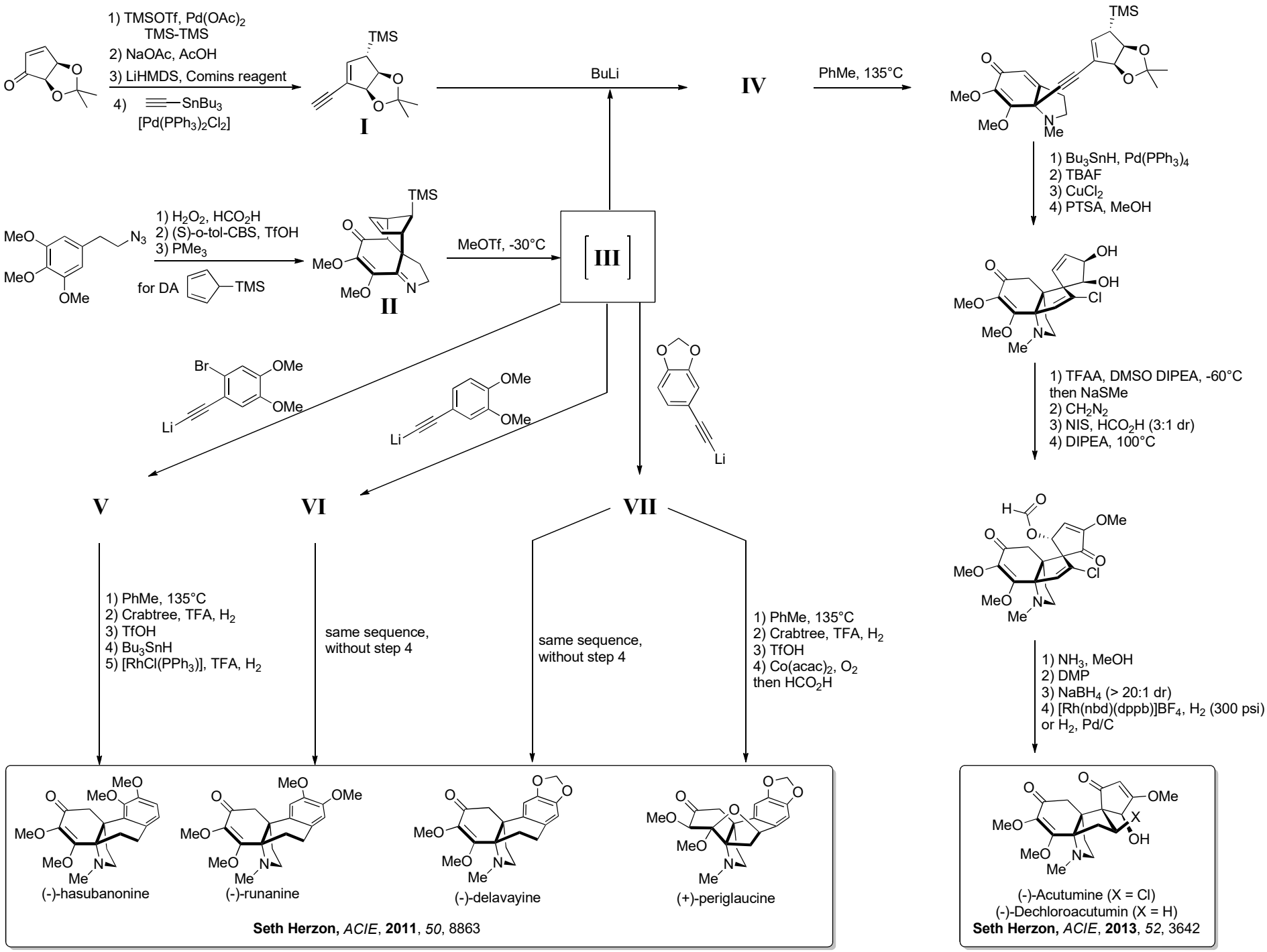
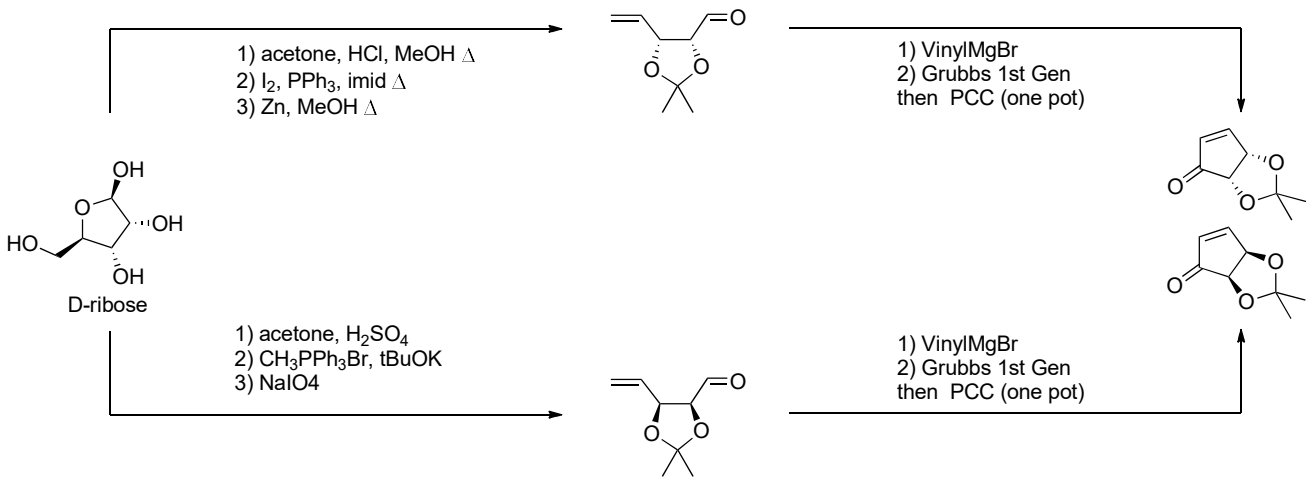

1) TMSOTf, Pd(OAc)2
TMS-TMS
2) NaOAc, AcOH
3) LiHMDS, Comins reagent
4) SnBu3
[Pd(PPh3)2Cl2]
TMS
I
BuLi
IV
PhMe, 135°C
1) Bu3SnH, Pd(PPh3)4
2) TBAF
3) CuCl2
4) PTSA, MeOH
1) H2O2, HCO2H
2) (S)-o-tol-CBS, TfOH
3) PMe3
for DA
TMS
II
MeOTf, -30°C
III
1) TFAA, DMSO DIPEA, -60°C
then NaSMe
2) CH2N2
3) NIS, HCO2H (3:1 dr)
4) DIPEA, 100°C
V
VI
VII
1) PhMe, 135°C
2) Crabtree, TFA, H2
3) TfOH
4) Bu3SnH
5) [RhCl(PPh3)], TFA, H2
same sequence,
without step 4
same sequence,
without step 4
1) PhMe, 135°C
2) Crabtree, TFA, H2
3) TfOH
4) Co(acac)2, O2
then HCO2H
1) NH3, MeOH
2) DMP
3) NaBH4 (> 20:1 dr)
4) [Rh(nbd)(dppb)]BF4, H2 (300 psi)
or H2, Pd/C
(-)-hasubanonine
(-)-runanine
(-)-delavayine
(+)-periglaucine
Seth Herzon, ACIE, 2011, 50, 8863
(-)-Acutumine (X = Cl)
(-)-Dechloroacutumin (X = H)
Seth Herzon, ACIE, 2013, 52, 3642


1) acetone, HCl, MeOH Δ
2) I2, PPh3, imid Δ
3) Zn, MeOH Δ
1) VinylMgBr
2) Grubbs 1st Gen
then PCC (one pot)
D-ribose
1) acetone, H2SO4
2) CH3PPh3Br, tBuOK
3) NaIO4
1) VinylMgBr
2) Grubbs 1st Gen
then PCC (one pot)