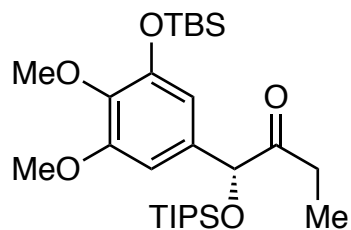
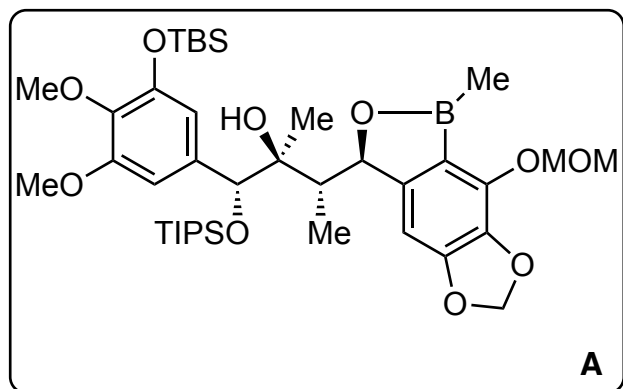


## Mimicking oxidative radical cyclization of lignan biosynthesis using redox-neutral photocatalysis

Zheng, H; Lumb, J. P.  
*Nat. Chem.* **2021**, *13*, 24-32.

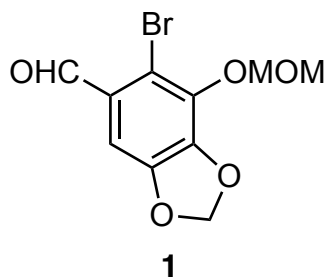


1-4



5-7

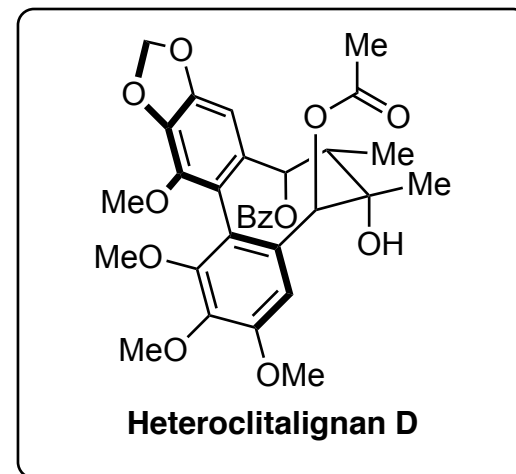
- 1)  $\text{TMPMgBr}$ ,  $\text{Cy}_2\text{BCl}$ , then **1**
- 2)  $\text{TiCl}_4$ ,  $\text{LiH}$ ,  $\text{MeMgCl}$
- 3)  $\text{MeB(OH)}_2$
- 4)  $t\text{-BuLi}$

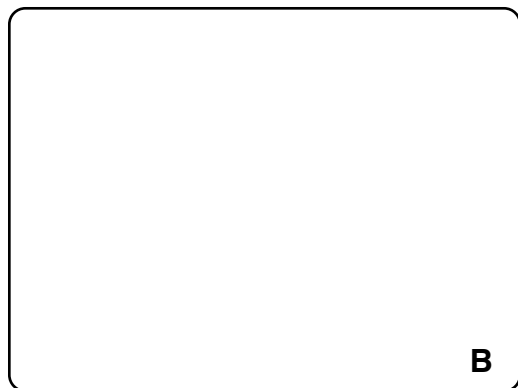


- 5)  $\text{KHF}_2$
- 6)  $\text{DBDMH}$
- 7)  $\text{SPhos Pd G2/ SPhos (cat.)}$ ,  $\text{K}_3\text{PO}_4$

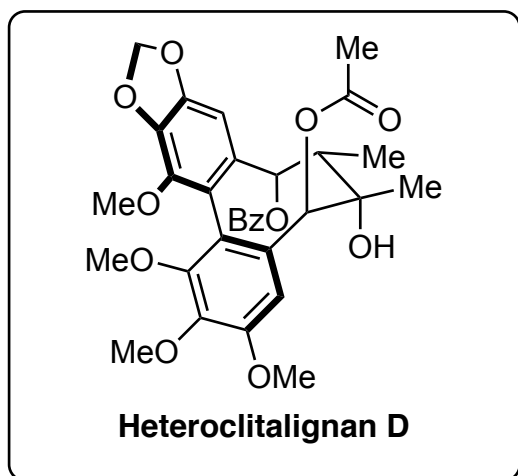
- 1) Explain the Stereoselectivity of Step 1;  
draw the transition state
- 2) Draw the transition state for step 2.

- 7) Please name the reaction for step 7





8-14



- 8) MeI, *then* H<sub>2</sub>O<sub>2</sub>
- 9) BzCl, DMAP
- 10) TBAF
- 11) IBX, *then* NaBH<sub>4</sub>
- 12) Ac<sub>2</sub>O, DMAP
- 13) NaHSO<sub>4</sub>, SiO<sub>2</sub>
- 14) MeI, Cs<sub>2</sub>CO<sub>3</sub>