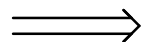
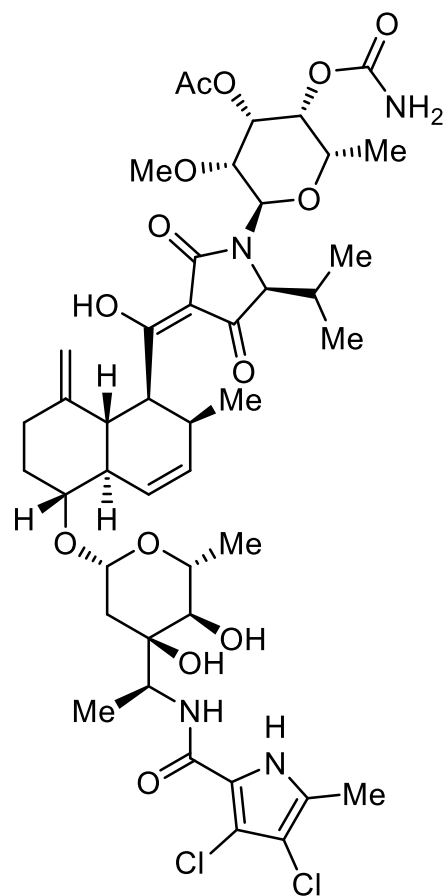


Total synthesis of broad-spectrum antibiotic:



3 main fragments  
(5 fragments in total)

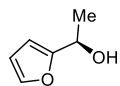
suggest disconnections



**Fragments A, B and C**



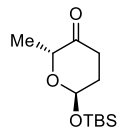
Synthesis of fragment C



1. NBS, NaHCO<sub>3</sub>, AcONa
  2. TBSOTf, DIPEA
- 70% over 2 steps
3. H<sub>2</sub>, Pd/C, quant.
- $\alpha, \beta = 4:1$

mechanism?

name?

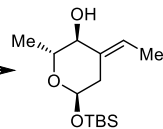


4. [Redacted]
- then
- then [Redacted]



dr = 4.6:1

5. [Redacted]



76% over 2 steps

6. DBU, CCl<sub>3</sub>CN

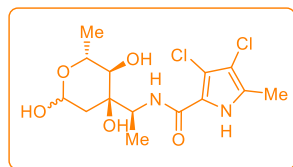


name?

name?

8. K<sub>2</sub>OsO<sub>4</sub>, (DHQD)<sub>2</sub>PHAL  
K<sub>2</sub>CO<sub>3</sub>, K<sub>3</sub>Fe(CN)<sub>6</sub>, MeSO<sub>2</sub>NH<sub>2</sub> (AD-mix- $\beta$ )

51% over 3 steps

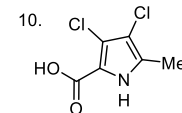


Fragment C

11. HCl, 83%



9. DIBAL



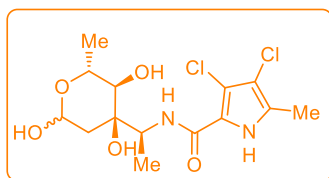
10. EDCI, HOBT, TEA

57% over 2 steps

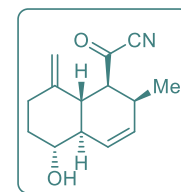
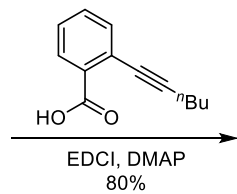


dr = 6:1

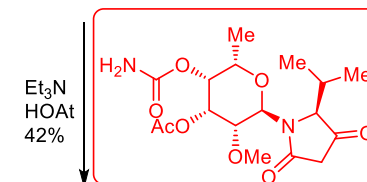
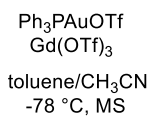
End game



Fragment C

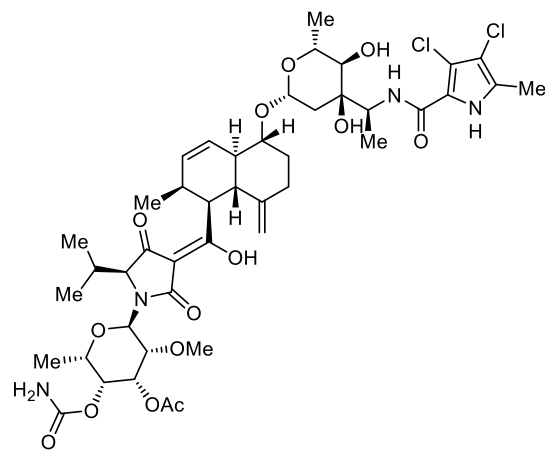


Fragment B

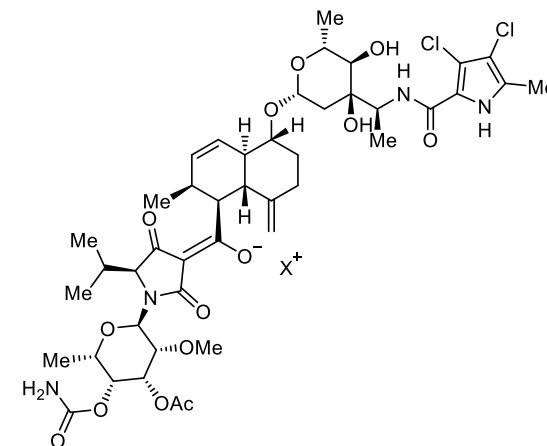
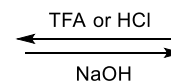


Et<sub>3</sub>N  
HOAt  
42%

Fragment A



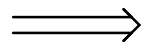
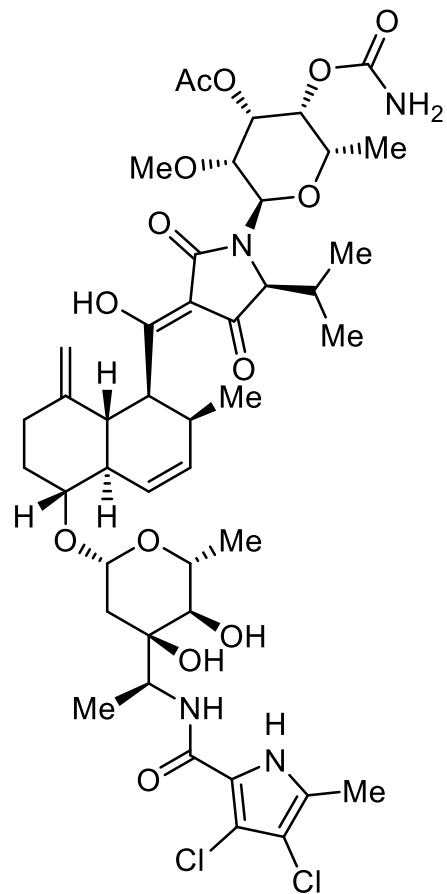
amycolamicin



kibd lomycin

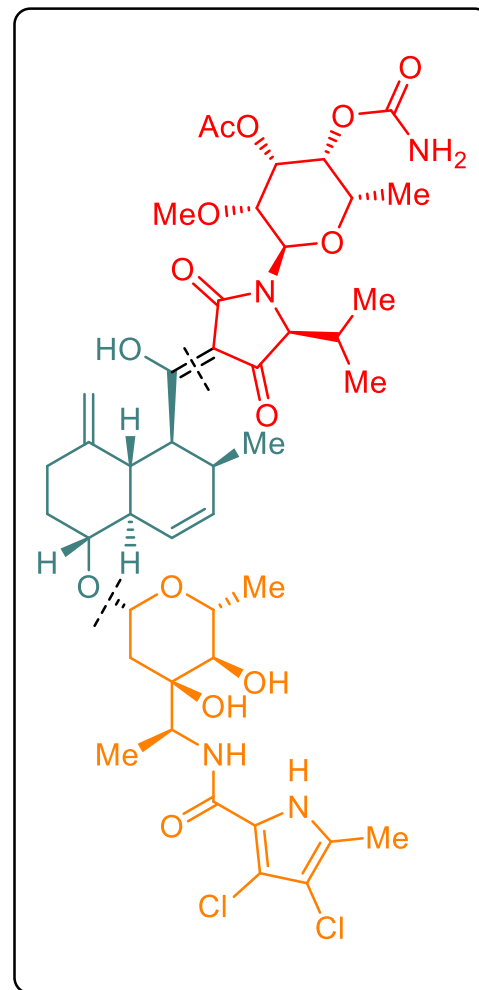
## Solutions

Total synthesis of broad-spectrum antibiotic:



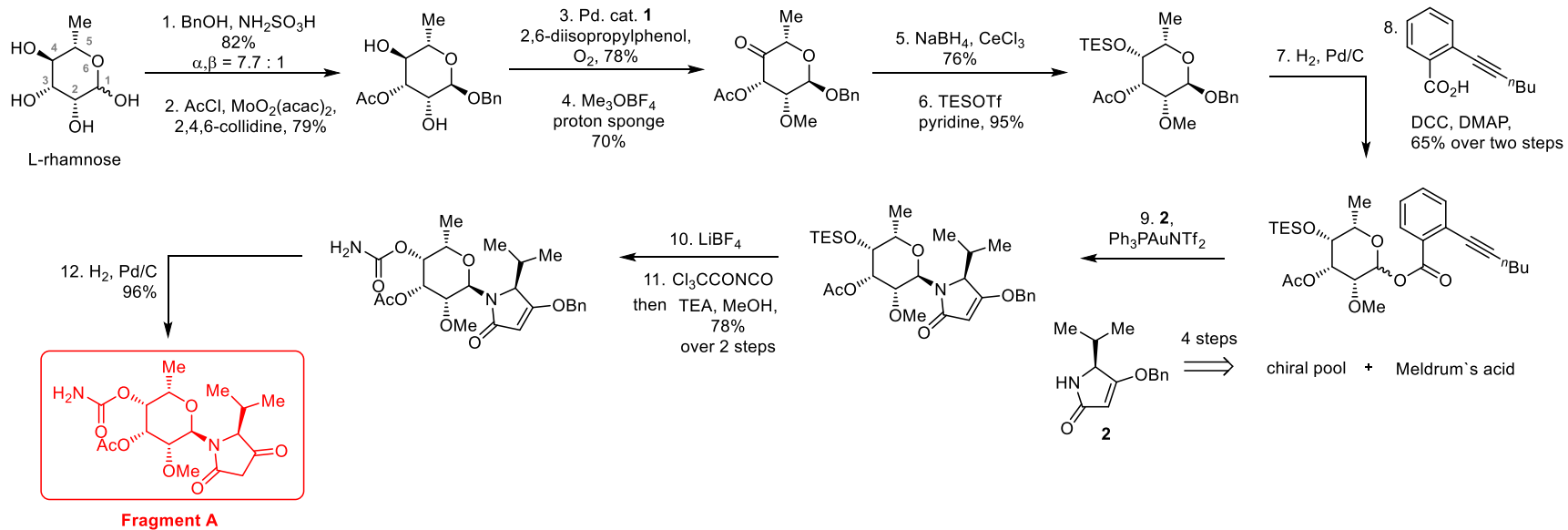
3 main fragments  
(5 fragments in total)

suggest disconnections

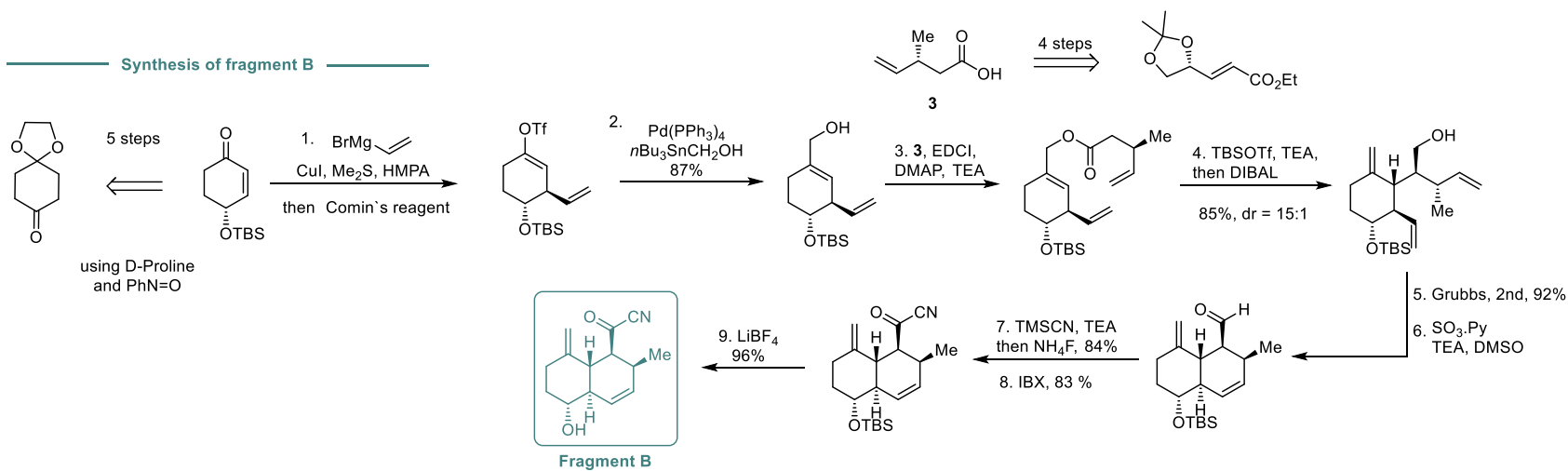


Fragments A, B and C

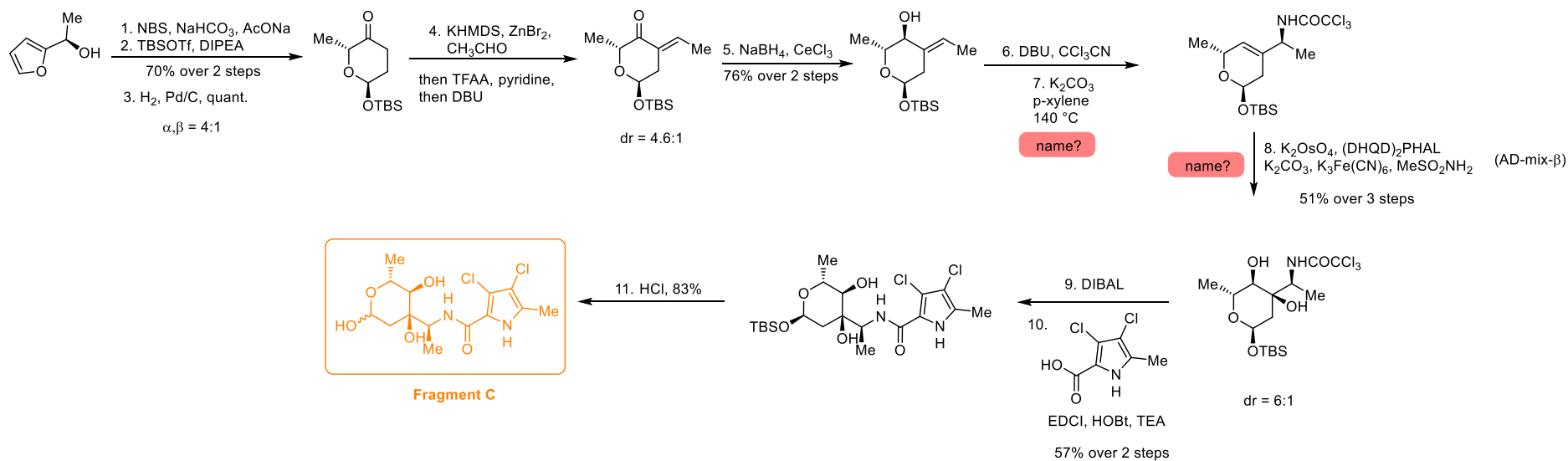
Synthesis of fragment A



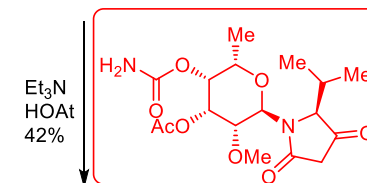
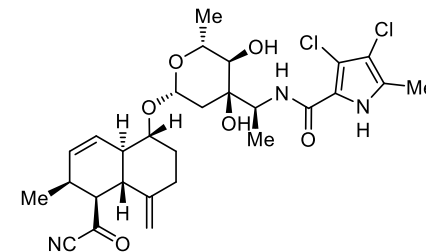
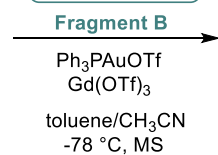
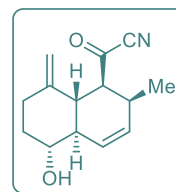
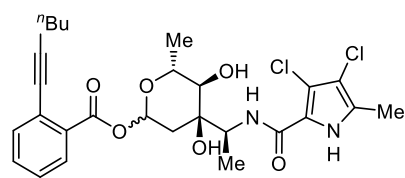
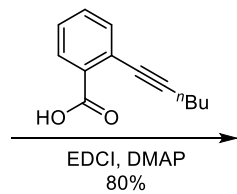
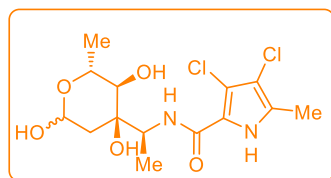
Synthesis of fragment B



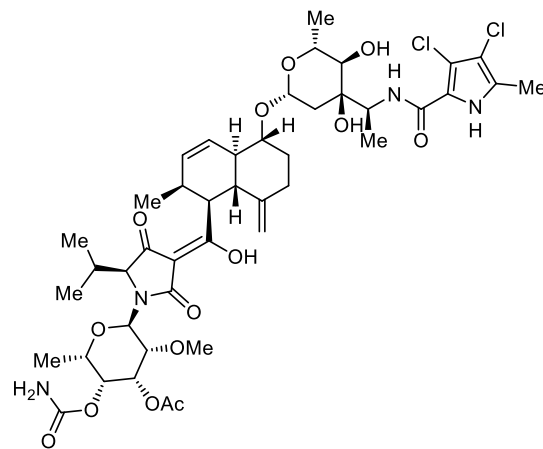
Synthesis of fragment C



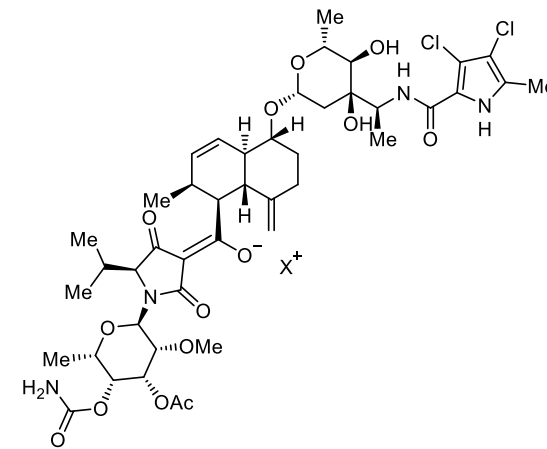
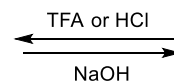
End game



Fragment A



amycolamicin



kibelomycin