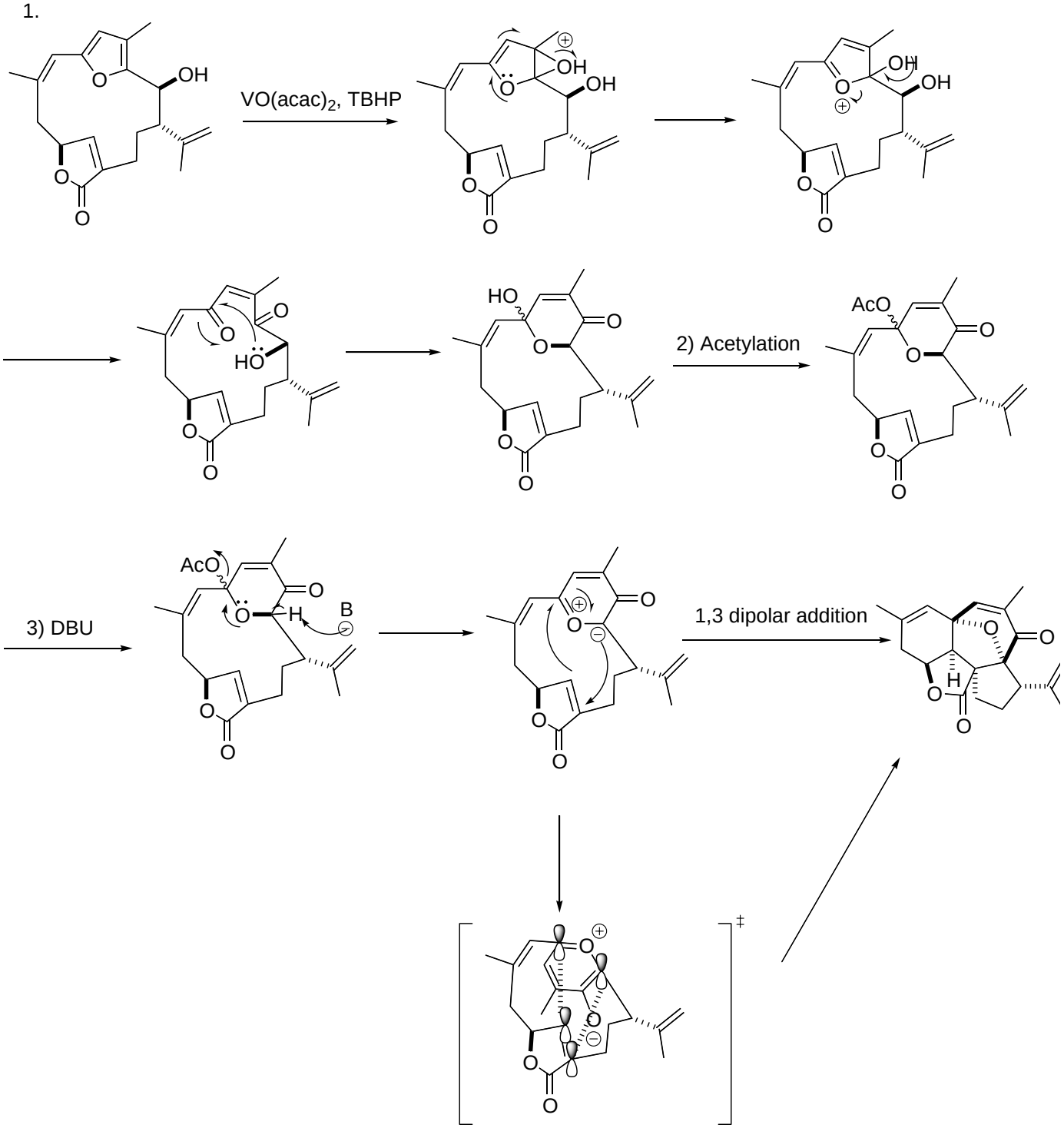
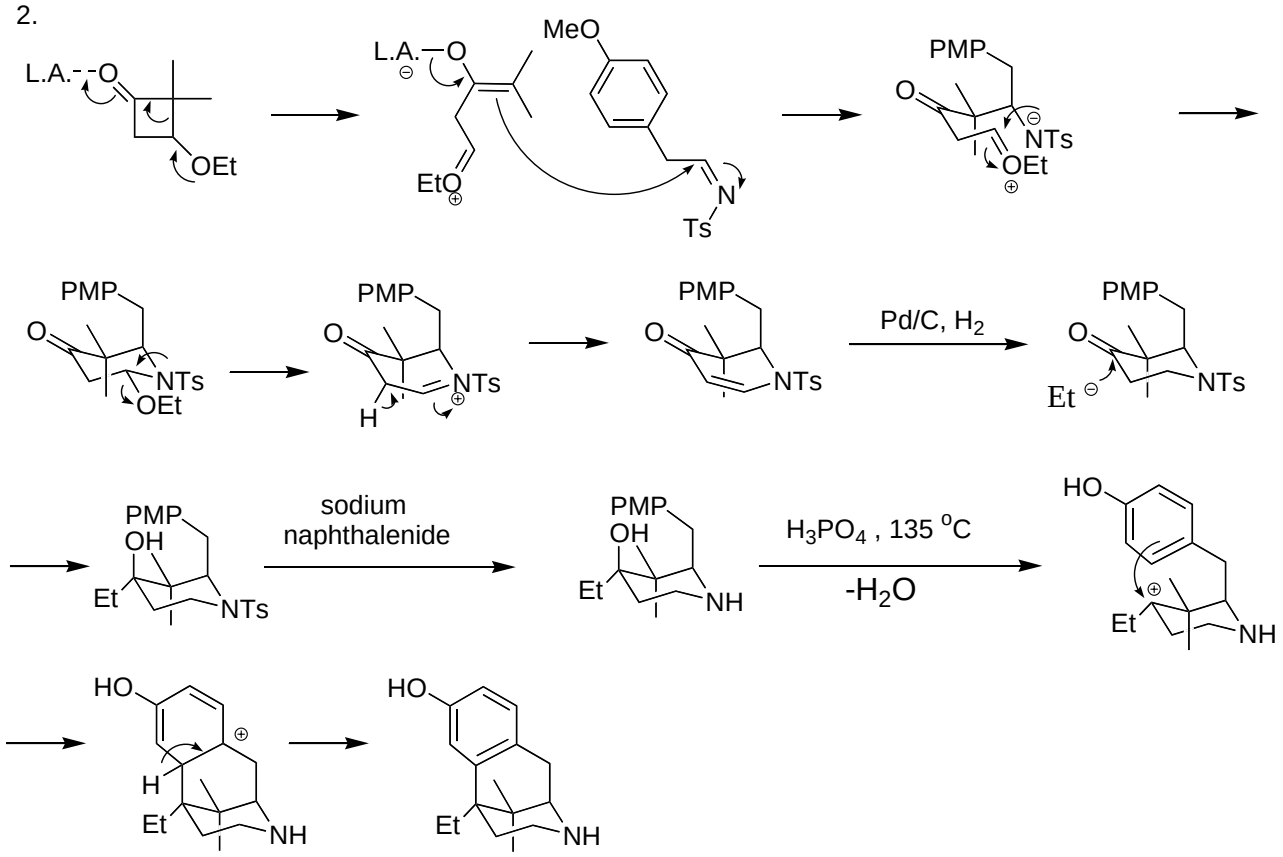
1.


VO(acac)2, TBHP
2) Acetylation
3) DBU
1,3 dipolar addition
endo transition state

2.


L.A.
O
OEt
MeO
EtO
N
Ts
PMP
NTs
H
Pd/C, H2
Et
OH
sodium
naphthalenide
H3PO4 , 135 °C
-H2O
HO
NH