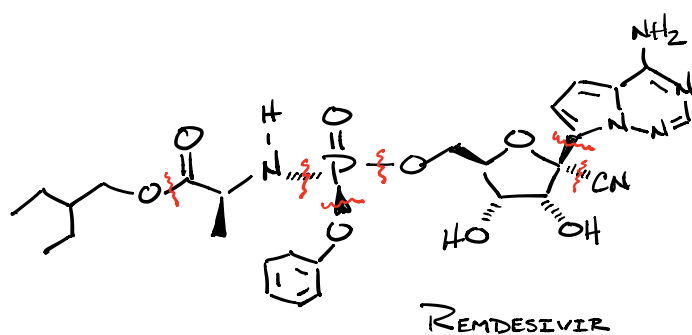
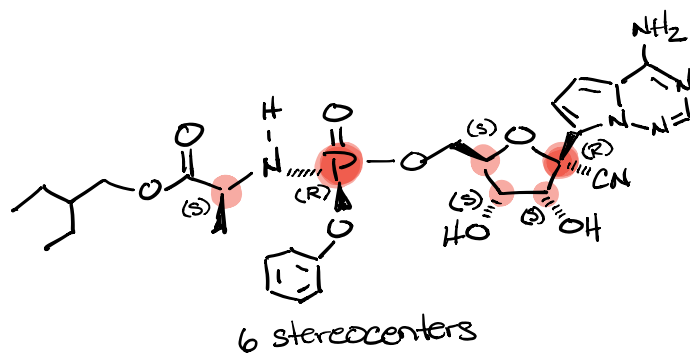
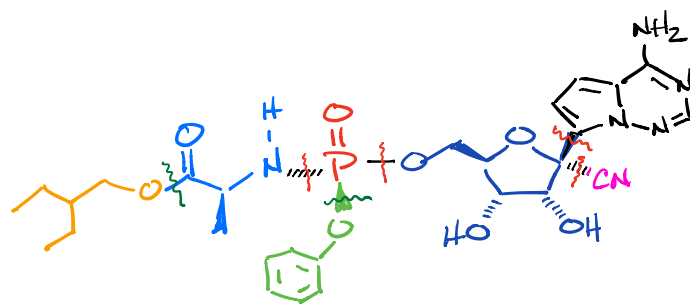




REMDESIVIR

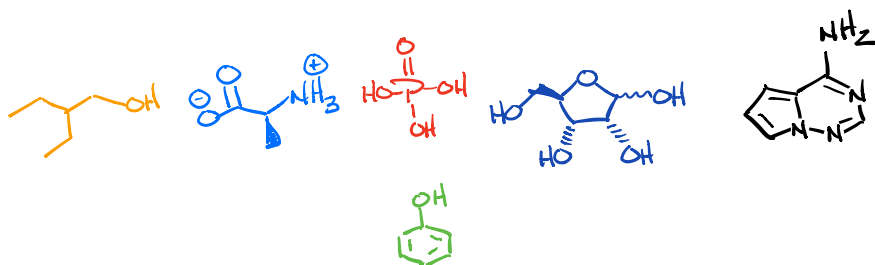


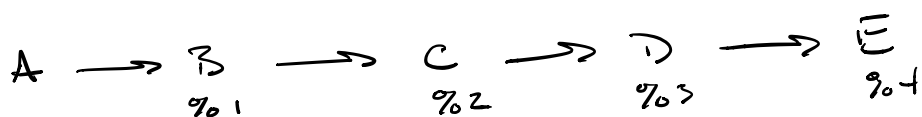
6 stereocenters



4 Major Bond disconnects

2 Simple





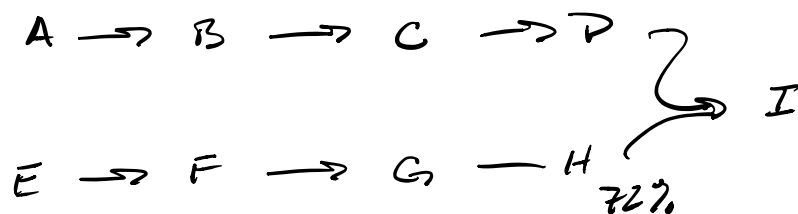
Linear Sequence

$$\text{yield} = \%1 \times \%2 \times \%3 \times \%4 \times 100 = \text{overall}$$

if 90% each = $0.9 \times 0.9 \times 0.9 \times 0.9 \times 100$

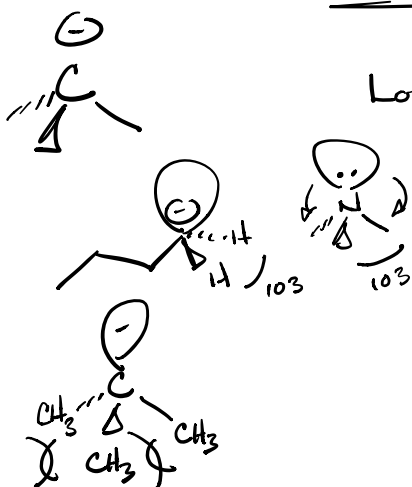
$$0.9^4 \times 100 = 65.61\% \text{ overall}$$

$$0.9^3 \times 100 = 72\%$$



Convergent Synthesis

Economically Viable



Low Cost of Synthesis

RT instead of Hot or Cold

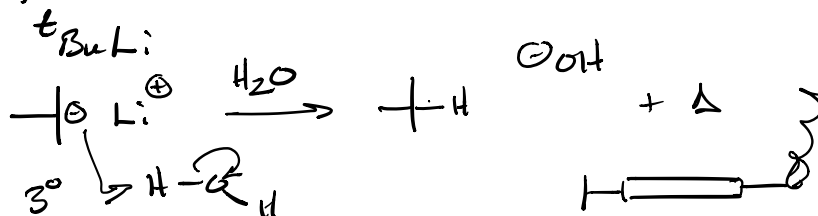
air instead of N_2 or Ar

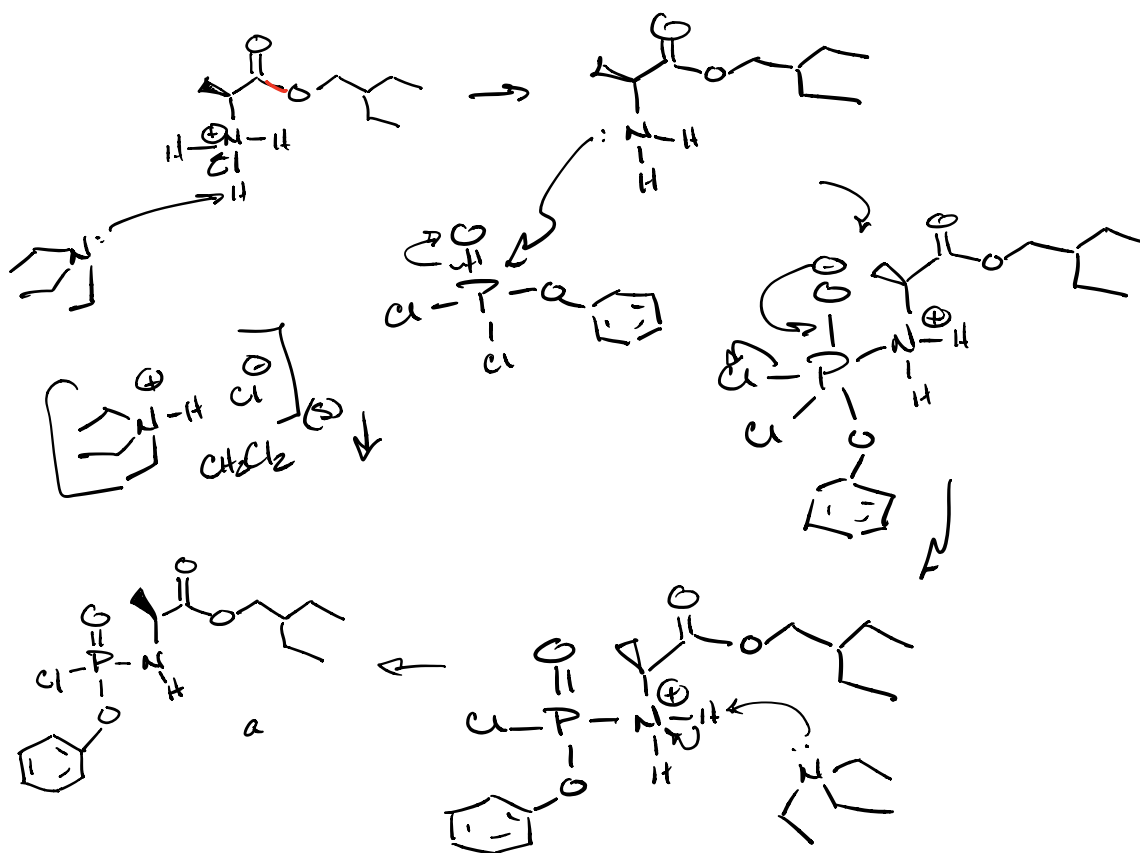
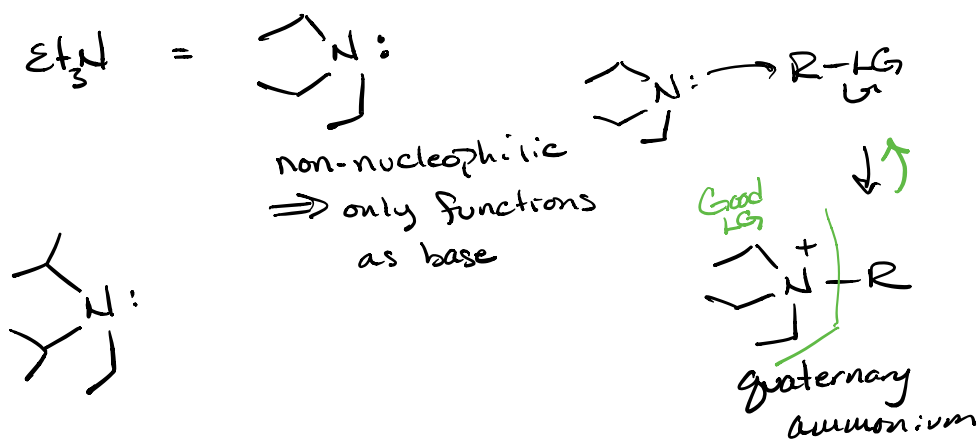
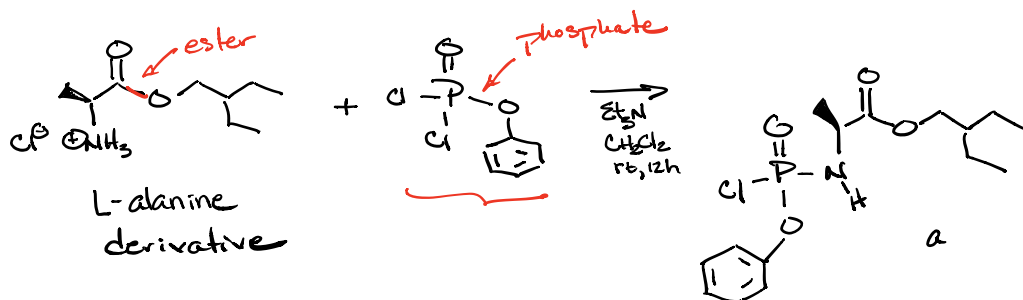
% yield high

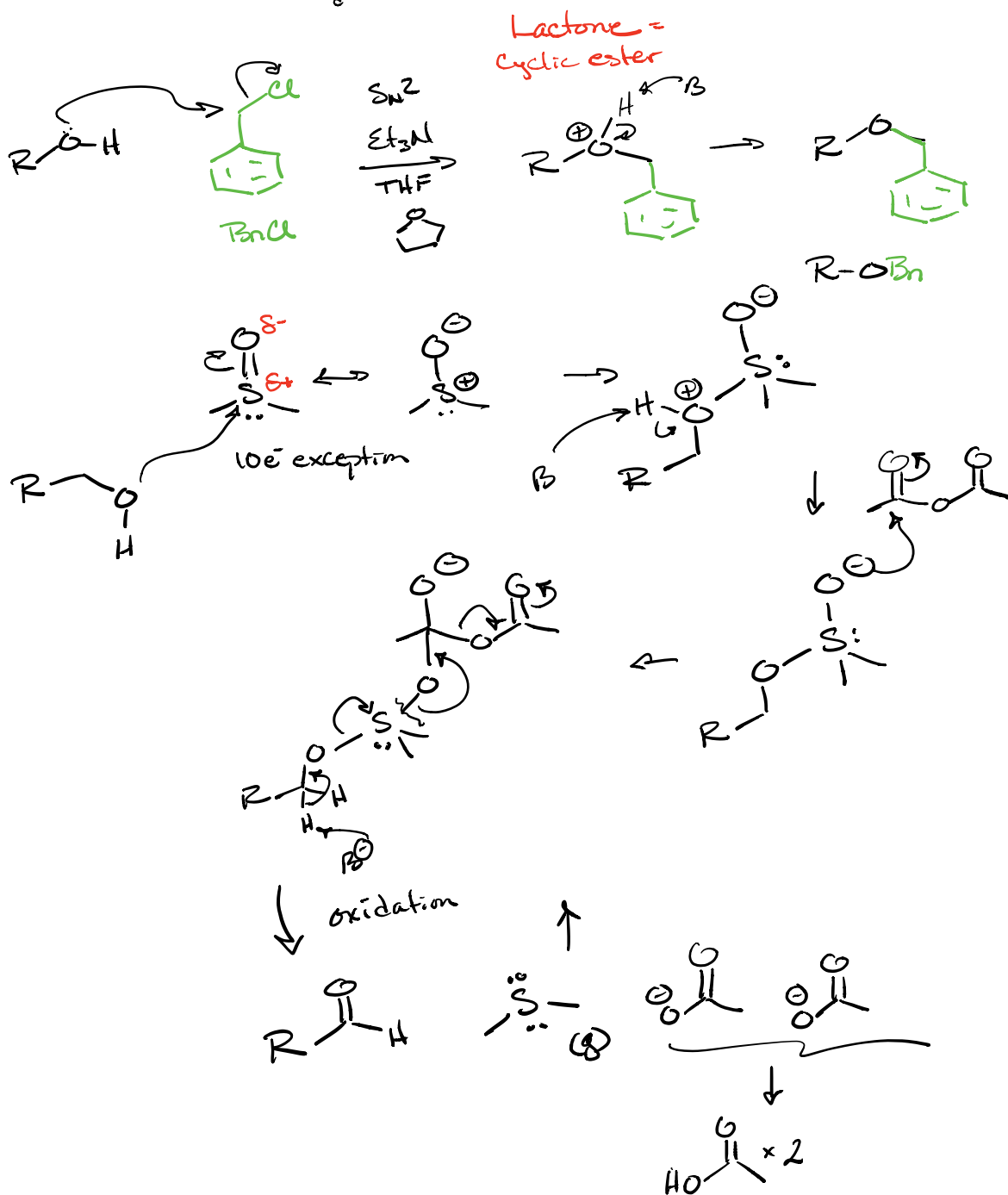
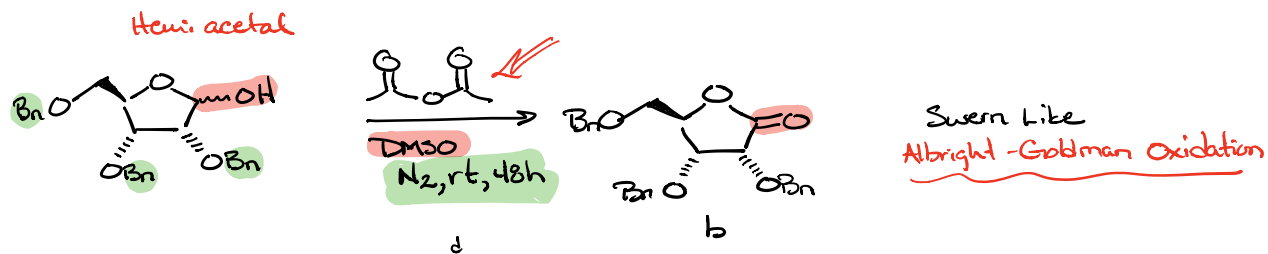
Stereoselective instead of Resolution

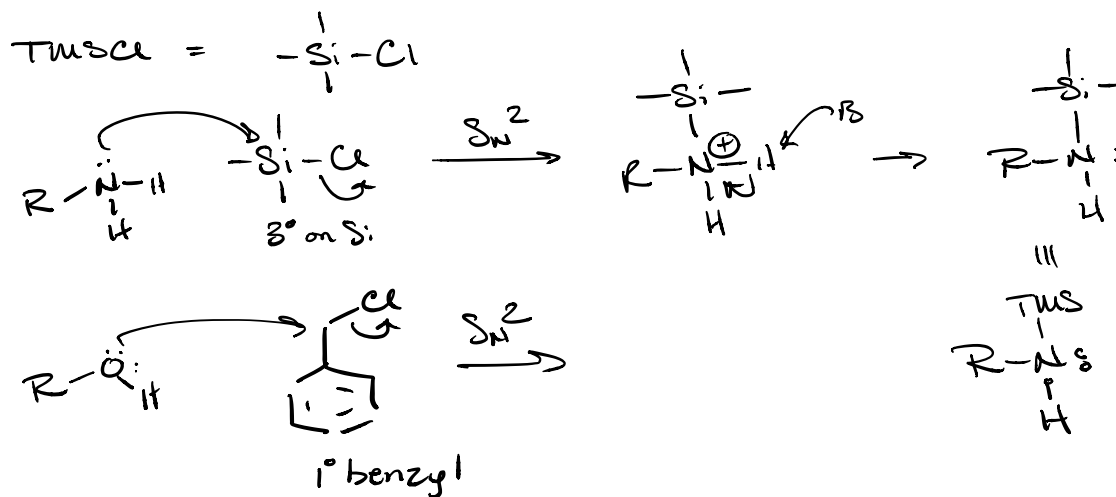
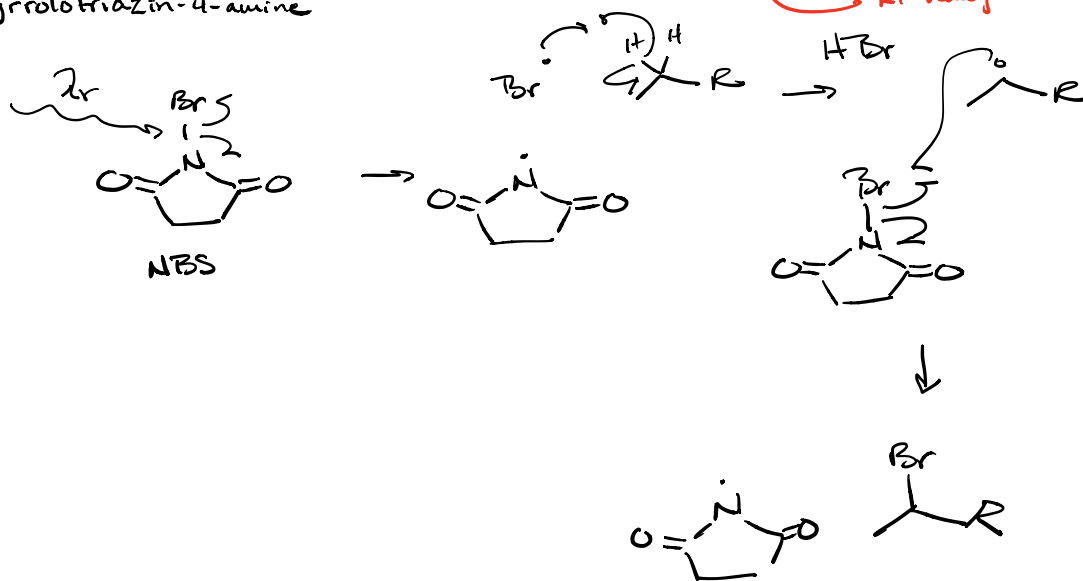
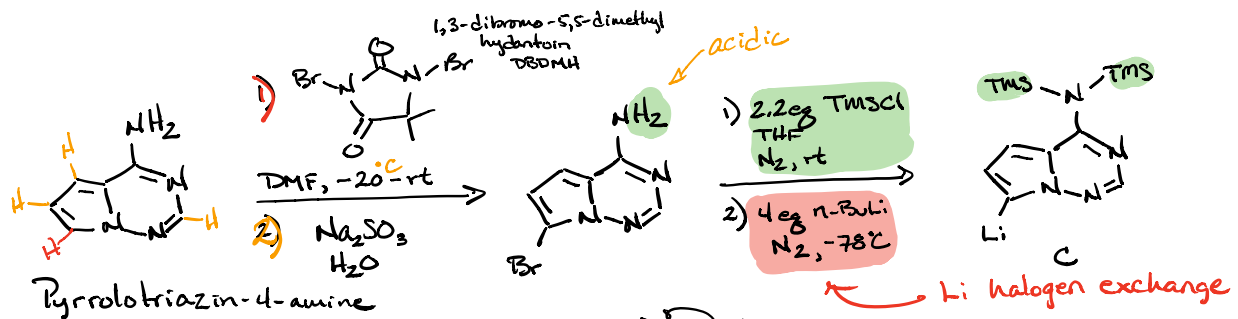
100% Single isomer

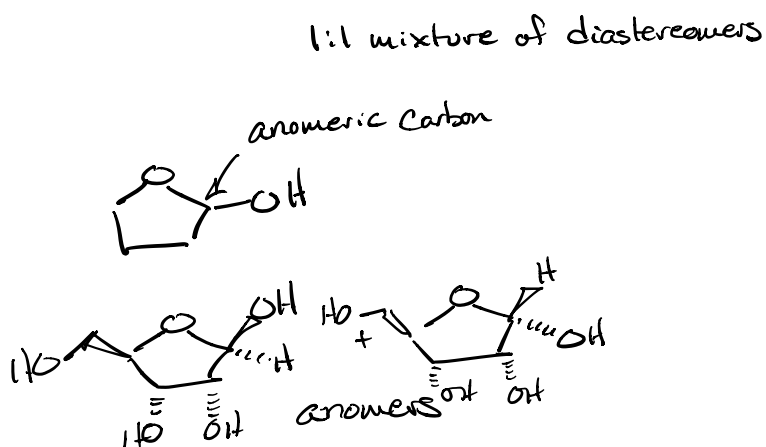
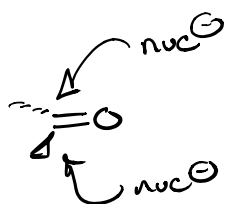
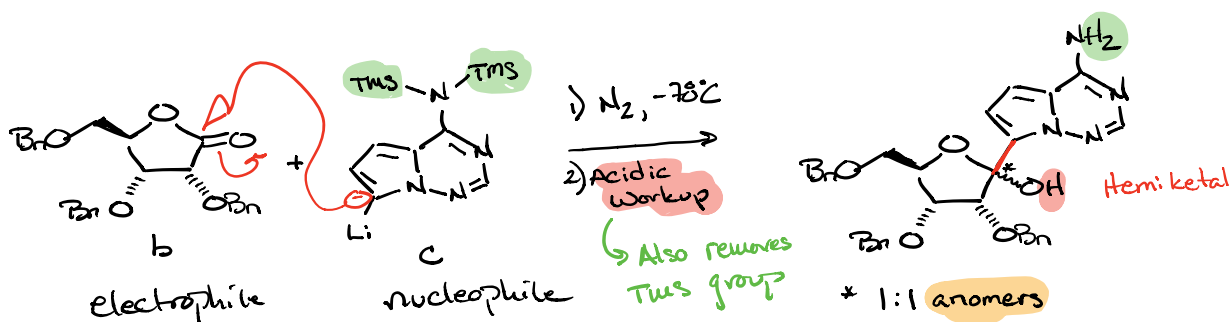
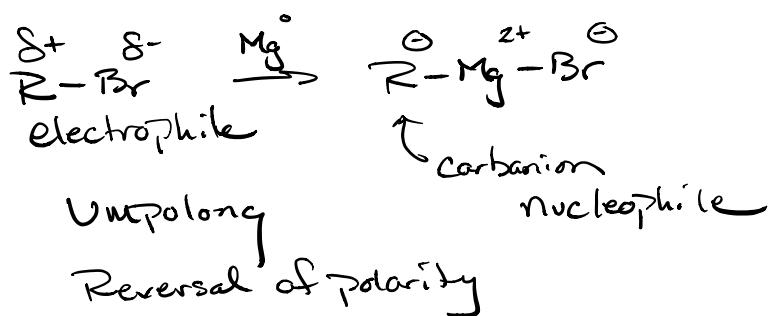
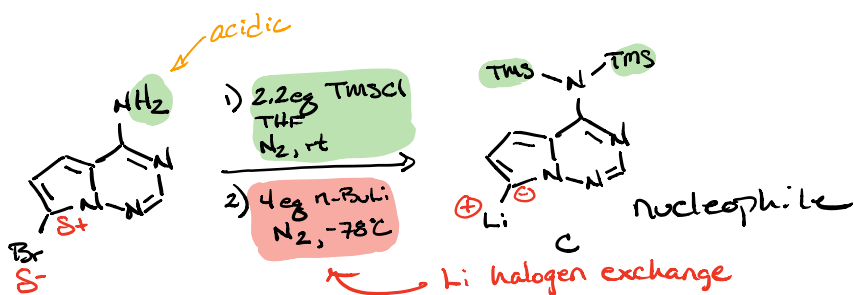
throw 50% away

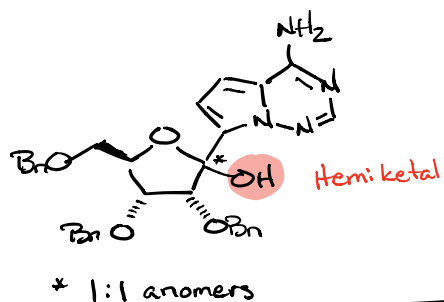




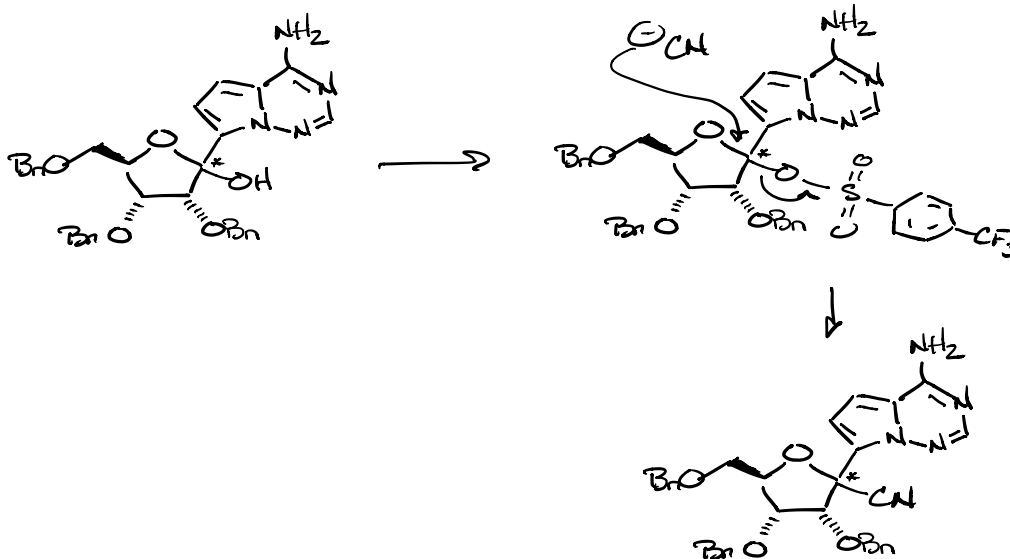
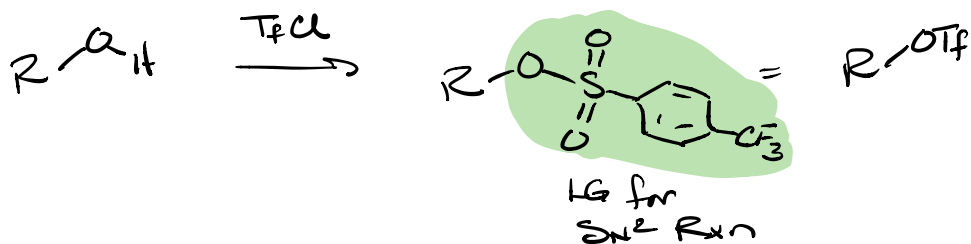
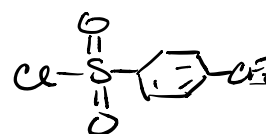
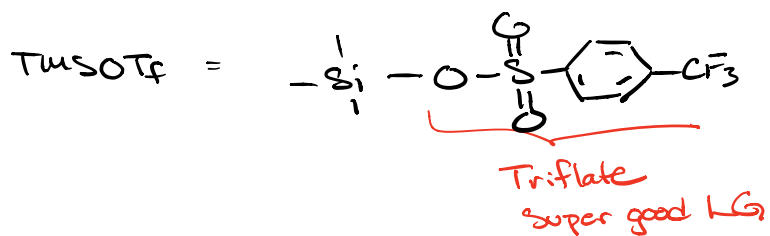
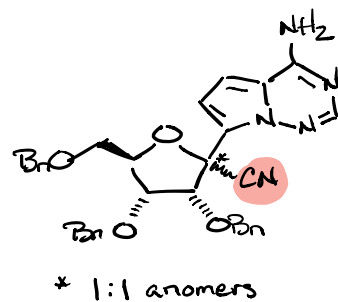


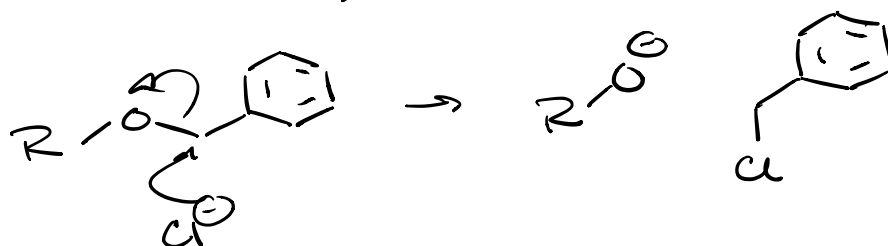
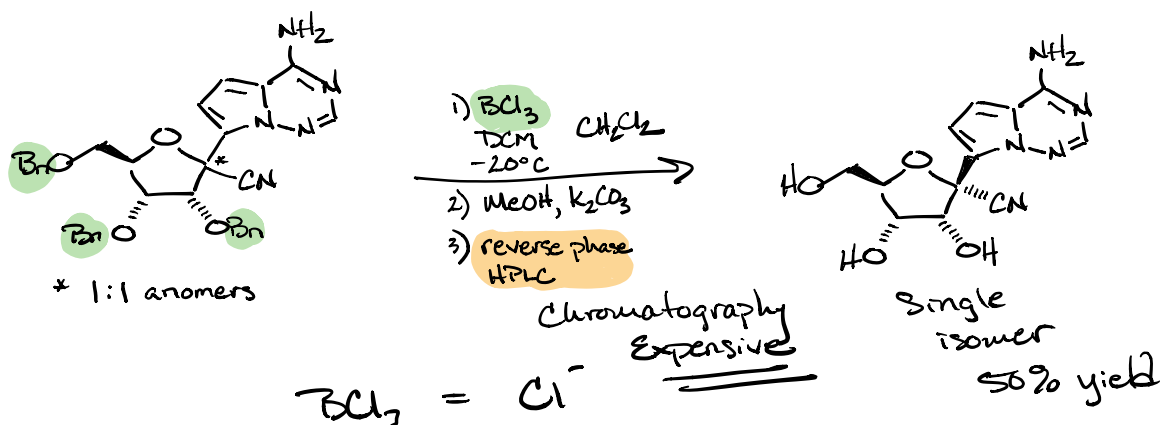




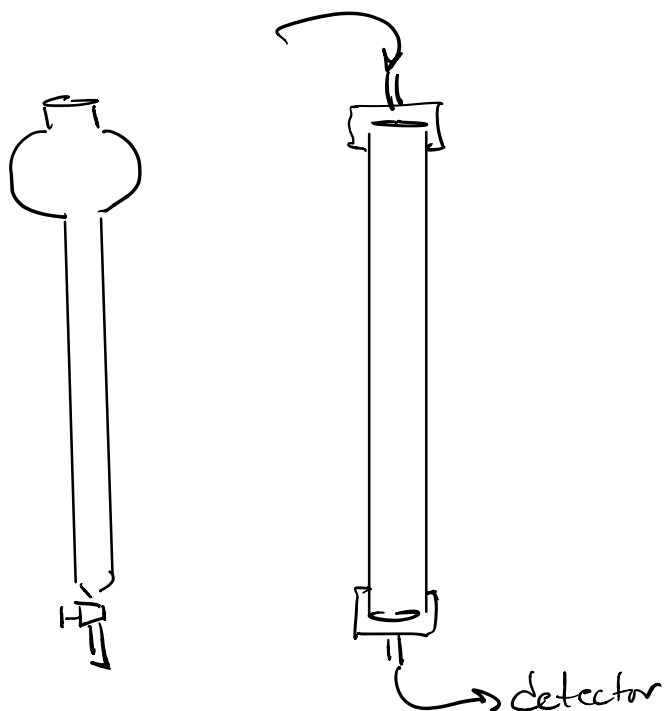


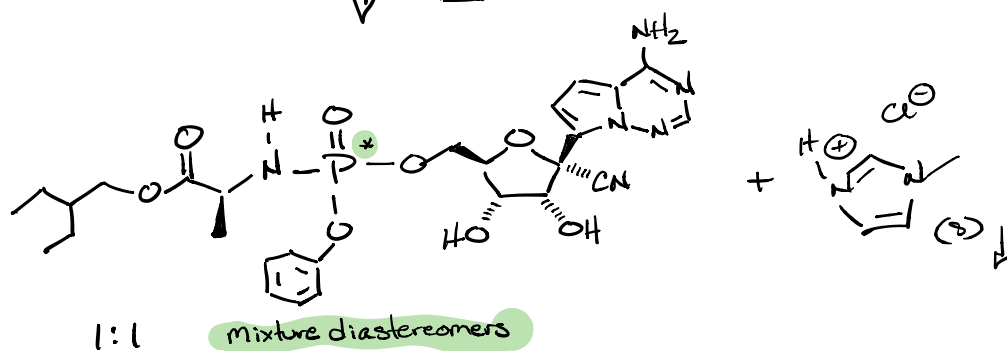
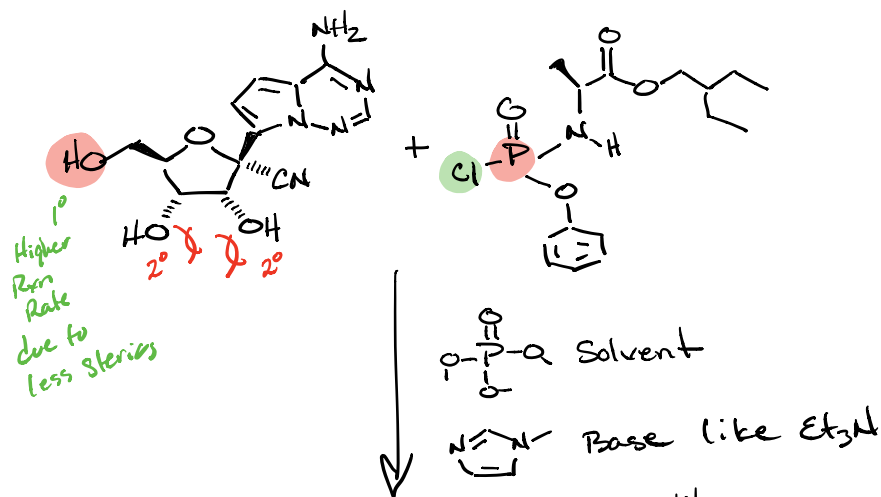
- 1) 3.5 eq TMS-CN
N₂, DCM
-78°C, 10 min
- 2) 4.5 eq TMSOTf
N₂, DCM
-78°C, 1 h
- 3) NaHCO₃(aq)



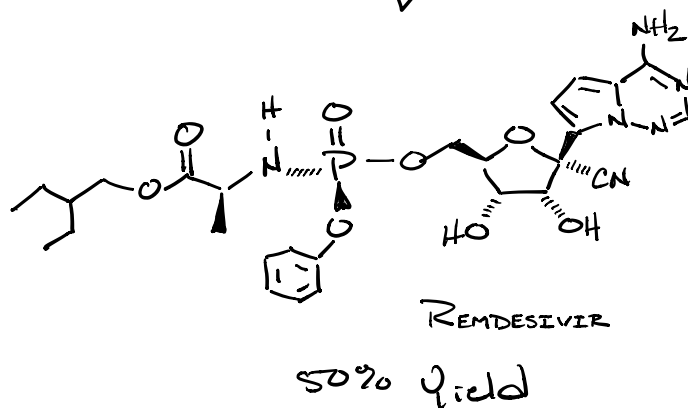


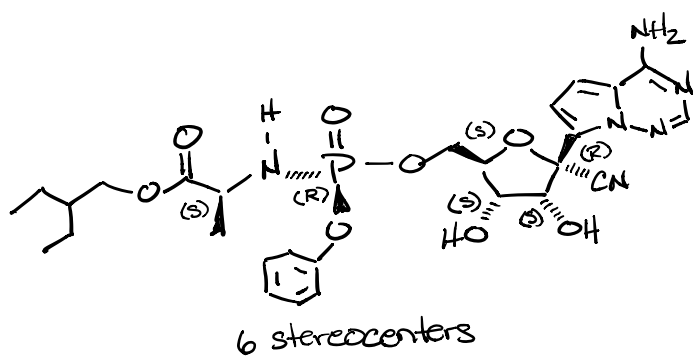
HPLC High Pressure liquid Chromatography





Resolution





$$2^n \mid n = \text{stereocenters}$$

$$2^6 = 64 \text{ possible isomers}$$