An Efficient Synthetic Approach to Cyanocycline A and Bioxalomycin β2 via [C+NC+CC] Coupling

Boc-D-Serine

1) Mel, NaHCO₃
2) TsOH, Me₂C(OMe)₂
3) DIBAL-H
4) BnNHOH, MgSO₄

Oppolzer's L-camphorsultam

5) n-BuLi, bromoacetyl bromide
6) urotropine, then conc. HCl

How would you prepare Oppolzer's sultam? (hint: start from CSA!)

step 6: name of reaction?

Cyanocycline A

7) EtCOCl, TiCl₄
8) m-CPBA
9) NBS
10) KOH, MeOH
11) BnBr, NaH
Step 12: Please explain the stereochemical outcome of this reaction (transition state!)

Step 17: Come up with a mechanism that explains the reaction's stereoselectivity

Step 21: name of reaction ?

Hint: two positions get reduced in Step 23

Step 26: Structure of L.R. and how would you prepare it?

Hint (Step 27): position of interest does not get completely reduced