Enantioselective Total Synthesis of (−)-Pavidolide B

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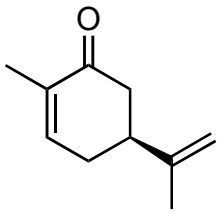
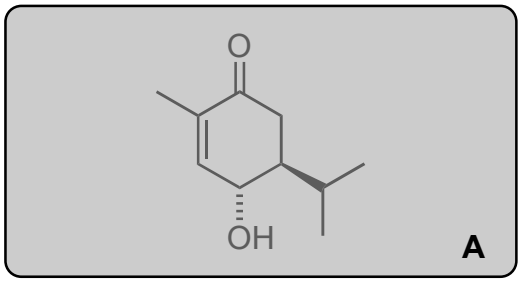
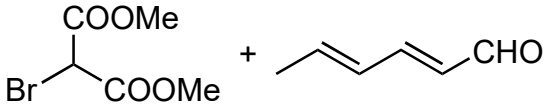


1, 2

1) Cu−Al Ox, air, *t*-BuOK
2) $RhCl(PPh_3)_3$, H_2

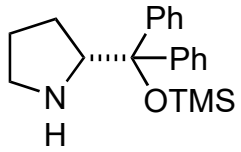


A



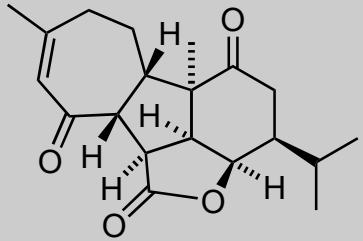
3-5

3) **1**, Et_3N
4) $CH(OEt)_3$, PTSA
5) Me_4NOH

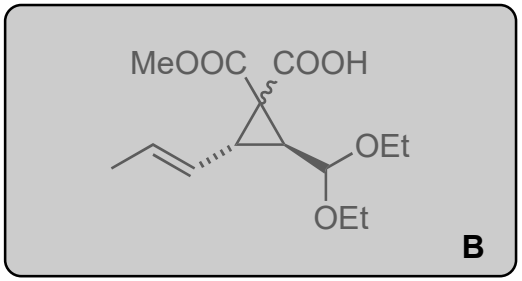


1

2) Name the catayst and explain its selectivity.
Wilkinson's catalyst, selectively reduces the least hindered alkene



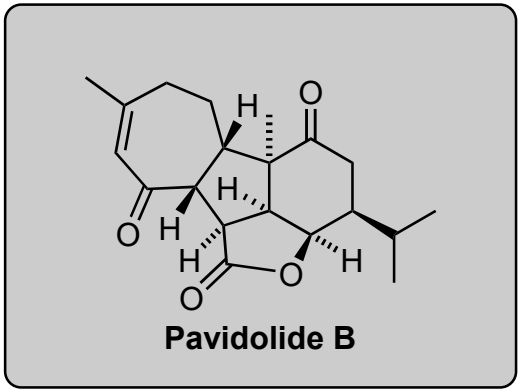
Pavidolide B



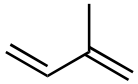
B

A + B

6-12



Pavidolide B



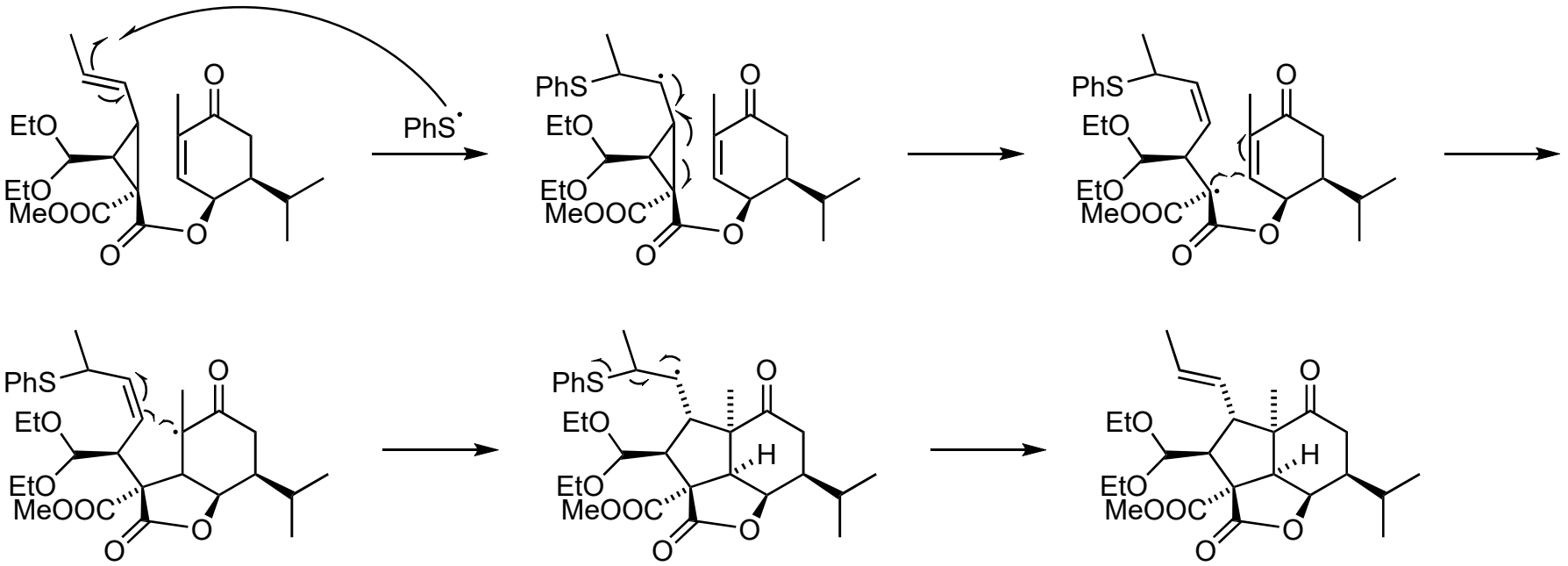
2

6) PPh_3, DEAD
7) PhSH, *p*-toluidine,
$Ir(dF(CF_3)ppy)_2(dtbbpy)PF_6$, blue LEDs
8) Me_4NOH, *then* 120 °C, *then* HCl
9) $Ni(acac)_2$, **2**, Et_2Zn
10) $NaHCO_3$, DMP
11) Grubbs II catalyst
12) $RhCl_3 \cdot 3H_2O$, 100°C, sealed tube

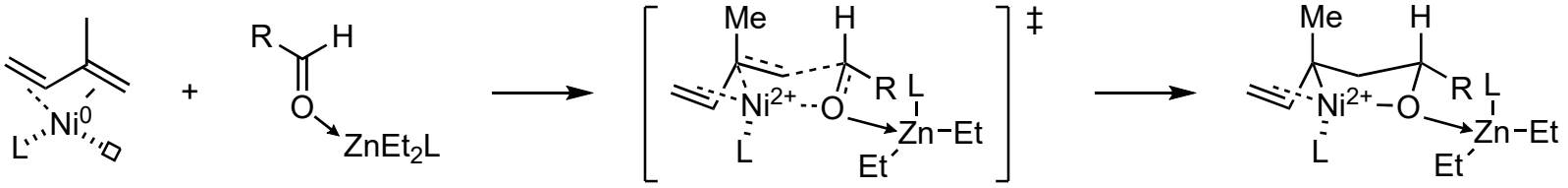
7) Draw out mechanism.

9) Name of **2** isoprene
Homoallylation of aldehyde, draw out mechanism.
Kimura, M., et al., *Angew. Chem. Int. Ed.* **1999**, *38*, 397-400

7)



9)



1) Ligand Exchange
2) β-H Elimination
3) Reductive Elimination