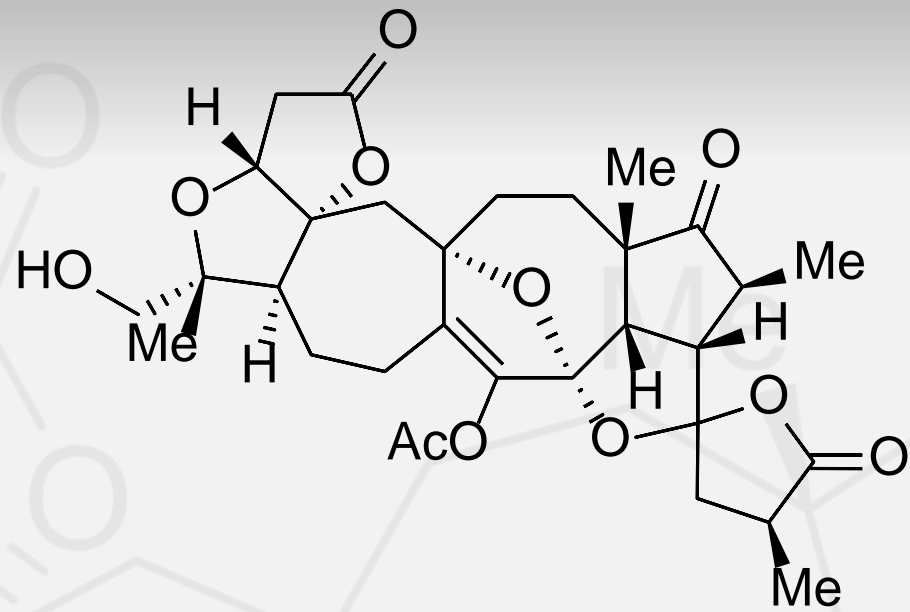




***Asymmetric Total Synthesis of
Lancifodilactone G Acetate***

Zhen Y. et al.

Thomas Oleskey



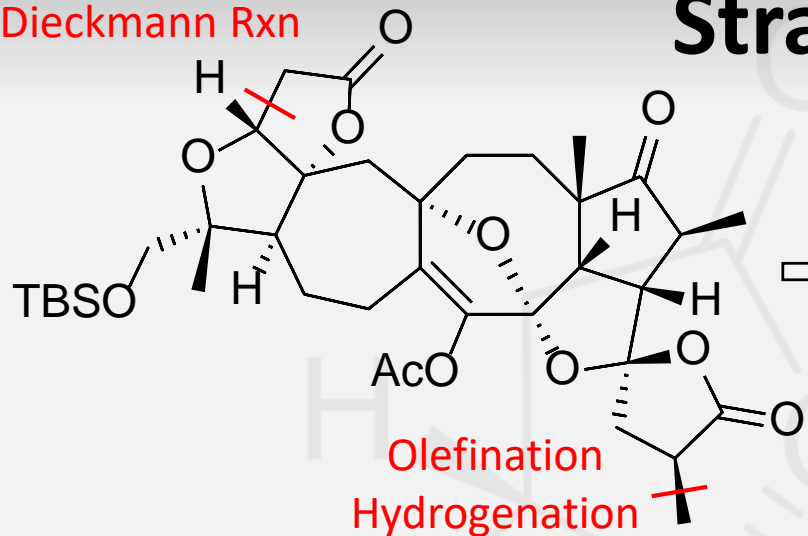
Lancifodilactone G Acetate

- Schisandra (Magnolia vine) is a genus of woody vines native to China and North America.
- It is not a true magnolia.
- Used medicinally to treat many ailments. Whether it's snake oil or not, it has had a long history as a traditional medicine.

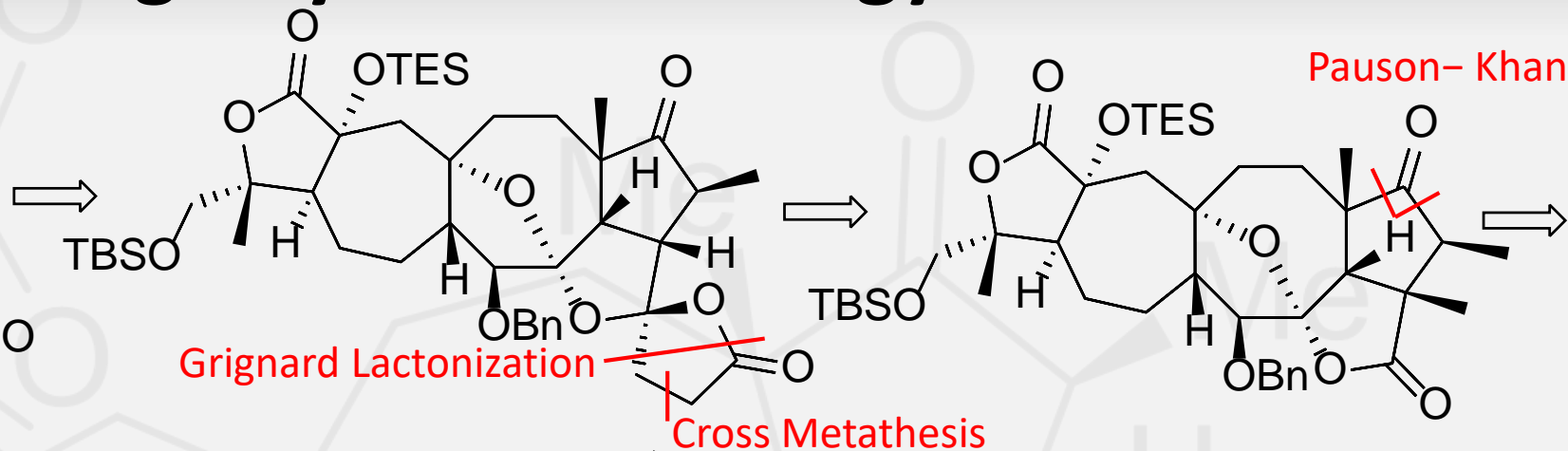


Strategic Synthetic Strategy

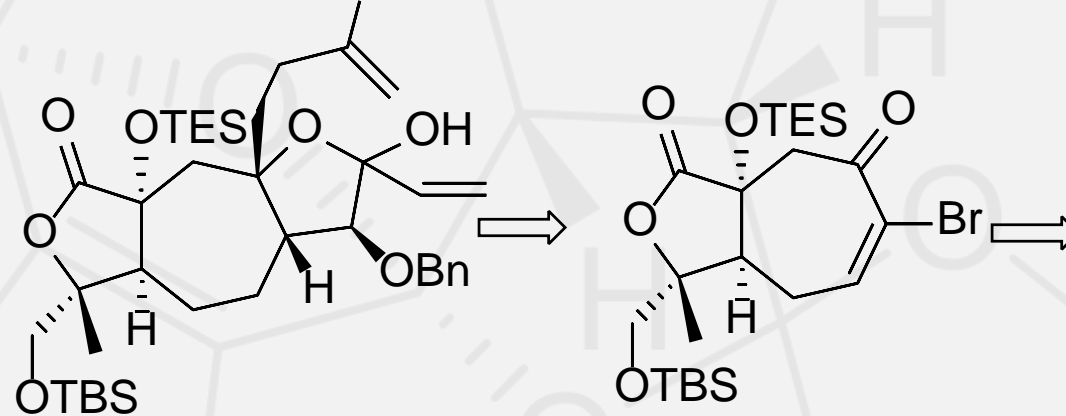
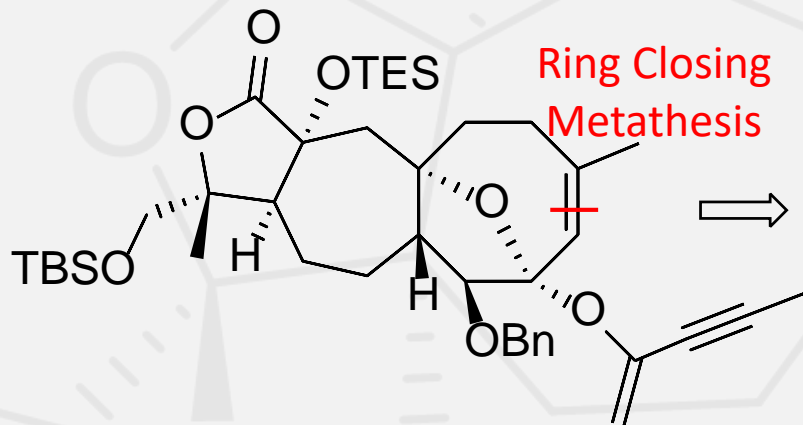
Dieckmann Rxn



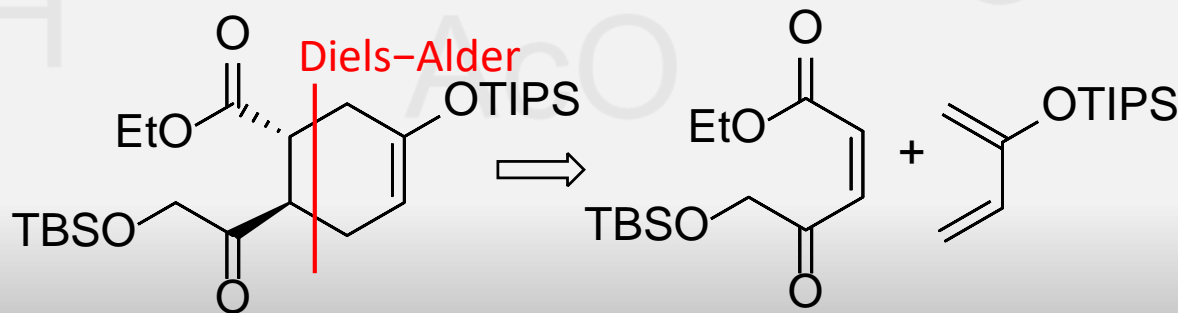
Grignard Lactonization

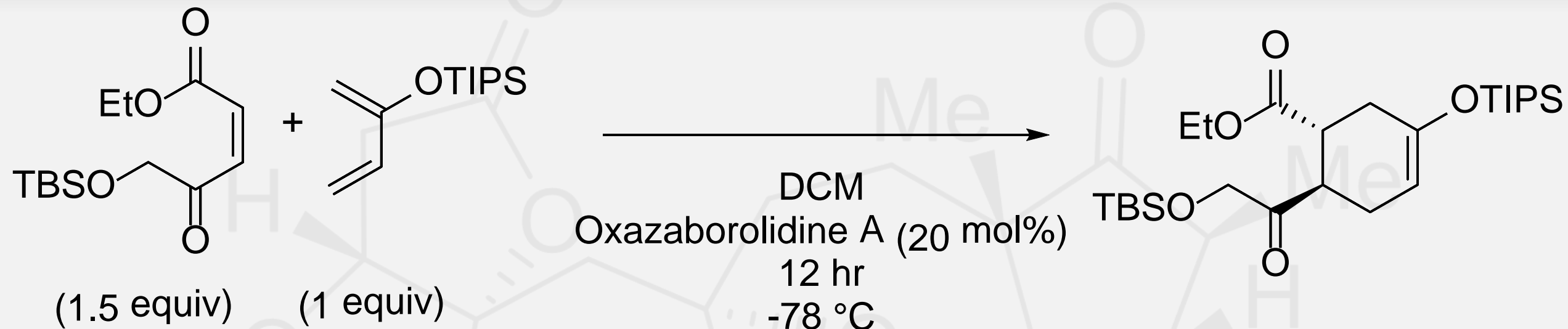


Pauson-Khand

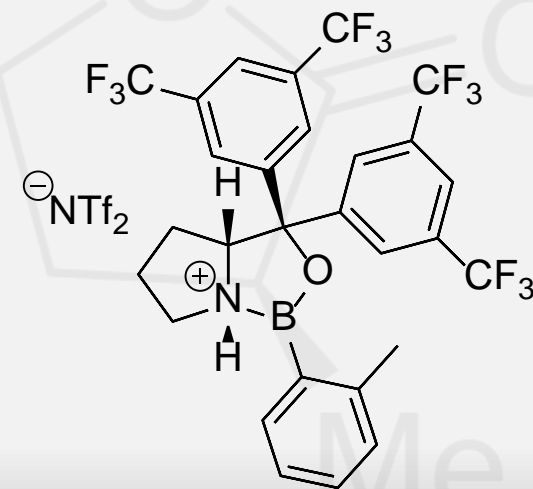


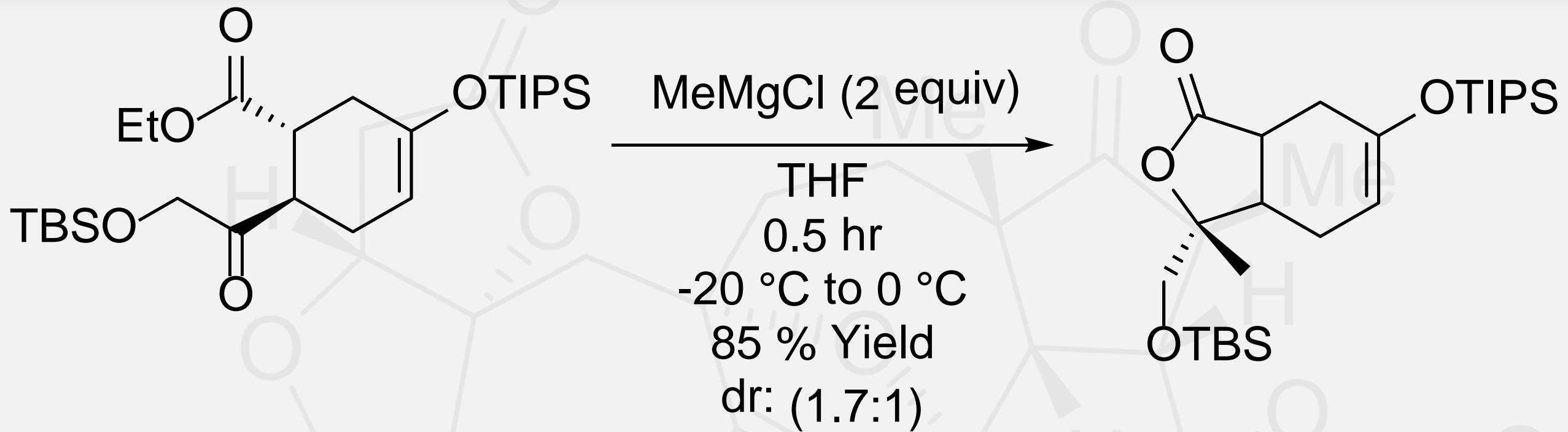
Diels-Alder

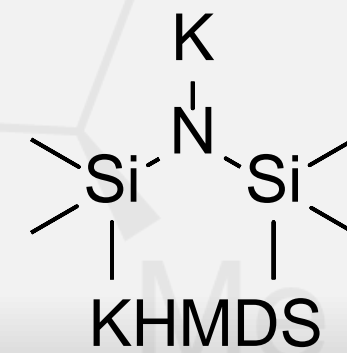
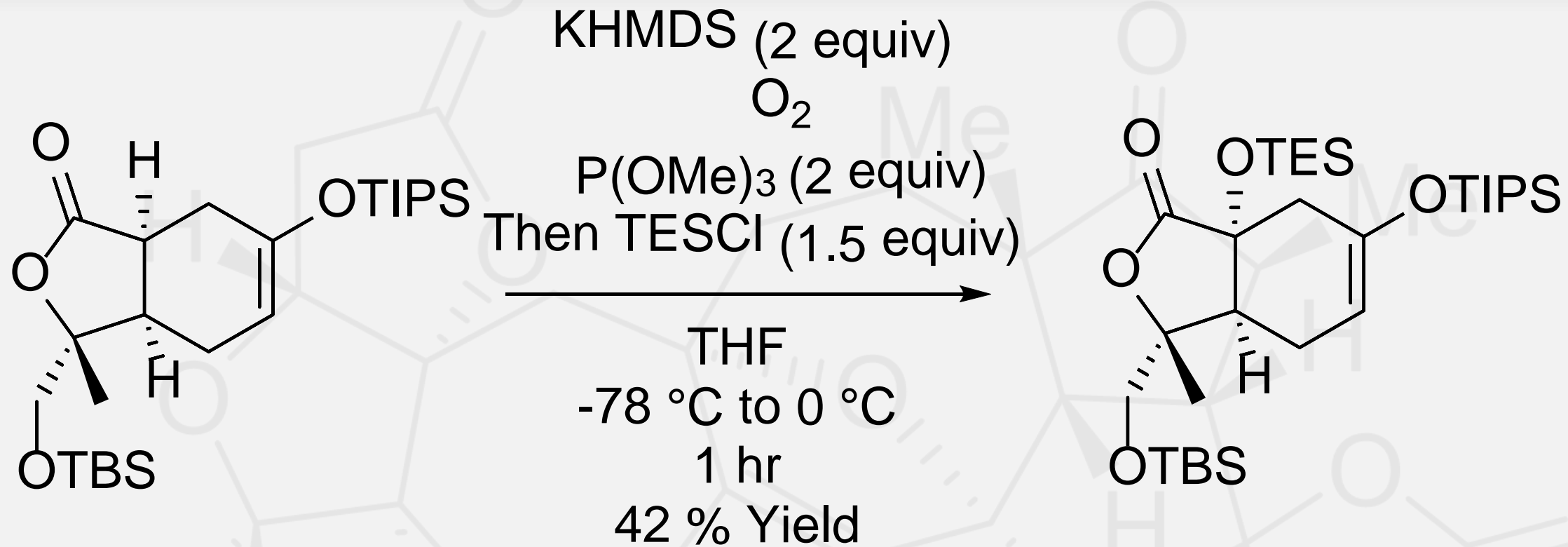


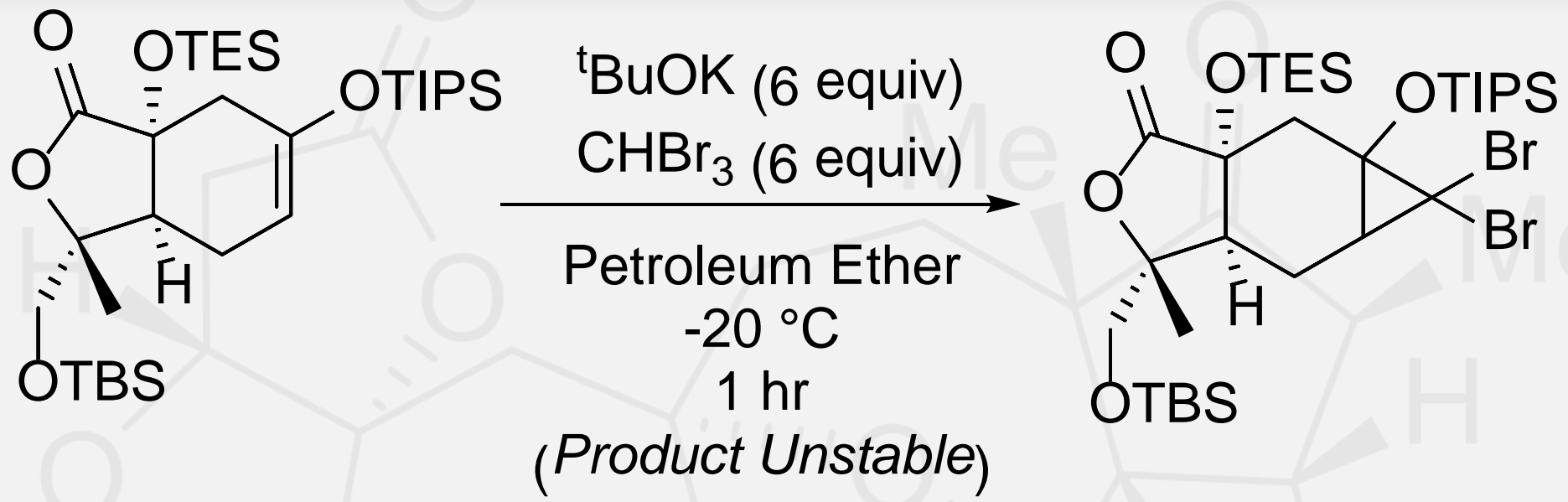


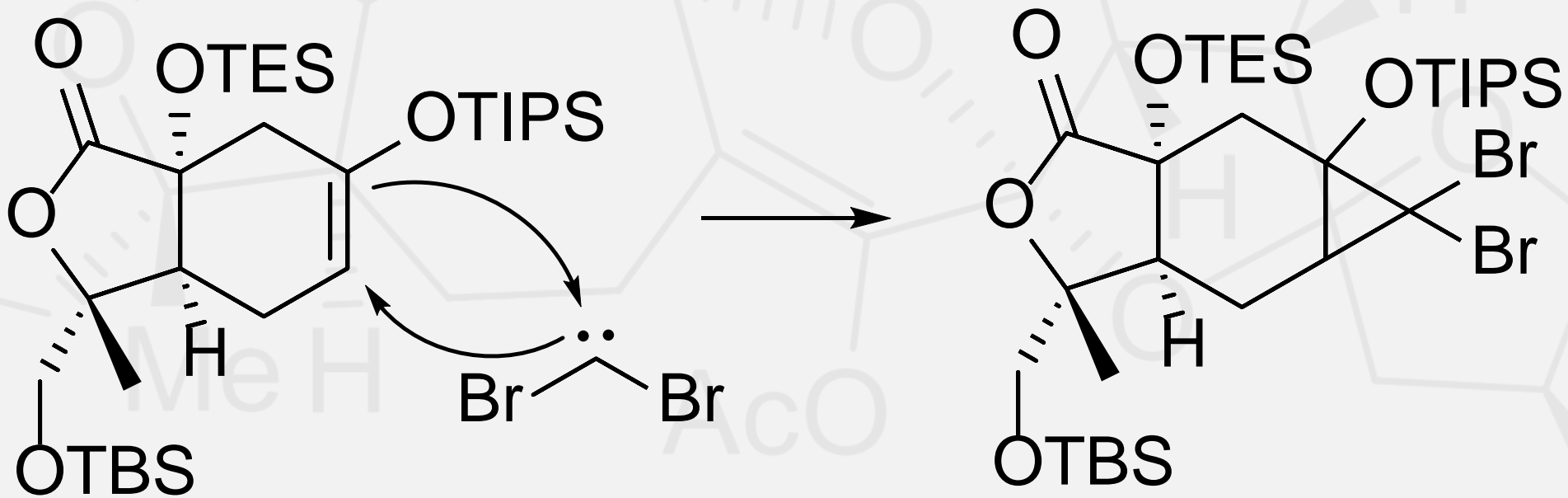
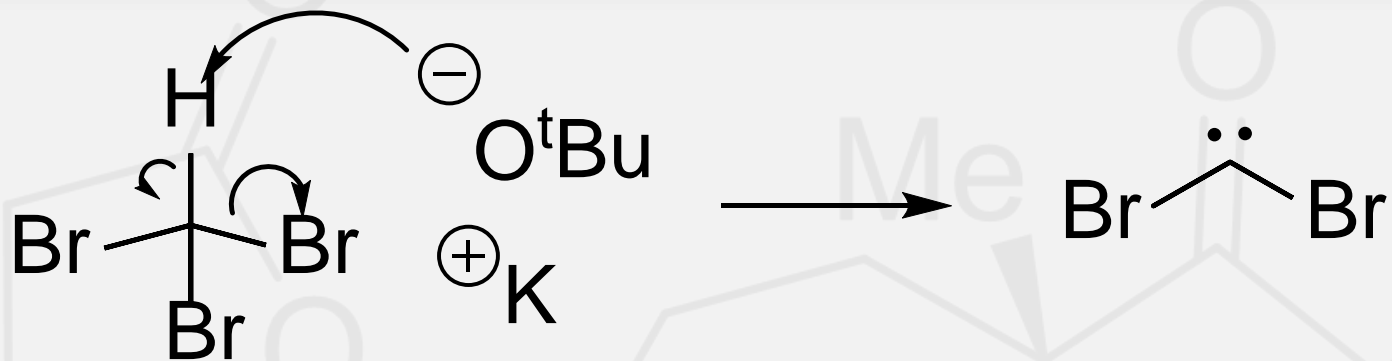
95% Yield
ee = 87%

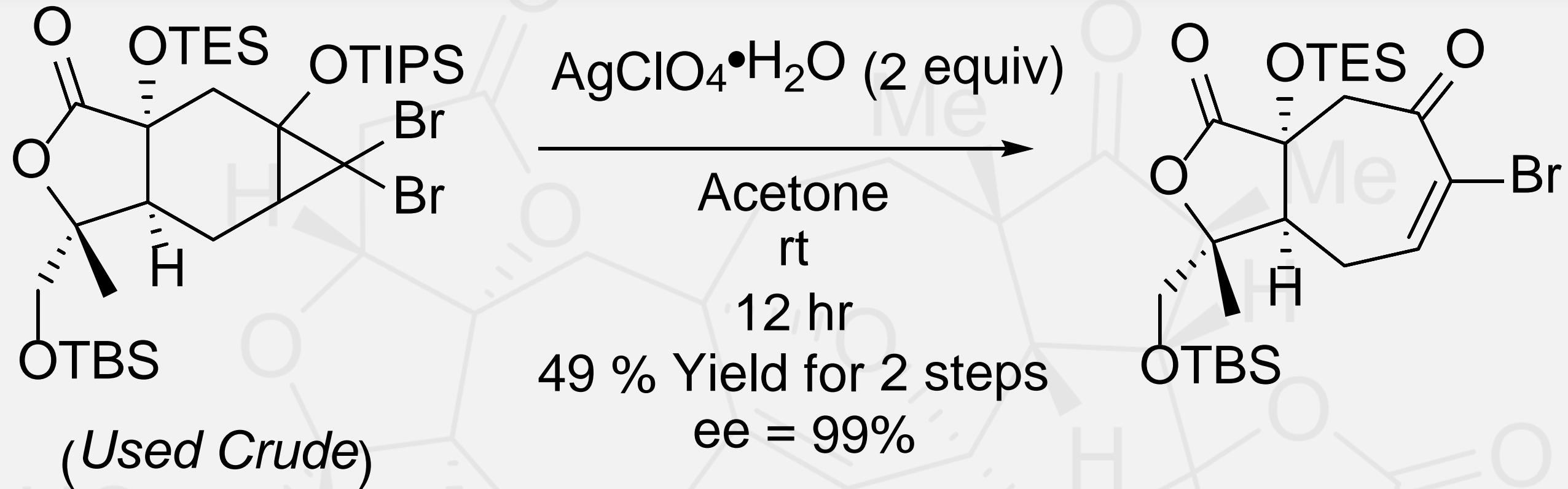


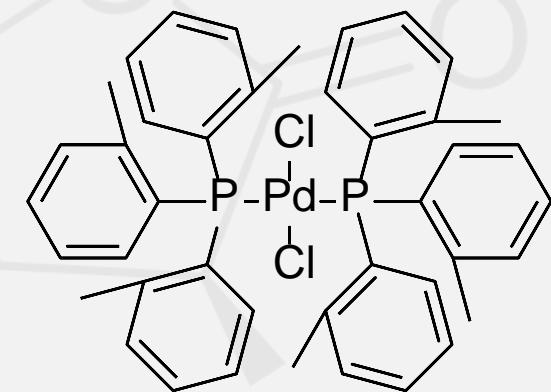
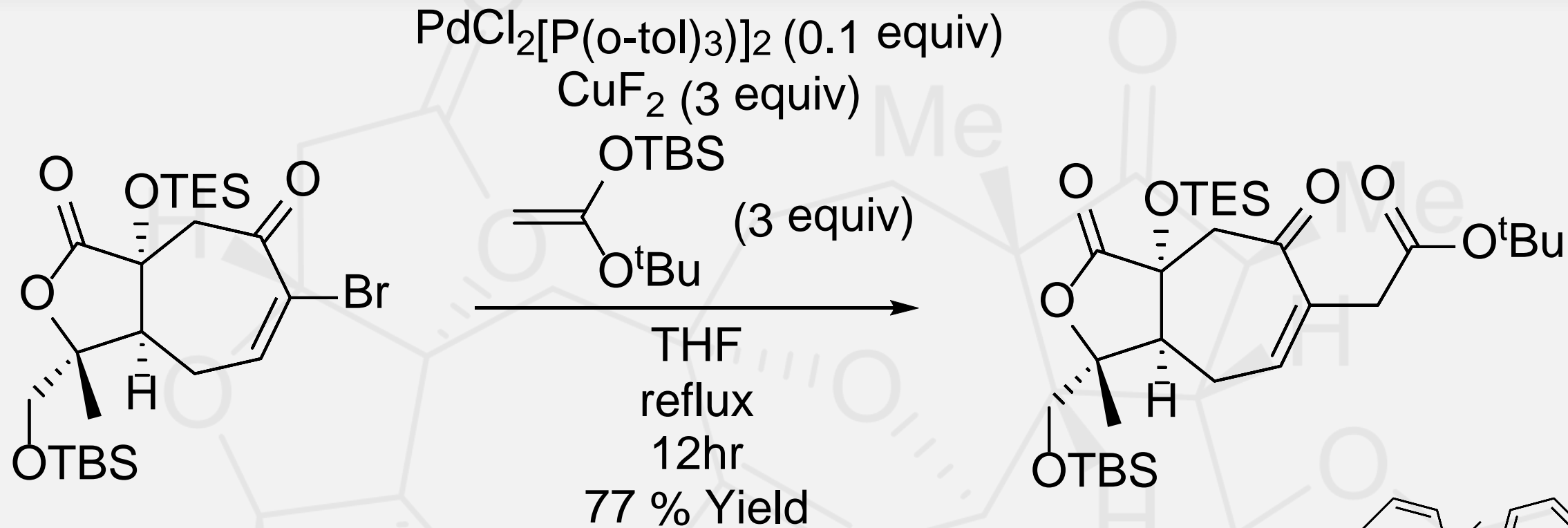


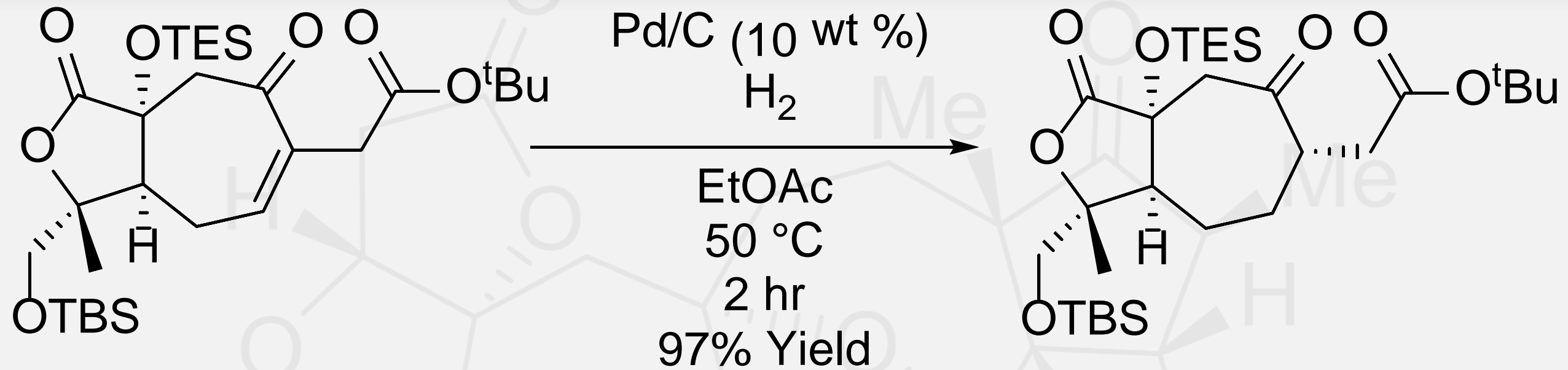


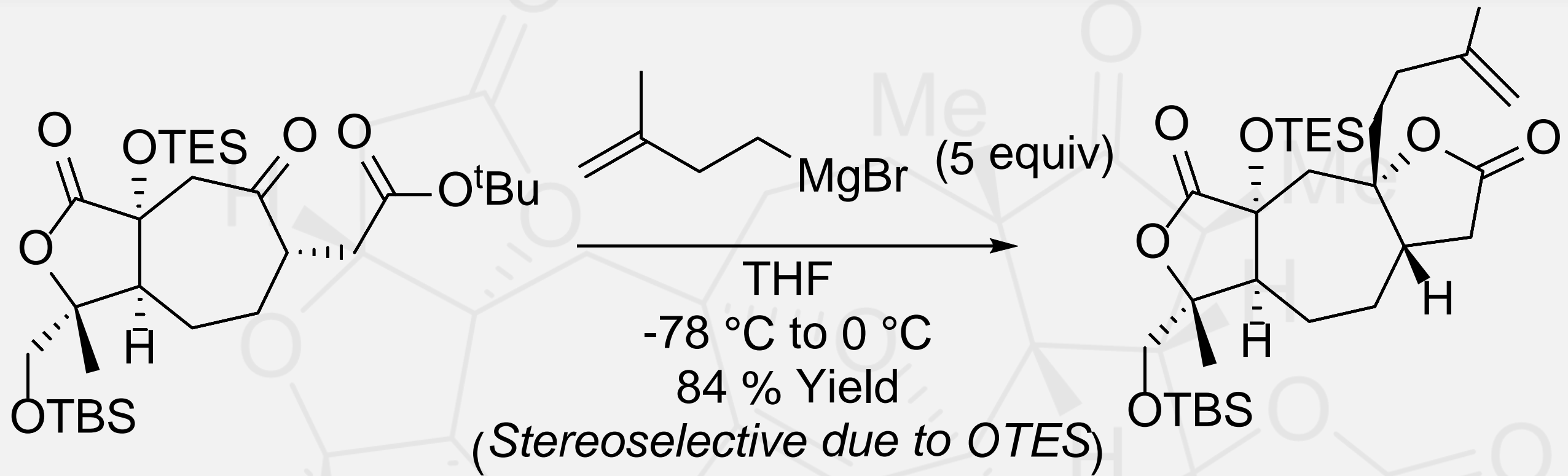


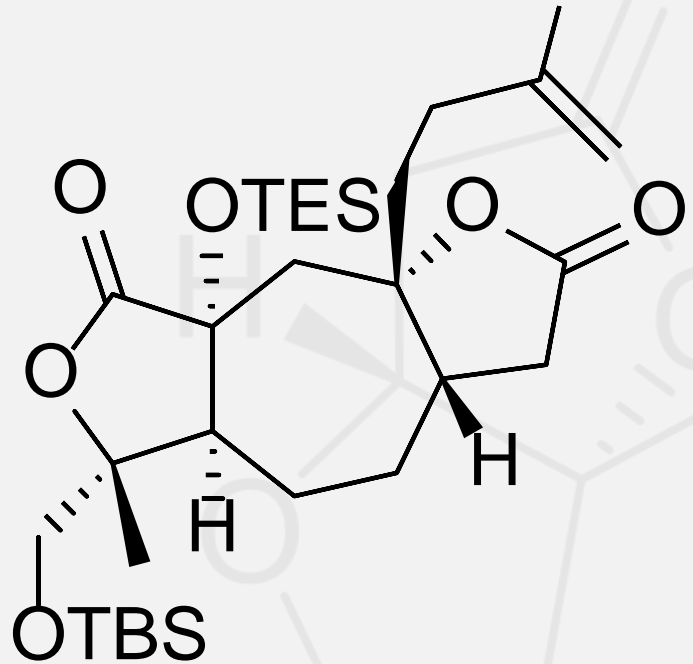






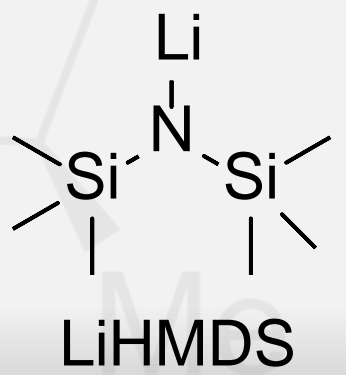
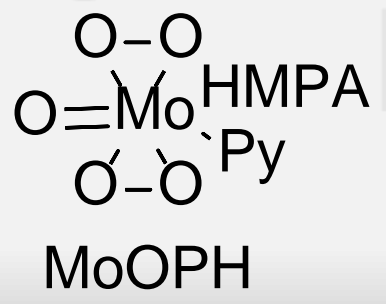
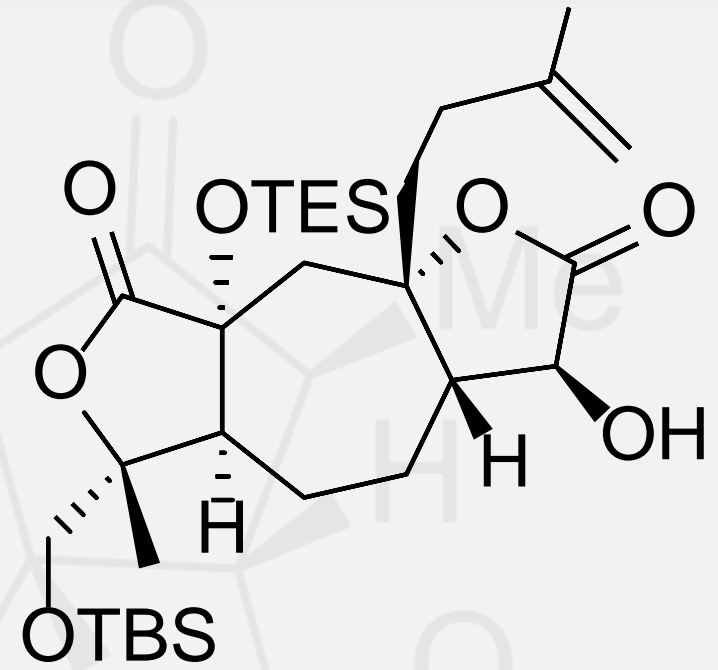


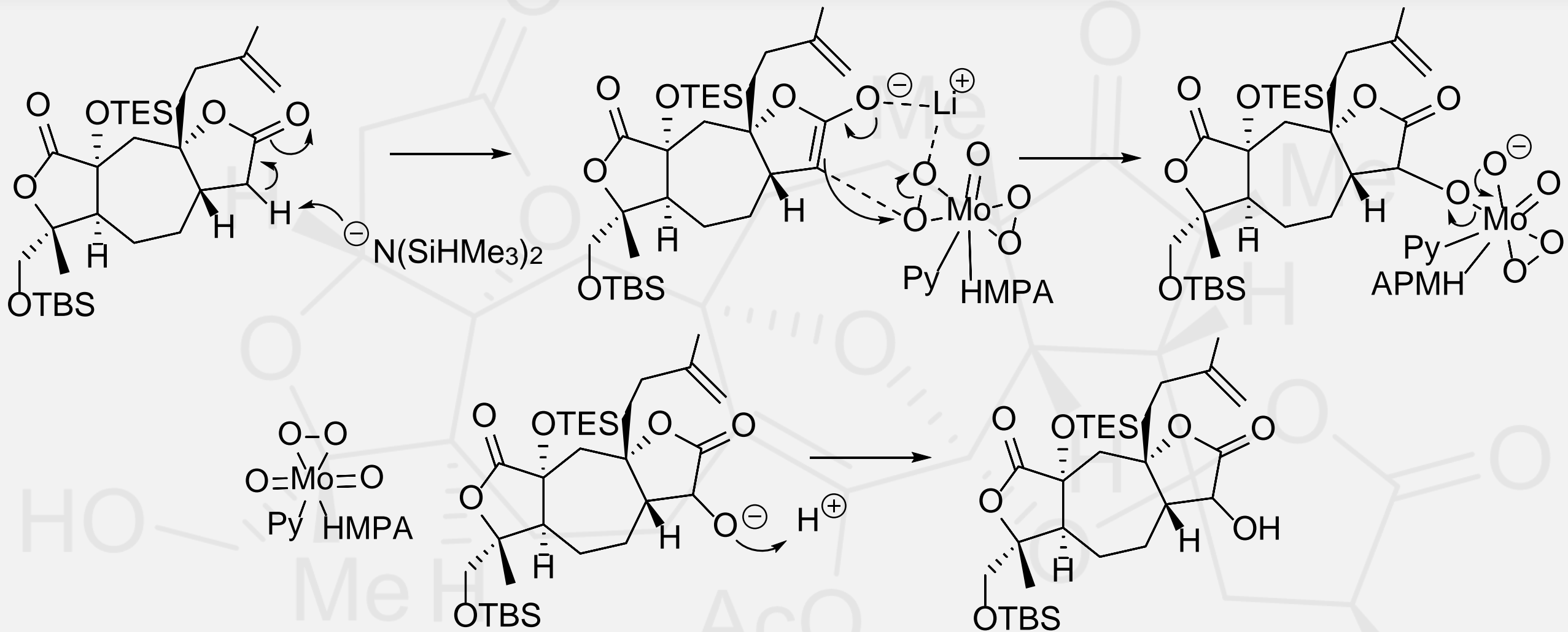


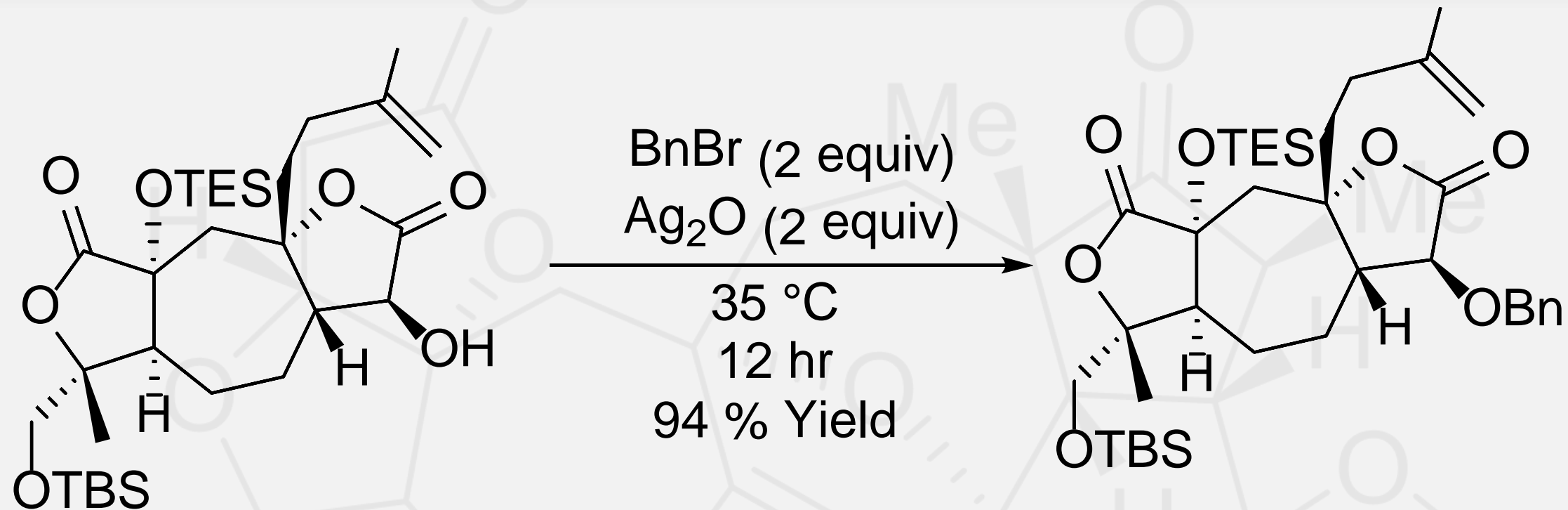


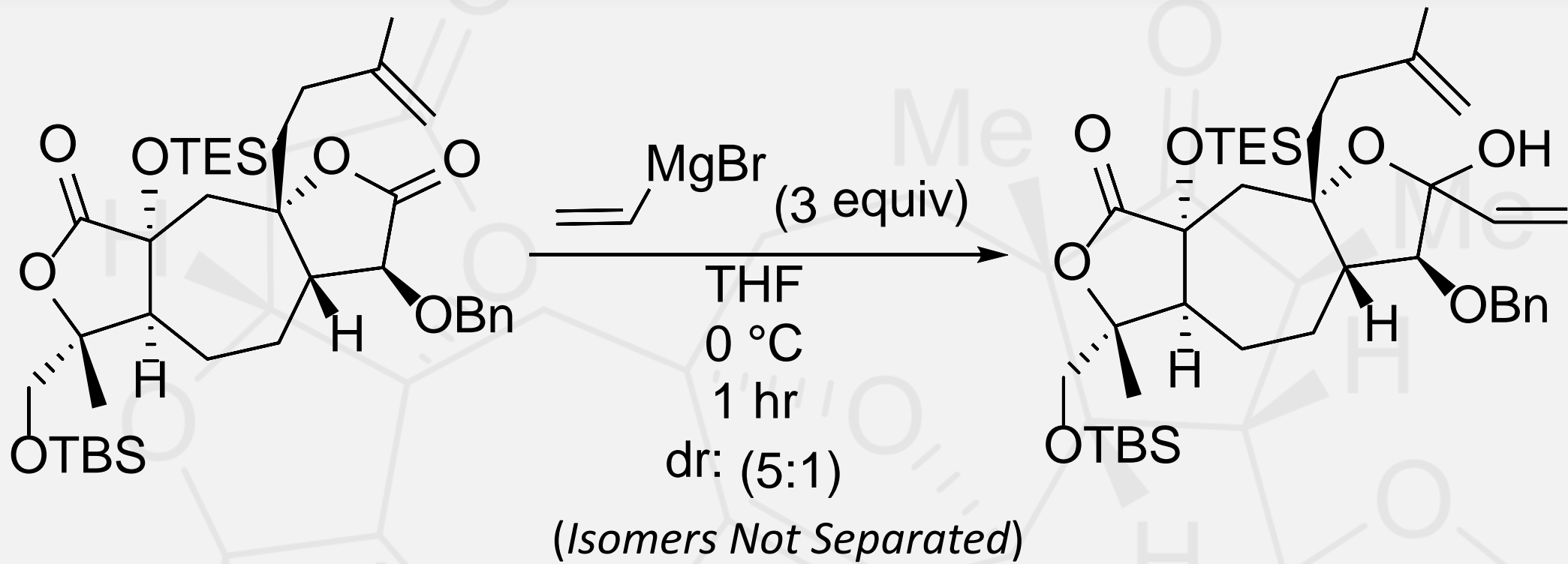
LiHMDS (3.5 equiv)
LiCl (5 equiv)
MoOPH (3.5 equiv)

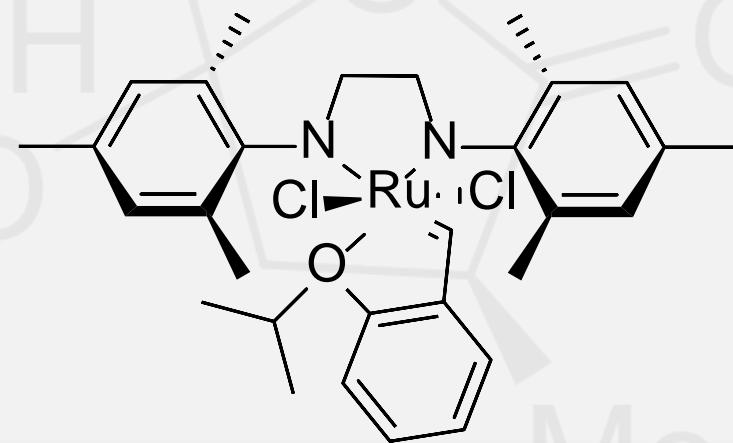
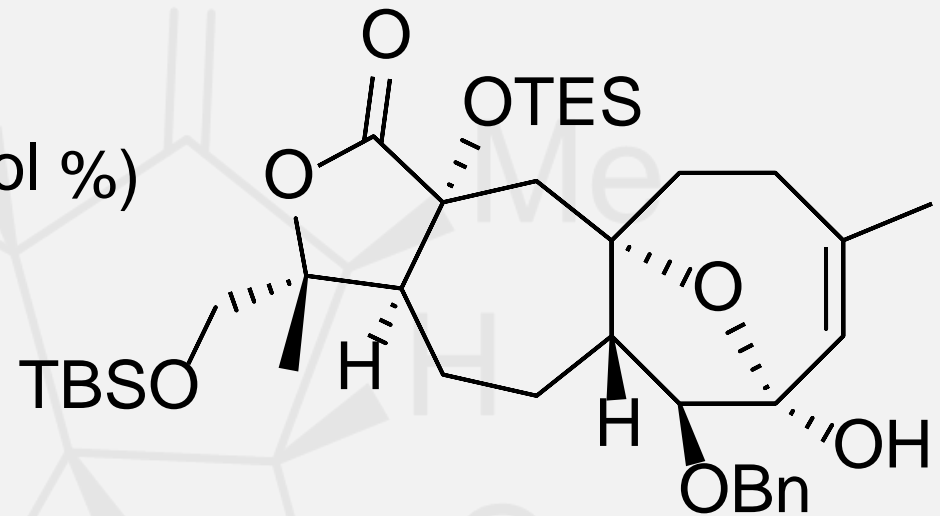
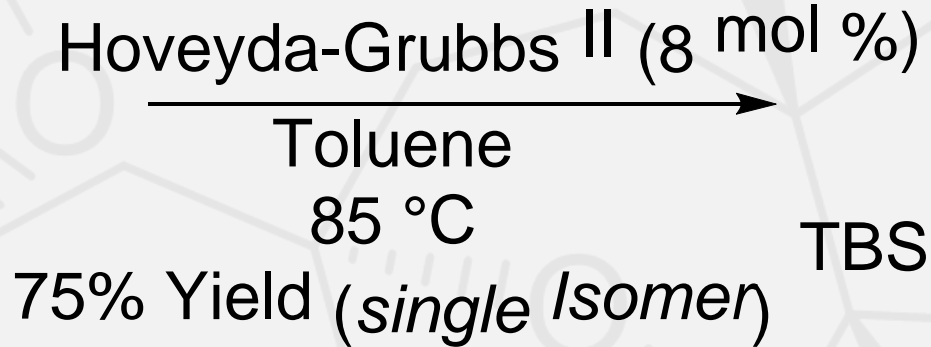
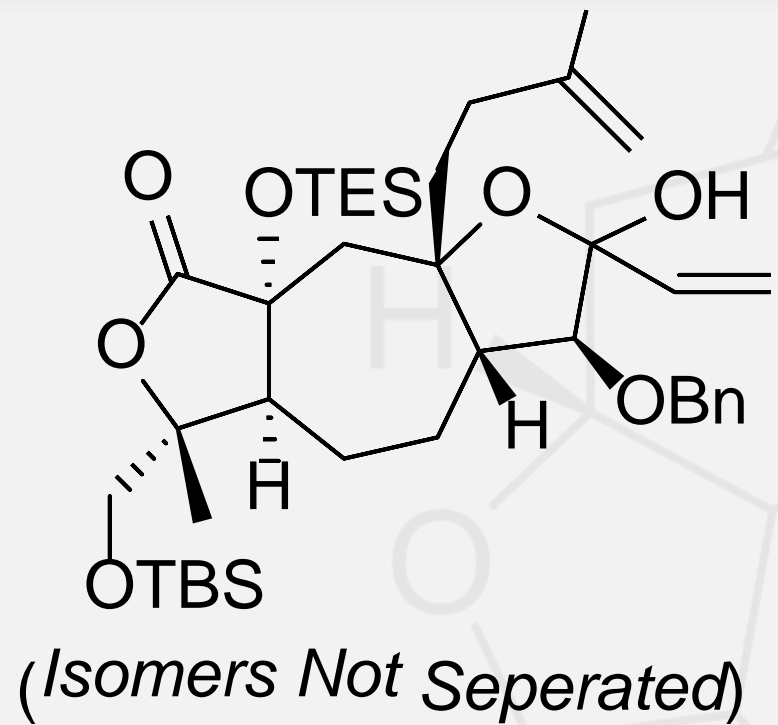
THF
-78 °C
2 hr
85 % Yield



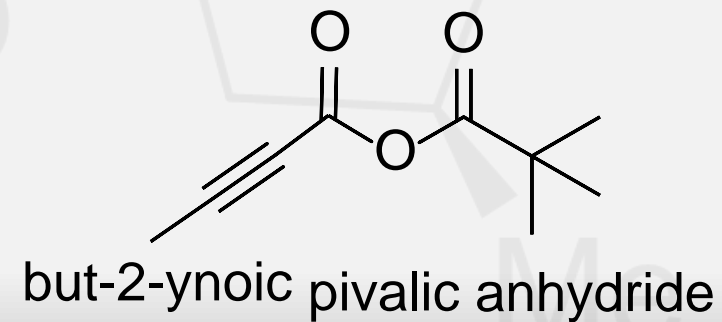
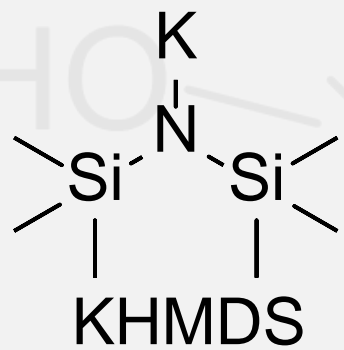
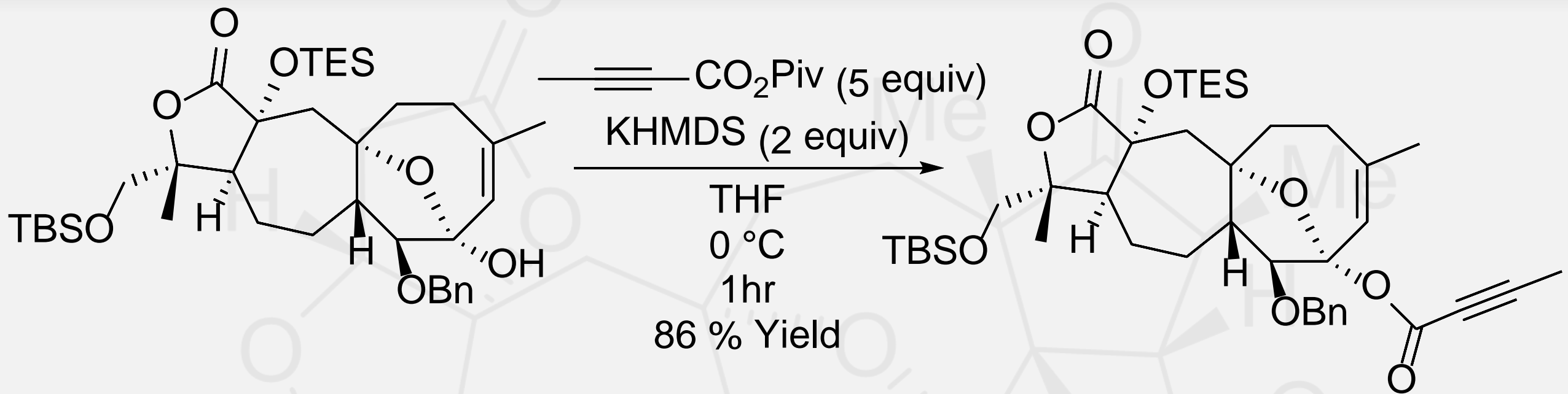


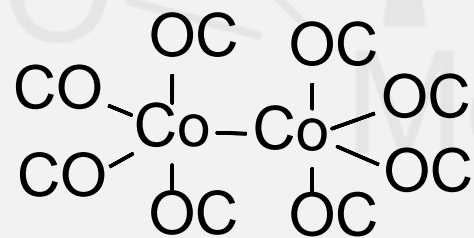
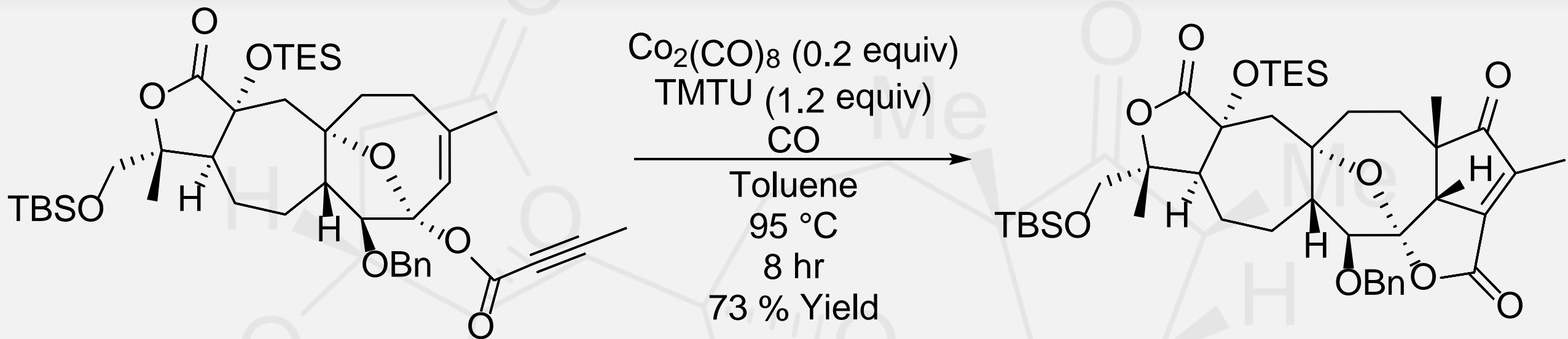




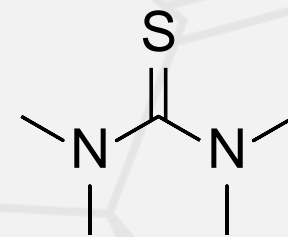


Hoveyda-Grubbs II

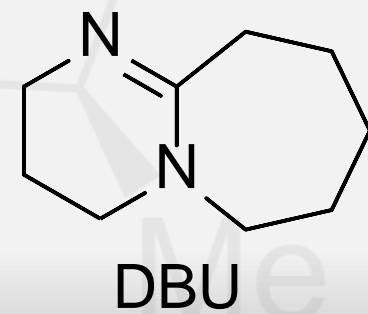
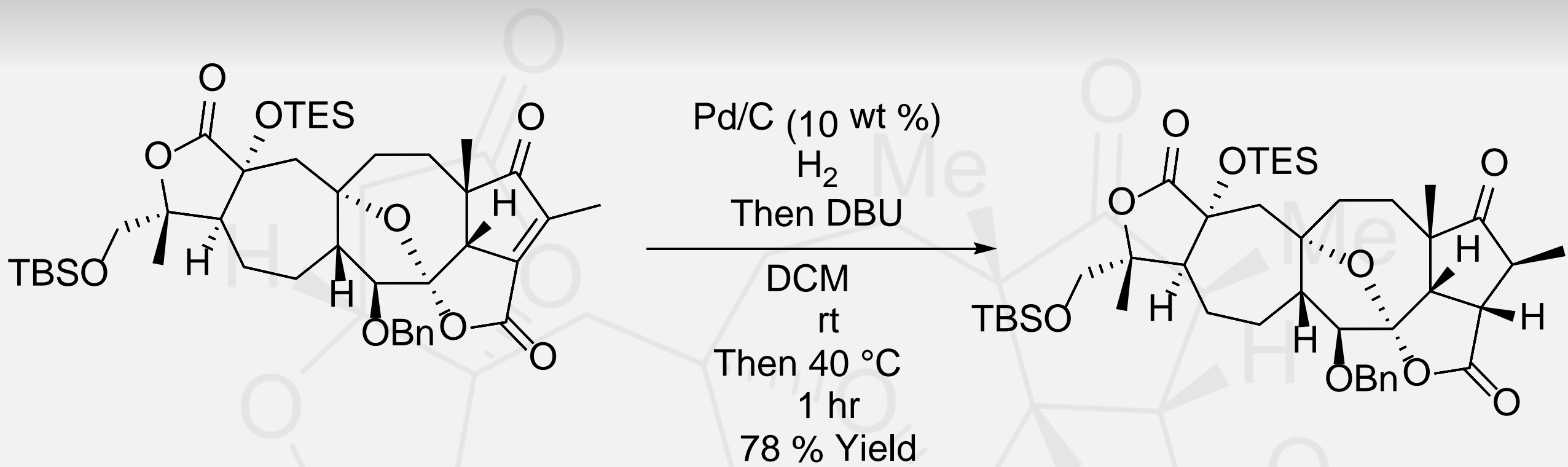


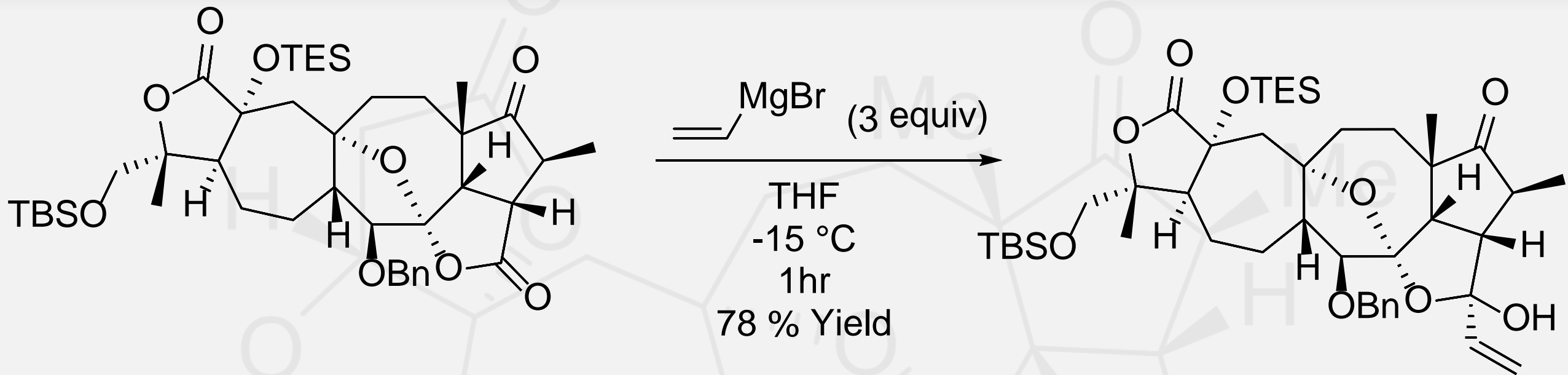


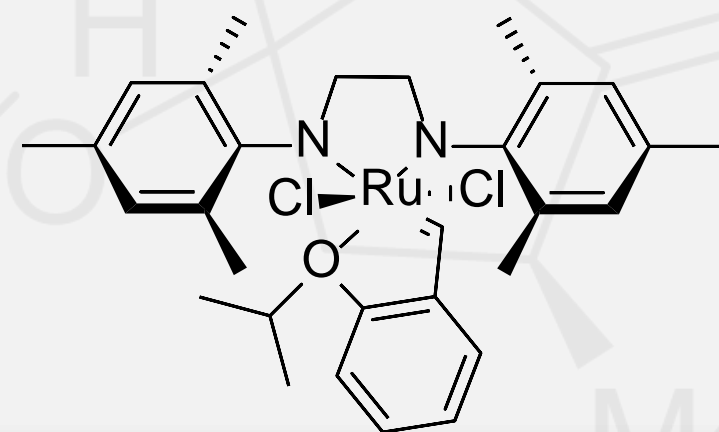
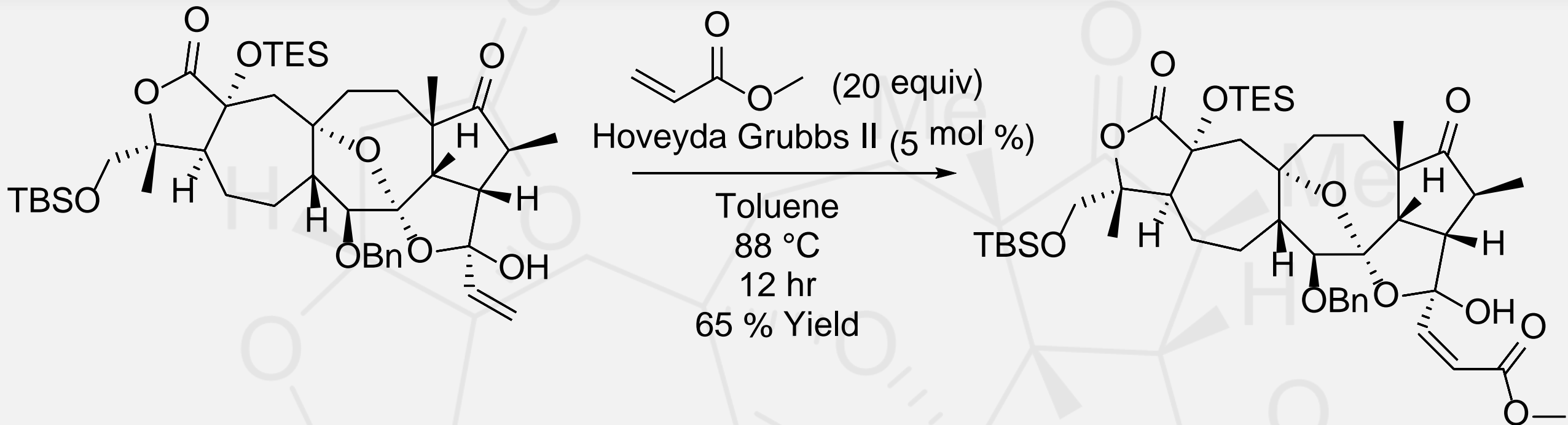
Dicobalt Octacarbonyl



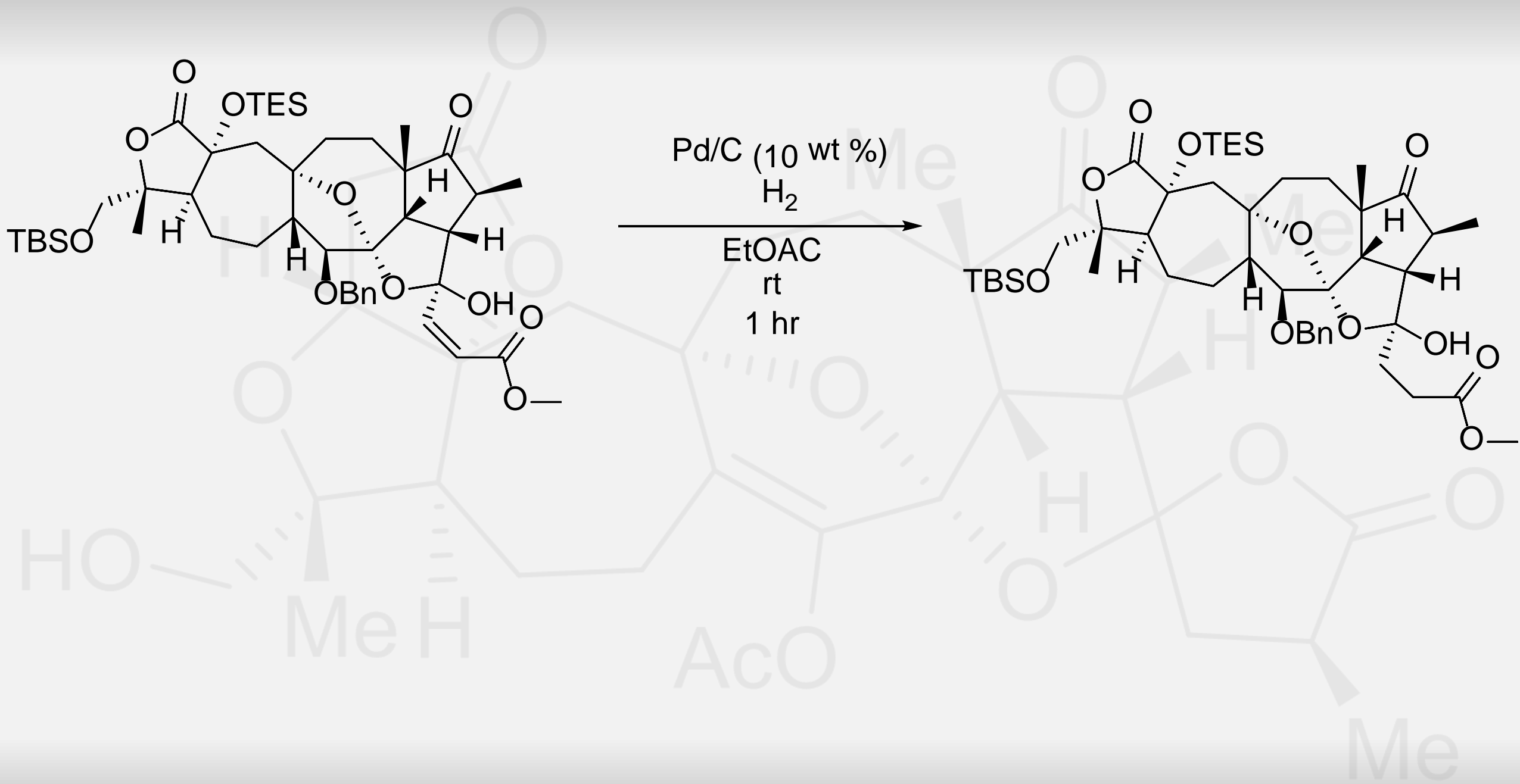
TMTU
Tetramethylthiourea

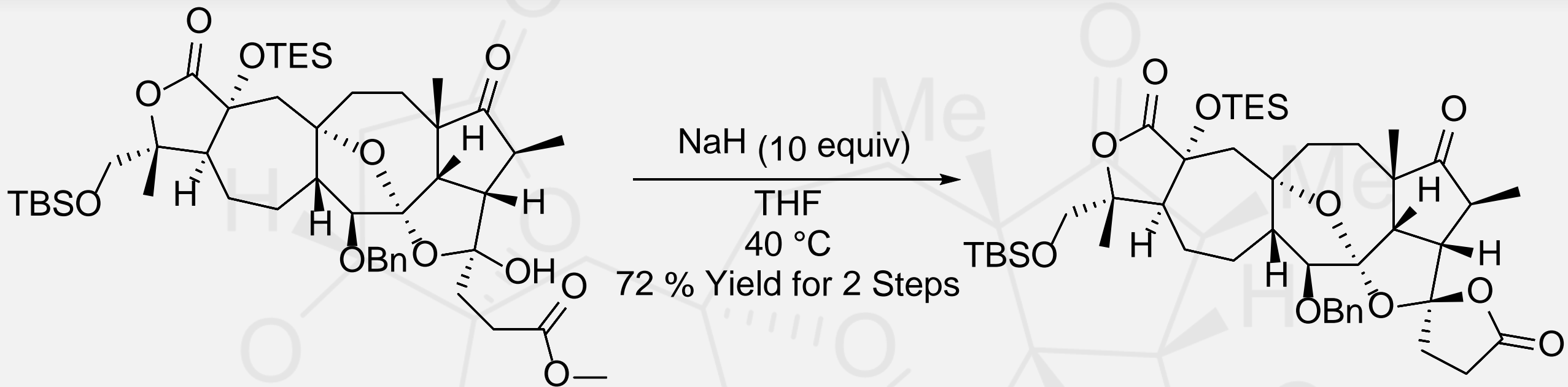


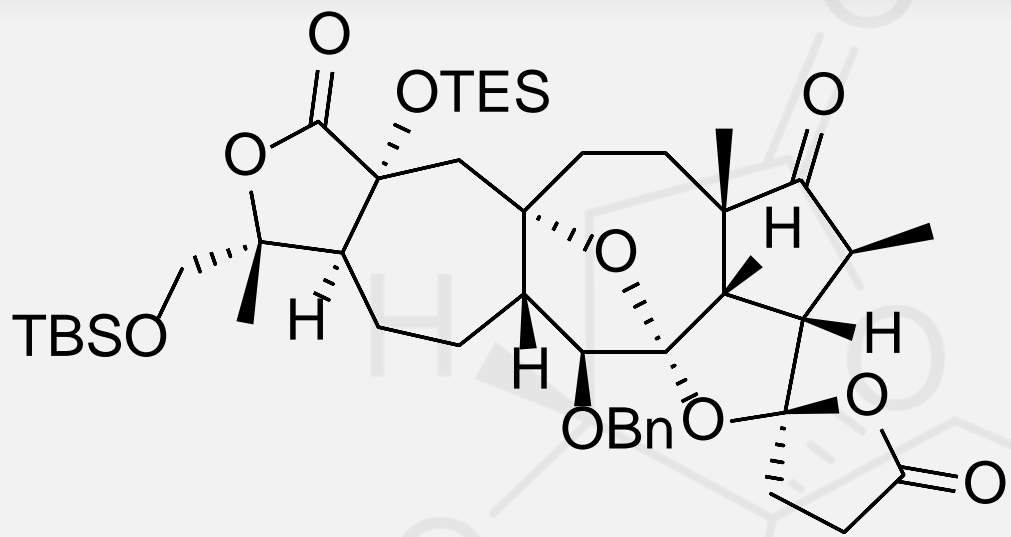




Hoveyda-Grubbs II

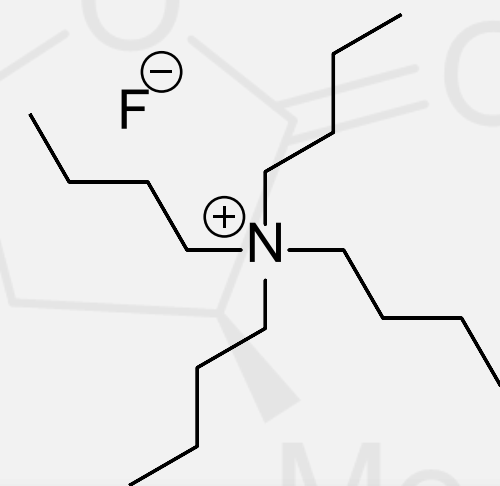
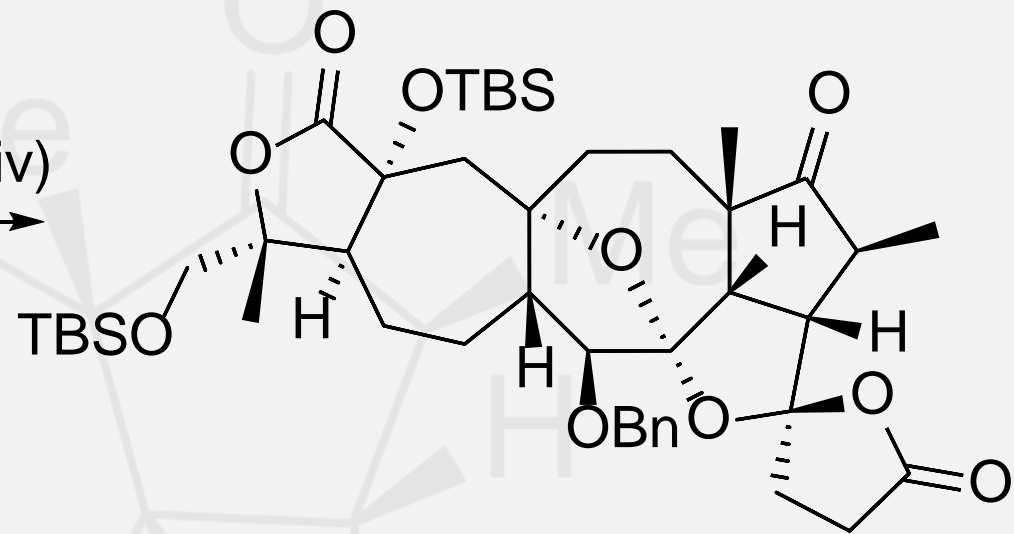




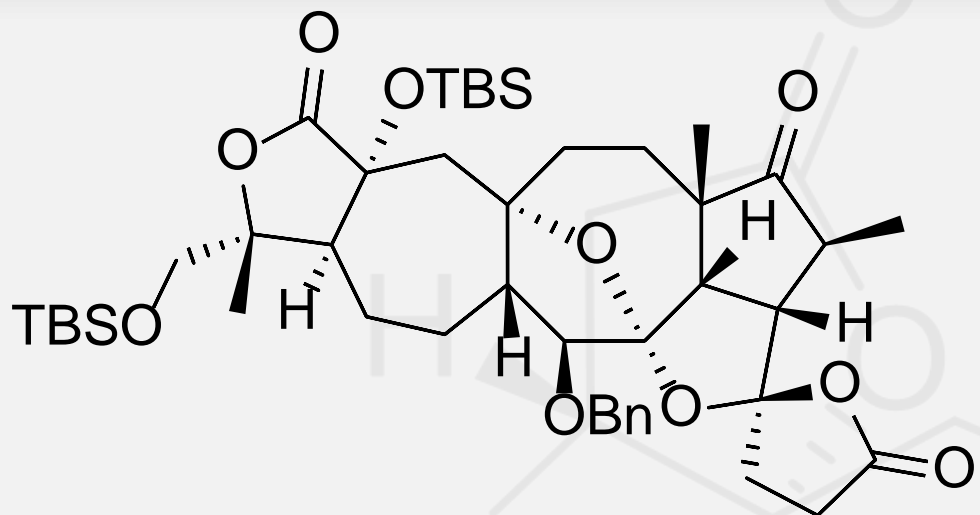


TBAF (2 equiv)
Then TBSCl (5 equiv)

THF
40 °C
6 hr
74 % Yield



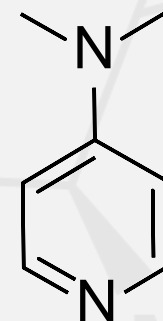
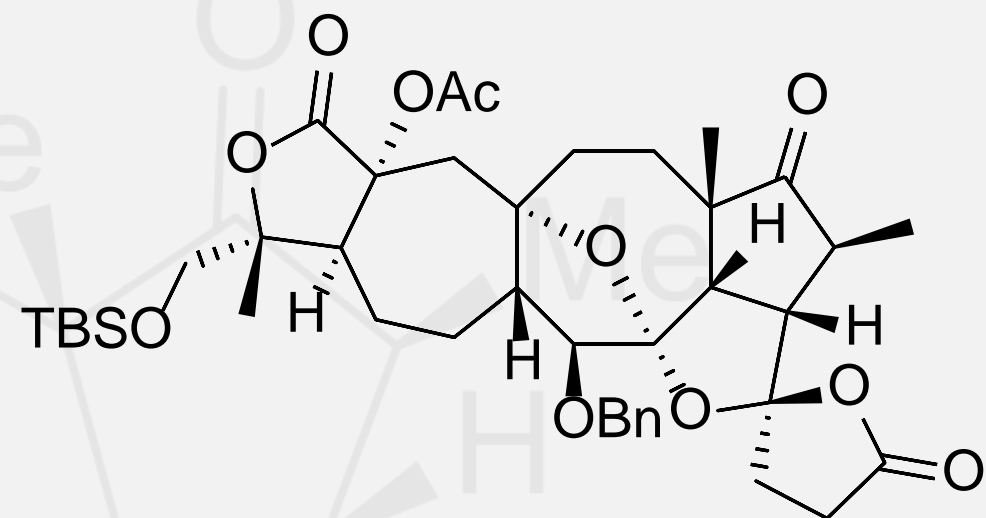
TBAF



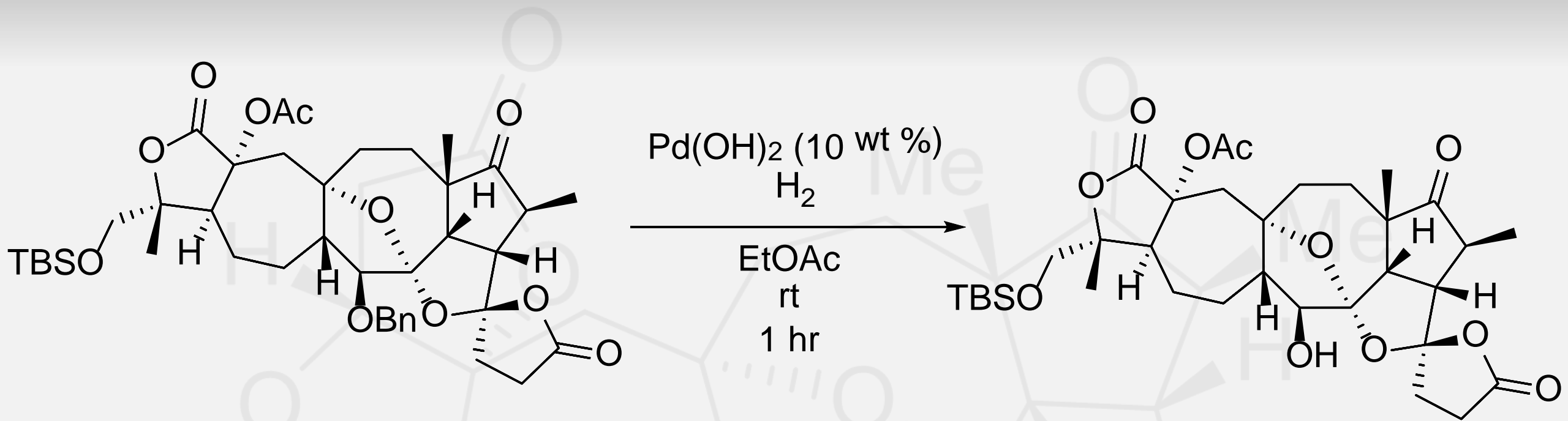
DMAP (1 equiv)
OAc₂ (5 equiv)

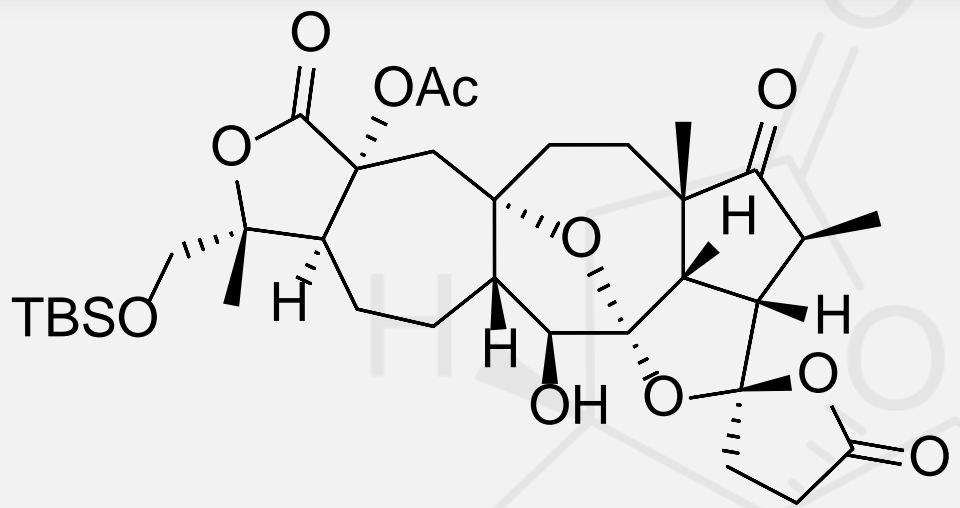
Et₃N
60 °C

Overnight
75% Yield

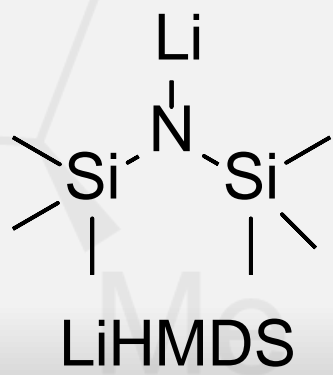
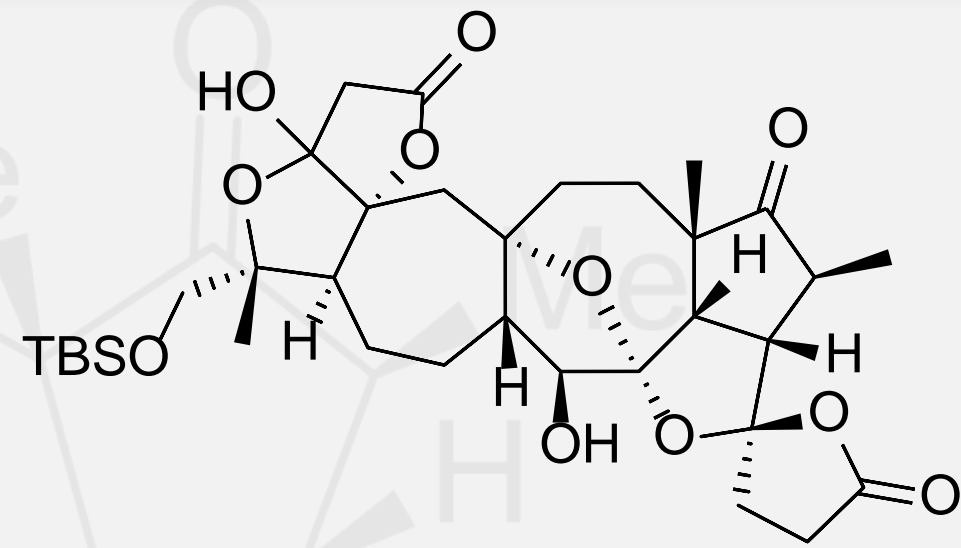


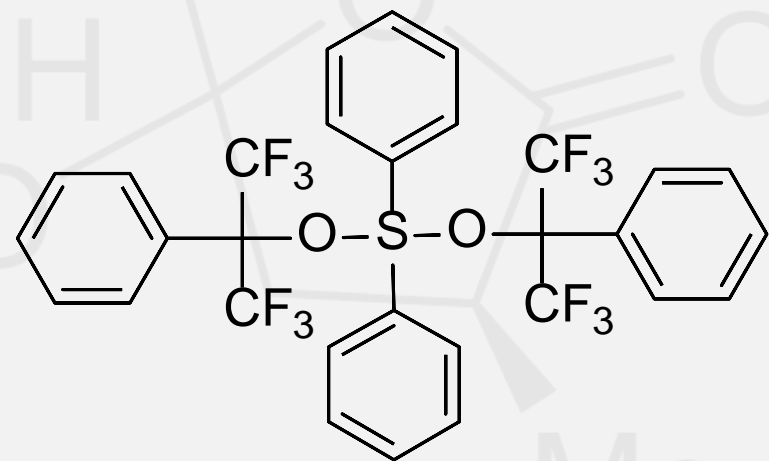
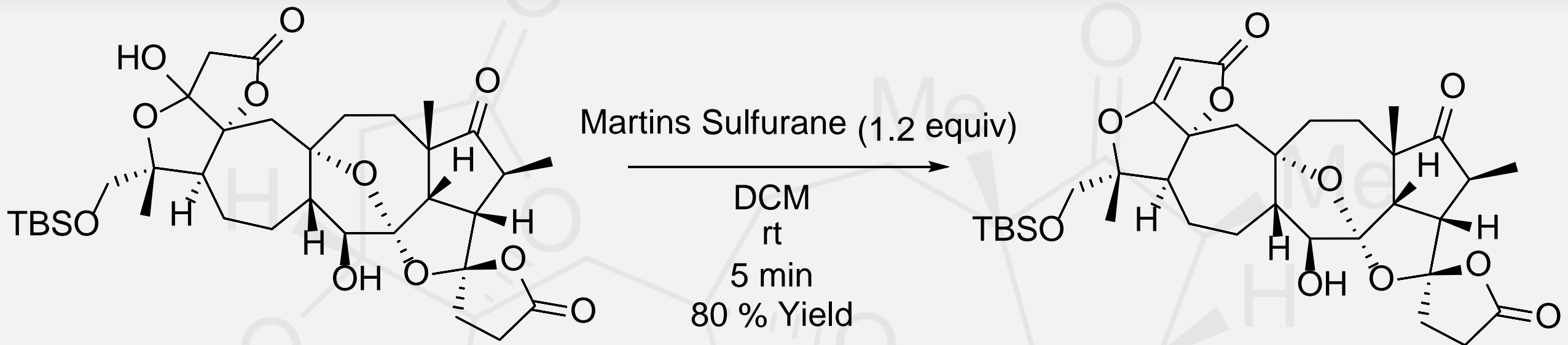
DMAP



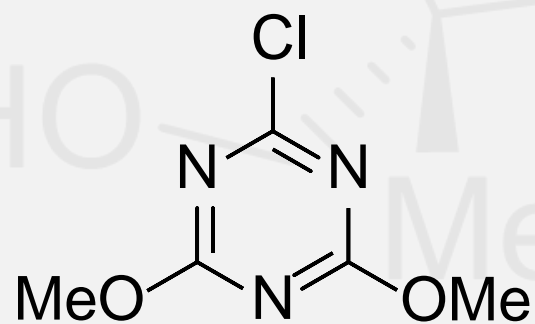
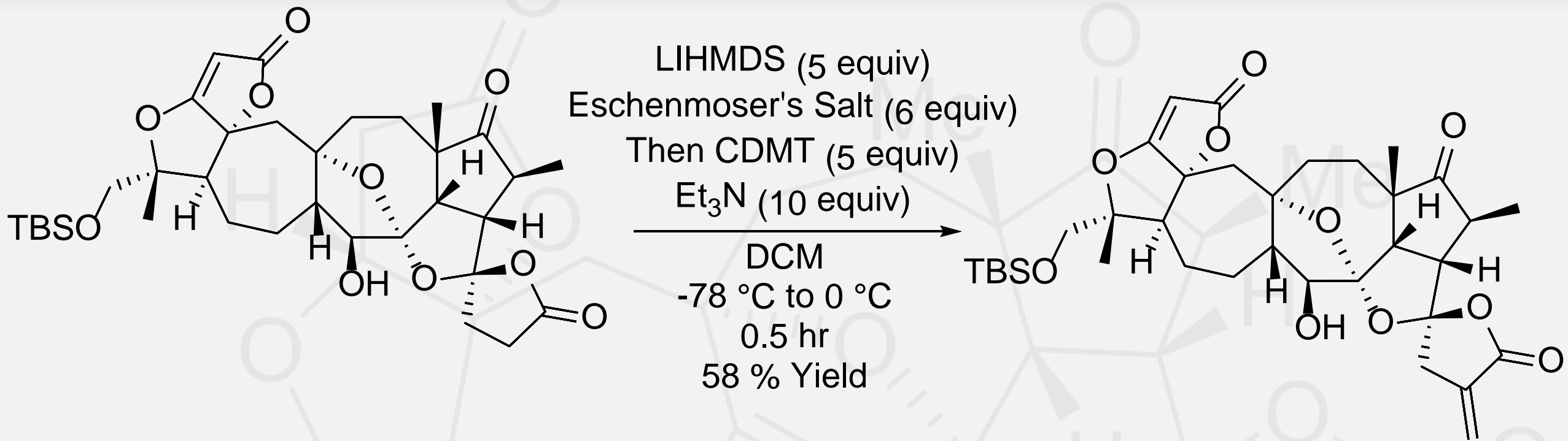


LiHMDS (5 equiv)
THF
-78 °C to -20 °C
0.5 hr
78 % Yield for 2 Steps

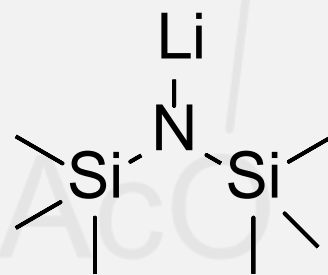




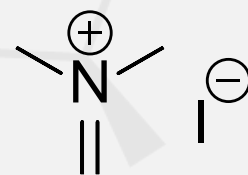
Martin's Sulfurane



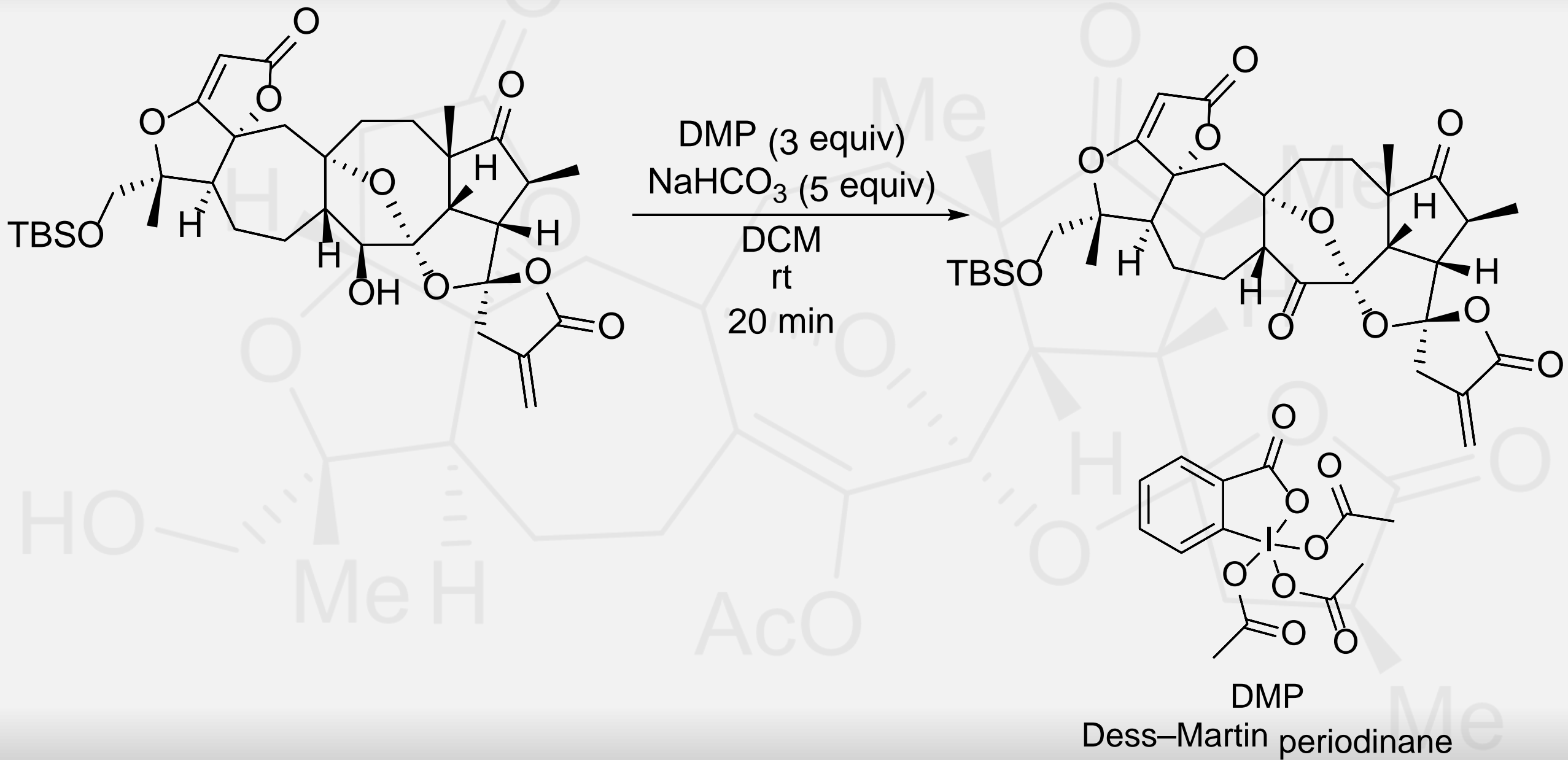
CDMT

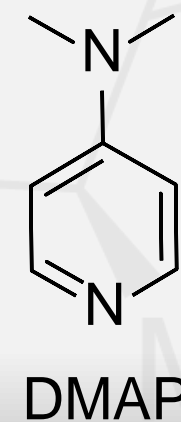
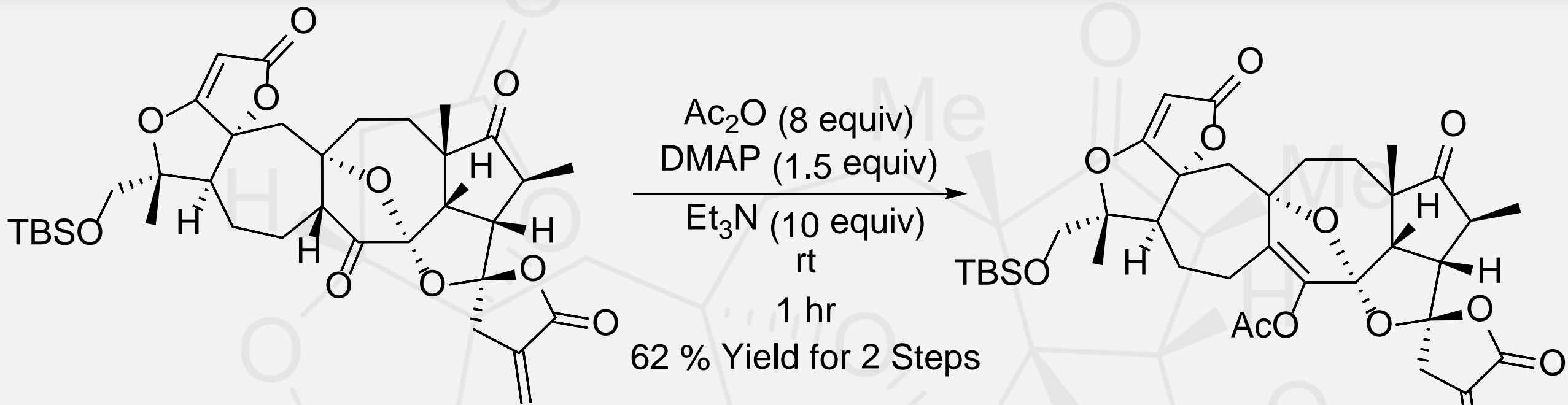


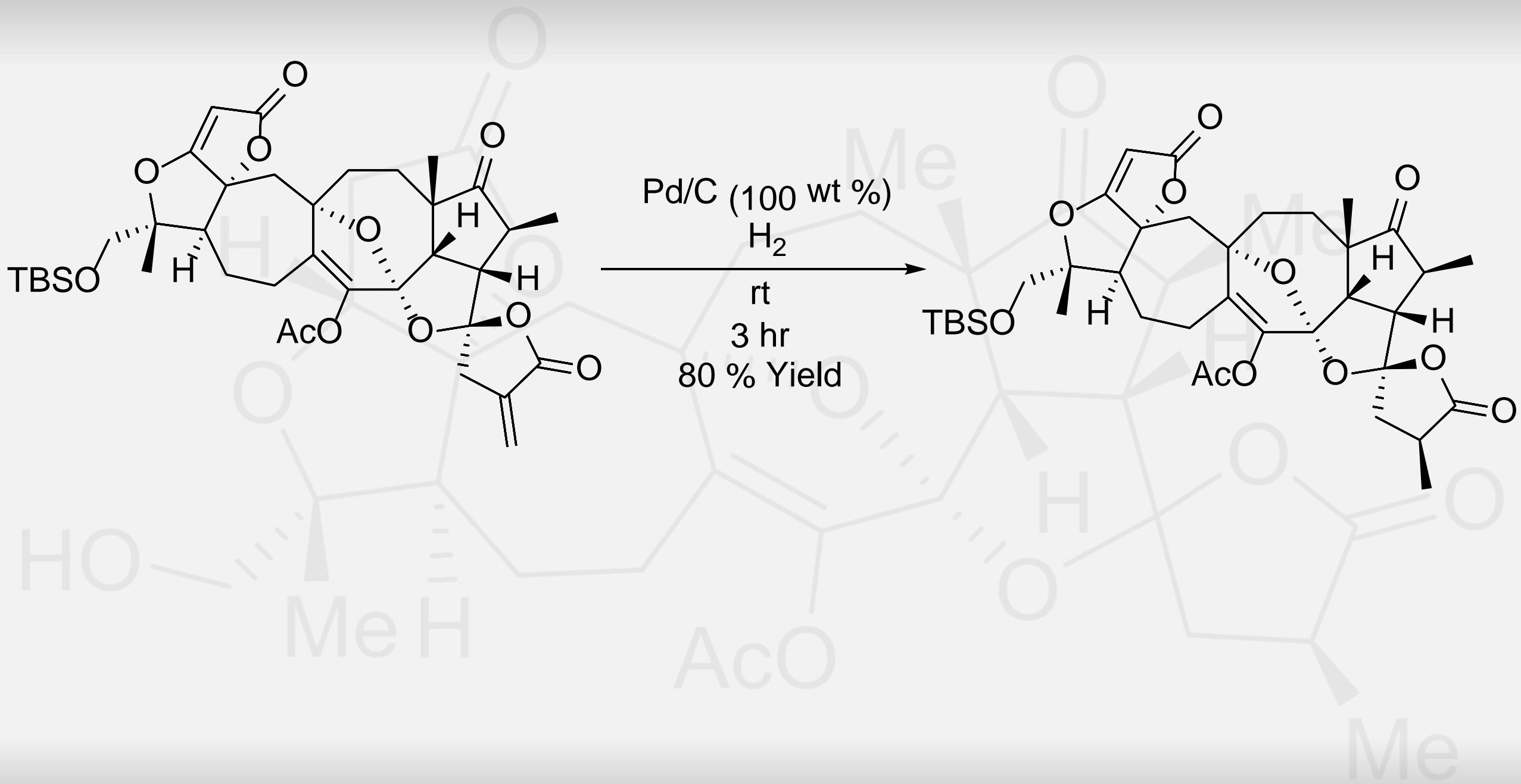
LiHMDS

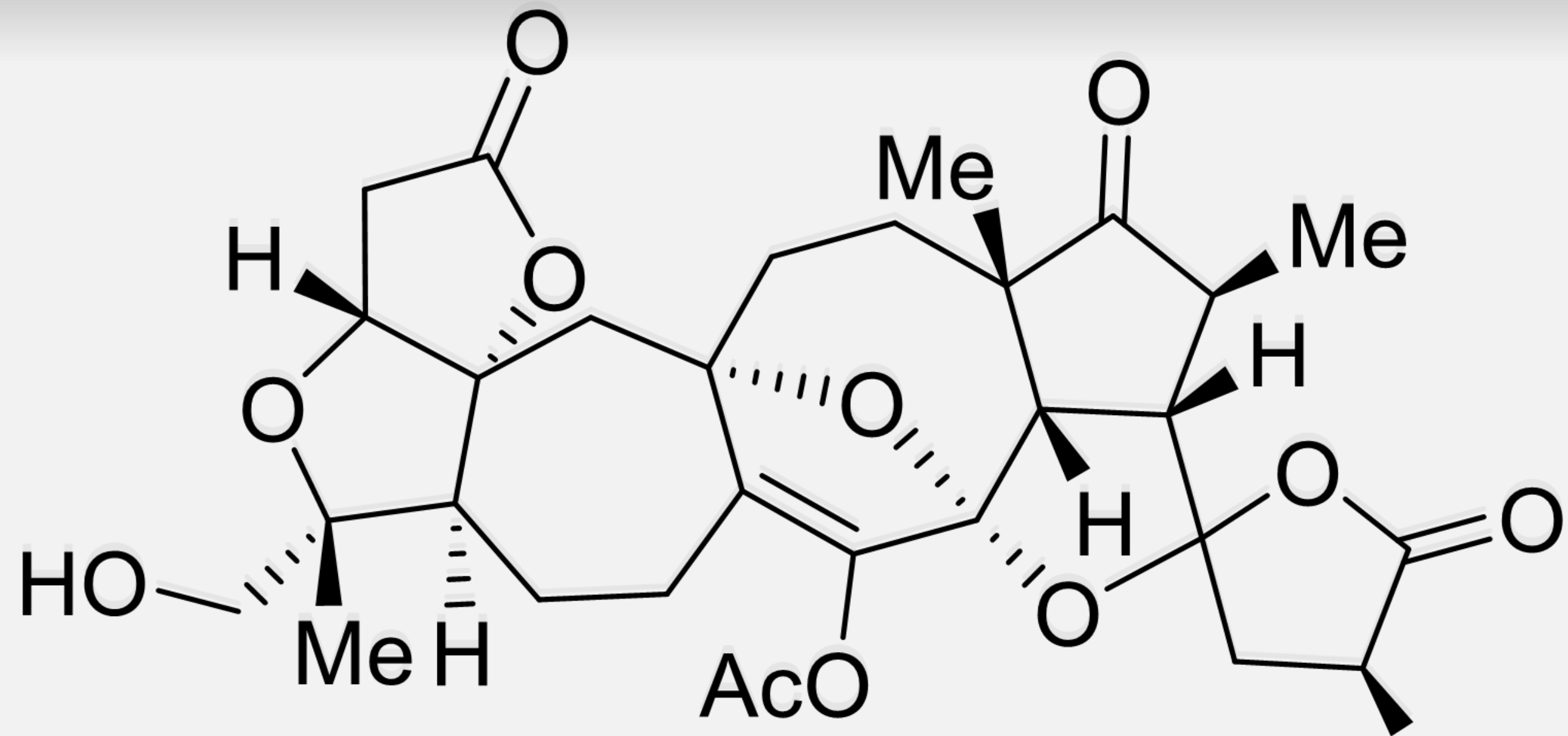


Eschenmoser's Salt









Lancifodilactone G Acetate

Me