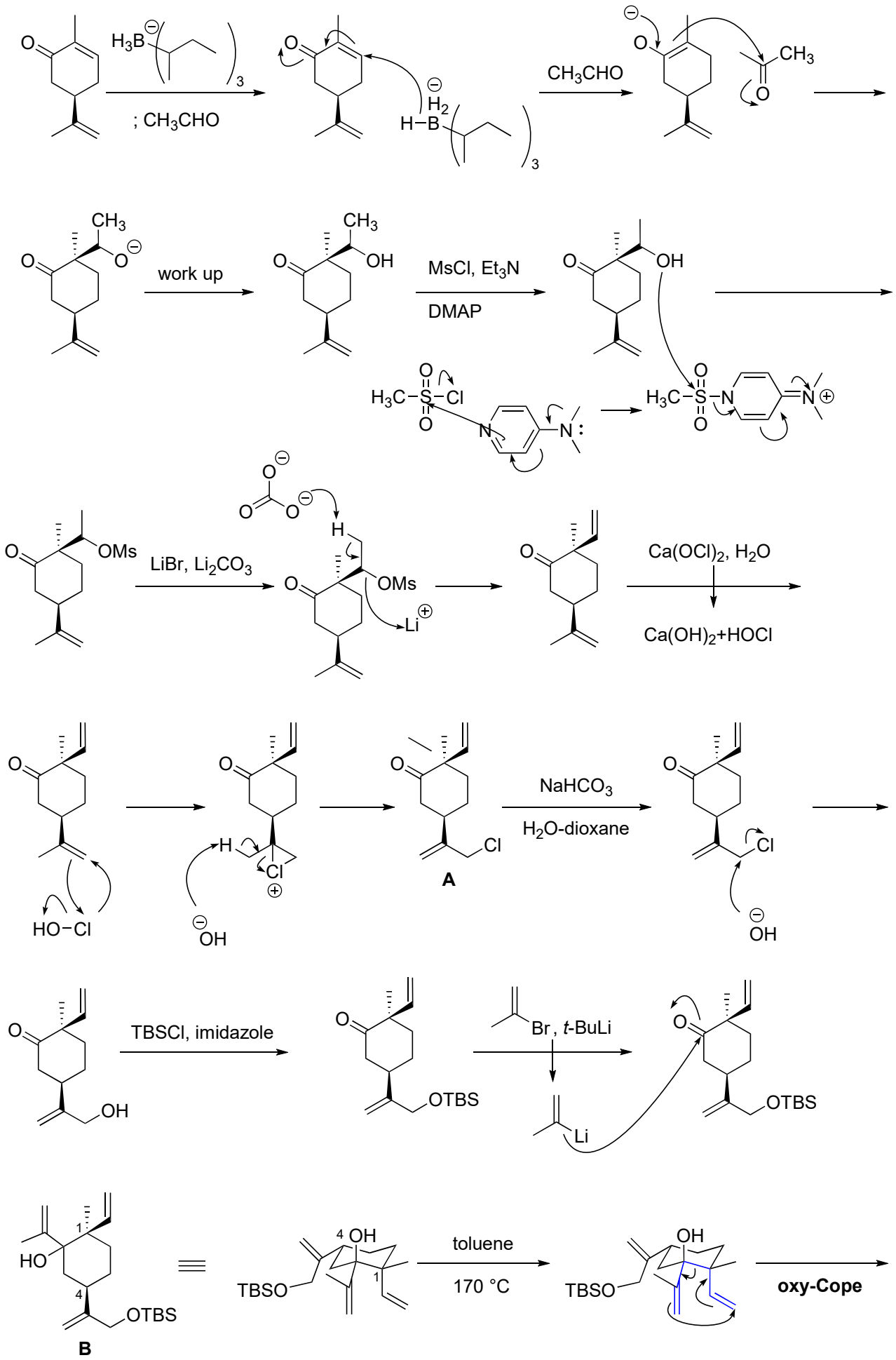
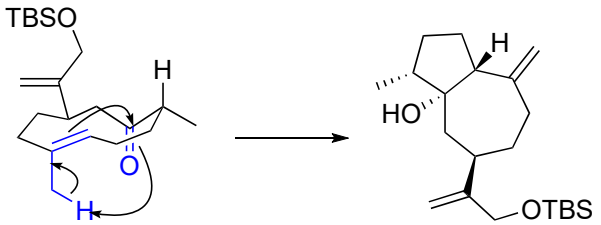
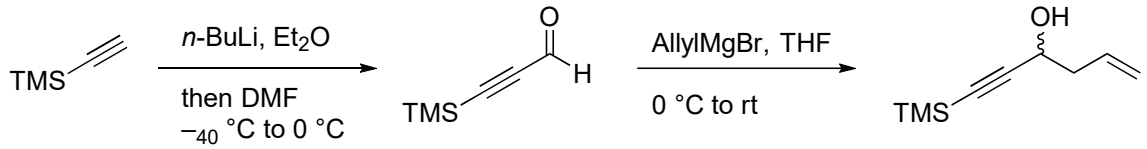
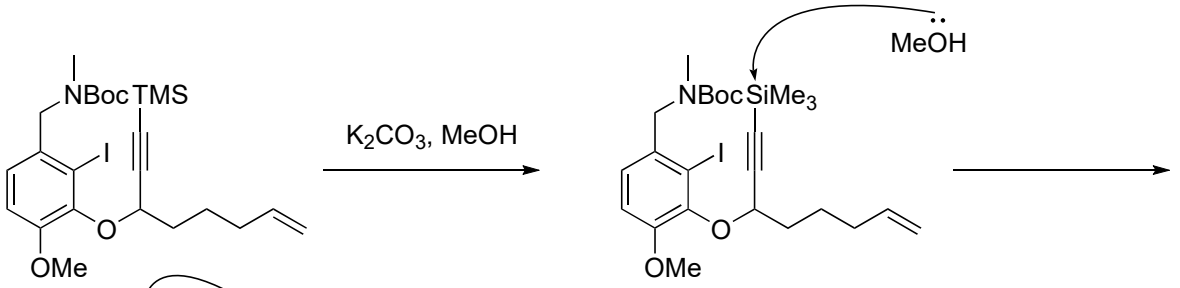
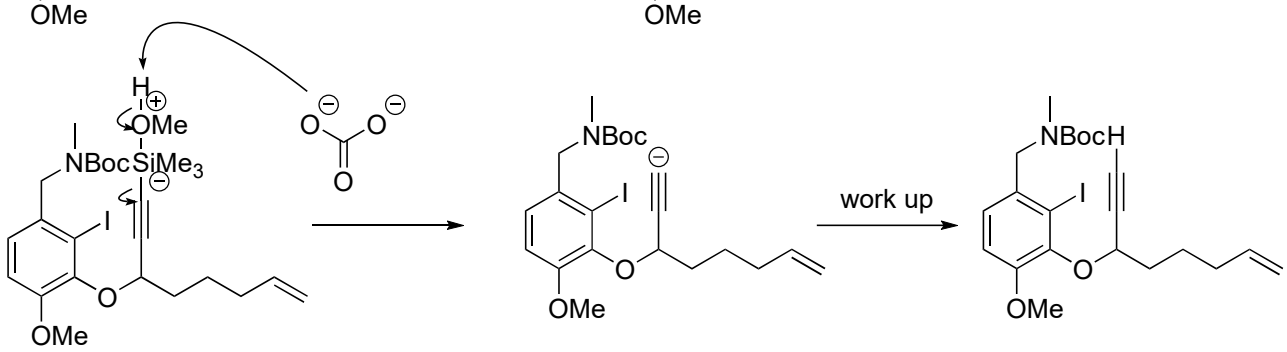
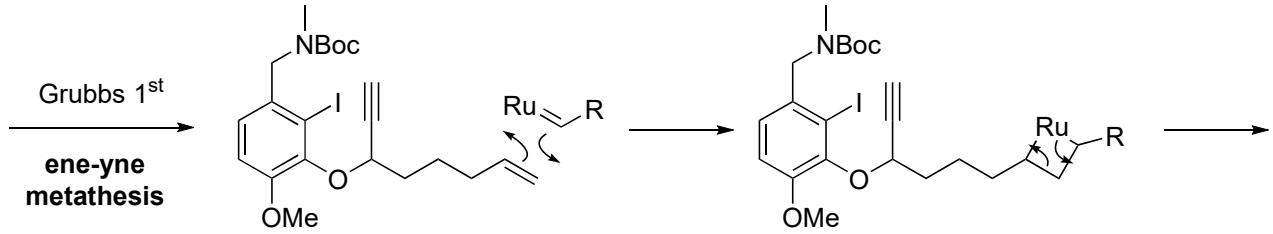

; CH3CHO
CH3CHO
work up
MsCl, Et3N
DMAP
LiBr, Li2CO3
Ca(OCl)2, H2O
Ca(OH)2+HOCl
NaHCO3
H2O-dioxane
A
TBSCl, imidazole
t-BuLi
toluene
170 °C
oxy-Cope
B

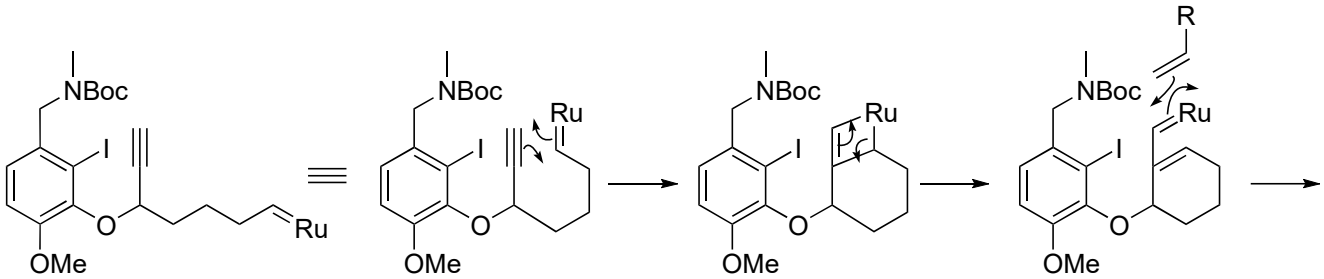

TBSO
H
O
H
HO
H
OTBS

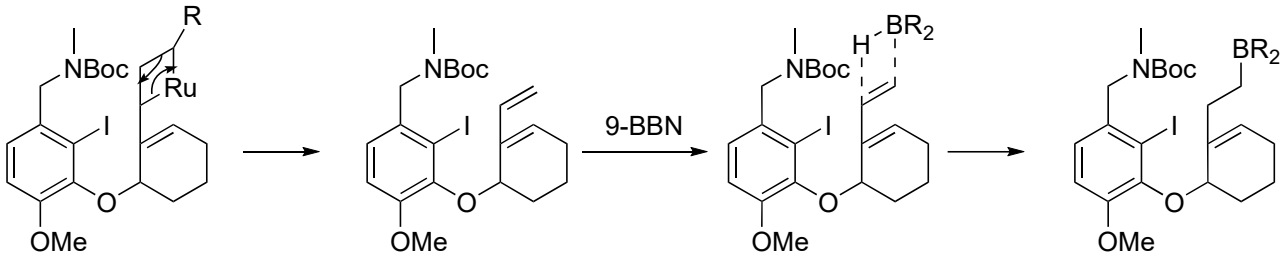

TMS
n-BuLi, Et2O
then DMF
−40 °C to 0 °C
O
H
TMS
AllylMgBr, THF
0 °C to rt
OH
TMS

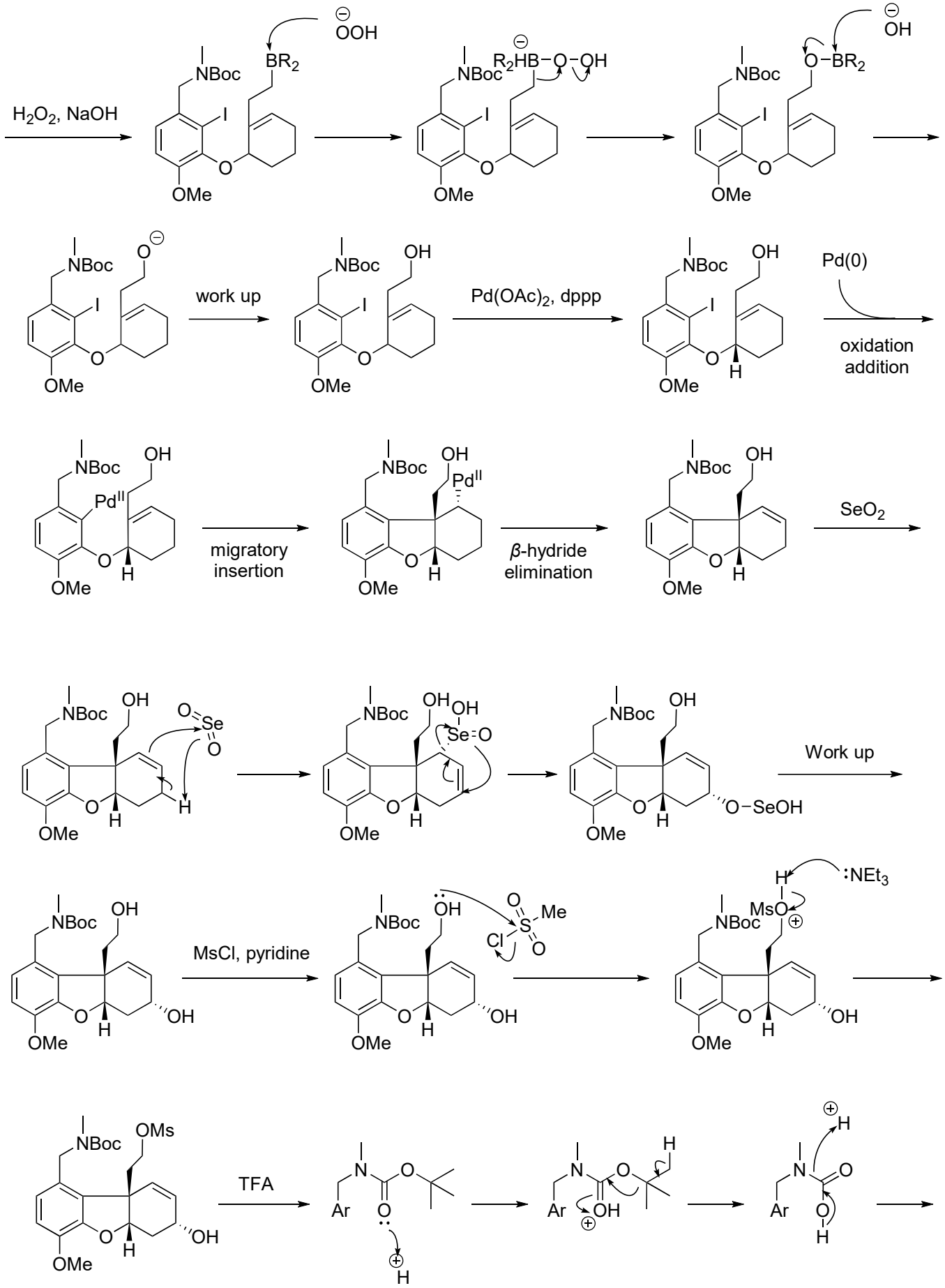

NBoc TMS
I
O
OMe
K2CO3, MeOH
MeOH
NBoc SiMe3
I
O
OMe

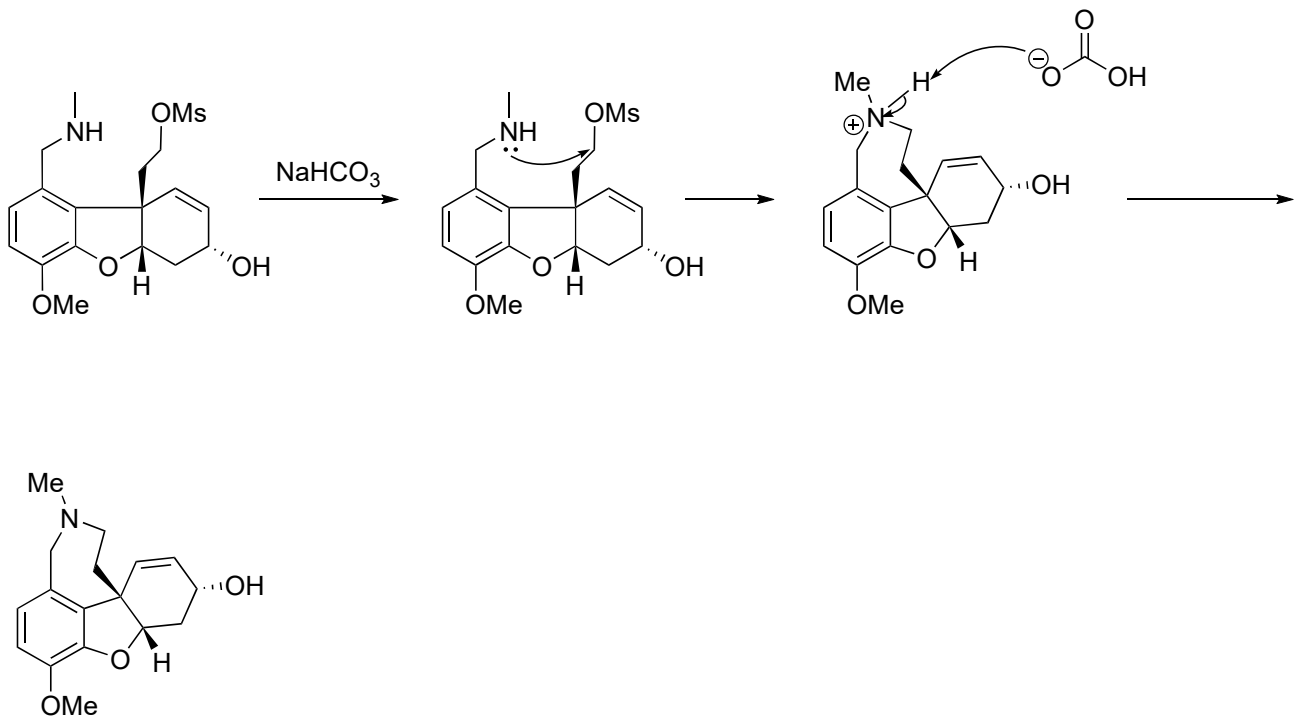

H
OMe
NBoc SiMe3
I
O
OMe
O
O
O
NBoc
I
O
OMe
work up
NBoc H
I
O
OMe


Grubbs 1st
ene-yne
metathesis
NBoc
I
O
OMe
Ru
R
NBoc
I
O
OMe
Ru
R


NBoc
I
O
OMe
Ru
NBoc
I
O
OMe
Ru
NBoc
I
O
OMe
Ru
R
NBoc
I
O
OMe
Ru


R
NBoc
Ru
I
O
OMe
NBoc
I
O
OMe
9-BBN
H
BR2
NBoc
I
O
OMe
BR2
NBoc
I
O
OMe


H2O2, NaOH
work up
Pd(OAc)2, dppp
Pd(0)
oxidation addition
migratory insertion
β-hydride elimination
SeO2
Work up
MsCl, pyridine
:NEt3
TFA


NH
OMs
NaHCO3
O
H
OH
OMe
Me
N
H
O
OH