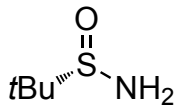
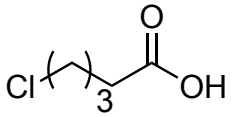
Synthesis Challenge AG Wegner
JLU Giessen
03.09.2013



1,2

A

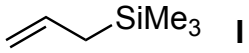


3,4

B

1) acrolein, $Ti(OEt)_4$, THF, rt
2) **I**, Grubbs-Hoveyda-II Cat. CH_2Cl_2

3) $(COCl)_2$, CH_2Cl_2, cat. DMF, 0ºC to rt
4) PhOH, CH_2Cl_2, rt



I

please give the structure of the Grubbs-Hoveyda catalyst and a detailed mechanism for step 2)

A + B

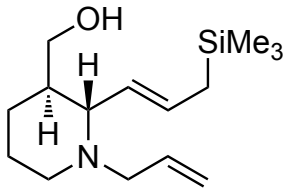
5

5) LDA, THF, –78ºC, then A

C

6-8

6) HCl, dioxane, rt
7) K_2CO_3, NaI, MeCN, rt, then $CH_2{=}CHCH_2Br$
8) $LiAlH_4$, Et_2O, 0ºC to rt



D

9)

E

10

F

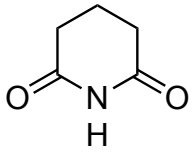
11 - 13

9) DIAD, PPh_3, THF/CH_2Cl_2, 0ºC to rt, **II**

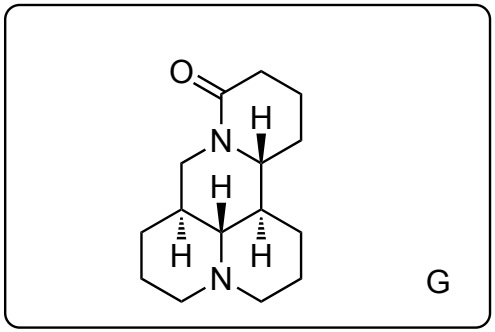
10) $NaBH_4$, EtOH, HCl, –15ºC

11) TfOH, CH_2Cl_2, 0ºC to rt
12) Hoveyda-Grubbs Cat., CH_2Cl_2, 40ºC
13) H_2 (1atm), Pd/C, EtOH

Please, provide a detailed mechanism for step 9).



II



G

Please, draw a clear 3D represnetation of G