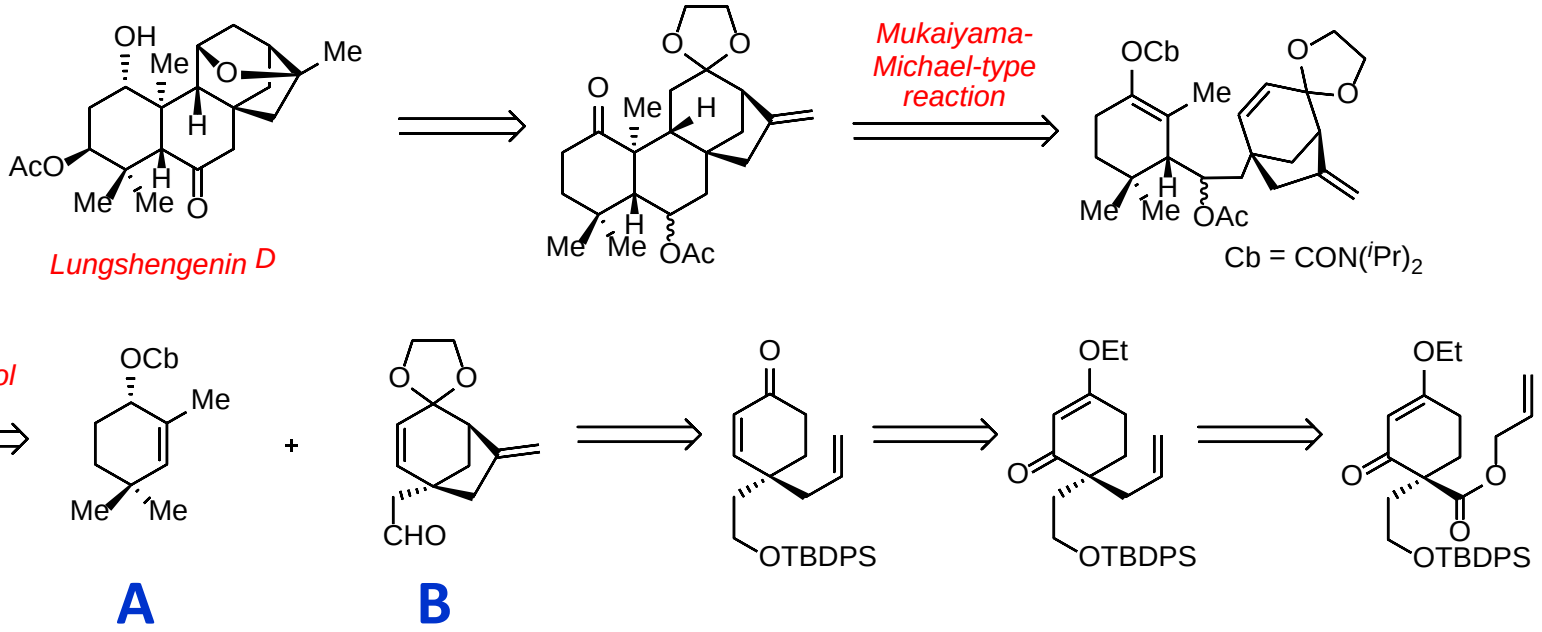
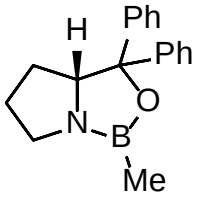
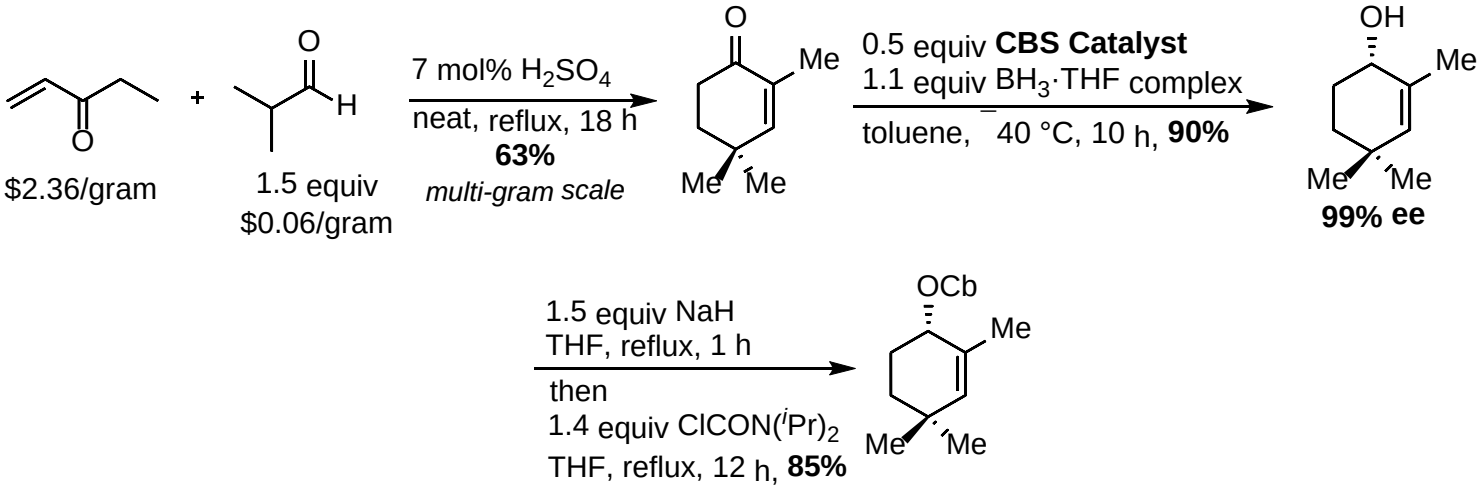


Making Synthon A

CBS Catalyst



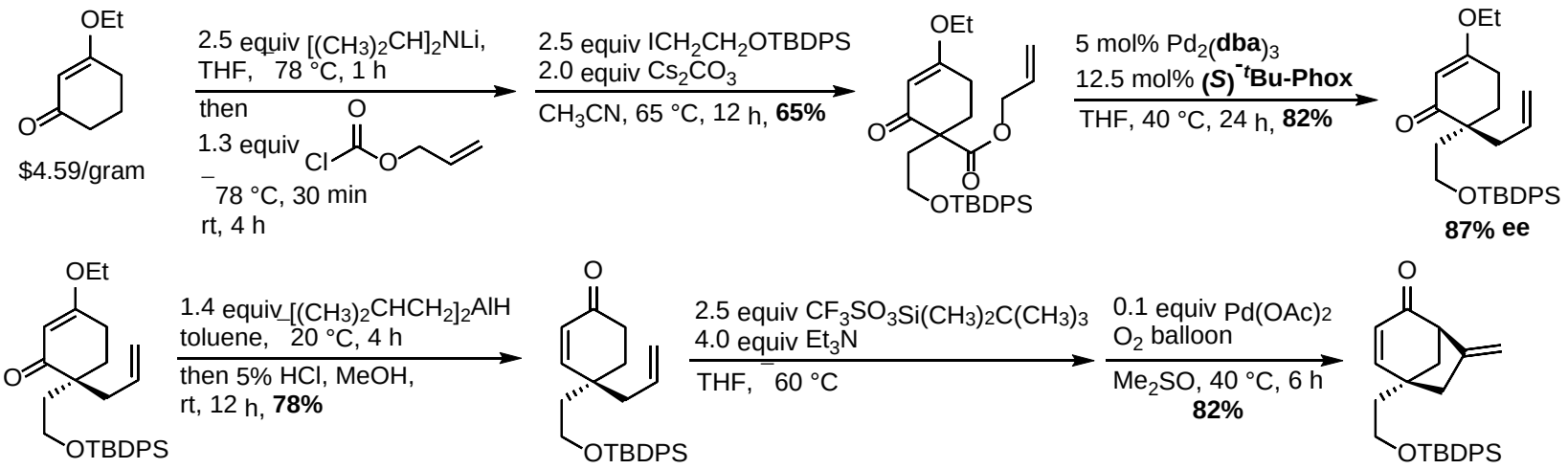


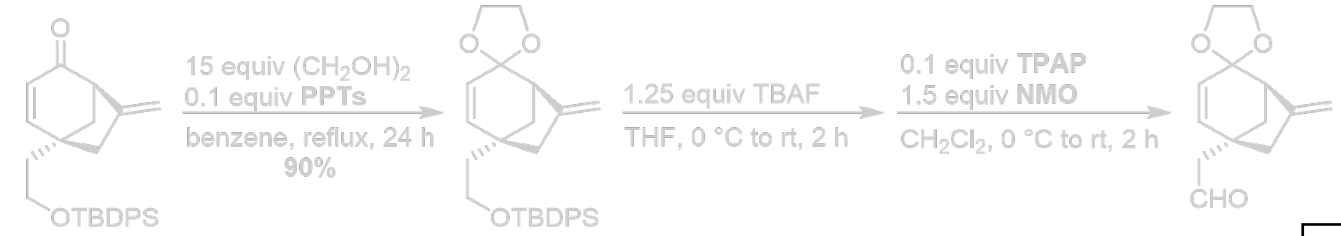
$2.36/gram

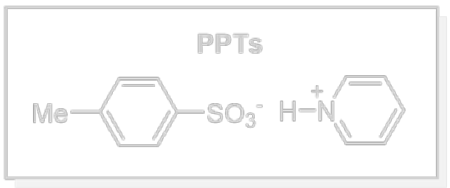
1.5 equiv
$0.06/gram

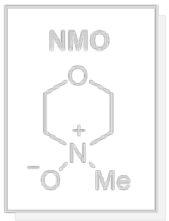
Paquette, L. A.; Oplinger, J. A. *Tetrahedron.* **1989**, 45 (1), 107-124.

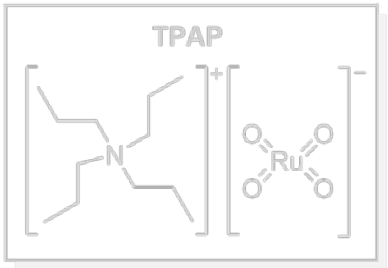
Making Synthon B

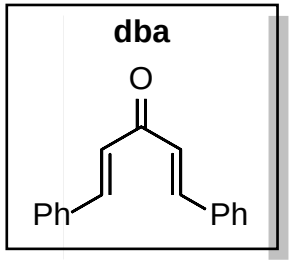


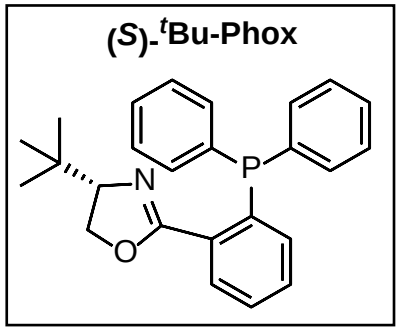




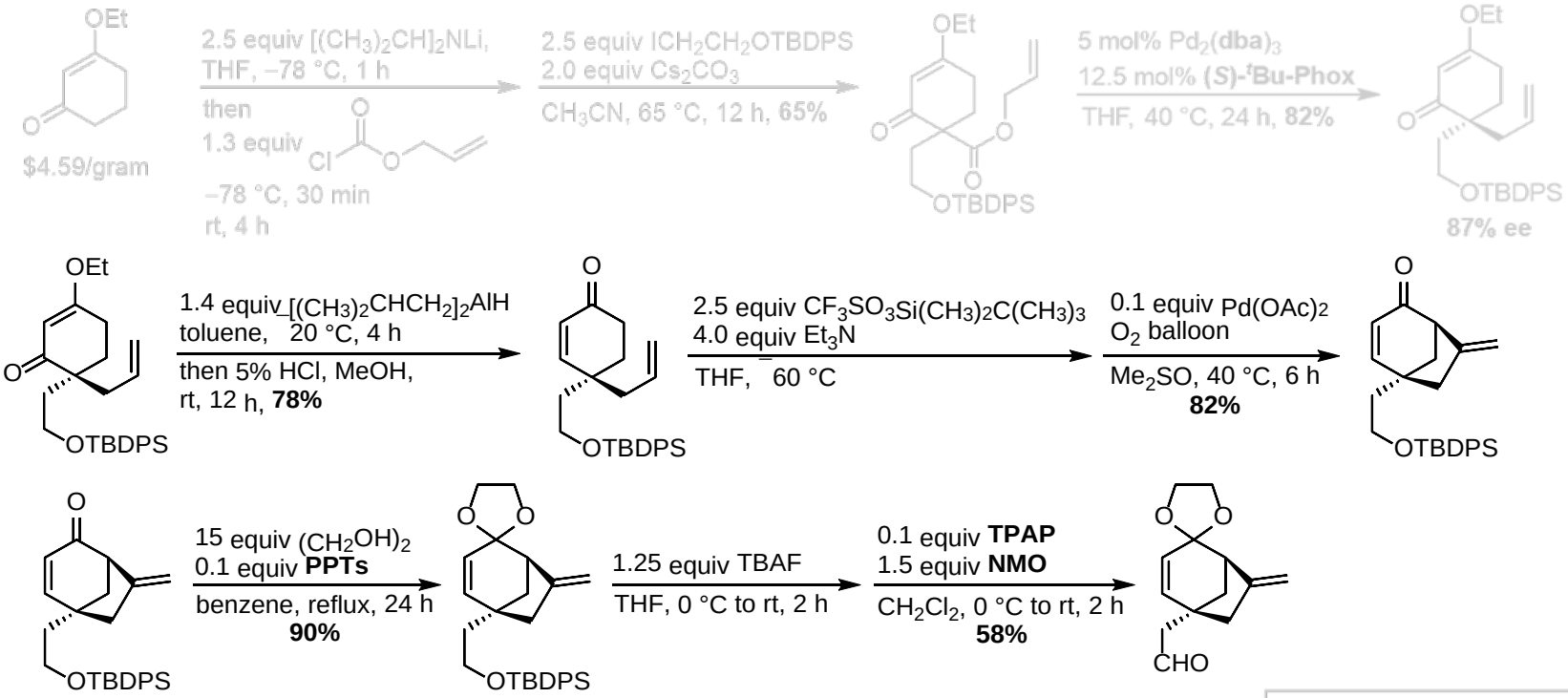


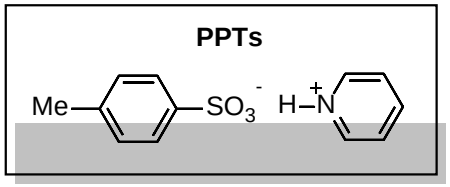


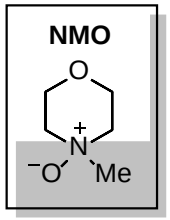


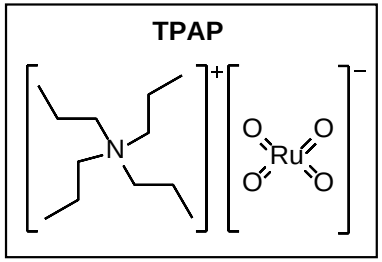


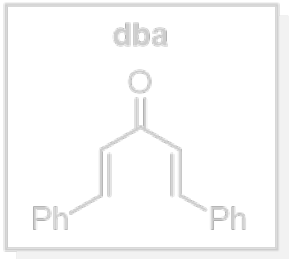
Making Synthon B

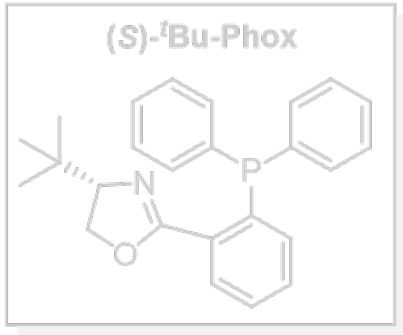




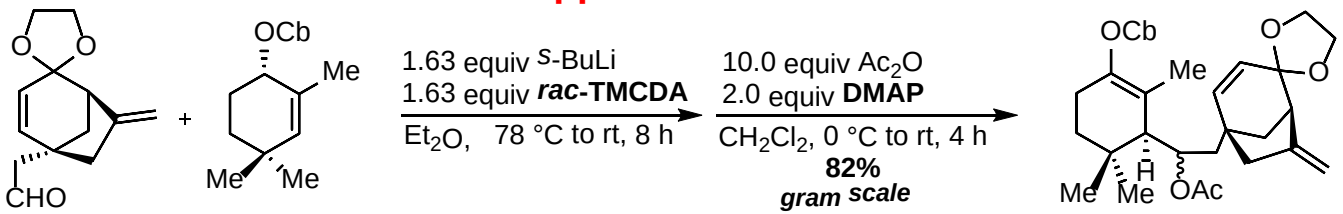




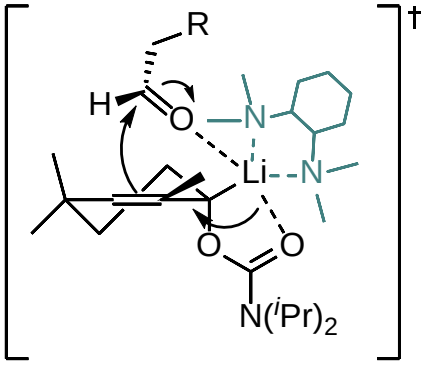


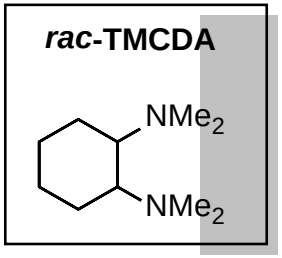


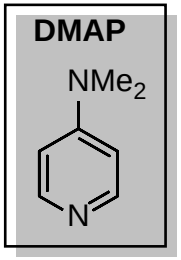
Hoppe's Homoaldol



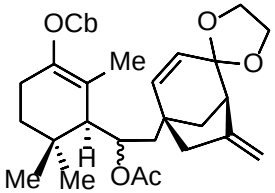
dr = 1.3:1

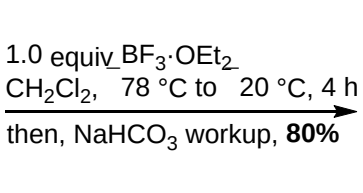


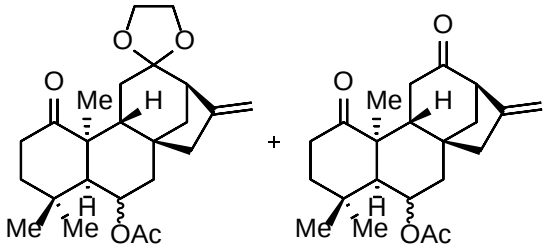




Mukaiyama-Michael type reaction

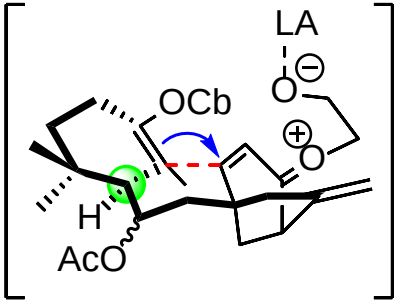




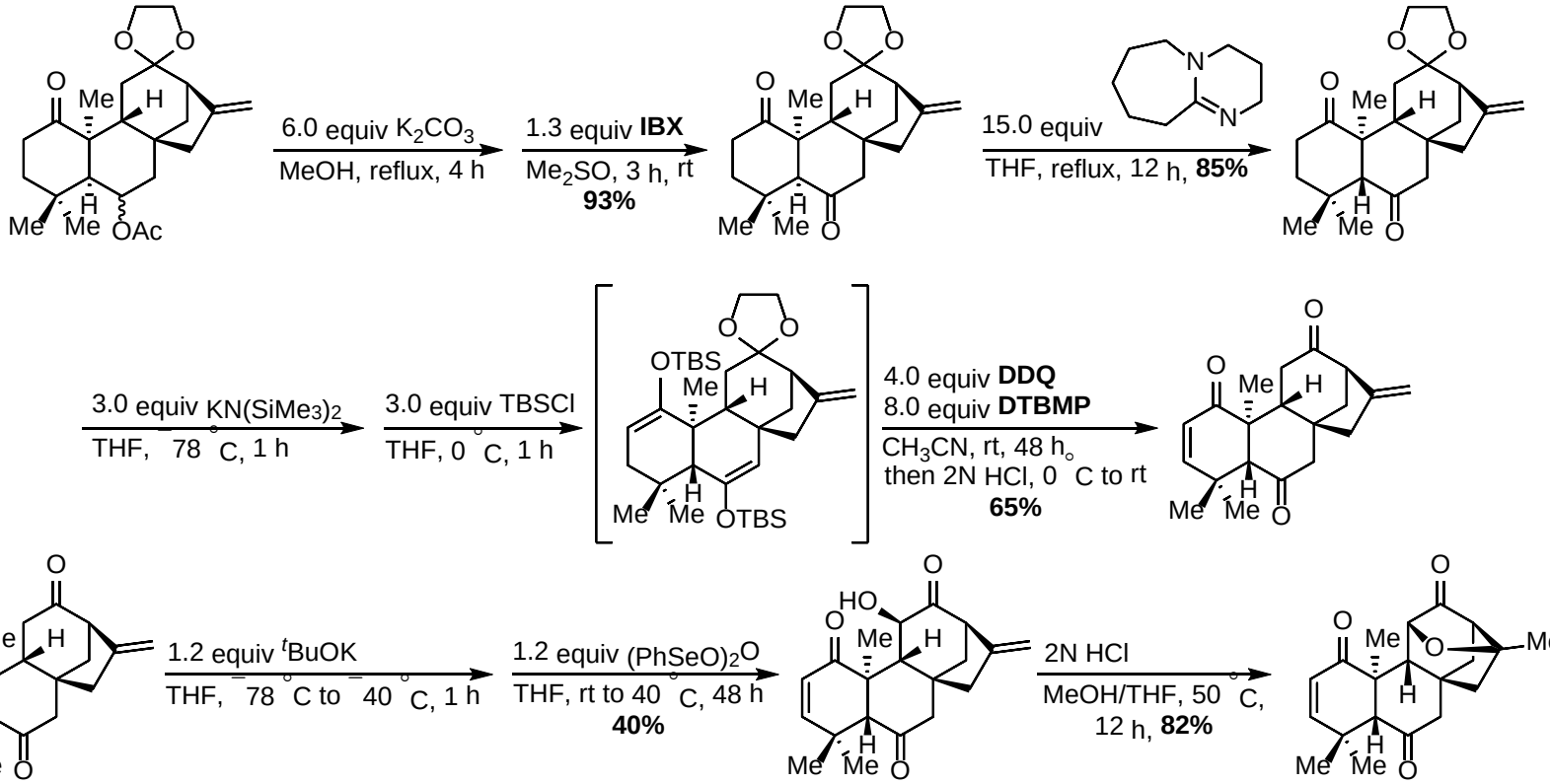


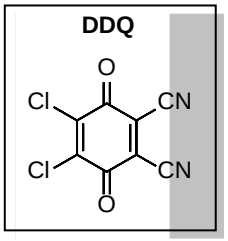
67%, **dr** = 1.3:1

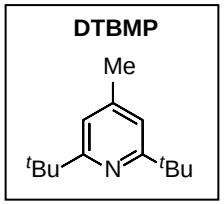
13%, **dr** = 1.3:1

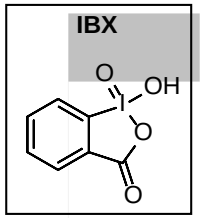


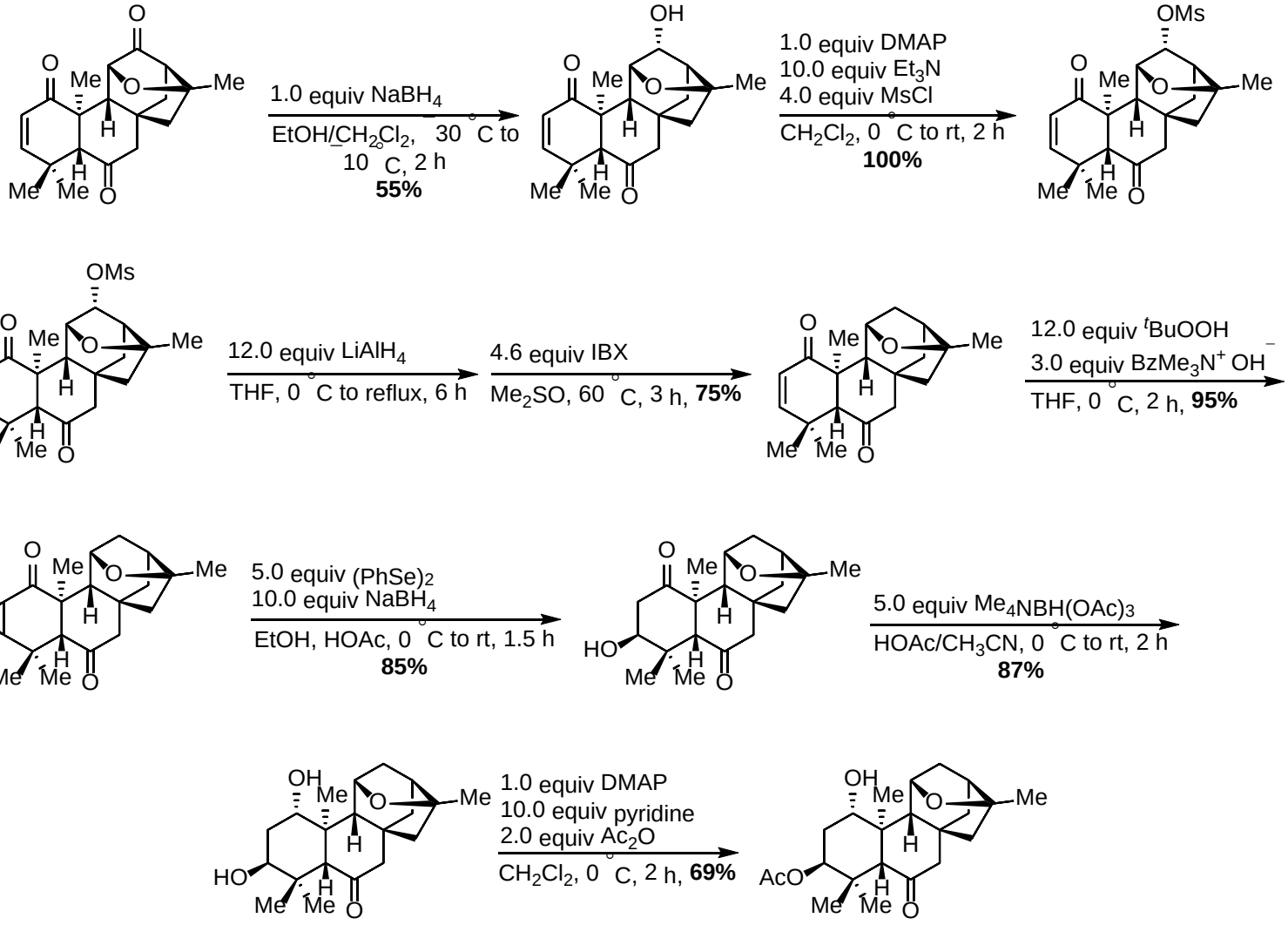
Finishing the Core Structure





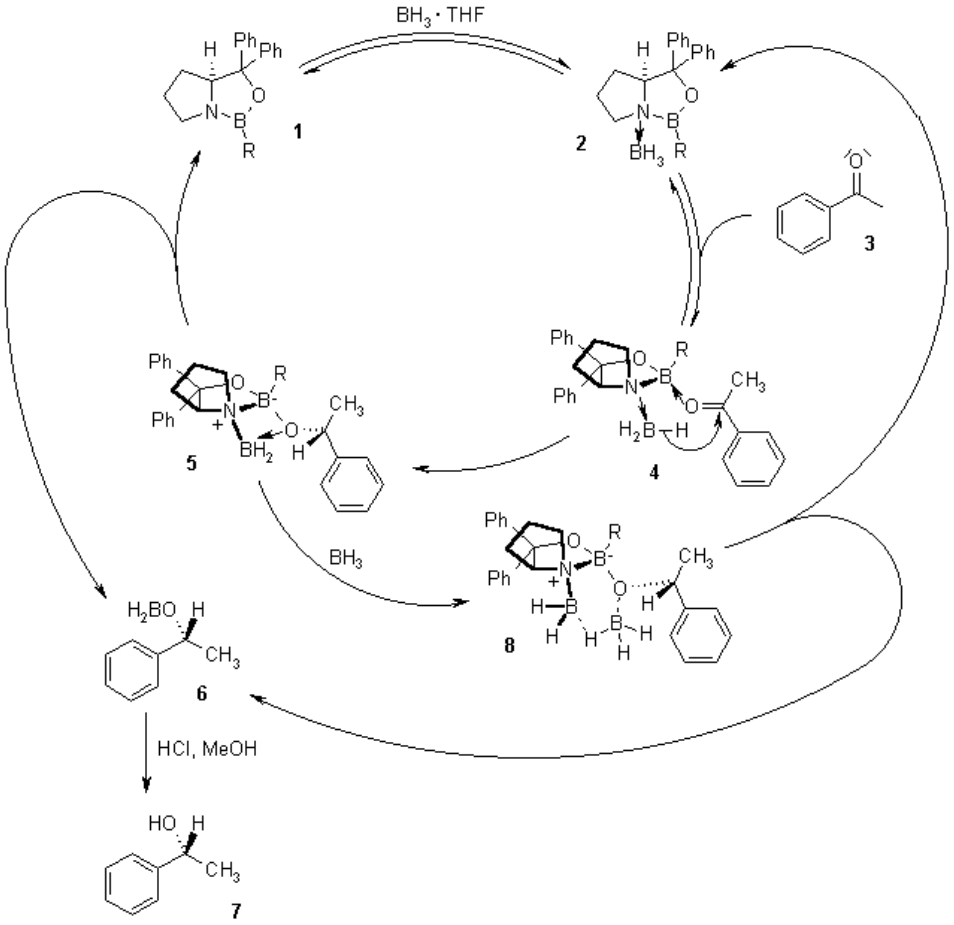






Lungshengenin D

CBS Catalytic Cycle



https://www.organic-chemistry.org/namedreactions/corey-bakshi-shibata-reduction.shtm