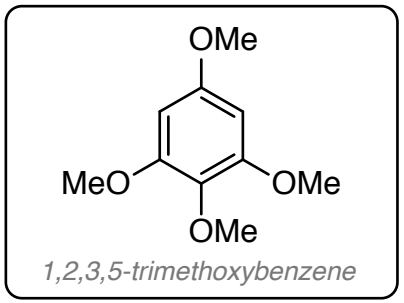
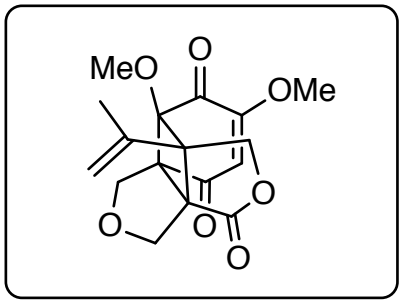
Total Synthesis of Epicolactone

Kravina, A. G.; Carreira, E. M. *Angew. Chem. Int. Ed.* **2018**, 57, 13159–13162.

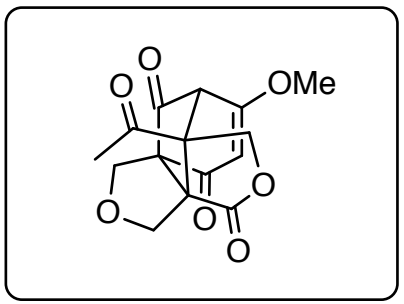


1,2,3,5-trimethoxybenzene

1–6



7–10



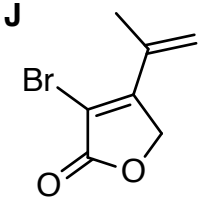
1. $POCl_3$, DMF
2. $LiAlH_4$
3. (iodomethyl)tributylstannane, *t*-BuOK
4. **J**, $Pd(PPh_3)_2Cl_2$, 85 ºC
5. $(NH_4)_2Ce(NO_3)_6$
6. Blue LEDs *[Formation of 3 contiguous quaternary centers]*

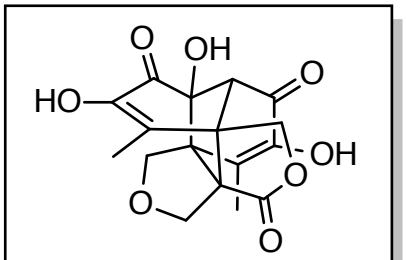
What named reaction also employs this reagent?

• Wittig-Still rearrangement

7. OsO_4, NMO then $Pb(OAc)_4$
8. BF_3•2AcOH *Hint: Ring-expansion takes place.*
9. PhO(S)Cl
10. *n*-Bu_3SnH, AIBN

J

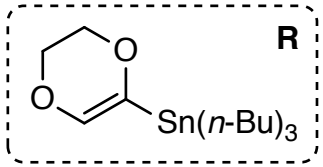


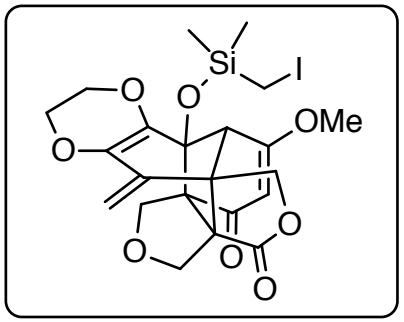


epicolactone

11–15

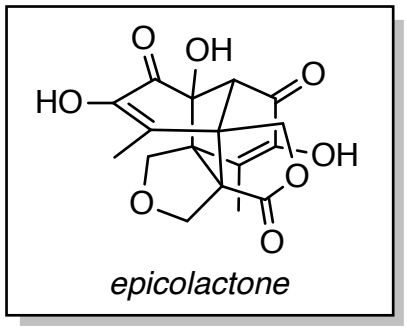
11. LDA, $PhNTf_2$
12. **R**, $Pd(PPh_3)_2Cl_2$, 85 °C
13. TFA
14. $ClSiMe_2CH_2Cl$
15. NaI, 80 °C

1,4-dioxene —*t*-BuLi; *n*-Bu_3SnCl→ 



16–19

16. SmI_2 then HCl
17. TBHP, DBU then HCl, 110 °C *Hint: A chloroethyl ether is formed.*
18. NaI, 80 °C
19. Zn, EtOH/AcOH, 55 °C



epicolactone

What is the Stork-Danheiser sequence?