Asymmetric Total Synthesis of (–)- and (+)-Strychnine and the Wieland–Gumlich Aldehyde

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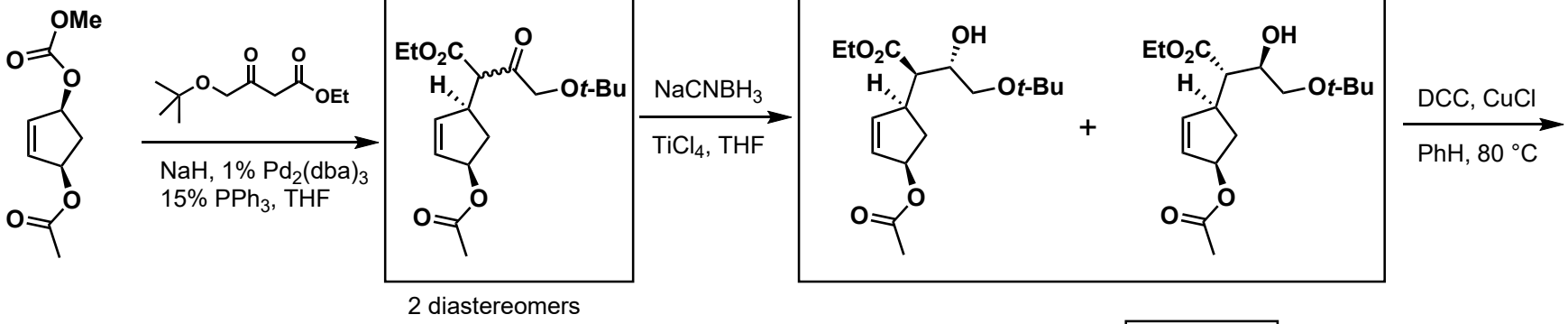
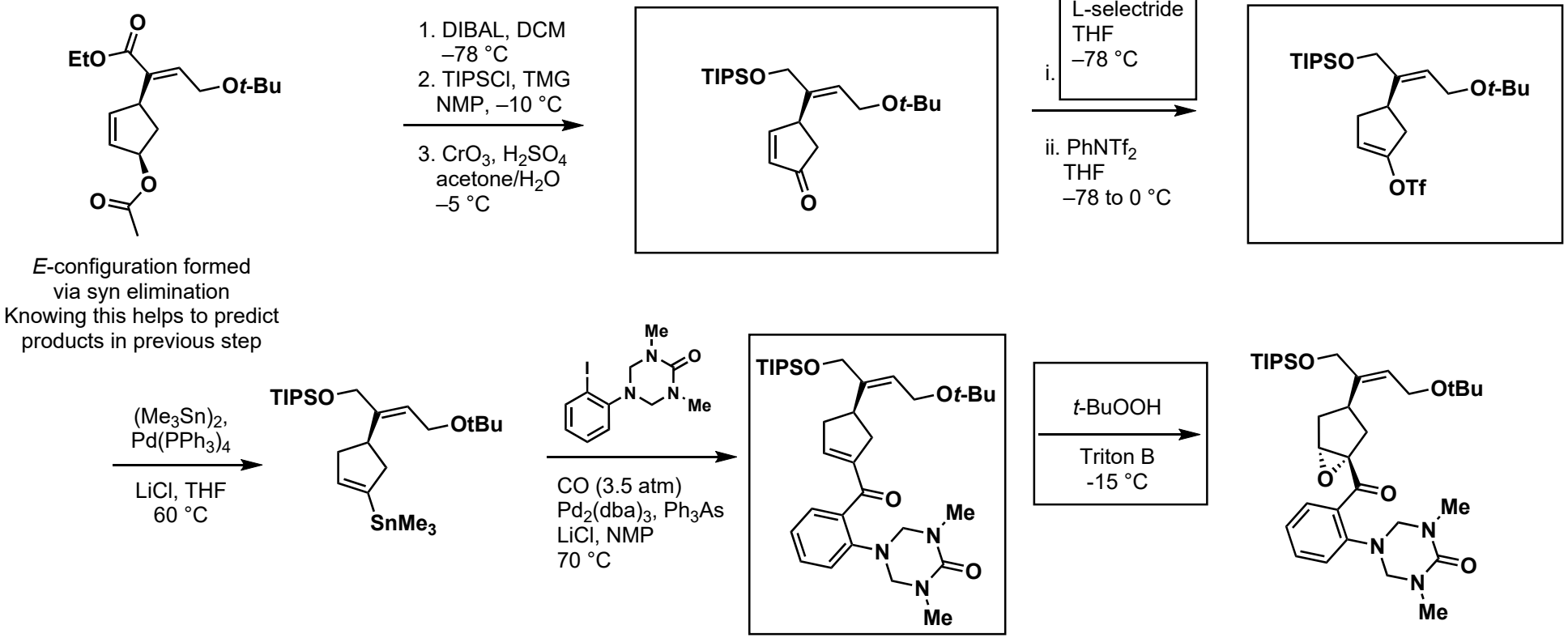
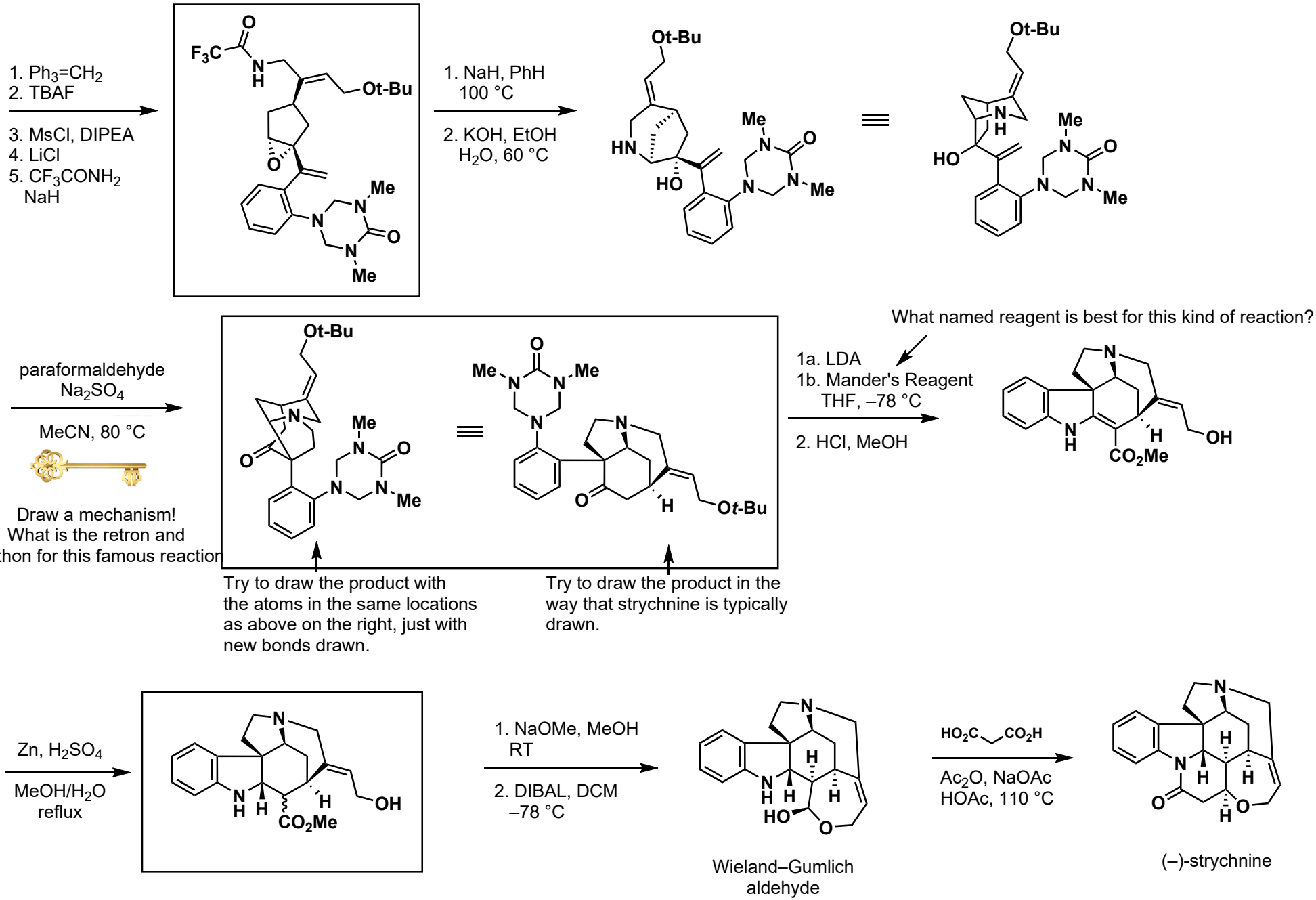
How do you make this enantiopure?



E-configuration formed via syn elimination
Knowing this helps to predict products in previous step




1. $Ph_3=CH_2$
2. TBAF
3. MsCl, DIPEA
4. LiCl
5. CF_3CONH_2
NaH
1. NaH, PhH
100 °C
2. KOH, EtOH
H_2O, 60 °C
paraformaldehyde
Na_2SO_4
MeCN, 80 °C
Draw a mechanism!
What is the retron and synthon for this famous reaction
Try to draw the product with the atoms in the same locations as above on the right, just with new bonds drawn.
Try to draw the product in the way that strychnine is typically drawn.
What named reagent is best for this kind of reaction?
1a. LDA
1b. Mander's Reagent
THF, –78 °C
2. HCl, MeOH
Zn, H_2SO_4
MeOH/H_2O
reflux
1. NaOMe, MeOH
RT
2. DIBAL, DCM
–78 °C
Wieland–Gumlich aldehyde
HO_2C CO_2H
Ac_2O, NaOAc
HOAc, 110 °C
(–)-strychnine