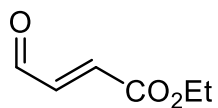
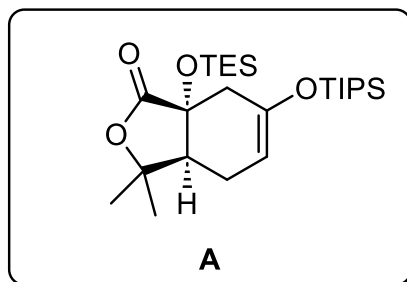


Asymmetric Total Synthesis of Propindilactone G

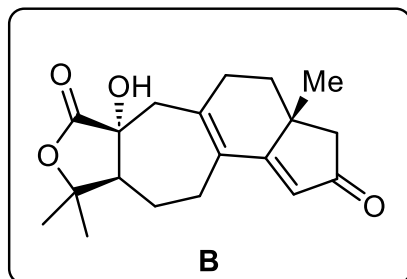
You, L.; Liang, X.-T.; Xu, L.-M.; Wang, Y.-F.; Zhang, J.-J.; Su, Q.; Li, Y.-H.; Zhang, B.; Yang, S.-L.; Chen, J.-H.; Yang, Z.
J. Am. Chem. Soc. **2015**, *137*, 10120–10123



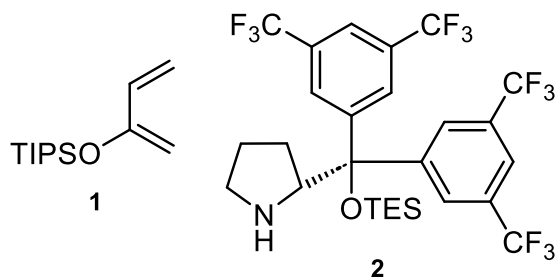
1-5



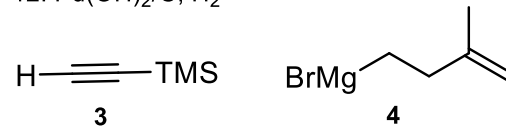
6-12



- 1, 2, TFA, -10 °C
- AlMe₃, MeMgBr, -78 °C
- DMP, NaHCO₃
- MeMgCl, -78 °C to -25 °C
- KHMDS, -78 °C, then P(OMe)₃, O₂, 0 °C, then TESCI



- ^tBuOK, CHBr₃, -20 °C
- AgClO₄·H₂O
- 3**, Pd(PPh₃)₂Cl₂, CuI, DIPA
- 4**, CeCl₃, 0 °C
- Co₂(CO)₈, Celite, toluene, reflux
- AgF, 80 °C
- Pd(OH)₂/C, H₂



- Name of **2**?
Hayashi ligand

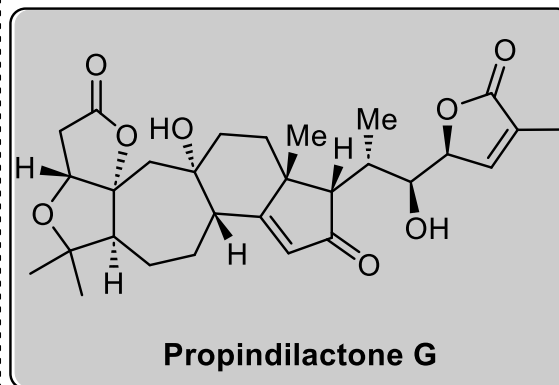
- Hint: Ring formation.

- Classify reaction!
[2+1]-cycloaddition

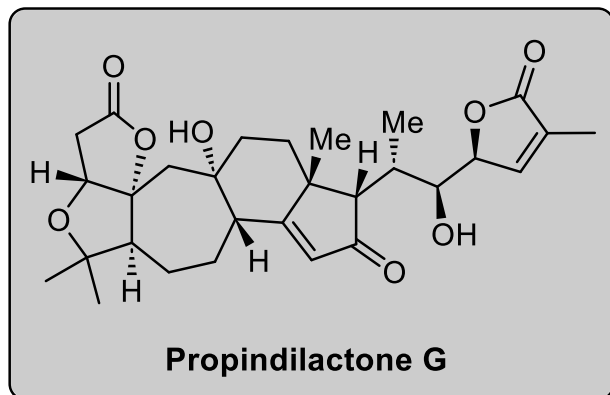
- Name of reaction?
Sonogashira coupling

- Name of reaction? Classify reaction!
Pauson-Khand reaction
[2+2+1]-cycloaddition

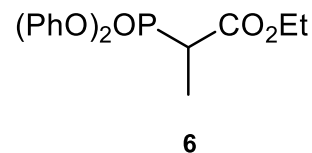
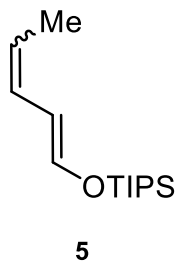
- Name of catalyst?
Pearlman's catalyst



13-20



13. *m*-CPBA
14. Ac_2O , Et_3N , $0\text{ }^\circ\text{C}$
15. LiHMDS, $-78\text{ }^\circ\text{C}$ to $-40\text{ }^\circ\text{C}$
16. Martin's sulfuran
17. $\text{Pd}_2\text{dba}_3\cdot\text{CHCl}_3$, $^t\text{Bu}_3\text{P}$, HCOOH , DIPEA, $45\text{ }^\circ\text{C}$
18. TIPSOTf, Et_3N , $0\text{ }^\circ\text{C}$ to rt, then **5**, CAN, DTBP, $-50\text{ }^\circ\text{C}$ to $-30\text{ }^\circ\text{C}$
19. **6**, 18-crown-6, KHMDS, $-78\text{ }^\circ\text{C}$
20. OsO_4 , NMO, $4\text{ }^\circ\text{C}$

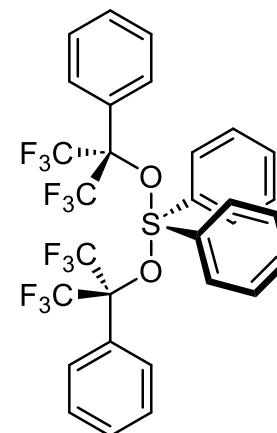


15. Hint: Draw protecting group.

15. Name of reaction?

Dieckmann-type condensation

16. Structure of Martin's sulfuran?



19. Name of reaction?

Horner-Wadsworth-Emmons reaction

20. Hint: Ring formation.

20. Name of reaction?

Upjohn dihydroxylation