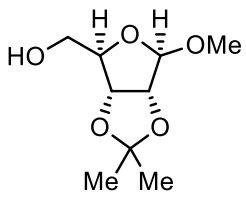
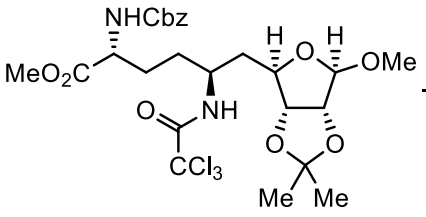


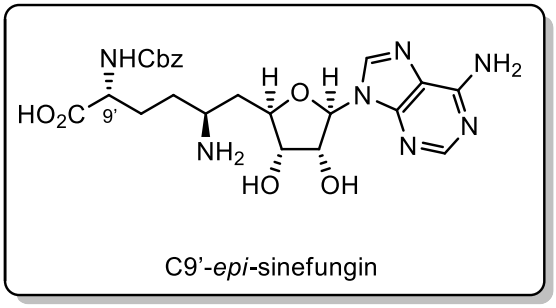
1. Tf_2O, 2.6-lutidine, DCM, –78 °C
2. **A**, nBuLi, DMPU, THF, –78 to 0 °C
   quant. (2 steps)
3. TBAF, THF, 0 °C
4. $LiAlH_4$, THF, 50 °C, 63 % (2 steps)
5. Cl_3CCN, DBU, DCM, 0 °C to rt, 91%
6. $[(R)\text{-COP-Cl}]_2$, DCM, 38 °C 85%, 14:1 dr

X

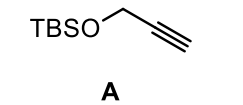
$C_{14}H_{20}Cl_3NO_5$

1. $Pd(PhCN)_2Cl_2$, O_2,
   tBuONO, tBuOH, rt, 73%
2. **B**, TMG, THF, –78 to 0 °C, 83%
3. H_2 (116 psi), (*S*,*S*)-PhBPE
   $[Rh(nbd)_2]BF_4$, MeOH, rt
   70% (single diastereomer)

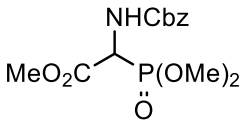




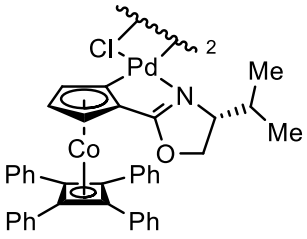
C9'-*epi*-sinefungin



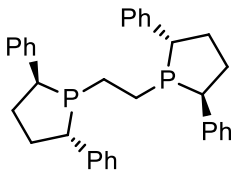
A



B



$[(R)\text{-COP-Cl}]_2$



(*S*,*S*)-PhBPE

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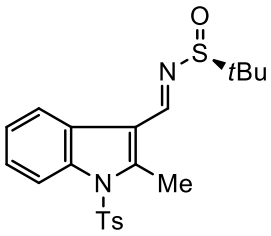
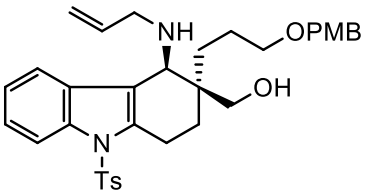
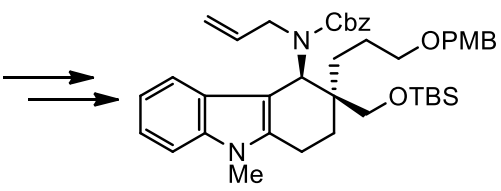
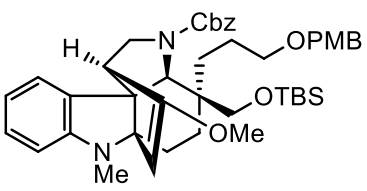


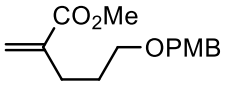
1) LiHMDS (2.2 eq), **A** (2.5 eq), THF, -78 °C, 2 h
   then allyl bromide (5.0 eq), DMF, 0 °C to rt, 82% (dr 9:1)
2) DIBALH (4.0 eq), CH_2Cl_2, 0 °C, 1 h, 84%
3) HCl (2.0 M in MeOH), MeOH-CH_2Cl_2 (1:1), 0 °C, 4 h, 91%



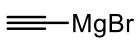


4) $K_2OsO_4 \cdot 2H_2O$ (0.01 eq), NMO (3.0 eq),
   acetone-H_2O (20:1), rt, 8 h
5) $NaIO_4$ (2.0 eq), CH_2Cl_2, rt, 30 min, 92% (2 steps)
6) **B** (2.0 eq), THF, -20 °C, 6 h, 84%
7) 2-methoxypropene (excess), PPTS (0.01 eq),
   rt, 30 min
8) $PtCl_2$ (0.1 eq), DCE, MS4A, 85 °C
   24 h, 56% (2 steps)





A



B

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