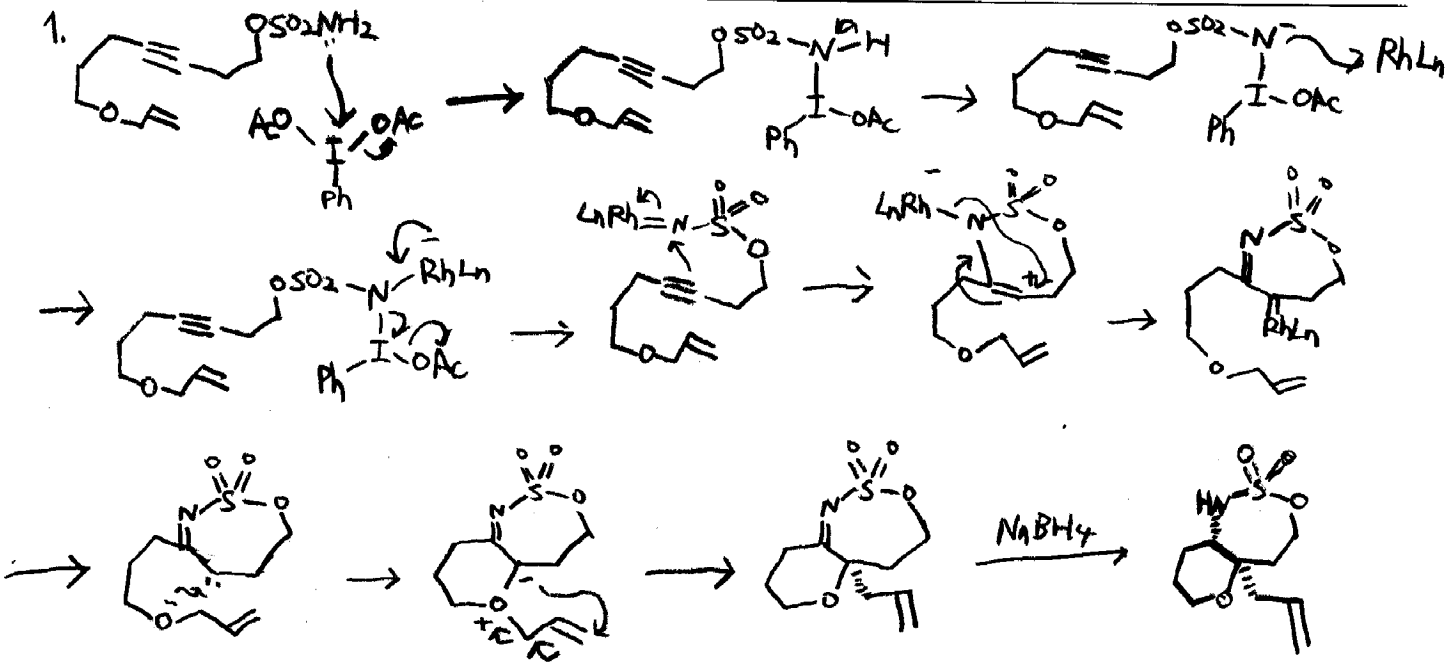
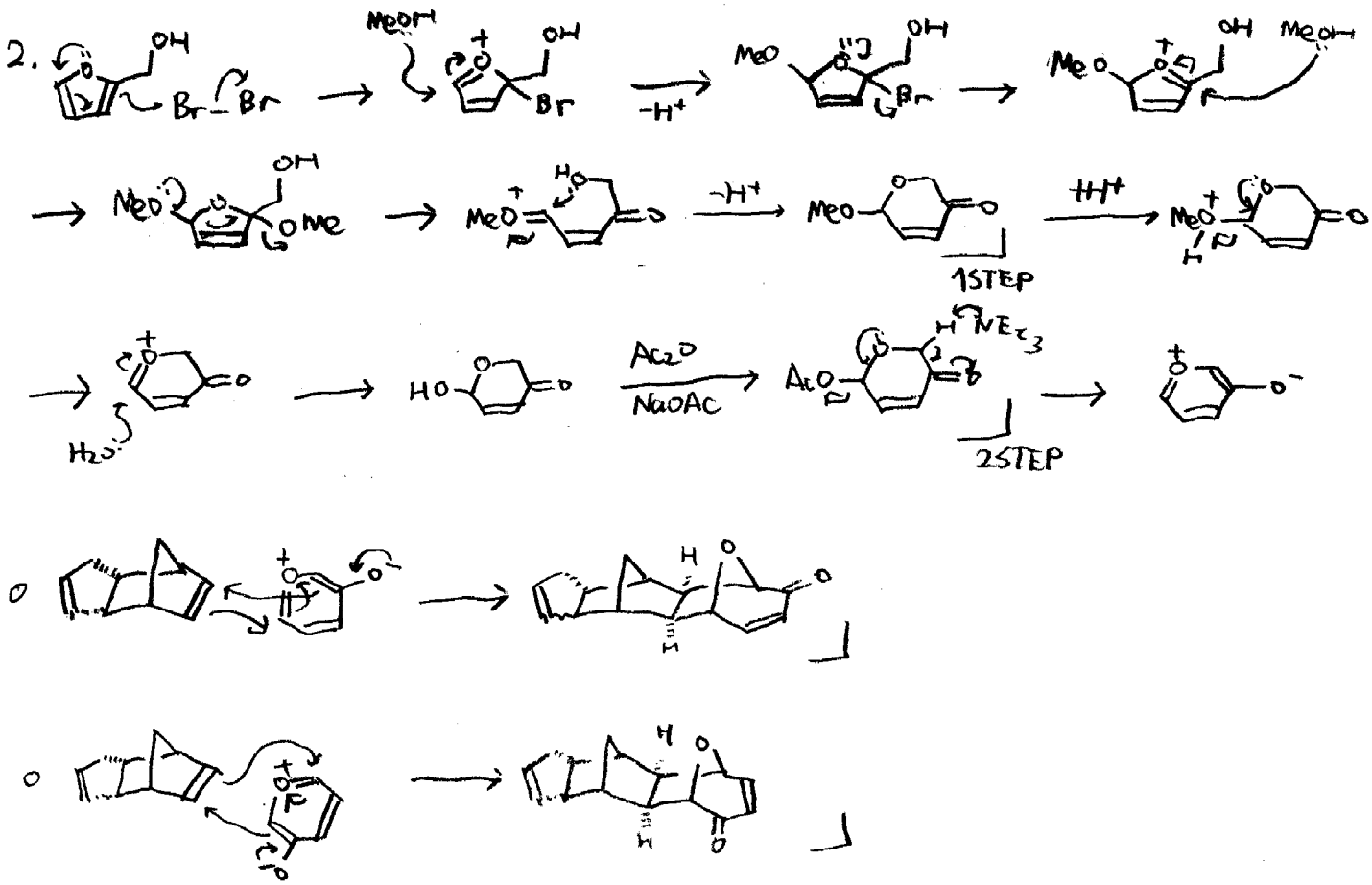
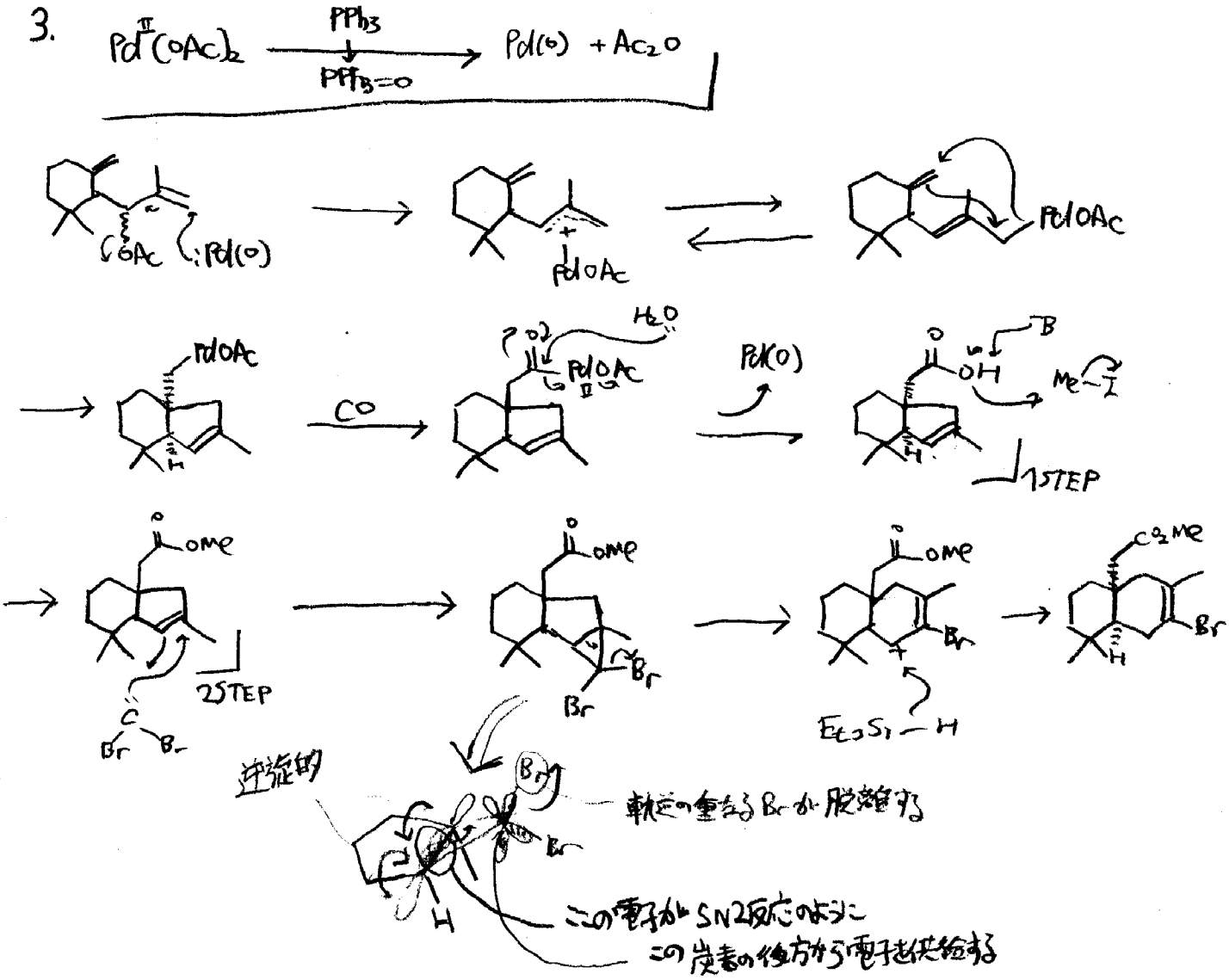
1.



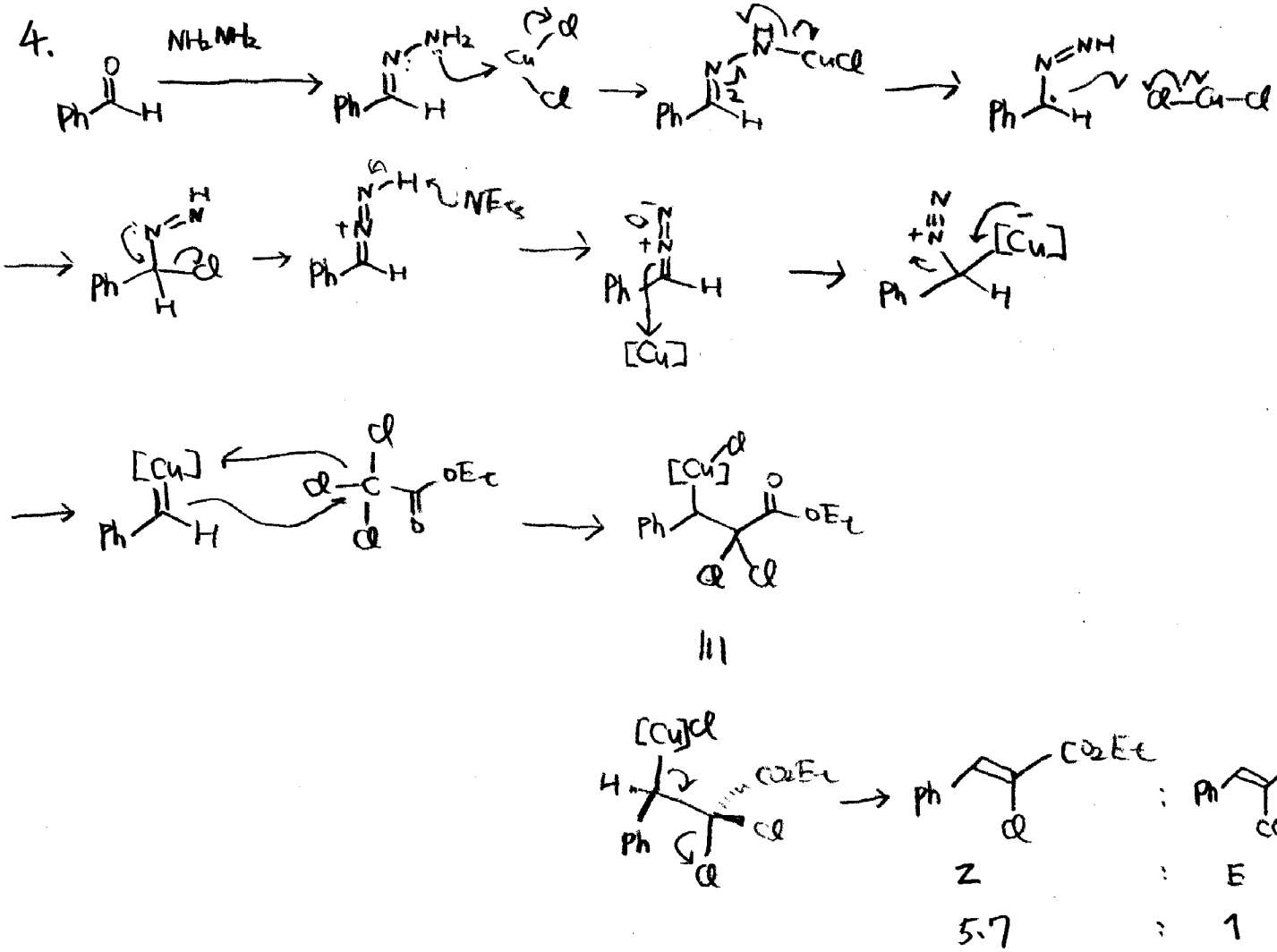
2.



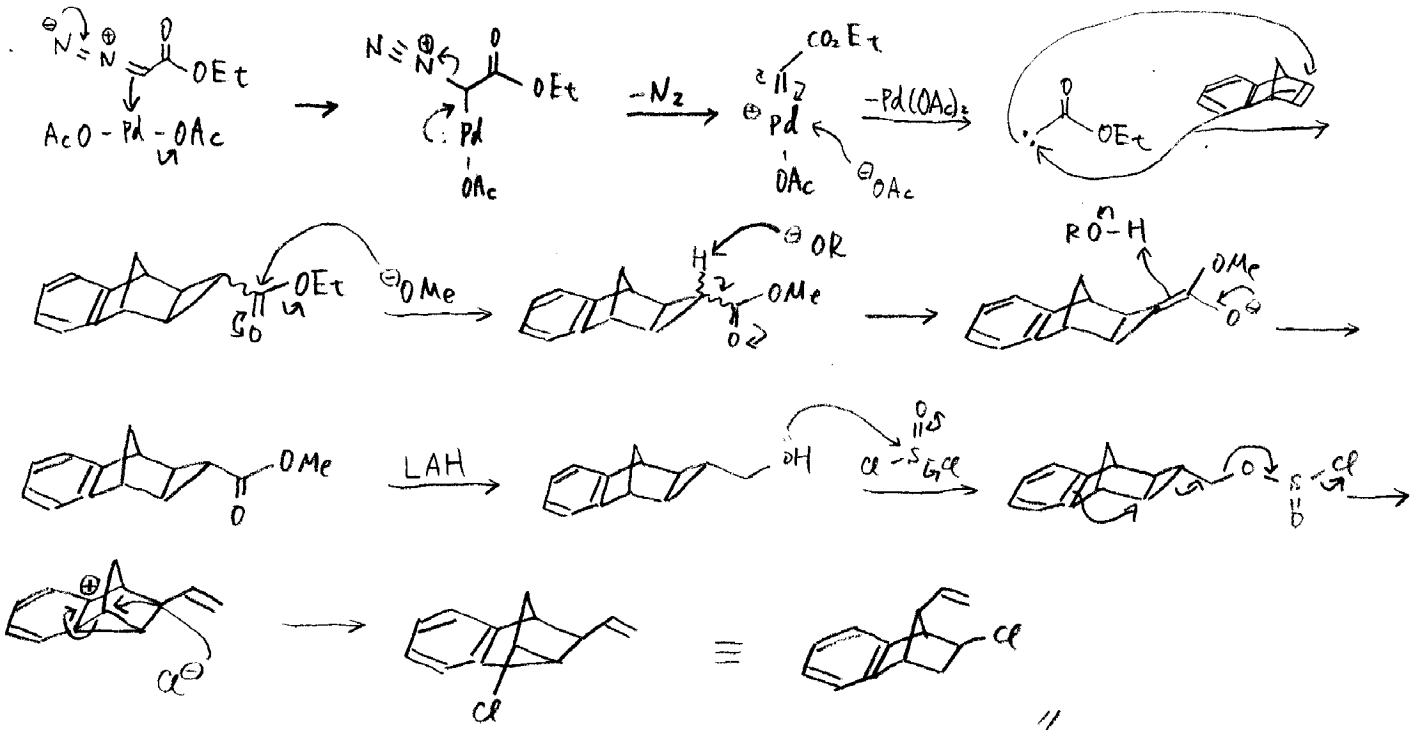
3.


Pd(OAc)2
PPh3
PPh3=O
Pd(0) + Ac2O
OAc
Pd(0)
PdOAc
CO
H2O
Pd(0)
B
OH
Me
I
15STEP
OMe
25STEP
Br
Et3Si—H
CO2Me
逆立体
軸位の重なるBrが脱離する
この電子がSN2反応のように
この炭素の後方から電子を供給する

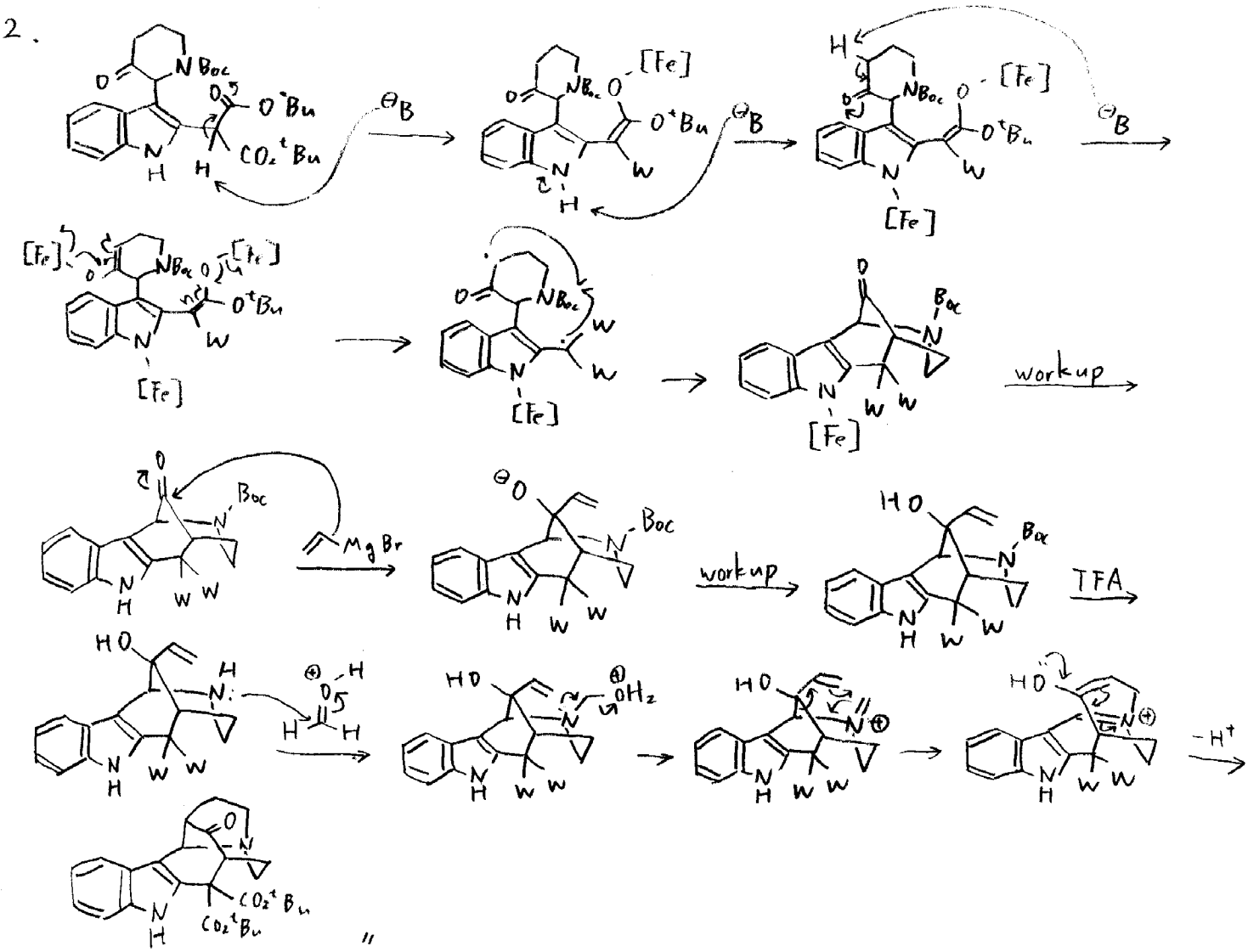
4.



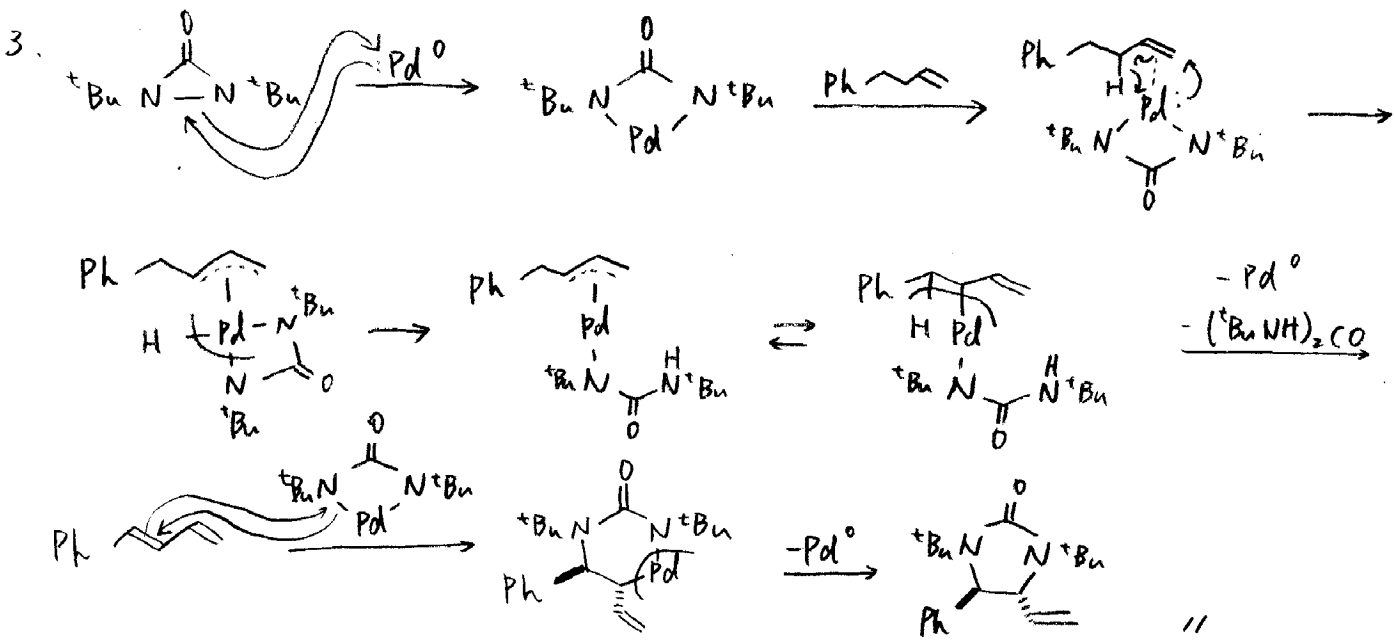
1.


OEt
AcO - Pd - OAc
$-N_2$
$-Pd(OAc)_2$
CO_2Et
OAc
OEt
OMe
OR
RO-H
LAH
OH
Cl
Cl
Cl

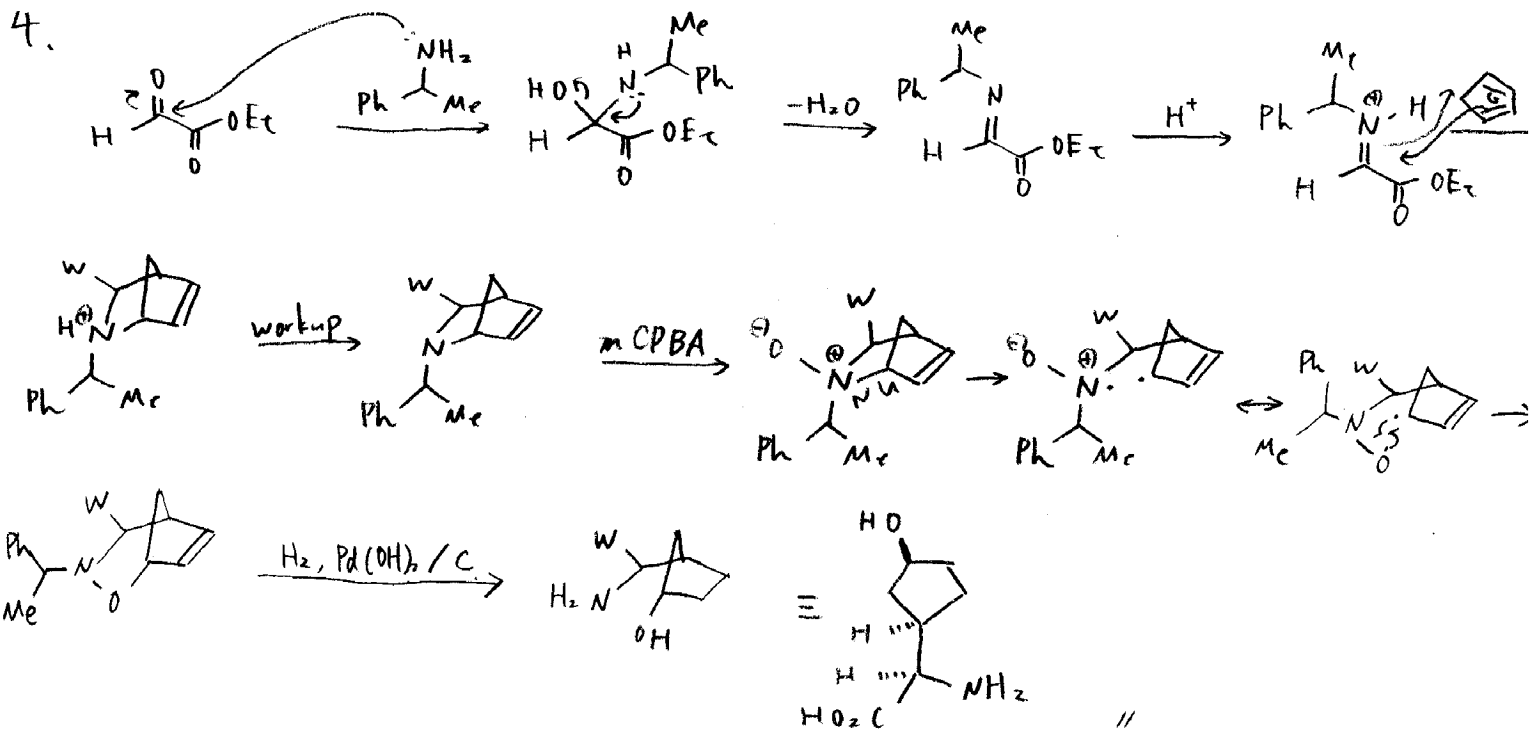
2.


N Boc
O^tBu
$CO_2{}^tBu$
[Fe]
W
workup
Boc
MgBr
TFA
HO
$-H^+$

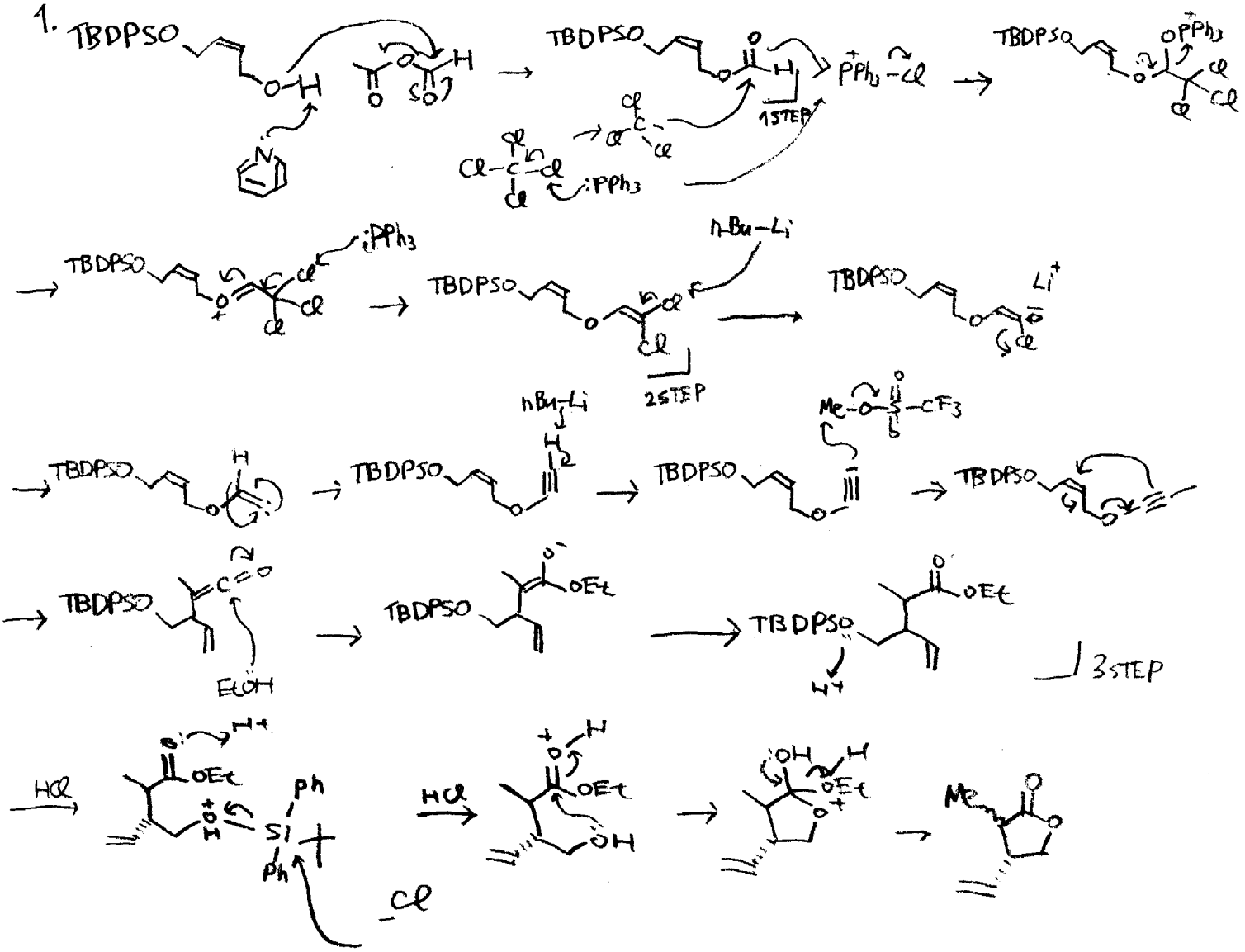
3.


Pd⁰
Ph
- Pd⁰
- (ᵗBuNH)₂CO
-Pd⁰

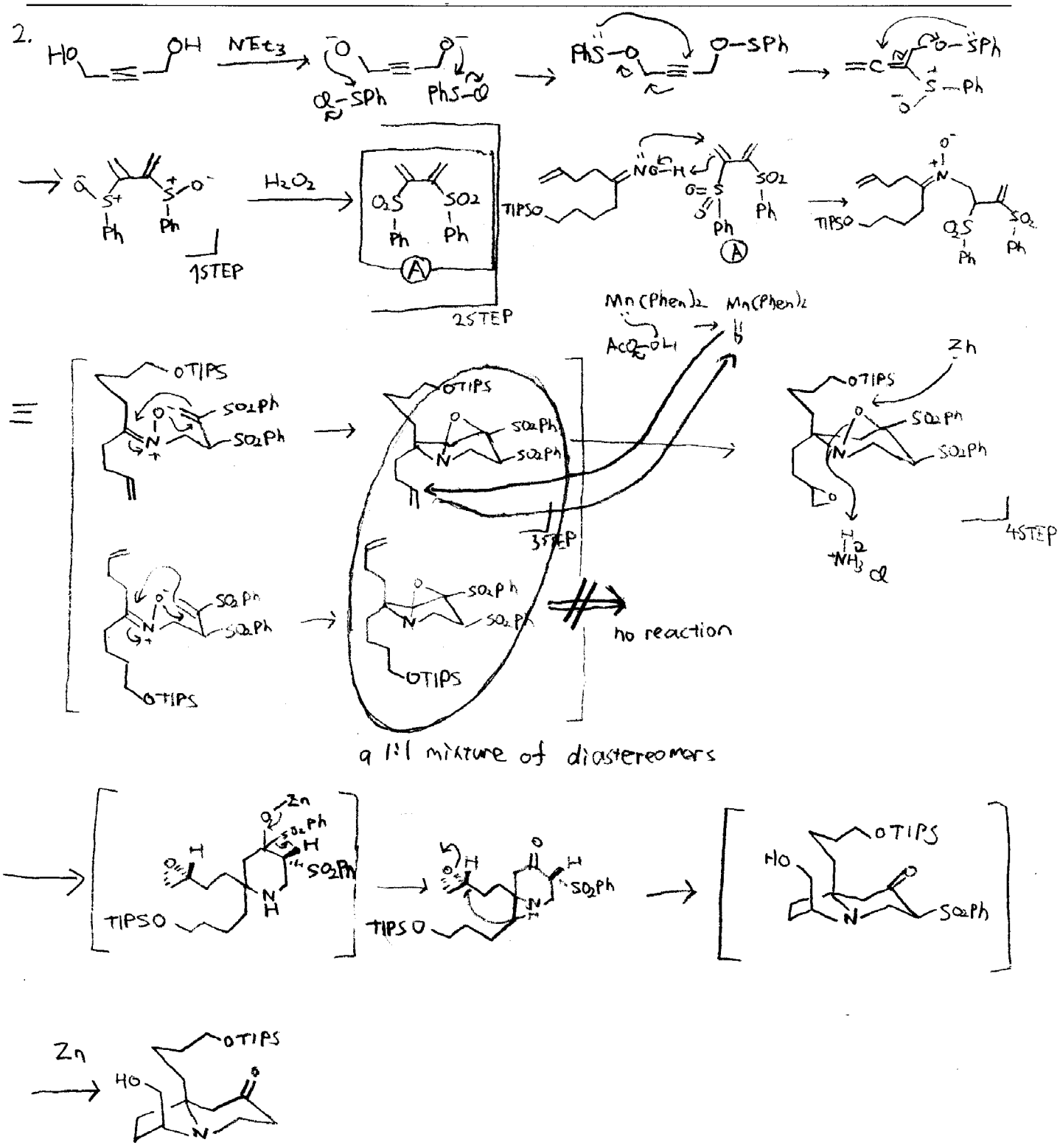
4.


NH₂
-H₂O
H⁺
workup
mCPBA
H₂, Pd(OH)₂ / C
HO
NH₂
HO₂C

1.



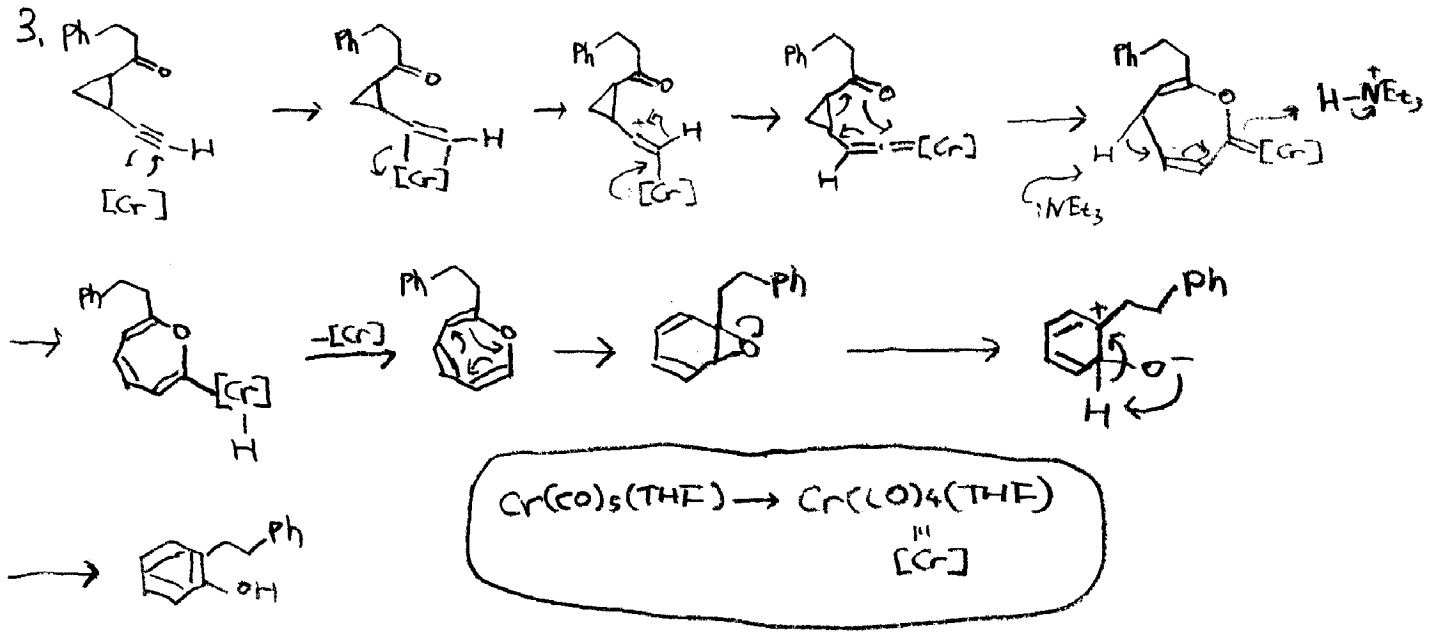
2.


NEt3
H2O2
1STEP
2STEP
3STEP
4STEP
Mn(Phen)2
AcOH
Zn
no reaction
a 1:1 mixture of diastereomers

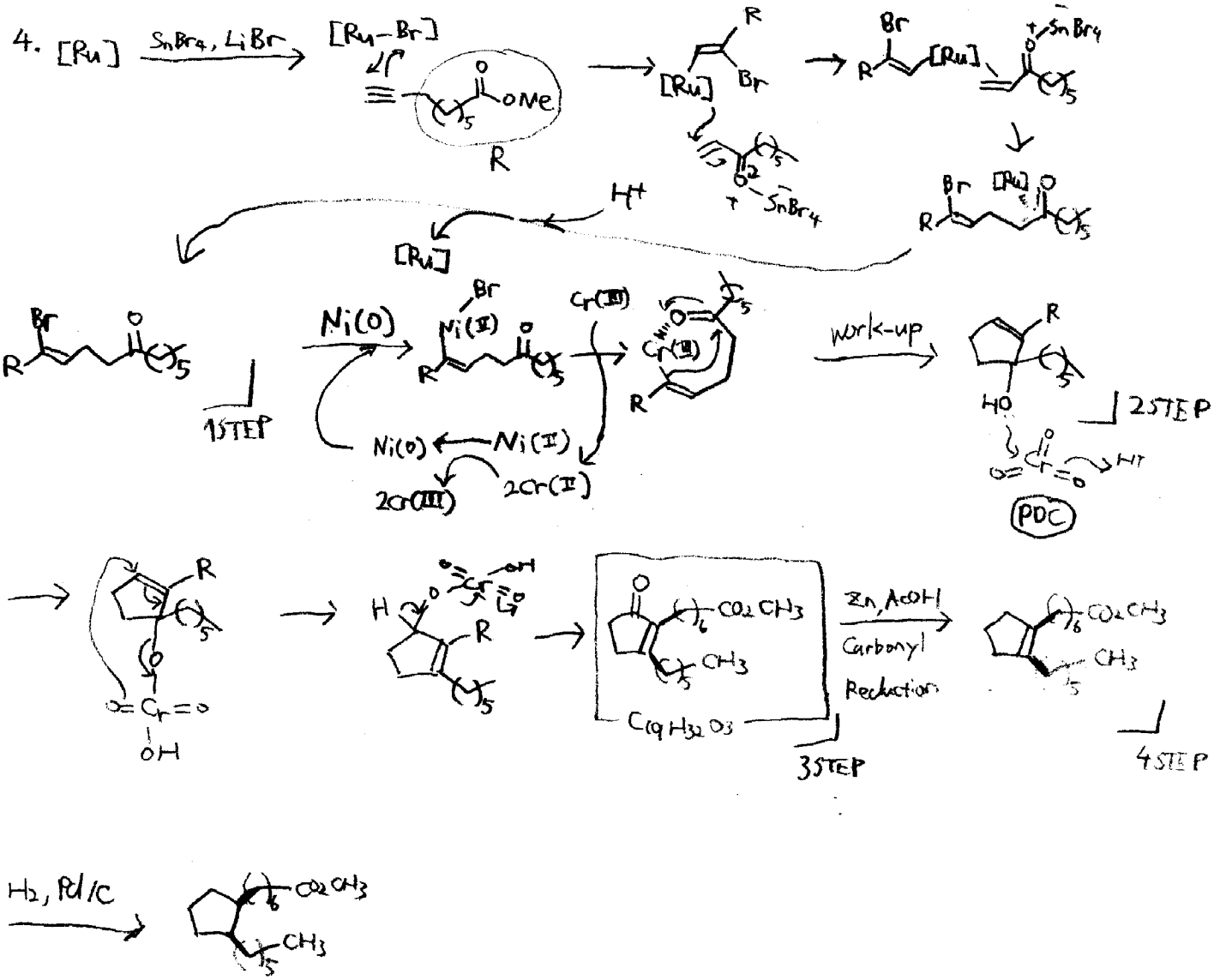
Zn
TIPSO

Zn
HO
OTIPS

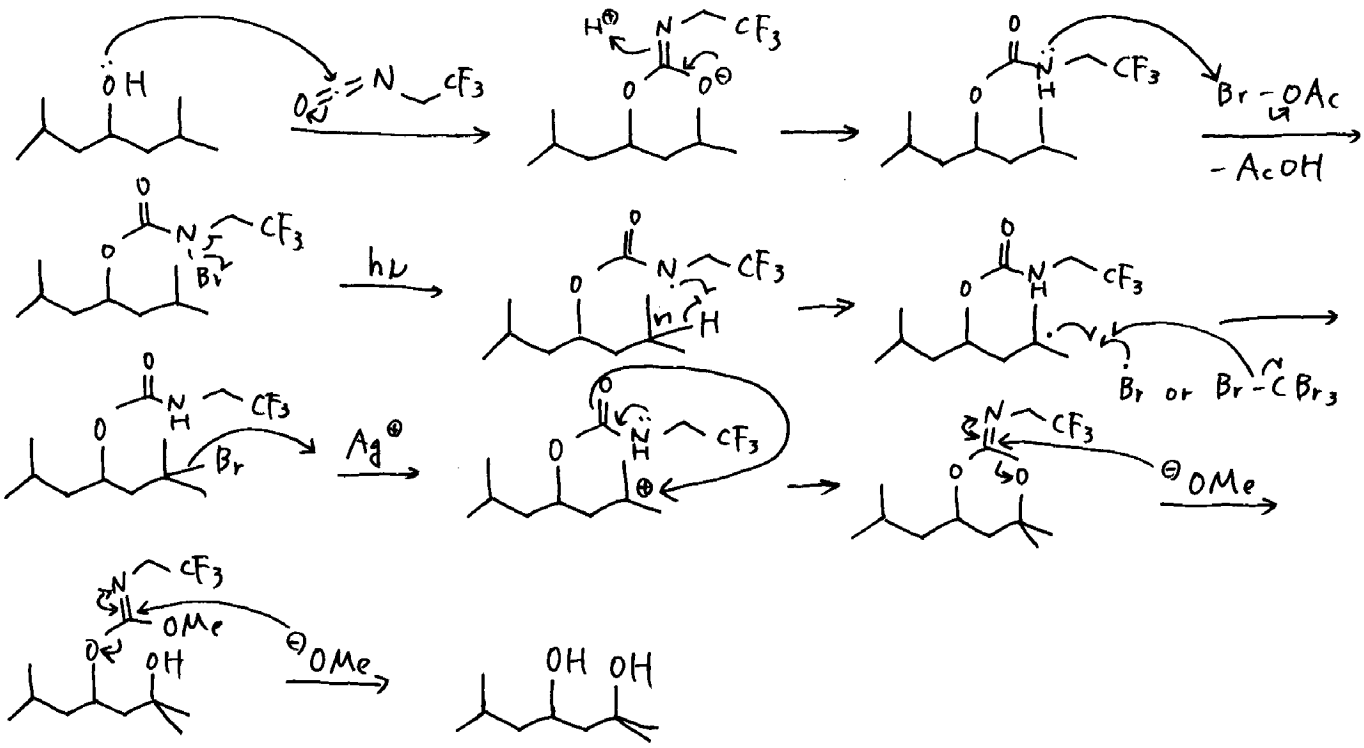
3.


Ph
[Cr]
H
NEt3
H-NEt3
-[Cr]
Cr(CO)5(THF) → Cr(CO)4(THF)
[Cr]

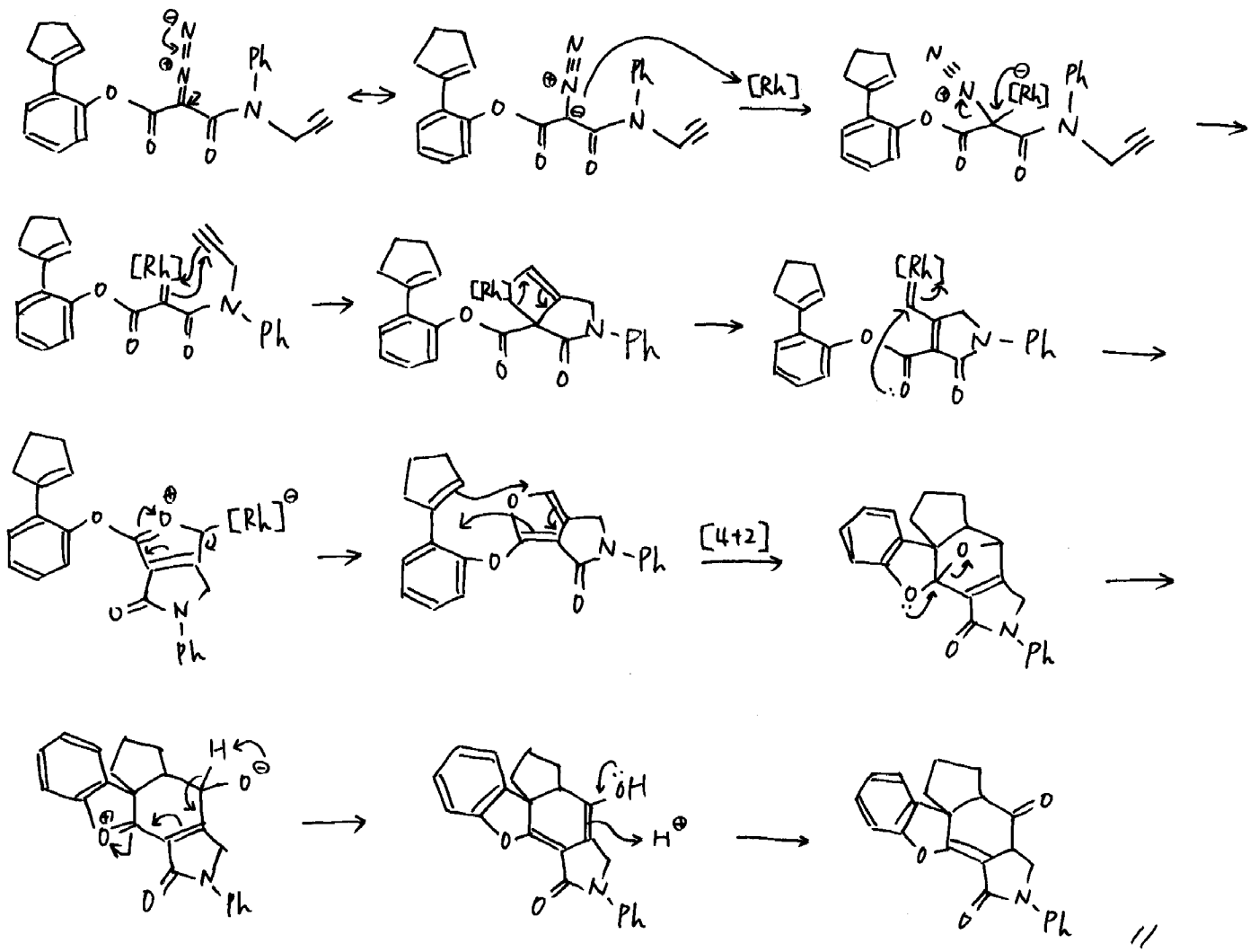
4.


[Ru]
SnBr4, LiBr
[Ru-Br]
OMe
R
Br
SnBr4
H+
1STEP
Ni(0)
Ni(II)
Cr(III)
Ni(0) ← Ni(II)
2Cr(III)
2Cr(II)
work-up
2STEP
HO
PDC
Zn, AcOH
Carbonyl
Reduction
C19H32O3
3STEP
4STEP
H2, Pd/C
CO2CH3
CH3

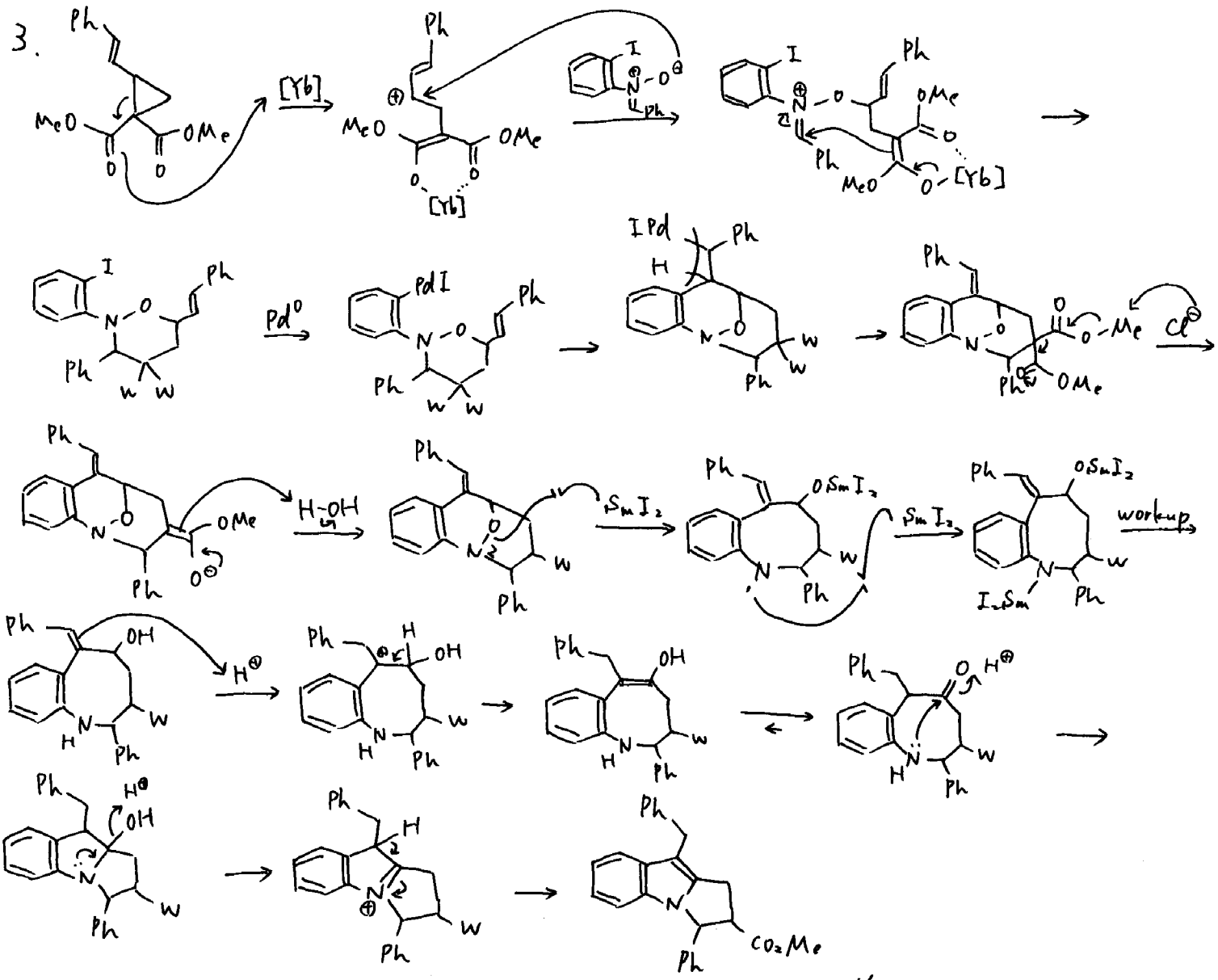
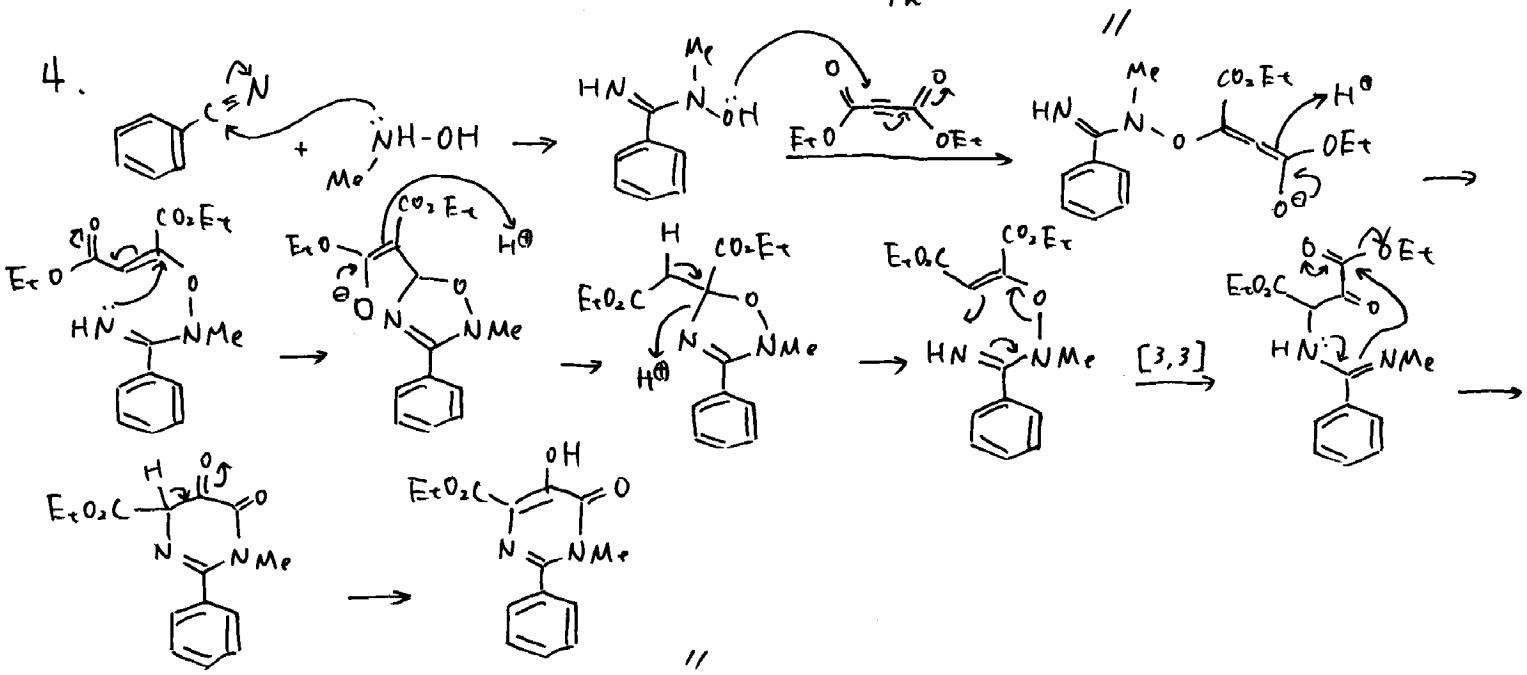
1.



2.



3.



4.