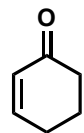


Total Synthesis of (-)-Principinol C

Jia *et al.*, *J. Am. Chem. Soc.* 2022, 144, 20196-20200.



1) **1**, CuI-DMS, **2**, PhMe/2-Me-THF,
then NCCO₂Et
2) K₂CO₃, **3**, acetone, 50°C

A

3) 1M HCl/THF
4) Mn(OAc)₃·2H₂O,
microwave, DCE, 125°C
5) TFA, DCM

B

6) DIBAL, THF, -78°C
7) TEMPO, PIDA,
then NaOMe, MeOH
8) VO(acac)₂, TBHP,
DCM, 0°C

C

9) MOMBr, DIPEA,
PhMe/DCM, 50°C
10) TOSMIC, *t*BuOK,
THF, -50°C

G

14) DIBAL, Et₂O, -50°C,
then **5**, CeCl₃, DCM
15) TMSCl, ImH, DMF

F

12) **4**, DCM, 0°C
13) TMSCl, ImH, DMF

E

11) O₃, DCM/MeOH, -78°C,
then Me₂S, -78°C to rt
then NaOMe, MeOH

D

16) Co₂(CO)₈,
PhMe, 60°C

H

+

I

+

J

17) NaH, DME
MeI (excess), 60°C
18) Pd(OH)₂/C,
H₂, MeOH

K

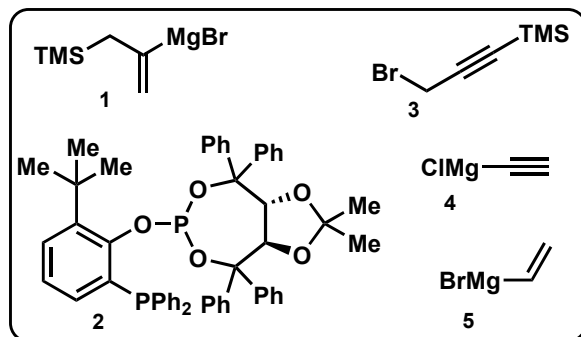
19) DIBAL, THF,
then LAH

L

19%

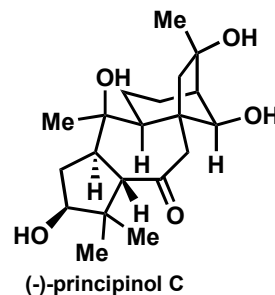
9%

45%



hints:

4) radical cyclization
7) adjustment of alcohol configuration
via retro-aldol/aldol reaction
16) H: bicyclo[5.2.1]decane ring system;
I & J are epimers



22) TBAF, THF,
then H₂SO₄, 1,4-dioxane

M

20) TBSCl, ImH, DMF
21) DMP, NaHCO₃,
DCM