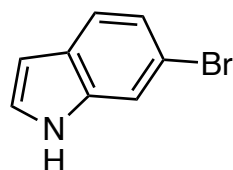


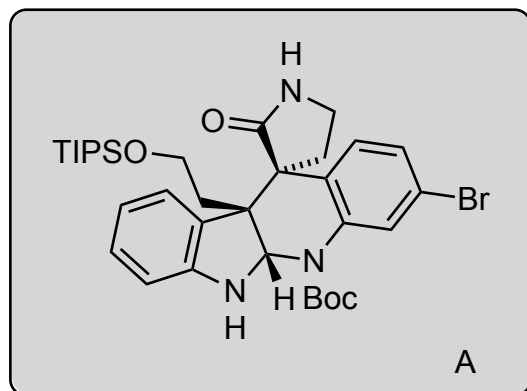
# Total Synthesis of (±)-Perophoramide

Fuchs, J. R.; Funk, R. L.\*

*J. Am. Chem. Soc.* 2004, 126, 5068

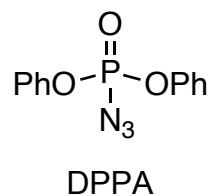
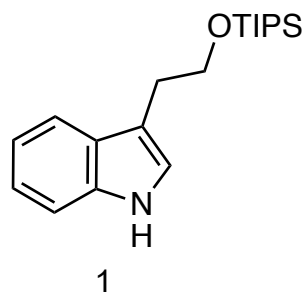


1-8



9-13

- 1) (COCl)<sub>2</sub>, MeOH, Et<sub>2</sub>O, 0 °C
- 2) BH<sub>3</sub>•SMe<sub>2</sub>, THF, reflux
- 3) PPh<sub>3</sub>, I<sub>2</sub>, imidazole
- 4) NaN<sub>3</sub>, DMF, 50 °C
- 5) NBS (2 equiv.), THF, *t*BuOH, H<sub>2</sub>O
- 6) 1, Cs<sub>2</sub>CO<sub>3</sub>
- 7) NaH, Boc<sub>2</sub>O
- 8) PPh<sub>3</sub>, THF, H<sub>2</sub>O, 50 °C



- 9) NCS, AcOH
- 10) NaHMDS, NsCl
- 11) TBAF
- 12) DPPA, DIAD, PPh<sub>3</sub>
- 13) PMe<sub>3</sub>, THF

2) Hint: complete reduction of the side chain

3) Name of the reaction?

[Appel reaction](#)

5) Provide a mechanism

**hint:** an oxindole is finally formed

6) How would you prepare 1?

Hint: a cycloaddition followed by ring opening

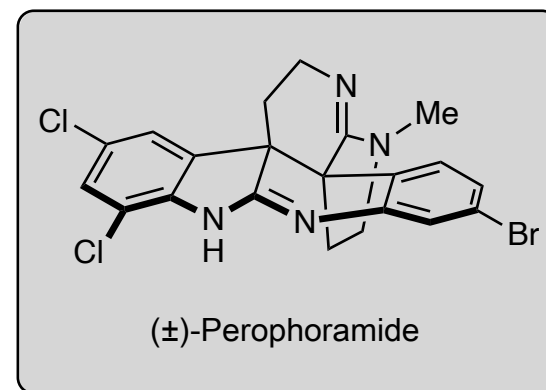
8) Name of the reaction?

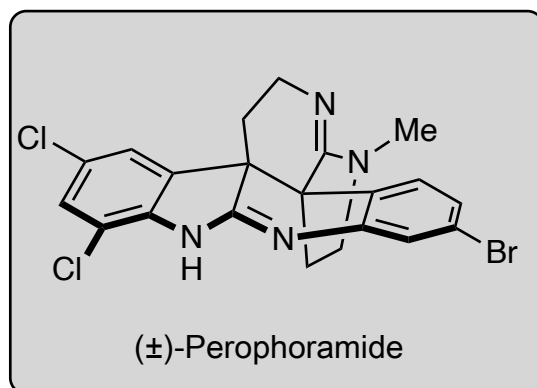
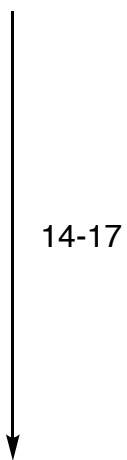
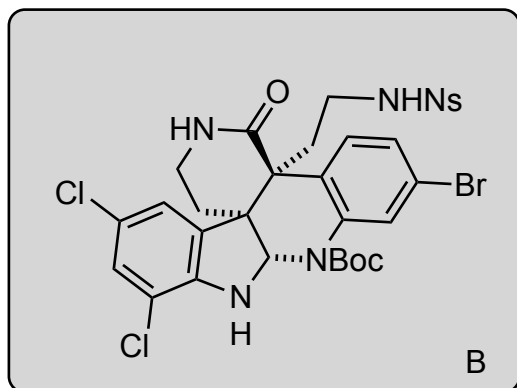
Staudinger reduction

Hint: Two new rings form in this cascade

10) Hint: mono-nosylation

13) A new ring forms

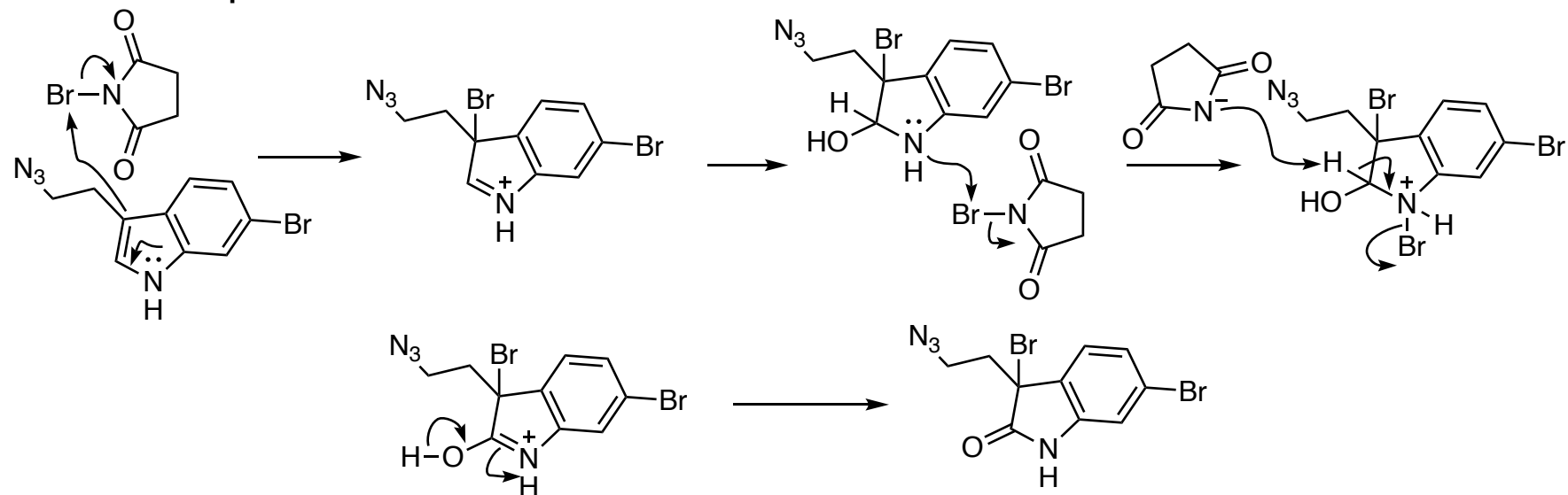




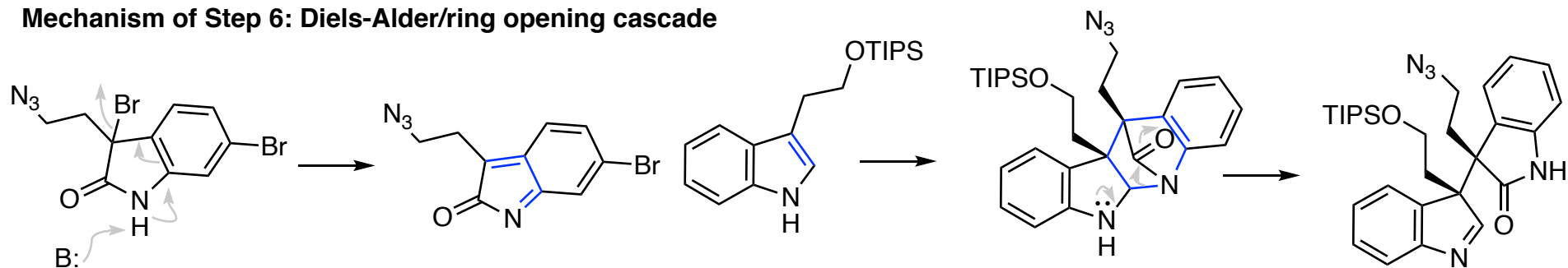
- 14) MeI, Cs<sub>2</sub>CO<sub>3</sub>, MeCN  
 15) Meerwein's salt, DIPEA  
 16) PhSH, Cs<sub>2</sub>CO<sub>3</sub>, DMF, 45 °C  
 17) MnO<sub>2</sub>, CH<sub>2</sub>Cl<sub>2</sub>

15) Hint: *Boc falls out in this step*

### Mechanism of Step 5: Oxindole formation



### Mechanism of Step 6: Diels-Alder/ring opening cascade



### Mechanism of Step 8: Staudinger/transamidation cascade

