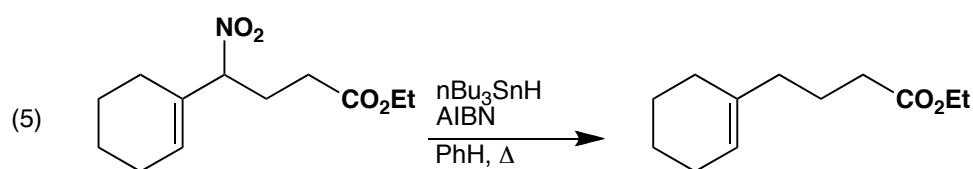
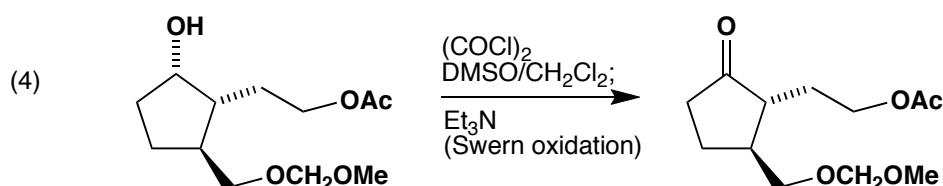
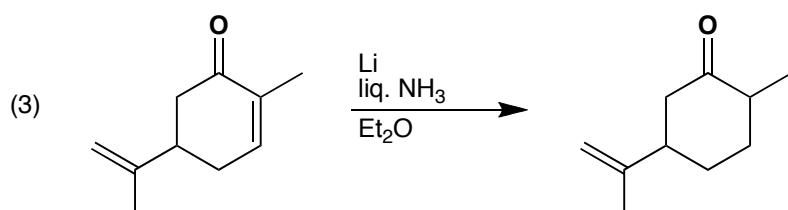
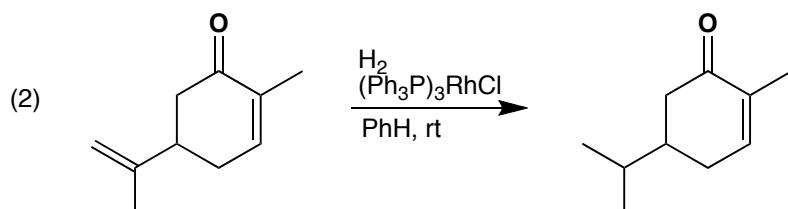
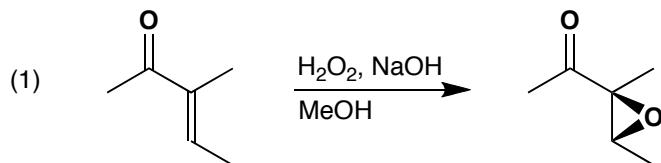


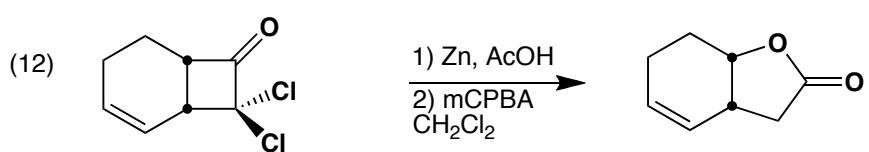
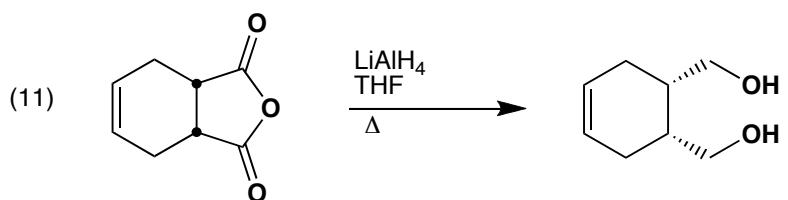
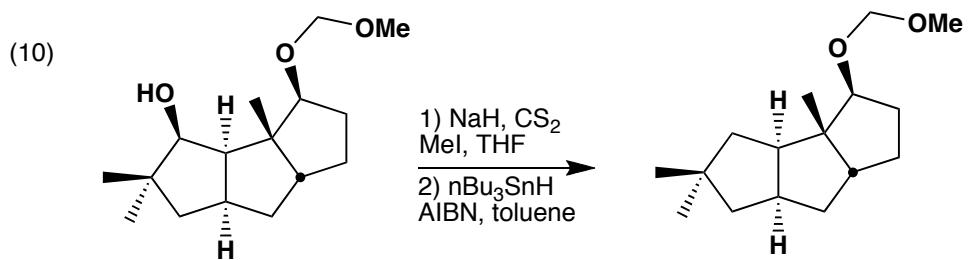
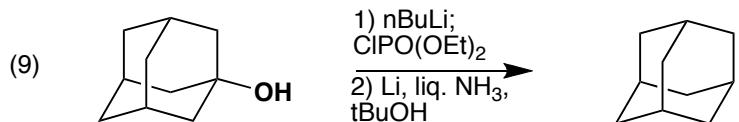
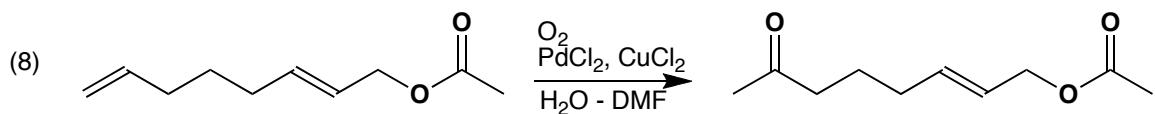
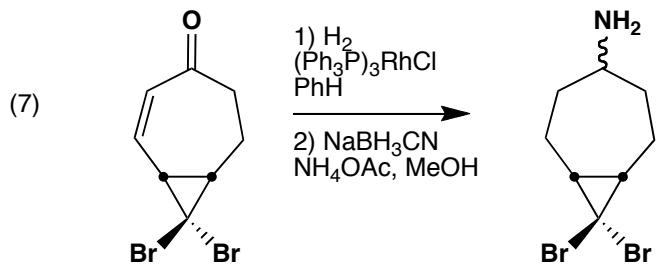
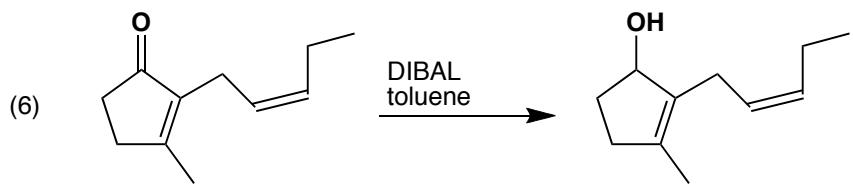
**Massachusetts Institute of Technology**  
**Organic Chemistry 5.511**

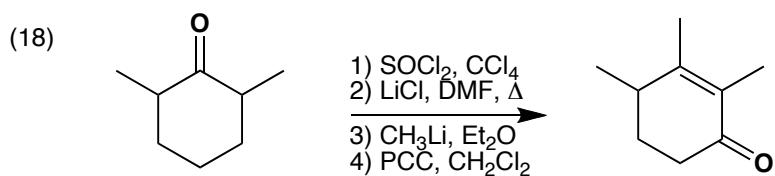
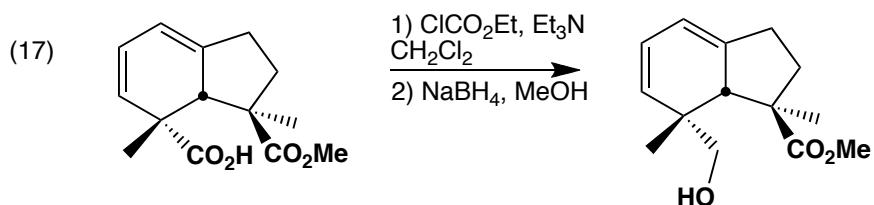
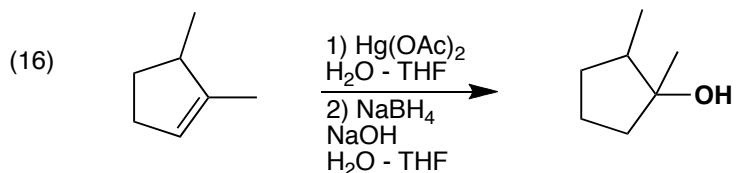
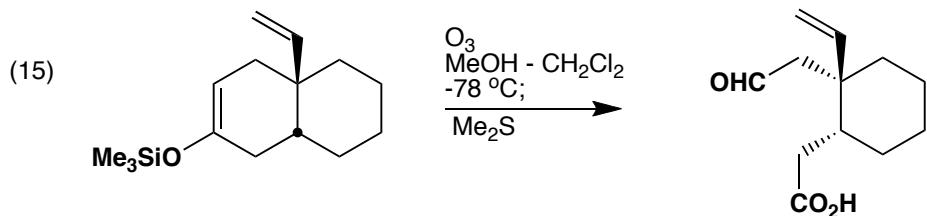
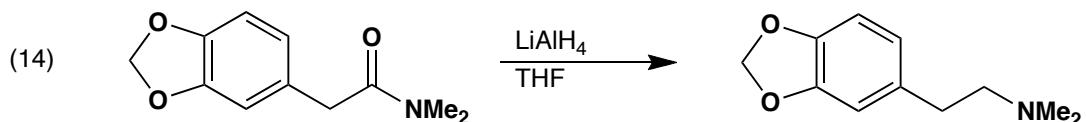
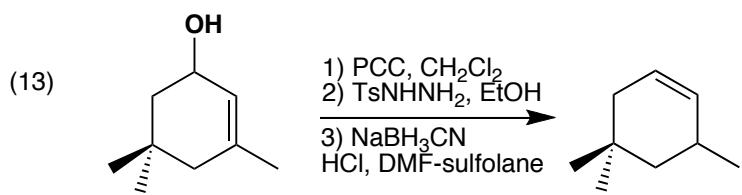
September, 2007  
Prof. Rick L. Danheiser

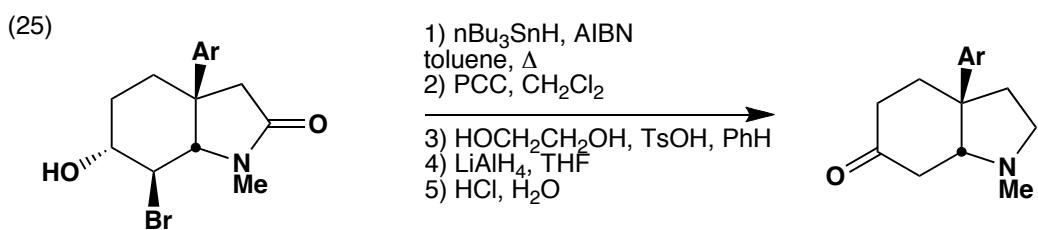
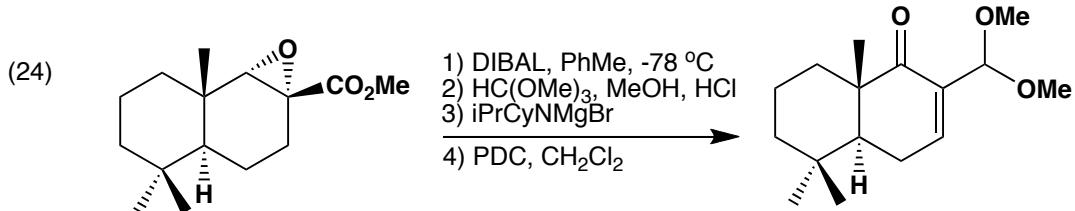
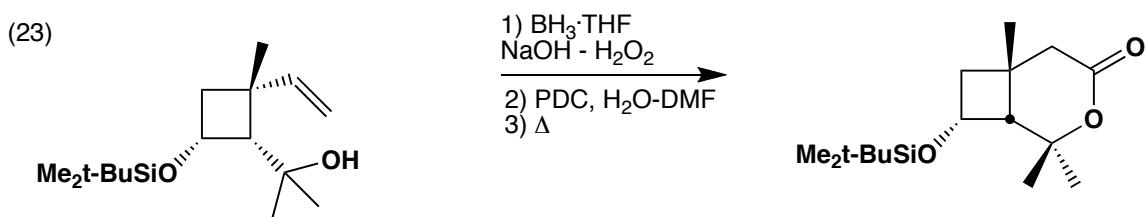
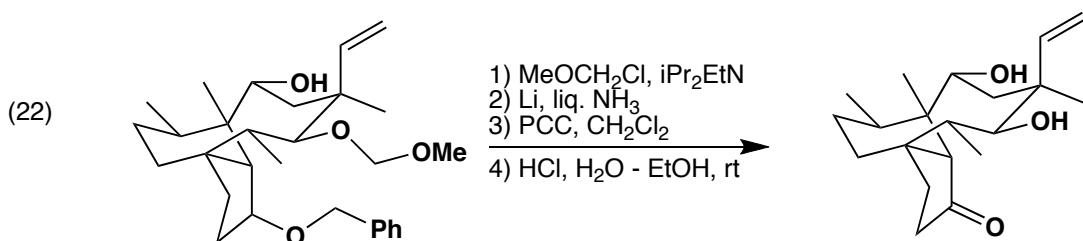
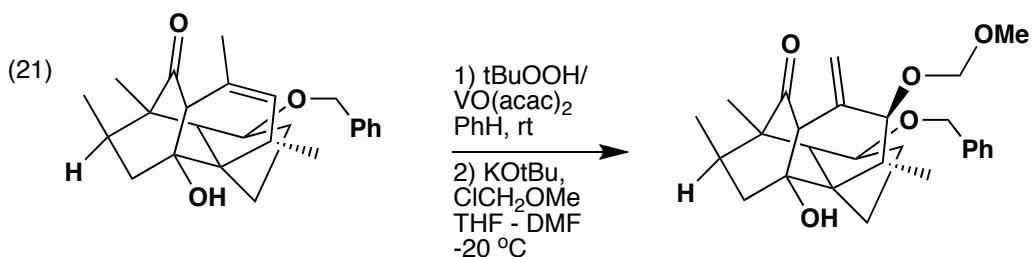
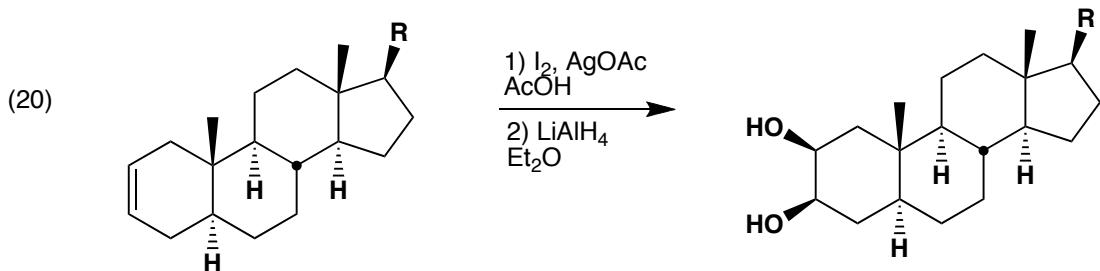
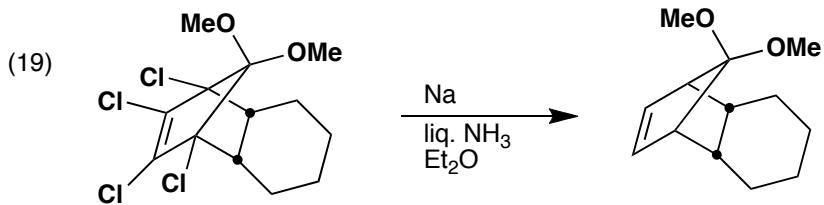
**Problem Set 2**  
**Functional Group Transformations**

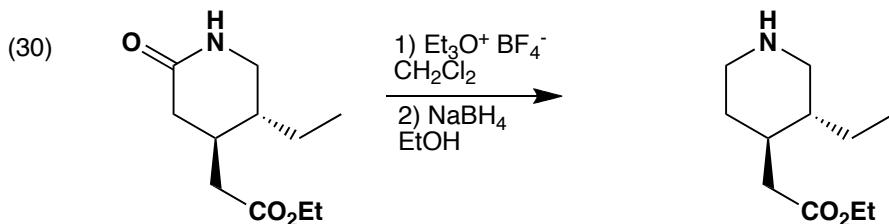
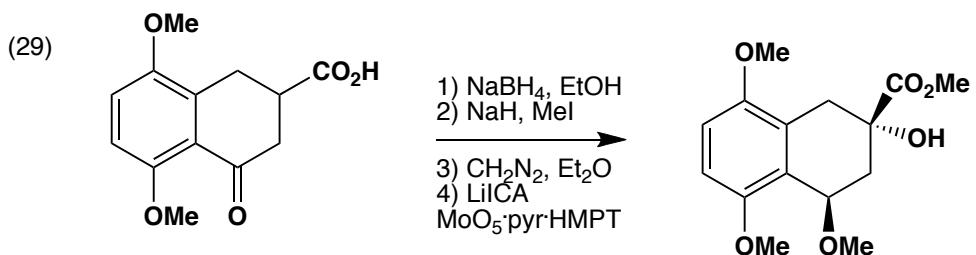
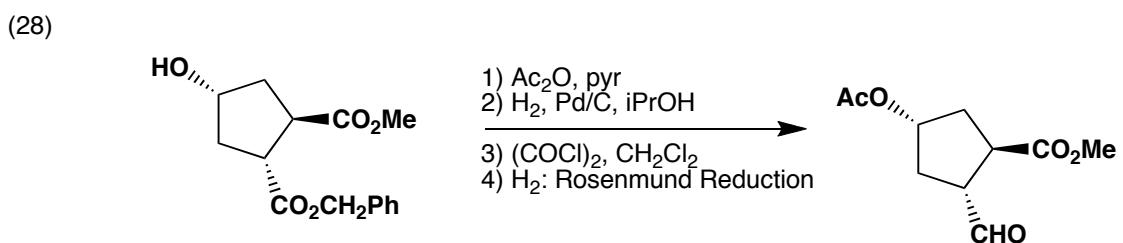
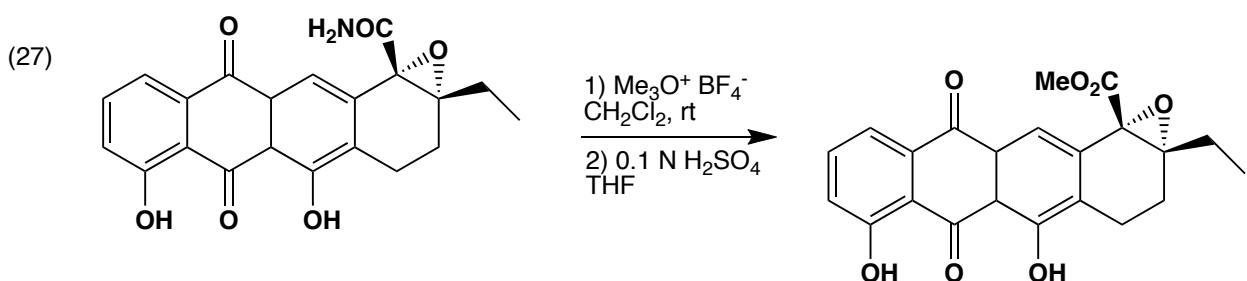
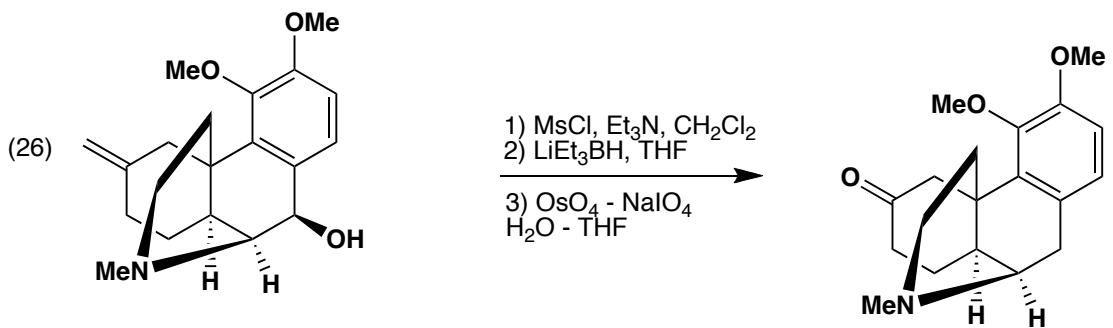
Indicate suitable conditions for effecting each of the following transformations. More than one step may be necessary to achieve some of these functional group conversions. For each reaction step indicate the necessary reagents, suitable solvent(s), and if important, number of equivalents of reagents and reaction temperature. These problems are adapted from actual literature reports although the methods used previously may no longer be the most efficient means of effecting the transformations. Note: assume all compounds are racemic unless otherwise indicated.



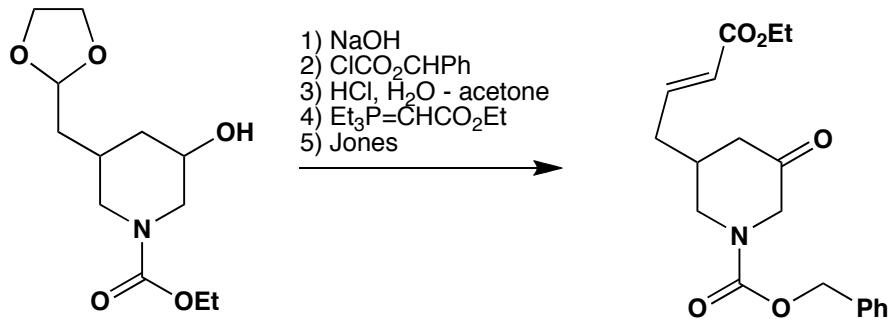




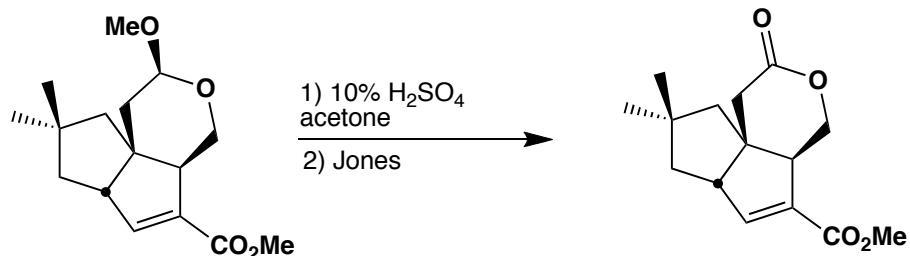




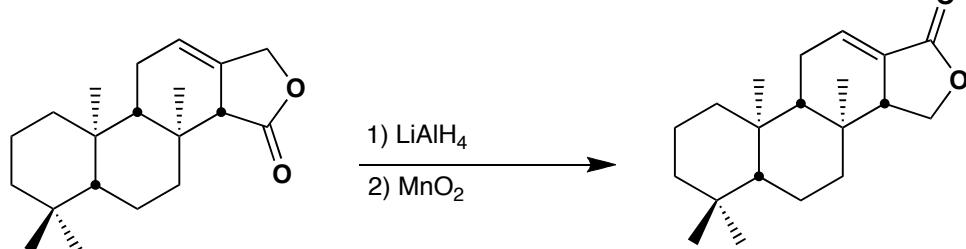
(31)



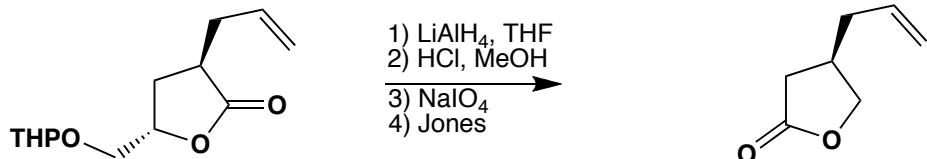
(32)



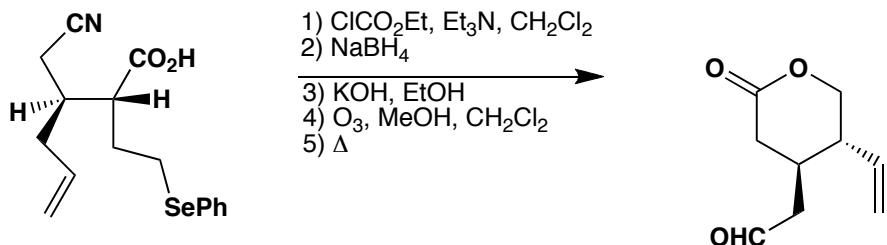
(33)

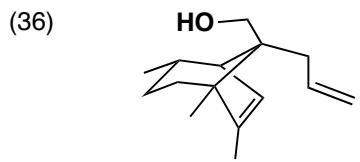


(34)

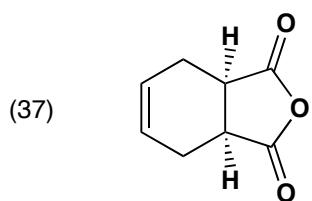
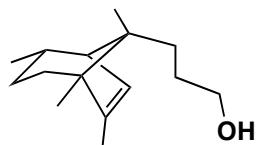


(35)

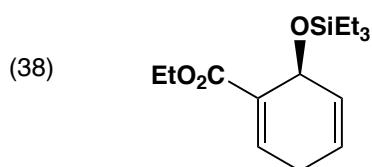
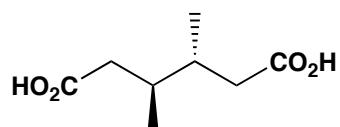




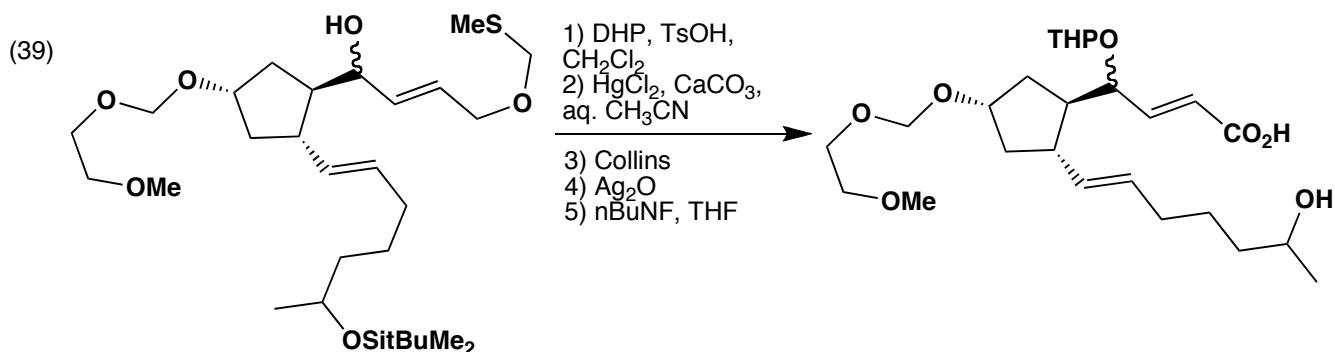
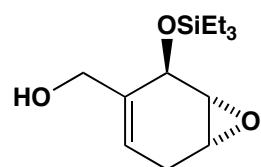
1)  $nBuLi$ ,  $ClPO(NMe_2)_2$   
THF -TMEDA  
2)  $Sia_2BH$ ;  $H_2O_2$ ,  $NaOH$   
3)  $Li$ ,  $EtNH_2$ ,  $Et_2O$  /  $tBuOH$



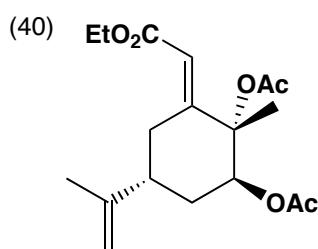
1)  $LiAlH_4$ , THF  
2)  $MsCl$ , pyr  
3)  $LiAlH_4$ , THF  
4)  $KMnO_4$ ,  $H_2O/PhH$



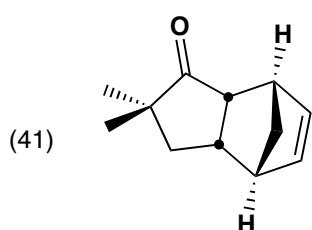
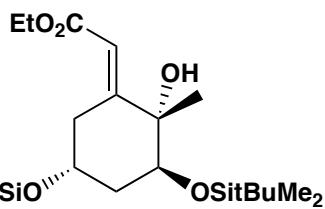
1)  $mCPBA$   
 $NaHCO_3$ ,  $PhH$   
2)  $DIBAL$



1)  $DHP$ ,  $TsOH$ ,  
 $CH_2Cl_2$   
2)  $HgCl_2$ ,  $CaCO_3$ ,  
aq.  $CH_3CN$   
3)  $Collins$   
4)  $Ag_2O$   
5)  $nBuNF$ ,  $THF$



1)  $OsO_4$ ,  $KIO_4$   
 $H_2O$  - THF  
2)  $CF_3CO_3H$ ,  $NaH_2PO_4$ ,  
 $CH_2Cl_2$   
3)  $NaOEt$ ,  $EtOH$   
4)  $tBuMe_2SiCl$ , imidazole,  $Me_2t-BuSiO$ ,  
THF



1)  $LiAl(OMe)_3H$ , THF  
2)  $O_3$   
3) Jones

