Synthesis Challenge #10 AG Wegner
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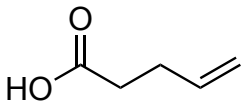


A

1-2

1) $H_2NOMe*HCl$, EDCl, HOBt, Et_3N
2) Grubbs II, $CH_2=CHCH_2TMS$

B

3

3) $Br(CH_2)_3CHO$, BF_3*Et_2O

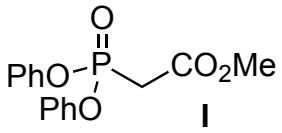
C

Please, provide a detailed Mechanism for step 1).

Please, provide a detailed mechanism for step 3).

4-5

4) O_3, MeOH, –78ºC, Me_2S, RT
5) **I**, DBU, NaI

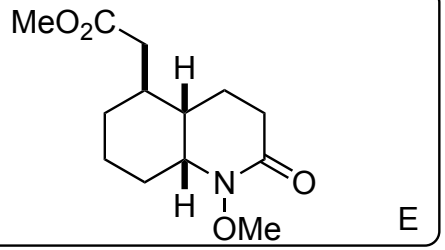


I

D

6

6) AIBN, Bu_3SnH, Toluene, 80ºC



E

7

7) $[Cp_2ZrHCl]$, CH_2Cl_2, 0ºC;
CH_2=$CHCH_2SnBu_3$, cat.
$Sc(OTf)_3$

Please, provide mechanism for step 7)

F

8-9

8) thexylborane, THF, 0ºC;
$NaBO_3$, RT
9) SO_3*Py, *i*Pr_2NEt,
DMSO/CH_2Cl_2, RT;
$Ph_3P{=}CHCO_2$*t*Bu

What is the name of the reaction in step 9)?

G

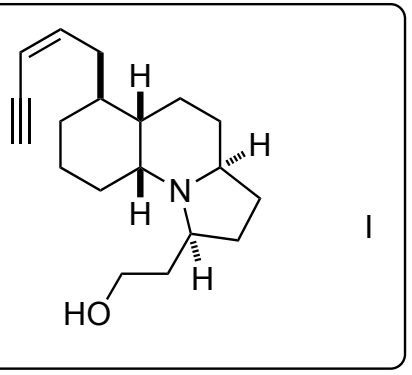
10-12

10) Zn, AcOH/H_2O
11) NaAlH(O*t*Bu)*i*Bu_2
12) $Ph_3P^+CH_2I–$, $NaN(TMS)_2$
THF/HMPA, –78ºC to RT

H

13-14

13) **II**, $[Pd(PPh_3)_4]$, CuI, Et_3N, RT;
K_2CO_3, MeOH, RT
14) DIBALH, Et_2O, –78ºC;
$NaBH_4$, MeOH



I

II

What is the name of the reaction in step 13?
What is the purpose of CuI?