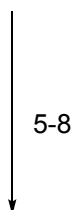
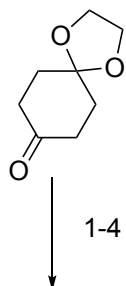


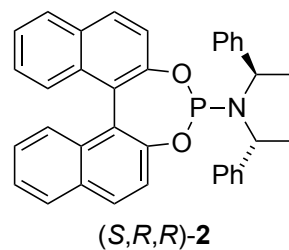
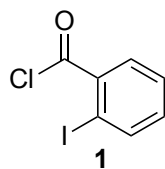
Total Synthesis of (+)-Hinckdentine A

K. Douki, H. Ono, T. Taniguchi, J. Shimokawa, M. Kitamura, T. Fukuyama

J. Am. Chem. Soc. **2016**, *138*, 14578–14581



- 1) PhNHNH₂, EtOH, *then* HOCH₂CH₂OH, 210 °C
- 2) NaH, DMAP, **1**, DMF, 0 °C
- 3) *p*-TsOH·H₂O, CH₃CN, H₂O
- 4) Pd₂(dba)₃·CHCl₃, (*S,R,R*)-**2**, NaOAc, *t*-BuOH



- 5) LiHMDS, TMSCl, *then* NOCl
- 6) SOCl₂, *then* CF₃CH₂OH
- 7) H₂ Pd/C, EtOAc
- 8) H₂, Raney Ni, TFA, *t*-BuOH, *then* NaHCO₃

Step 4: Propose a mechanism. Name the class of ligand and who invented them. The *R* product is made.

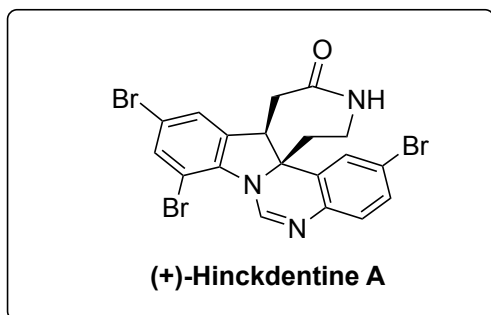
Step 6: Name the reaction.

Step 7 *Hint*: The hydrogenation is highly selective and after washing with cold EtOH the product is isolated in >99:1 er.

9-11

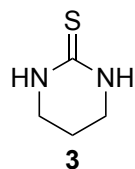


12-15



- 9) NaBH₄, MeOH, THF
- 10) TESCl, Pyridine, then TFAA
- 11) Jones reagent

- 12) NH₂OH·HCl, NaOAc
- 13) NCS, *then* **3**, Et₃N
- 14) KSac
- 15) Br₂, CH₃NO₂, *then* HC(OCH₃)₃, TFA



What is Jones reagent?

- 12) What is the name of the functional group formed?
- 13) Propose a mechanism for step 13. *Hint*: an isothiocyanate is formed.