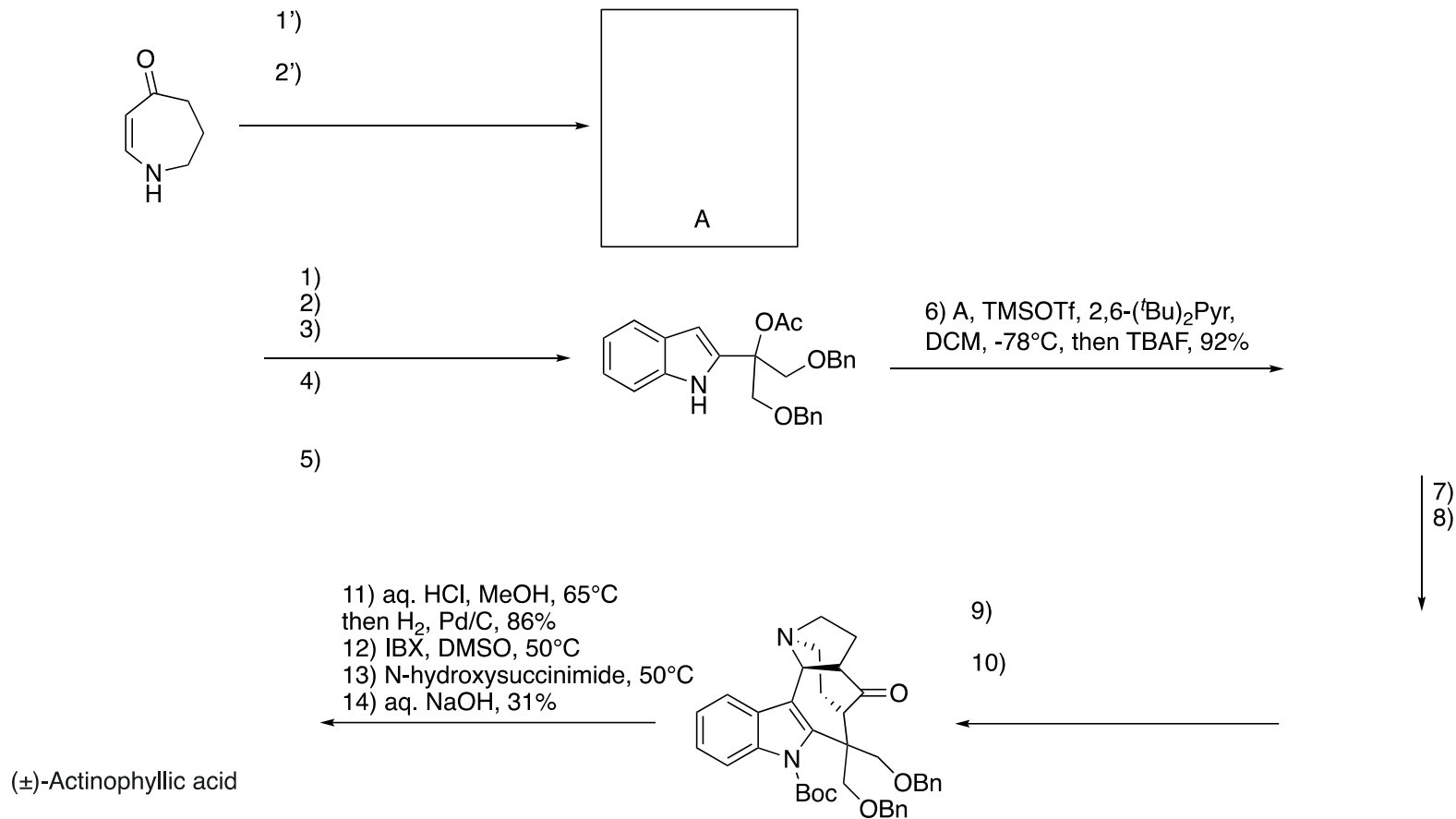


E142: Total Syntheses of (±)-Actinophyllic acid and (+)-Polyanthellin A



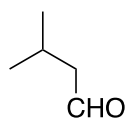
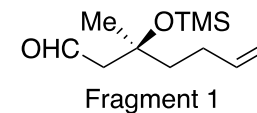
1) $\text{Ti}(\text{O}^i\text{Pr})_4$, (-)-DET, TBHP,
4A MS, DCM, -20°C , 69%
2) Li_2CuCl_4 , AllylMgCl, THF
 -60 to -20°C , 77%

3)

4)

5)

6)



1') B, C...

2') $\text{Ph}_2\text{PCH}_2\text{CH}=\text{CH}_2$,
 $t\text{BuLi}$, THF, -78 to 0°C
then -78 to 0°C , MeI
 0°C to rt, 71%

3') LiTMP, THF, -78°C ,
HMPA, $\text{MeOC}(\text{O})\text{CN}$, 72%

4') $p\text{-AcHNC}_6\text{H}_4\text{SO}_2\text{N}_3$, Et_3N ,
MeCN

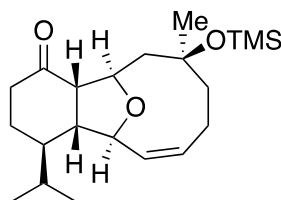
5') D, C_6H_6 , reflux, 71%

Fragment 2

Fragment 1
+
Fragment 2

7) F, HNTf₂, DCM, -30°C ,
d.r. 11 : 1 : 0.6, 76%
Product:(*epi*-C7):(C2/C9 *trans*)

8) H-G II, DCM, 80°C , 70%
9) NaBr, aq. DMF, 120°C , 76%



10)

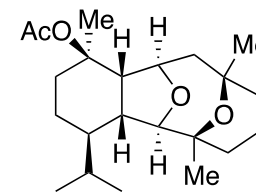
11)

12)

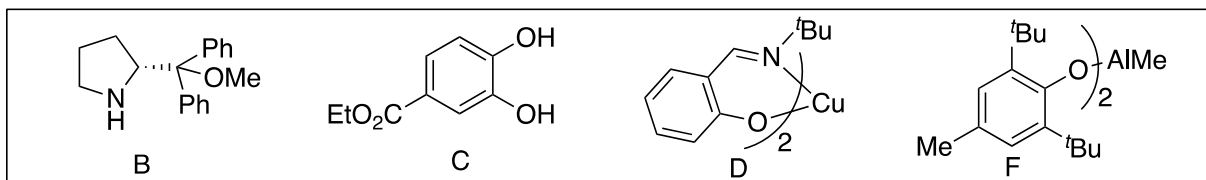
13)

14)

15)



(+)-Polyanthellin A



[1] B. A. Granger, I. T. Jewett, J. D. Butler, B. Hua, C. E. Knezevic, E. I. Parkinson, P. J. Hergenrother, S. F. Martin, *J. Am. Chem. Soc.* **2013**, 135, 12984-12986.
[2] M. J. Campbell, J. S. Johnson, *J. Am. Chem. Soc.* **2009**, 131, 10370-110371.

