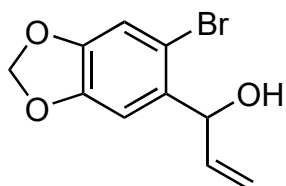
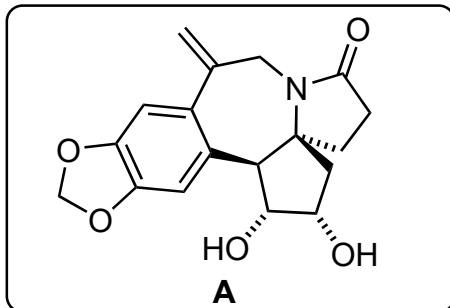


# Enantioselective Total Synthesis of the *Cephalotaxus* Alkaloids (-)-Fourtuneicyclidine A and B and (-)-Cephalotine B

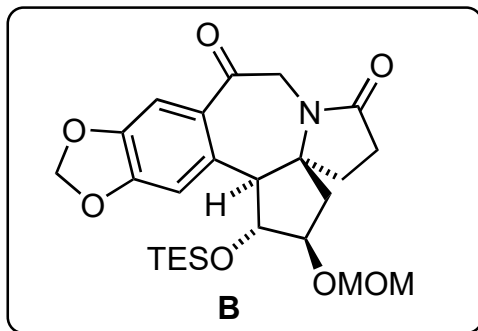
Sheng, P-Z.; Ni, Z-B.; Li, L-L.; Wei, K.; Zhang, H.; Yang, Y-R. *Org. Lett.* **2023** 25, 7464.



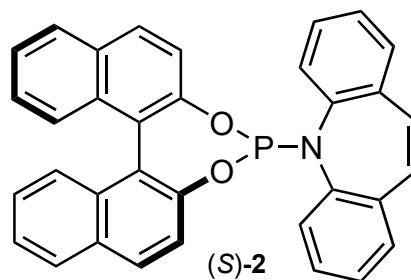
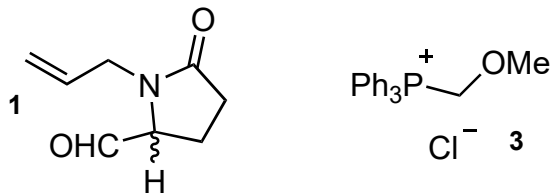
1-7



8-12



1. **1**, [Ir(cod)Cl]<sub>2</sub> (2 mol %), (*S*)-**2**, benzhydrylamine (20 mol%), Cl<sub>2</sub>HCCO<sub>2</sub>H (45 mol%)
2. **3**, LiHMDS, -10 °C
3. Pd(PPh<sub>3</sub>)<sub>4</sub> (10 mol%), 1,2-bis(diphenylphosphino)benzene (10 mol%), Cs<sub>2</sub>CO<sub>3</sub> (2 equiv.), 120 °C
4. *p*-TSA
5. PPh<sub>3</sub>CH<sub>2</sub>Br, *t*-BuOK, 0 °C
6. Grubbs II
7. K<sub>2</sub>OsO<sub>4</sub>, NMO



8. TESCl, imidazole, 0 °C
9. NCS, DMS, NEt<sub>3</sub>, -78 °C
10. NaBH<sub>4</sub>
11. MOMCl, DIPEA
12. O<sub>3</sub>, Me<sub>2</sub>S, DCM/ pyridine

3. Name of reaction?

What is the structure of NMO? Rationalize the regio- and stereo-selectivity.

Hint Step 8: Selective for one alcohol

