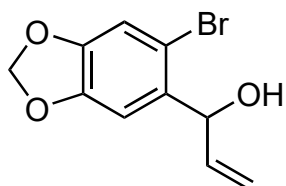
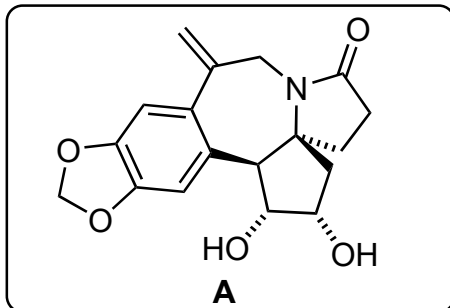


Enantioselective Total Synthesis of the *Cephalotaxus* Alkaloids (-)-Fourtuneicyclidine A and B and (-)-Cephalotine B

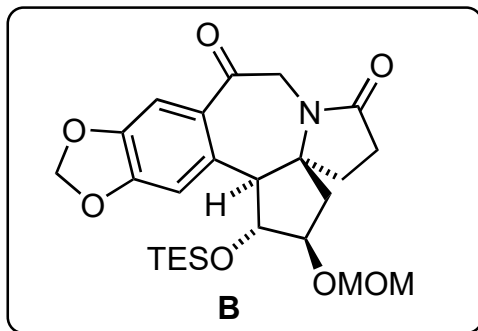
Sheng, P-Z.; Ni, Z-B.; Li, L-L.; Wei, K.; Zhang, H.; Yang, Y-R. *Org. Lett.* **2023** 25, 7464.



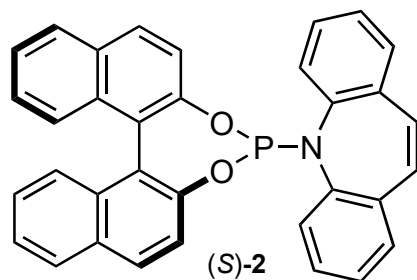
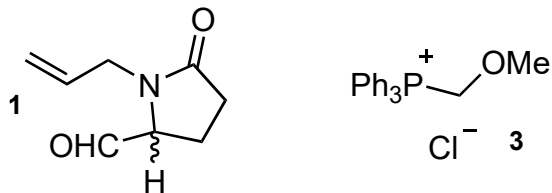
1-7



8-12



1. **1**, [Ir(cod)Cl]₂ (2 mol %), (*S*)-**2**, benzhydrylamine (20 mol%), Cl₂HCCO₂H (45 mol%)
2. **3**, LiHMDS, -10 °C
3. Pd(PPh₃)₄ (10 mol%), 1,2-bis(diphenylphosphino)benzene (10 mol%), Cs₂CO₃ (2 equiv.), 120 °C
4. *p*-TSA
5. PPh₃CH₂Br, *t*-BuOK, 0 °C
6. Grubbs II
7. K₂OsO₄, NMO

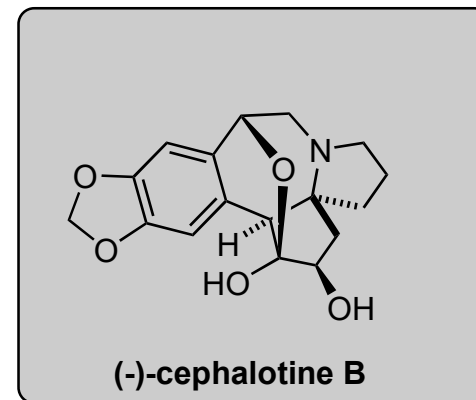
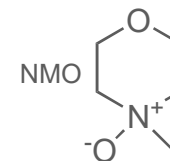


8. TESCl, imidazole, 0 °C
9. NCS, DMS, NEt₃, -78 °C
10. NaBH₄
11. MOMCl, DIPEA
12. O₃, Me₂S, DCM/ pyridine

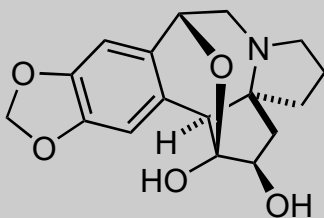
3. Name of reaction? Heck

What is the structure of NMO? Rationalize the regio- and stereo-selectivity. Open-Book effect of Osmate and cyclopentadiene. Disubstituted Db most reactive.

Hint Step 8: Selective for one alcohol



13-19



(-)-cephalotine B

13. NaBH₄
14. Ac₂O, Pyridine, DMAP
15. TBAF
16. (COCl)₂, DMSO, NEt₃
17. K₂CO₃, MeOH
18. conc. HCl, MeOH
19. RhH(CO)(PPh₃)₃, PhSiH₃

16: Name of reaction?

Swern oxidation