β-Ketoesters as Mono- or Bisnucleophiles: A concise Enantioselective Total synthesis of (–)-Englerin A and B

Lei Guo and Bernd Plietker

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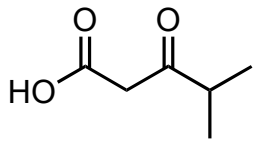
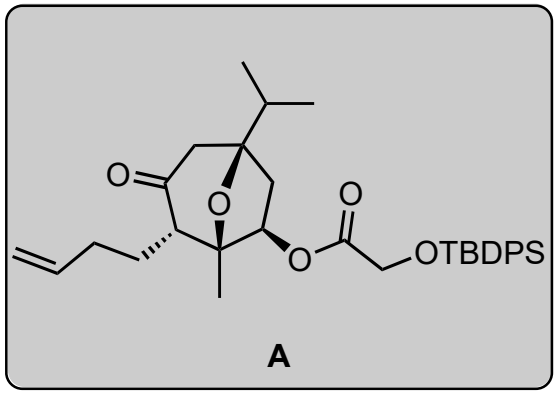


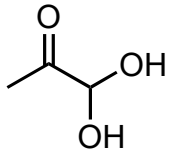
1-5



A

6-8

1. **1**, $(DHQD)_2PHAL$ in THF/TFE
2. **2**, Et_3N, DMAP, TCBC
3. **3**, TMSOTf cat
4. LiHMDS, DMPU, *then* **4**
5. LiCl, wet DMSO



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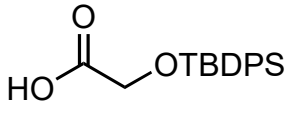

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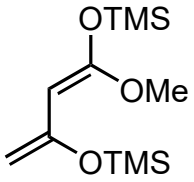

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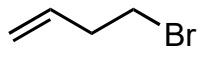


4

6. KHMDS, $PhNTf_2$
7(a) $Pd(PPh_3)_2Cl_2$, Et_3N
(b) *then* $MeSiCl_2H$
(c) *then* H_2O_2

8. TPAP, NMO
9. (S)-CBS, BH_3
10. H_2 Pd/C
11. Cinnamoyl chloride, ET_3N, DMAP
then TBAF
12. K_2CO_3 MeOH/H_2O

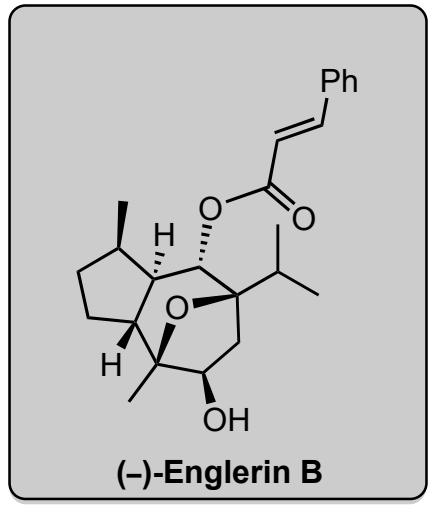
1. What is the name of compound 1?
Please classify the reaction
Methyl glyoxal / Asymmetric decarboxylative aldol reaction

2. Name of the reaction?
Yamaguchi esterification / TCBC: Yamaguchi reagent

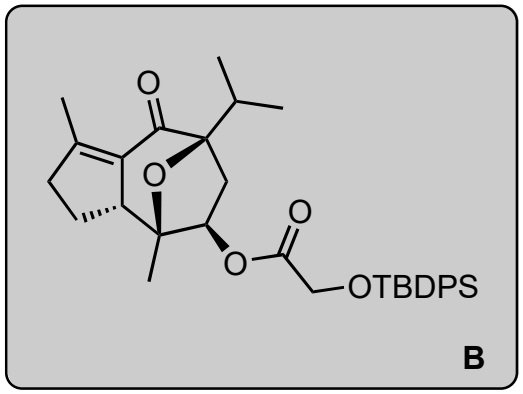
3. Please classify the reaction
Formal [4+3] cycloaddition

5) Name of the reaction?
Krapcho decarboxylation

7) a) Name of the reaction? Intramolecular Heck
c) Name of the reaction? Fleming oxidation

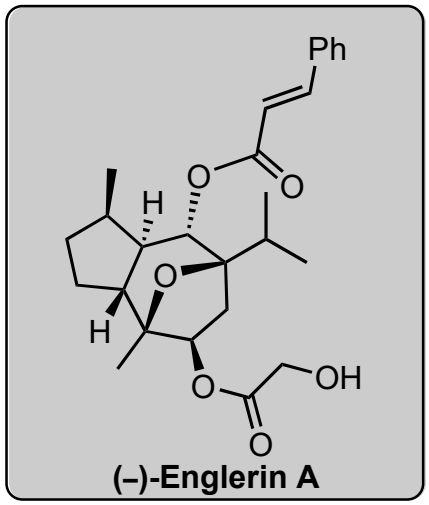


(–)-Englerin B



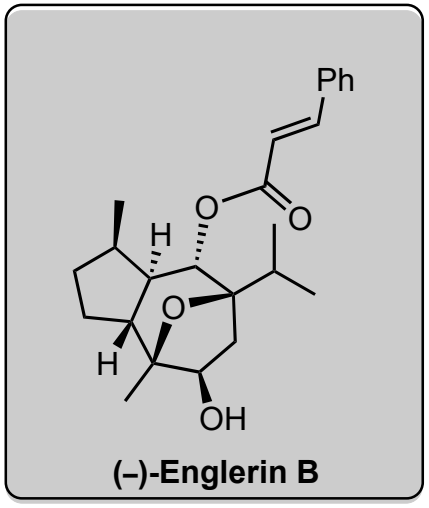
B

9-11



(–)-Englerin A

12



(–)-Englerin B