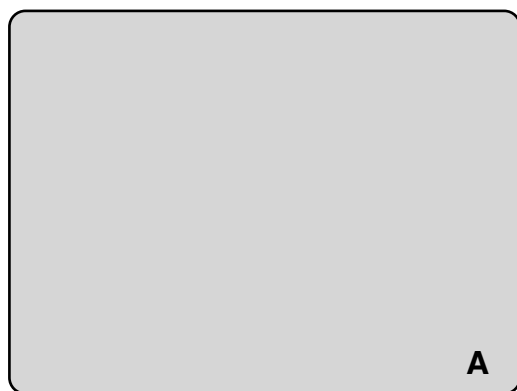
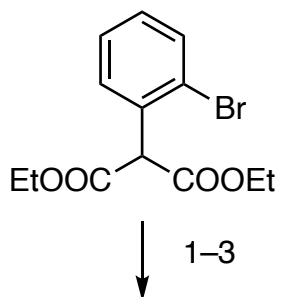


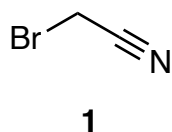
# Taming Radical Pairs in the Crystalline Solid State: Discovery and Total Synthesis of Psychotriadine

Dotson, J.; Liepuoniute, I.; Bachman, J.; Hipwell, V.; Khan, S.; Houk, K.; Garg, N.; Garcia-Garibay, M.

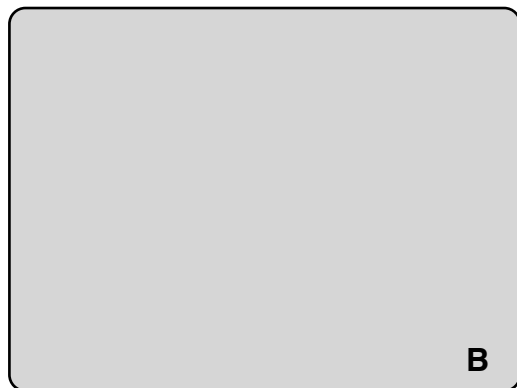
*J. Am. Chem. Soc.* **2021**, *143*, 4043–4054.



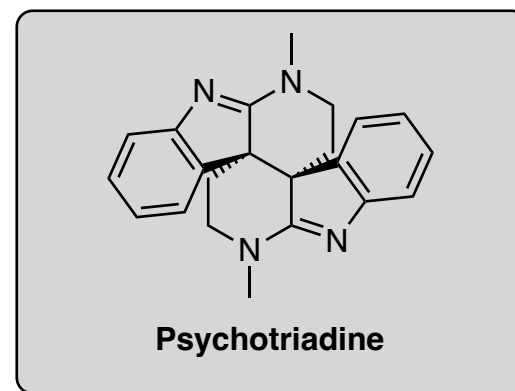
- 1) NaH, *then* **1**
- 2) CoCl<sub>2</sub>, NaBH<sub>4</sub>
- 3) NaH, *then* PMBCl



- 4) aq. NaOH
- 5) (COCl)<sub>2</sub>, cat. DMF



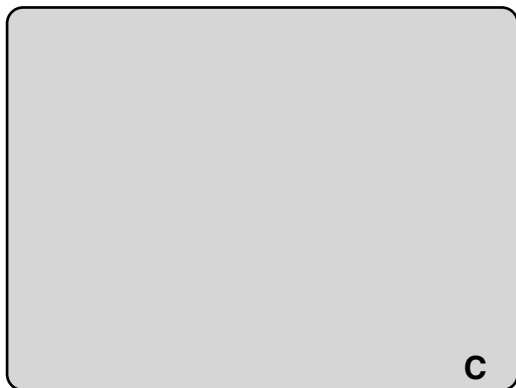
2) *Hint*: Chemoselective reduction.  
5-membered ring forms too.



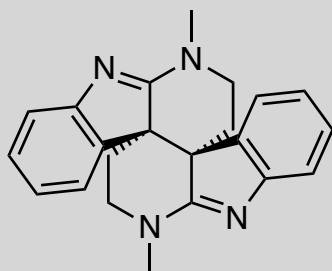
**A**



6–9



12–14



**Psychotriadine**

- 6) aq. NaOH *then* HCl,  $\Delta$
- 7) LiHMDS *then* **B**
- 8) CAN
- 9) 450 W Hg lamp ( $>290$  nm), sodium dodecyl sulfate

- 10)  $\text{NH}_4\text{OH}$
- 11) NaH *then* MeI
- 12) CuI,  $\text{NaN}_3$ , L-proline
- 13)  $\text{LiAlH}_4$
- 14) TPAP, NMO

6) *Hint:*  $\text{CO}_2$  is lost.

8) *Hint:* One protecting group is removed; the other, further oxidized.

9) *Hint:* See title. CO is lost.

13) *Hint:* transamidation happens after reduction.

14) Name of reaction?