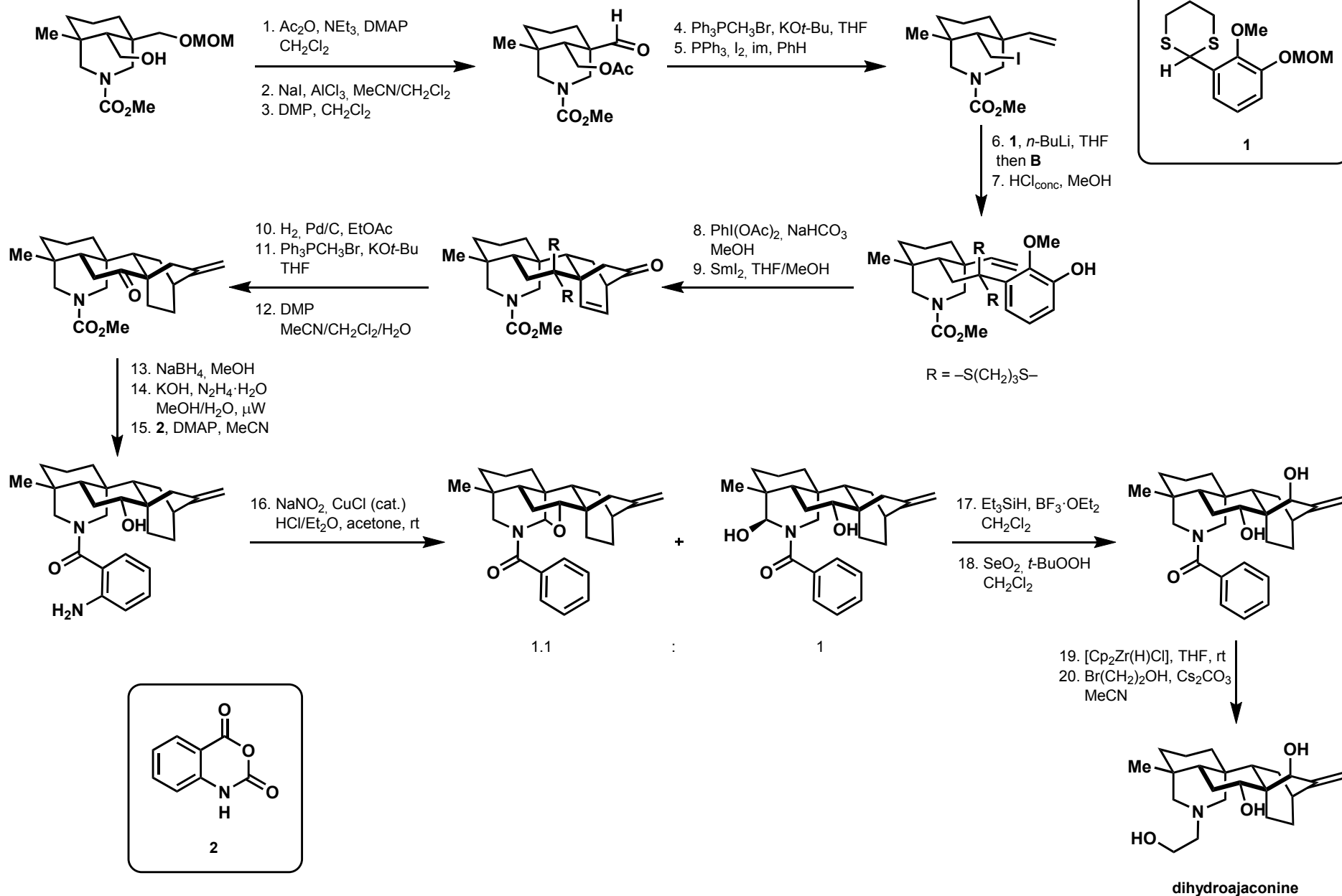
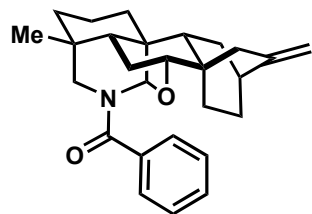


# Total Synthesis of Dihydroajaconine and Gymnandine

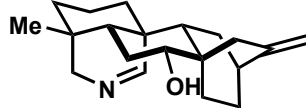
08.02.17

X.-H. Li, M. Zhu, Z.-X. Wang, X.-Y. Liu, H. Song, D. Zhang, F.-P. Wang, Y. Qin, *Angew. Chem. Int. Ed.* **2016**, *55*, 15667–15671.



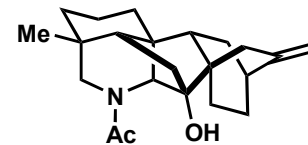


21.  $[\text{Cp}_2\text{Zr}(\text{H})\text{Cl}]$   
THF, rt



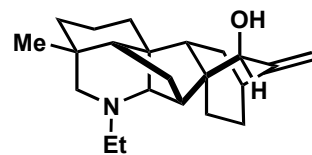
22. AZADO, CuCl,  
bpy, DMAP,  $\text{O}_2$   
 $\text{MeCN}/\text{CH}_2\text{Cl}_2$ , rt

23.  $\text{SmI}_2$ , THF, reflux  
then AcCl,  $\text{NaHCO}_3$  aq.  
 $\text{CH}_2\text{Cl}_2$ , rt



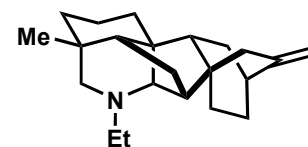
AZADO = 2-azaadamantane *N*-oxyl  
bpy = 2,2'-bipyridyl

24. NaH,  $\text{CS}_2$ , MeI  
THF  
25. AIBN,  $\text{HSnBu}_3$ , PhMe  
26. Red-Al, THF



27.  $\text{SeO}_2$ , *t*-BuOOH  
 $\text{CH}_2\text{Cl}_2$   
28. DMP, TFA,  $\text{CH}_2\text{Cl}_2$

29.  $\text{NaBH}_4$ ,  $\text{CeCl}_3 \cdot 7\text{H}_2\text{O}$   
MeOH



**gymnandine**