Asymmetric Total Synthesis of Propindilactone G

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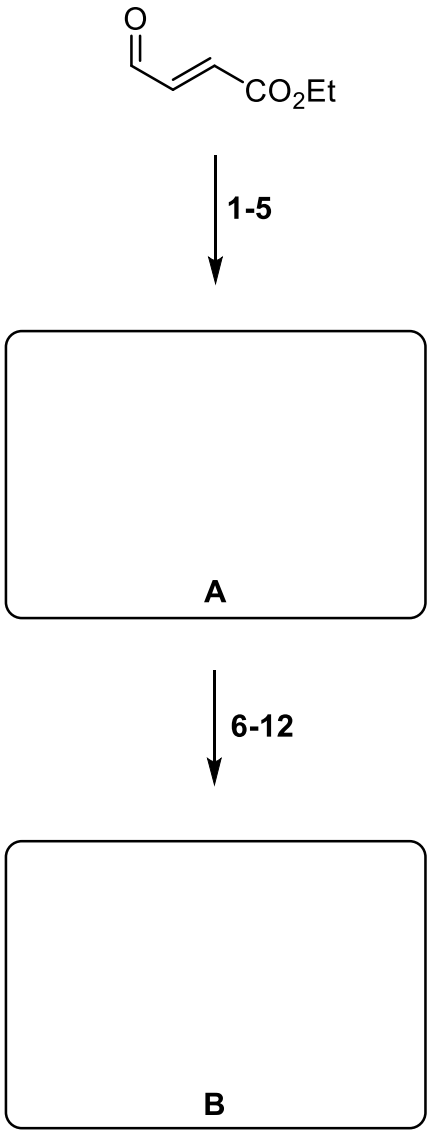
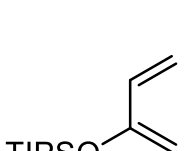


1. **1**, **2**, TFA, -10 °C
2. $AlMe_3$, MeMgBr, -78 °C
3. DMP, $NaHCO_3$
4. MeMgCl, -78 °C to -25 °C
5. KHMDS, -78 °C, *then* $P(OMe)_3$, O_2, 0 °C, *then* TESCl



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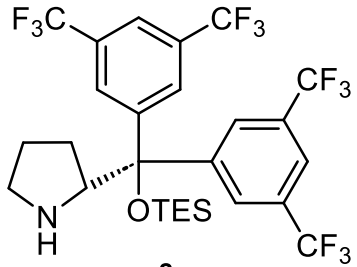

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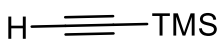
6. ^tBuOK, $CHBr_3$, -20 °C
7. $AgClO_4 \cdot H_2O$
8. **3**, $Pd(PPh_3)_2Cl_2$, CuI, DIPA
9. **4**, $CeCl_3$, 0 °C
10. $Co_2(CO)_8$, Celite, toluene, reflux
11. AgF, 80 °C
12. $Pd(OH)_2/C$, H_2



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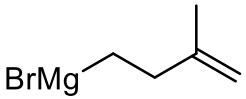

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1. Name of **2**?

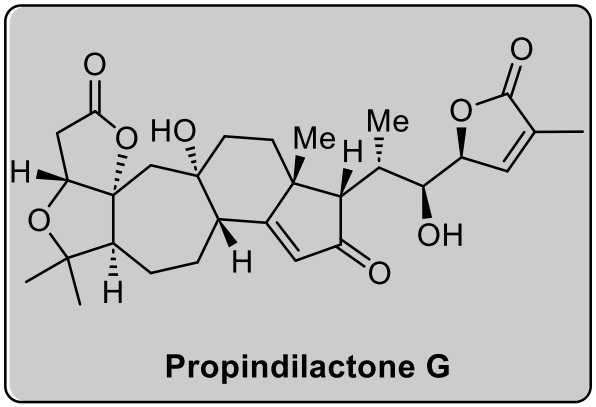
4. Hint: Ring formation.

6. Classify reaction!

8. Name of reaction?

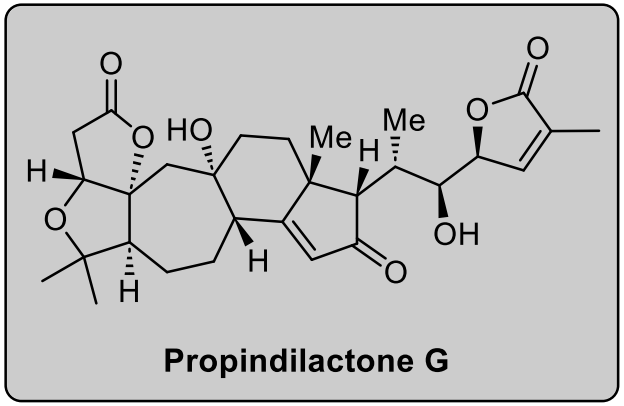
10. Name of reaction? Classify reaction!

12. Name of catalyst?



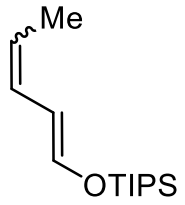
Propindilactone G

13-20



Propindilactone G

13. *m*-CPBA
14. Ac_2O, Et_3N, 0 °C
15. LiHMDS, -78 °C to -40 °C
16. Martin's sulfuran
17. $Pd_2dba_3{\cdot}CHCl_3$, $^nBu_3P$, HCOOH, DIPEA, 45 °C
18. TIPSOTf, Et_3N, 0 °C to rt, *then* **5**, CAN, DTBP, -50 °C to -30 °C
19. **6**, 18-crown-6, KHMDS, -78 °C
20. OsO_4, NMO, 4 °C



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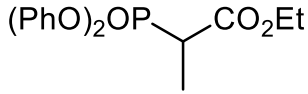

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15. Hint: Draw protecting group.

15. Name of reaction?

16. Structure of Martin's sulfuran?

19. Name of reaction?

20. Hint: Ring formation.

20. Name of reaction?