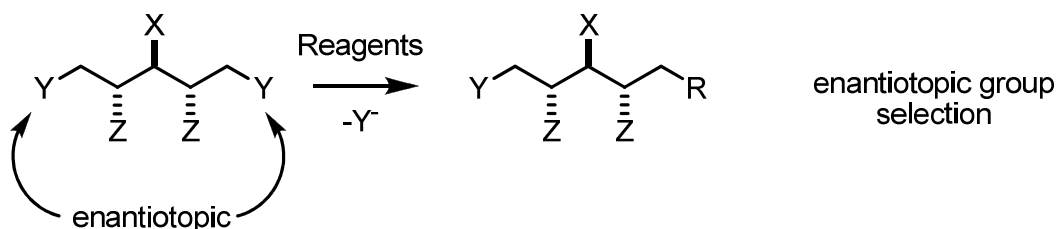


# NON-ENZYMATIC DESYMMETRIZATION

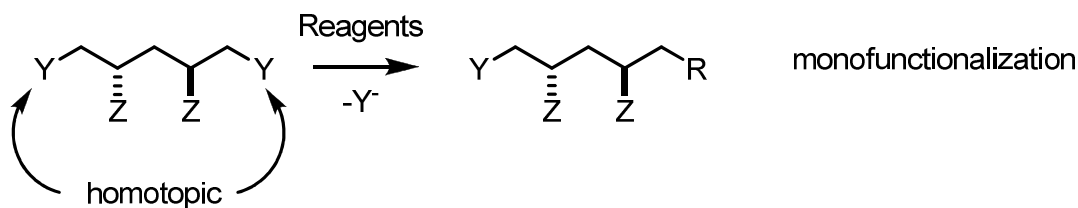
Adam M. Azman, 3 Jun 2009

# Madam, I'm Adam

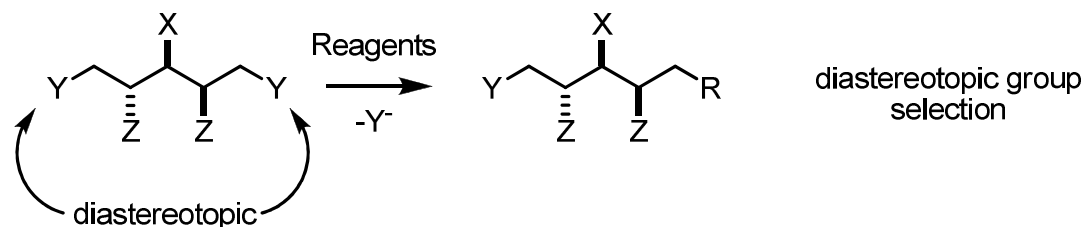
## □ Achiral/Meso compounds ( $Z = H, R$ )



## □ C<sub>2</sub> Symmetric compounds

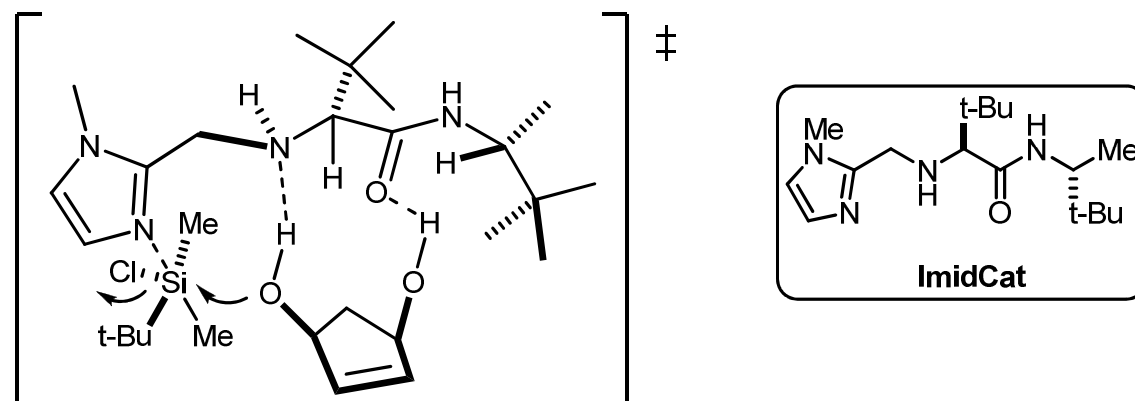
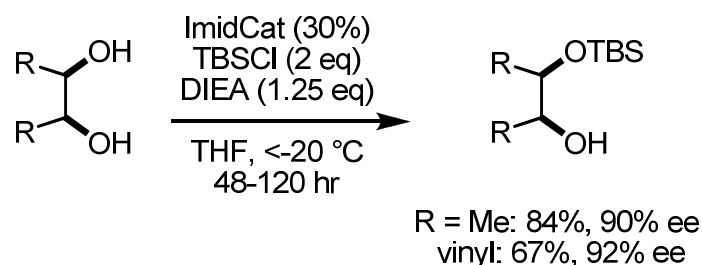
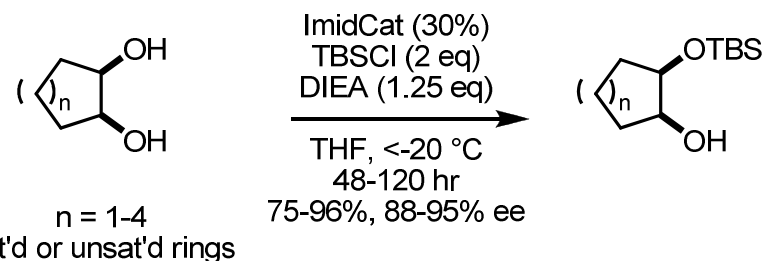
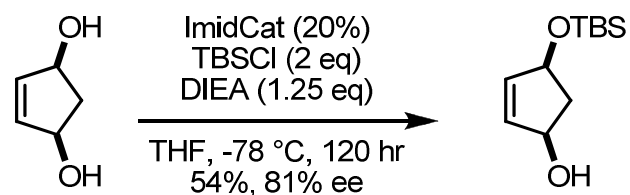
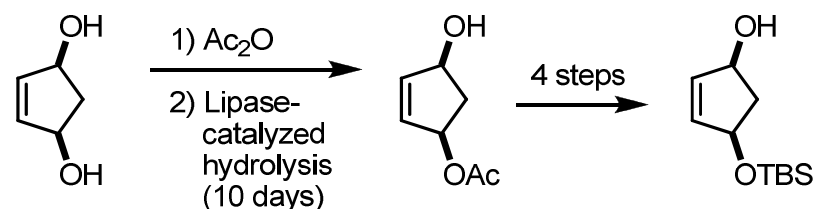


## ☒ Pseudo-C<sub>2</sub> symmetric compounds

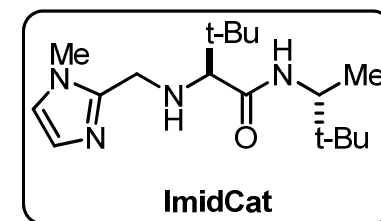
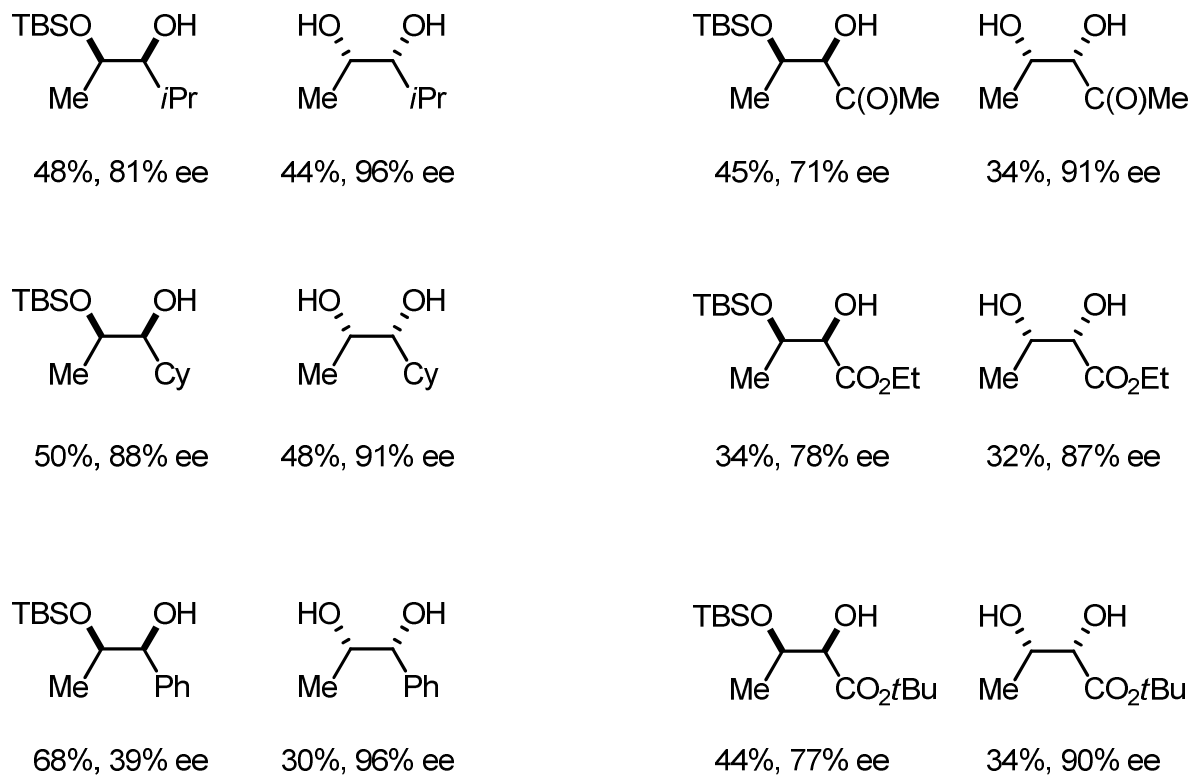
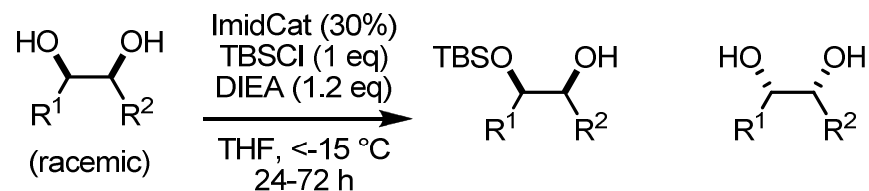


“Alcohol: alternative to feeling like yourself/ Oh, alcohol, I still drink to your health”

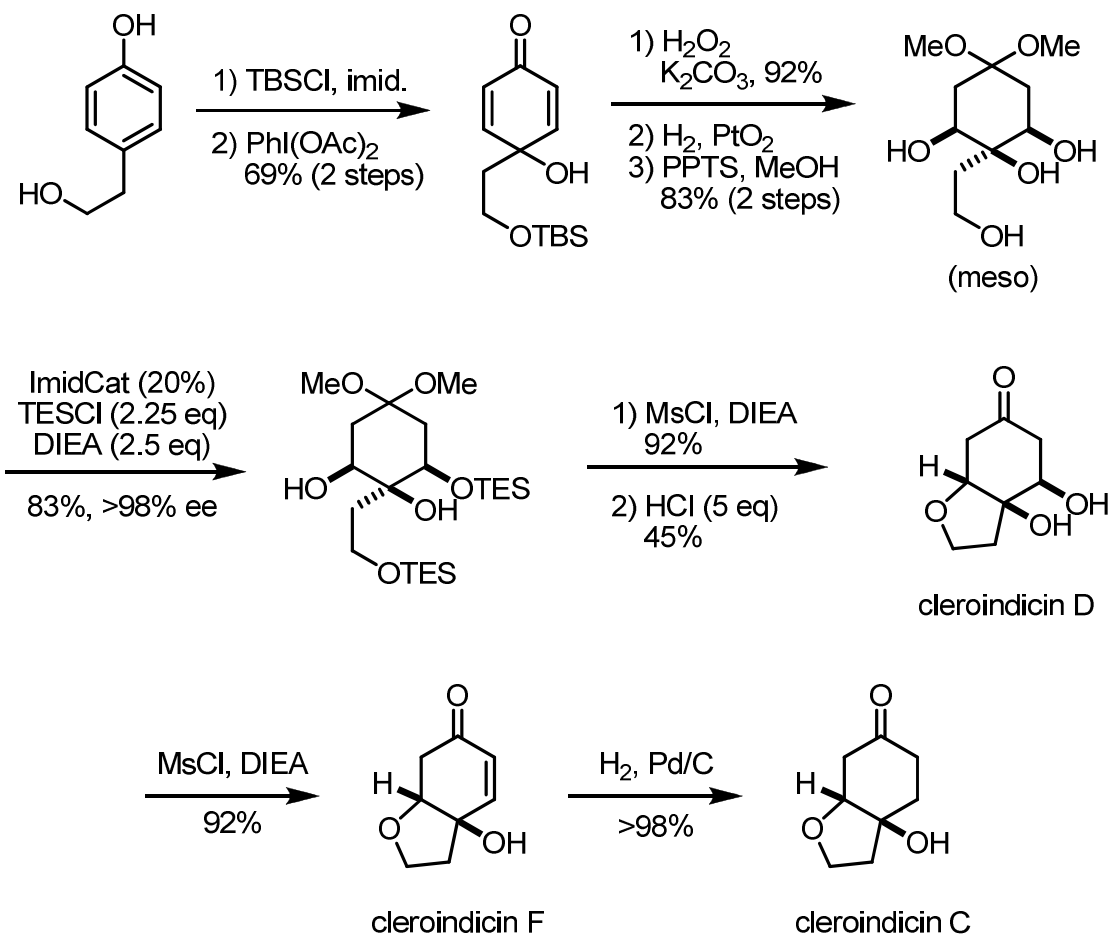
## -Barenaked Ladies, Alcohol



# Kinetic Resolution – NOT a desymmetrization



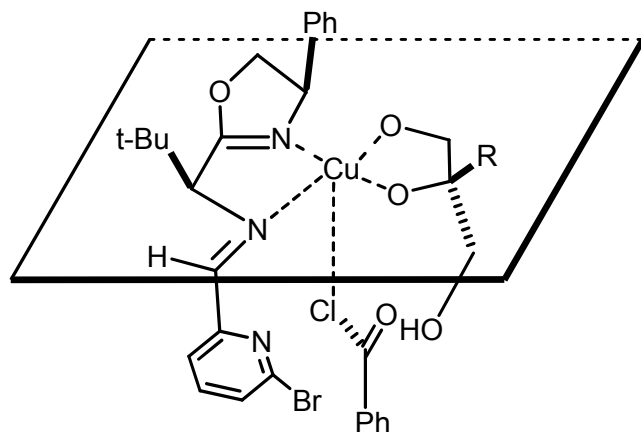
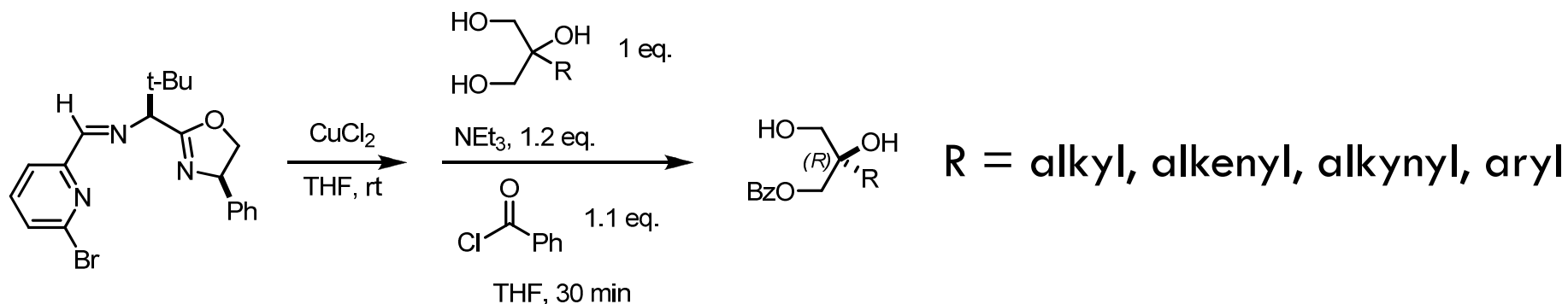
# Cleroindicins D, F, and C



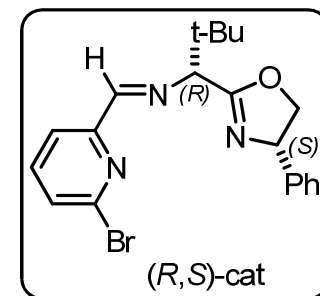
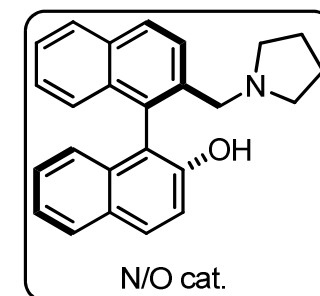
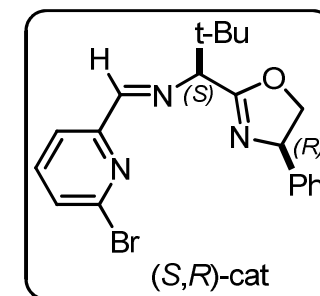
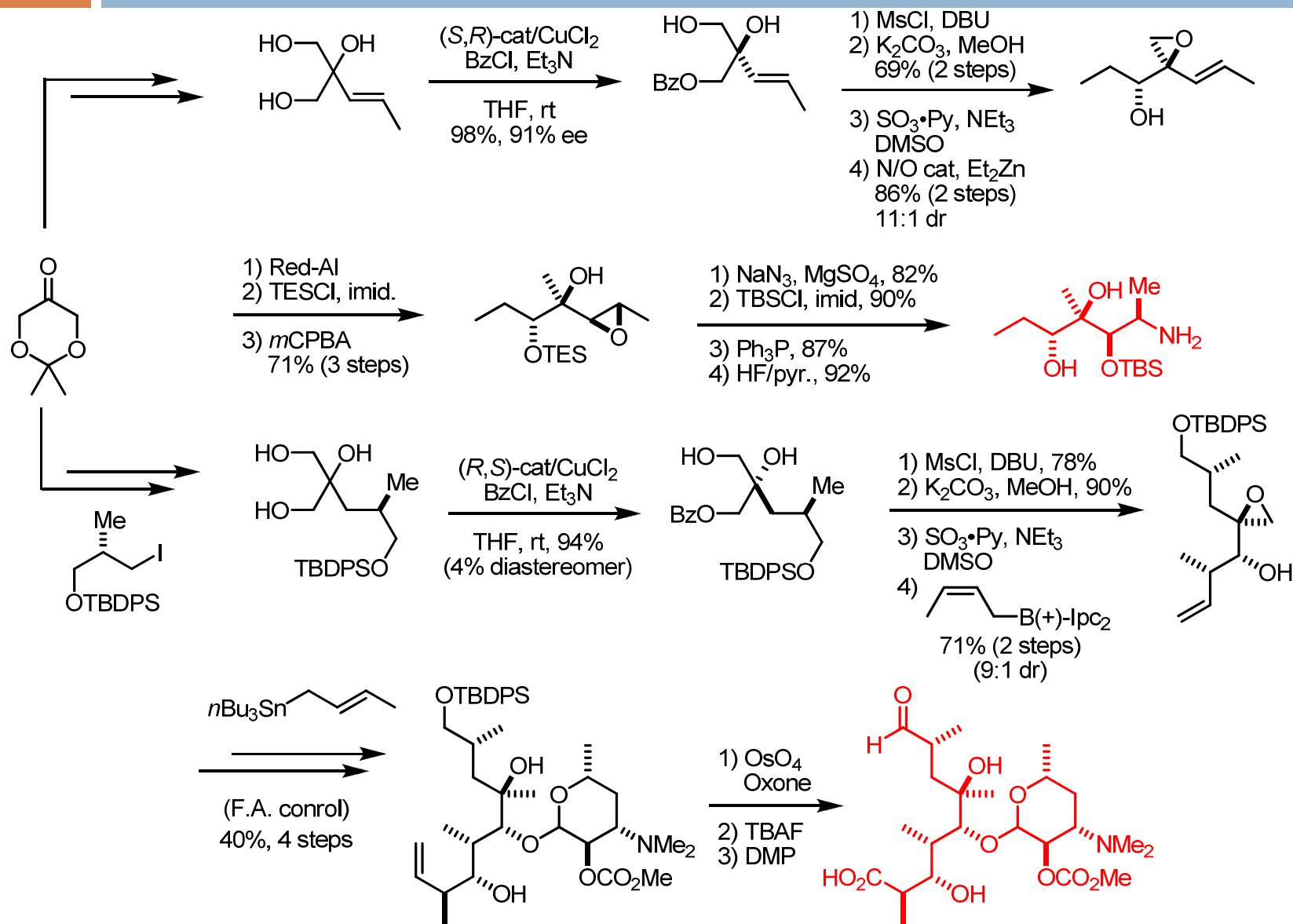
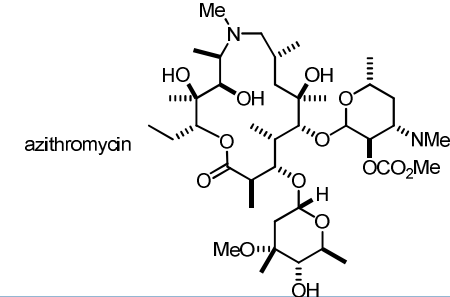
# “I triol things, I achieve what I can”

– Herman Melville

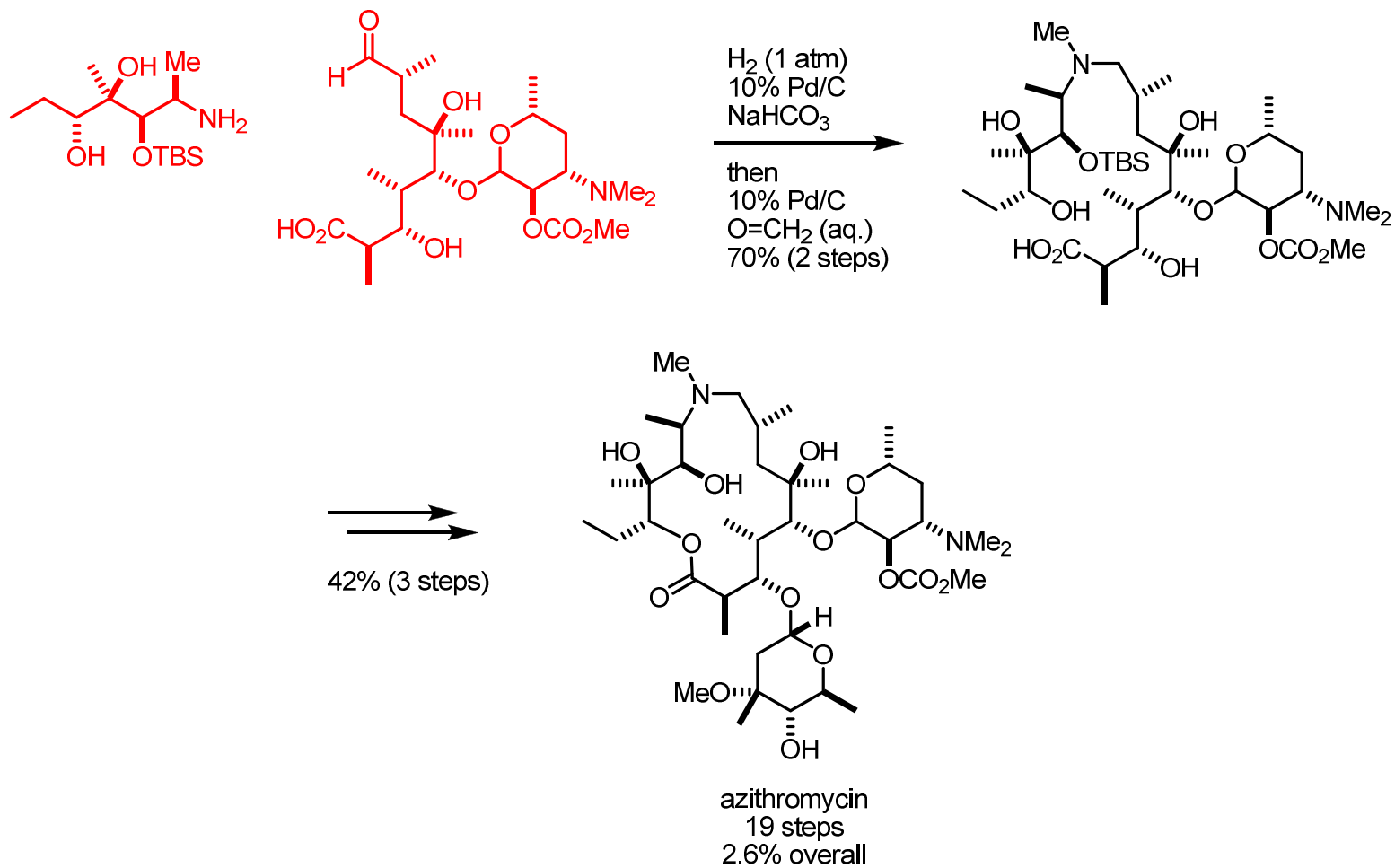
- Meso triol prepared from Grignard add'n into acetonide of dihydroxy acetone



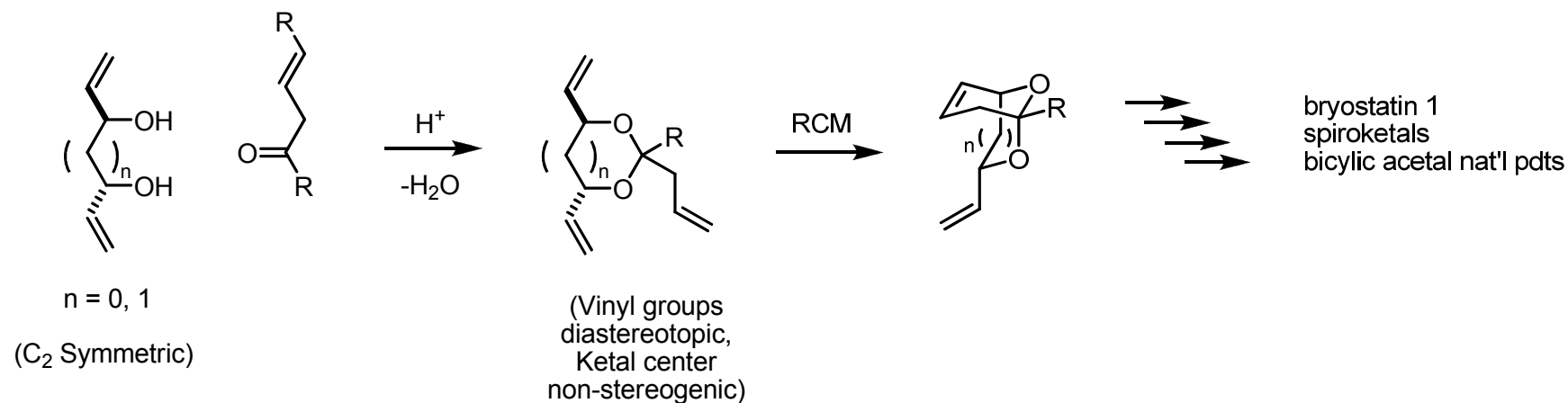
# Azithromycin



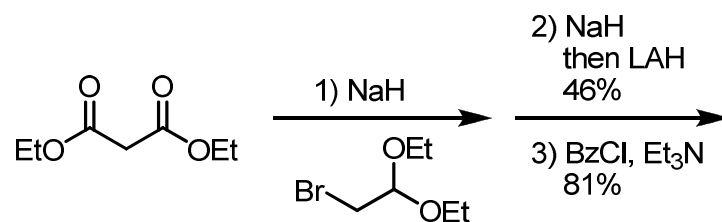
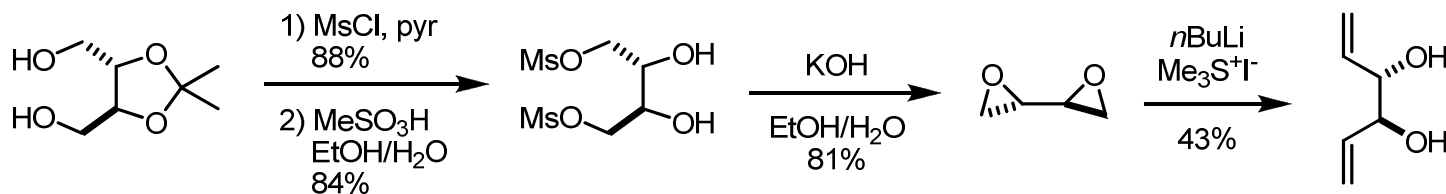
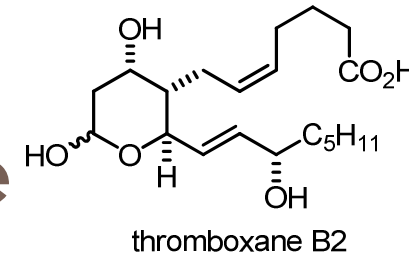
# Azithromycin



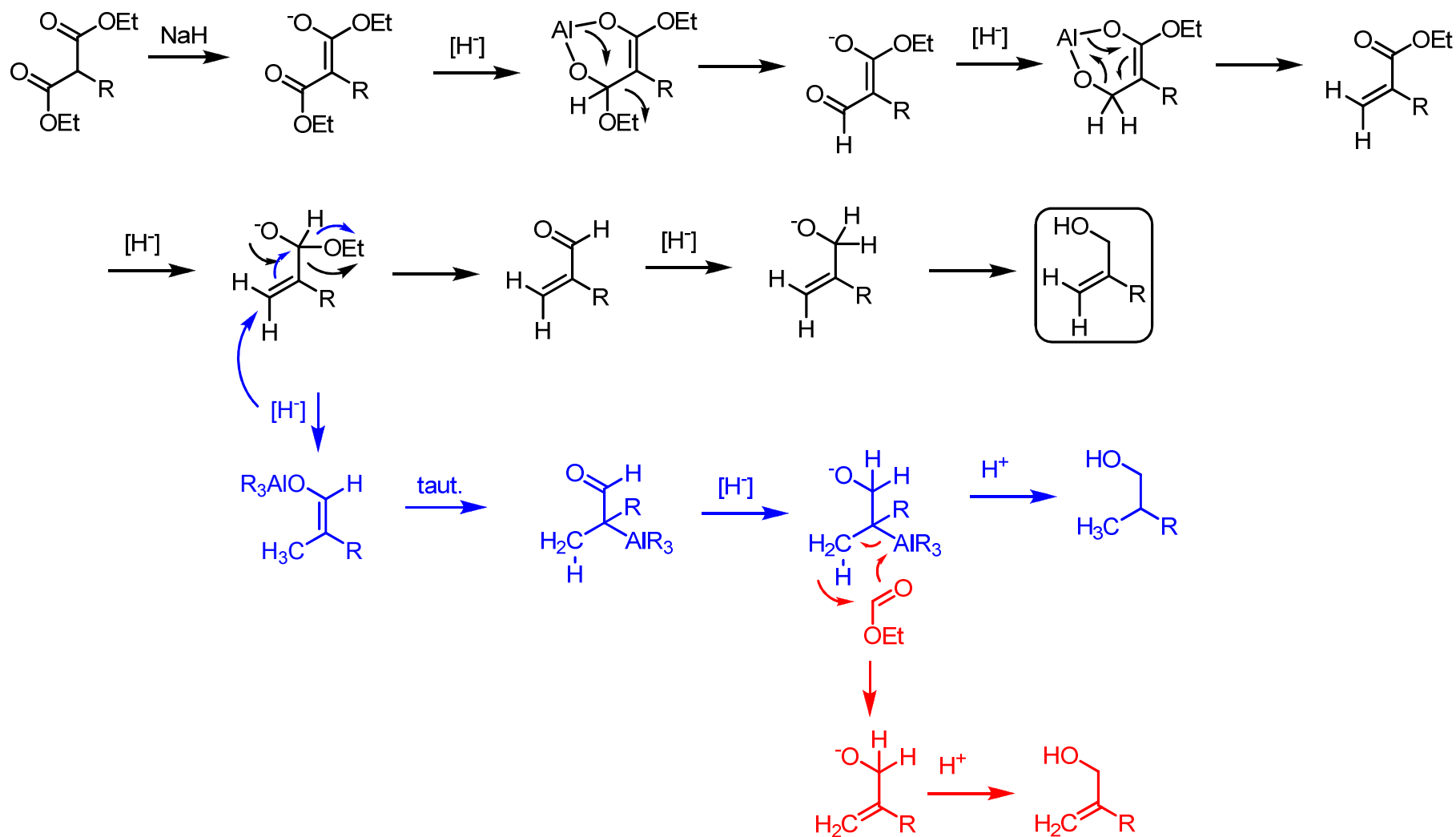
# Diene/diols by Ketalization/RCM



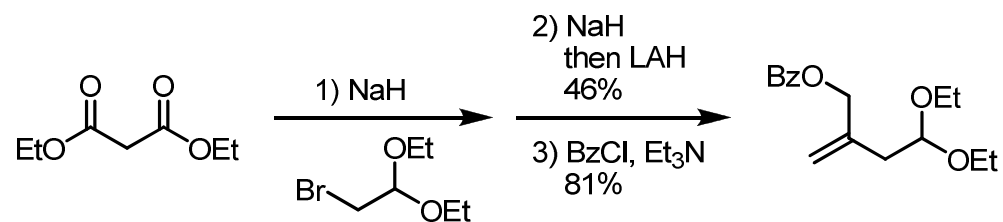
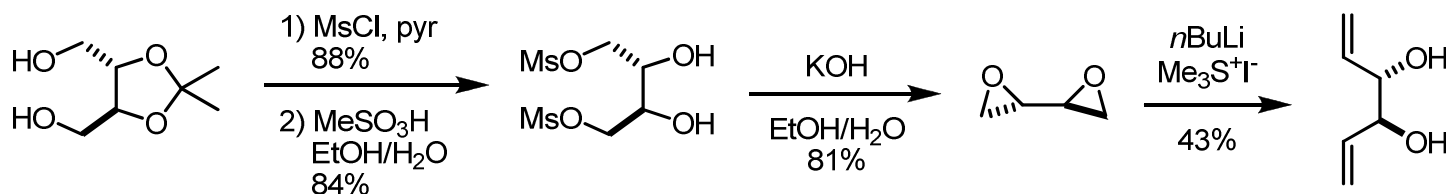
# Thromboxane B2 – Setting the Stage



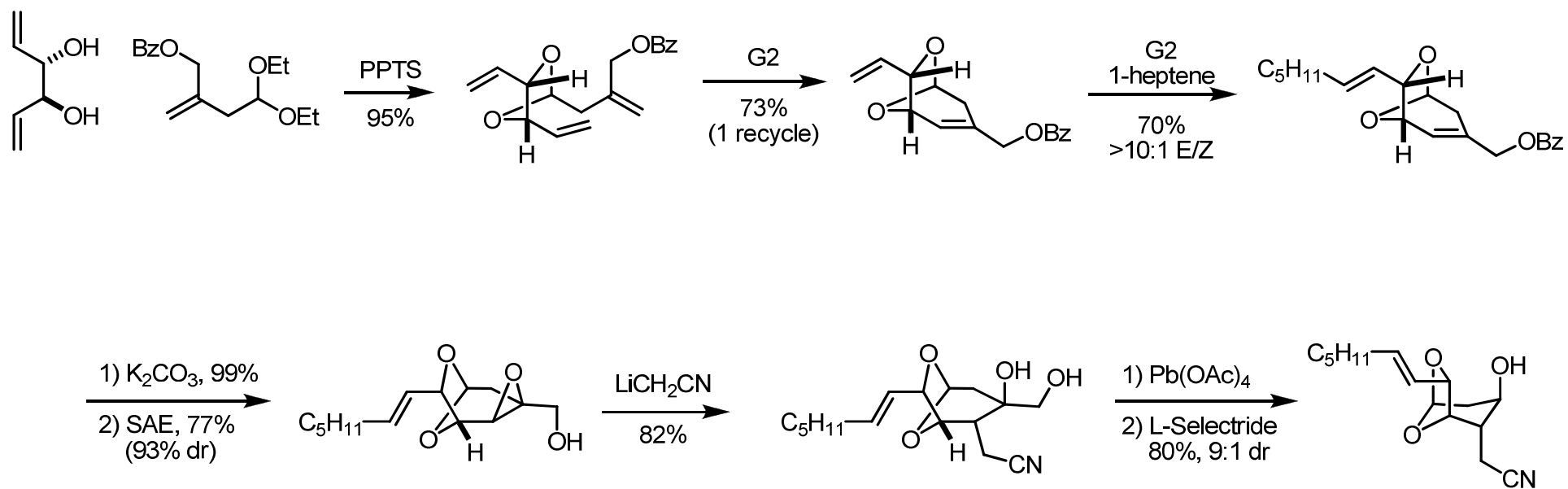
# Reduction Junction, What's Your Function?



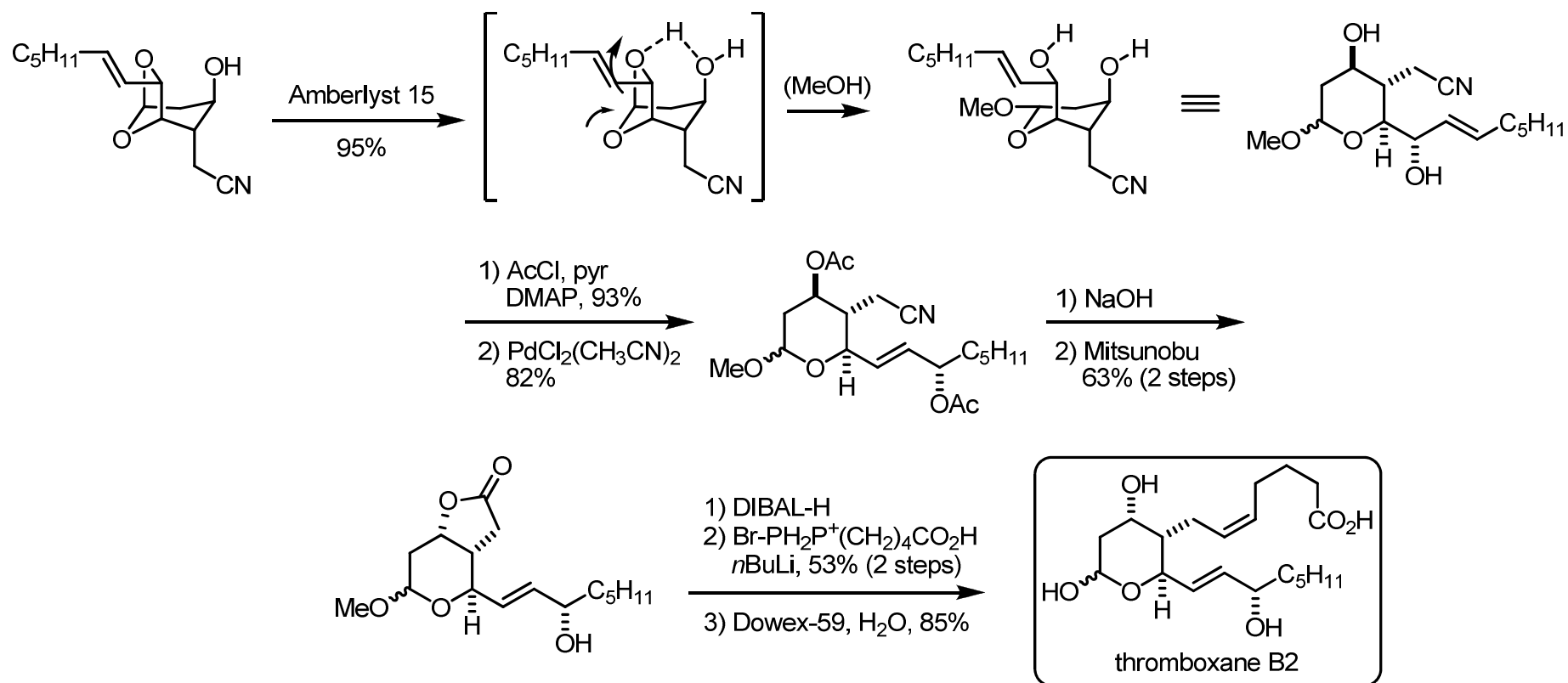
# Thromboxane B2 – Setting the Stage



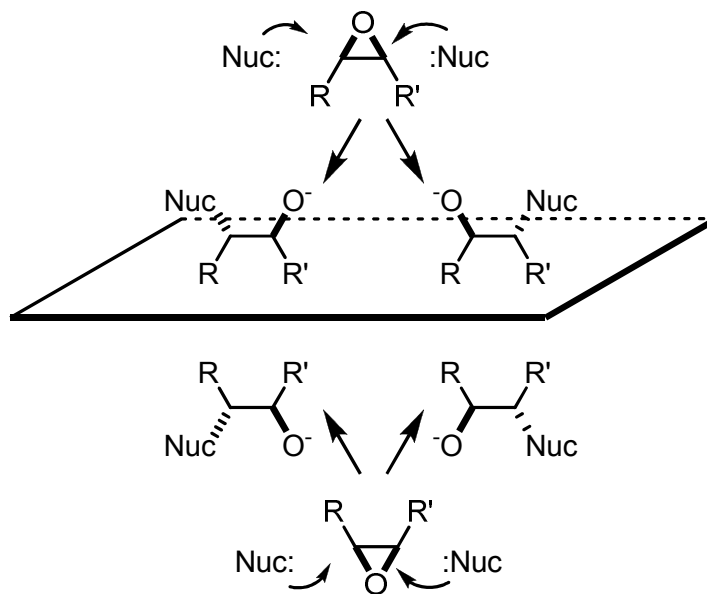
# Thromboxane B2



# Thromboxane B2 - Endgame

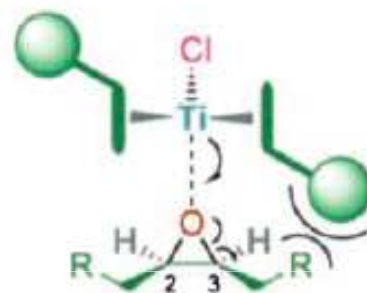
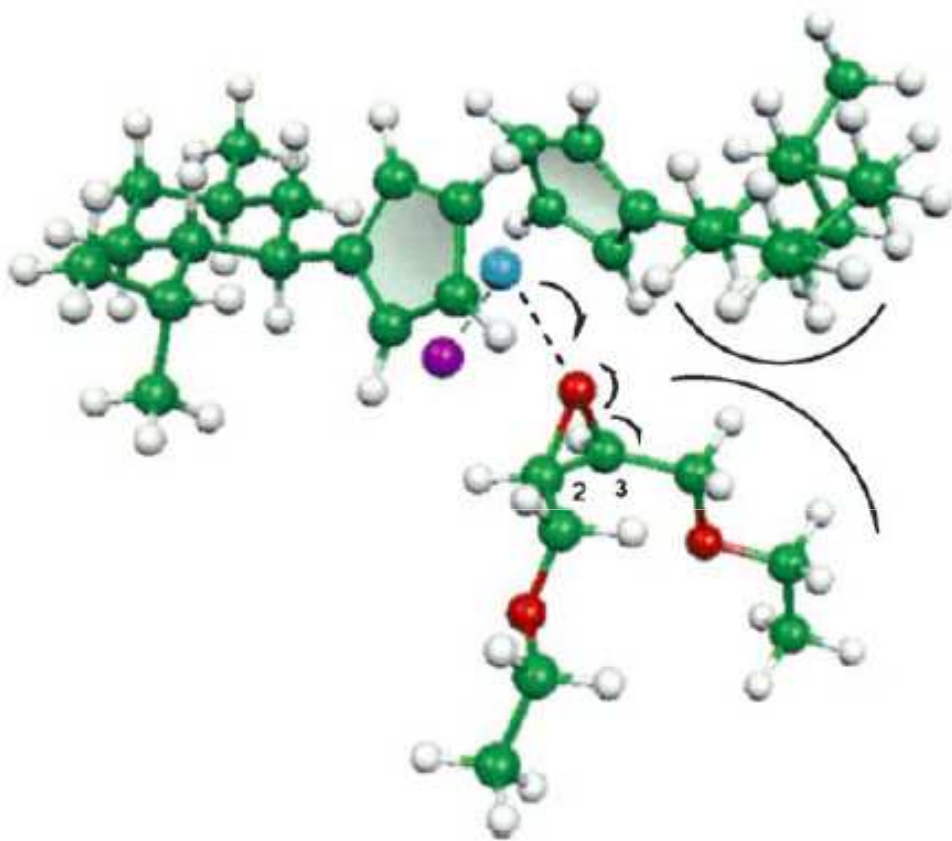
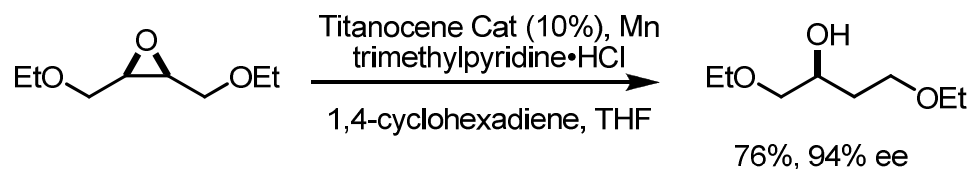


# Regiodivergent Epoxide Opening

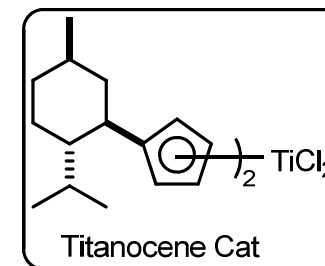


If  $R \neq R'$ , process is kinetic resolution, not desymmetrization

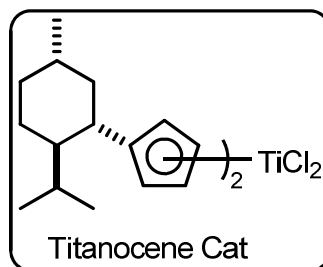
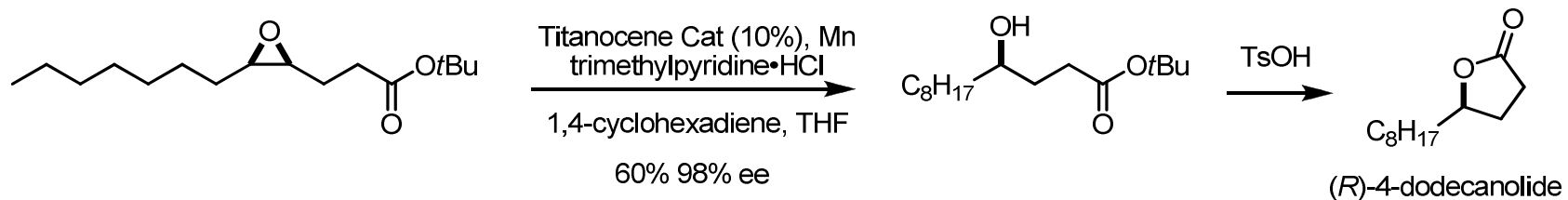
# Origin of Selectivity



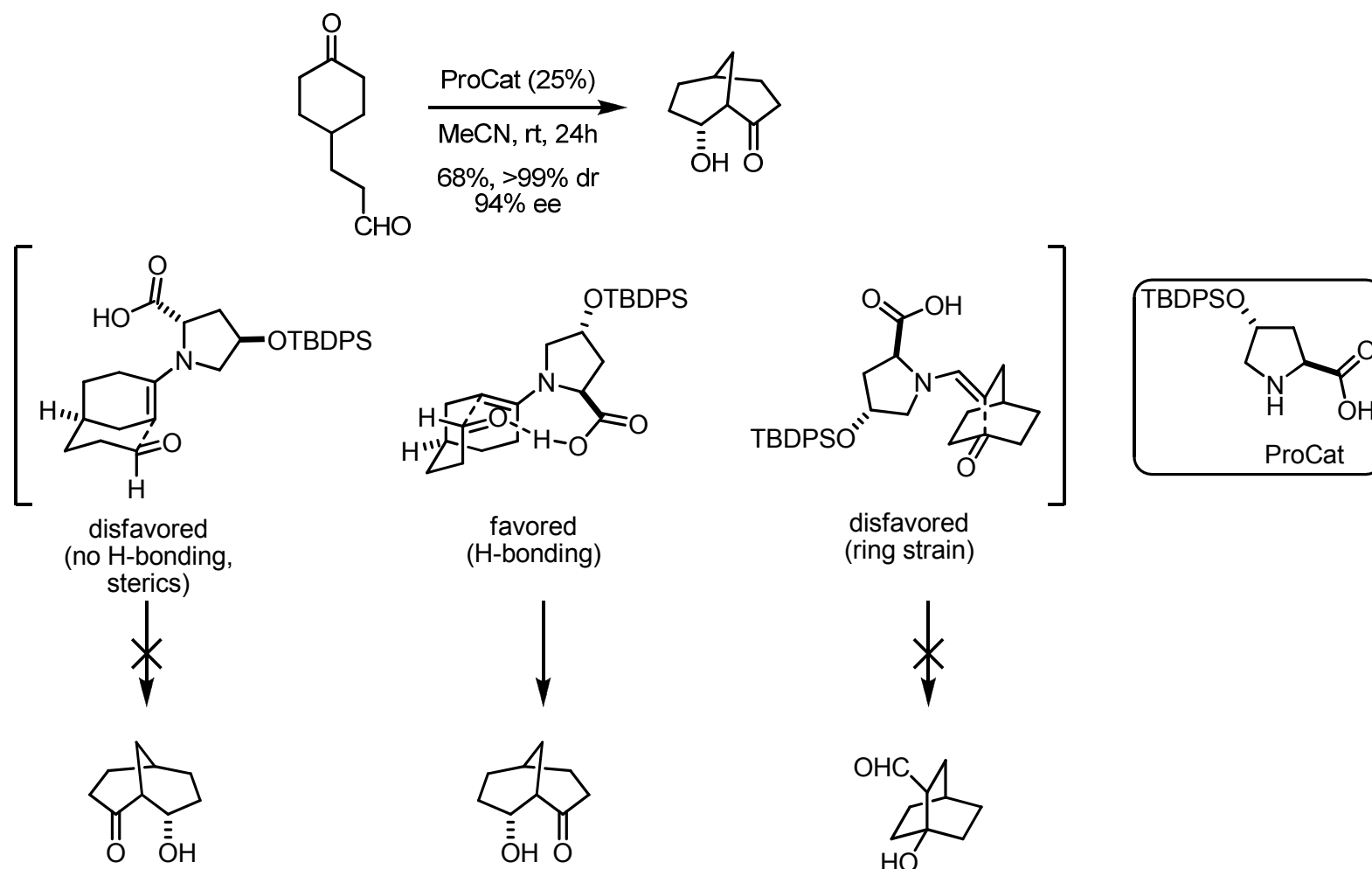
top view (R = OEt)



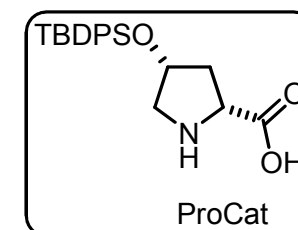
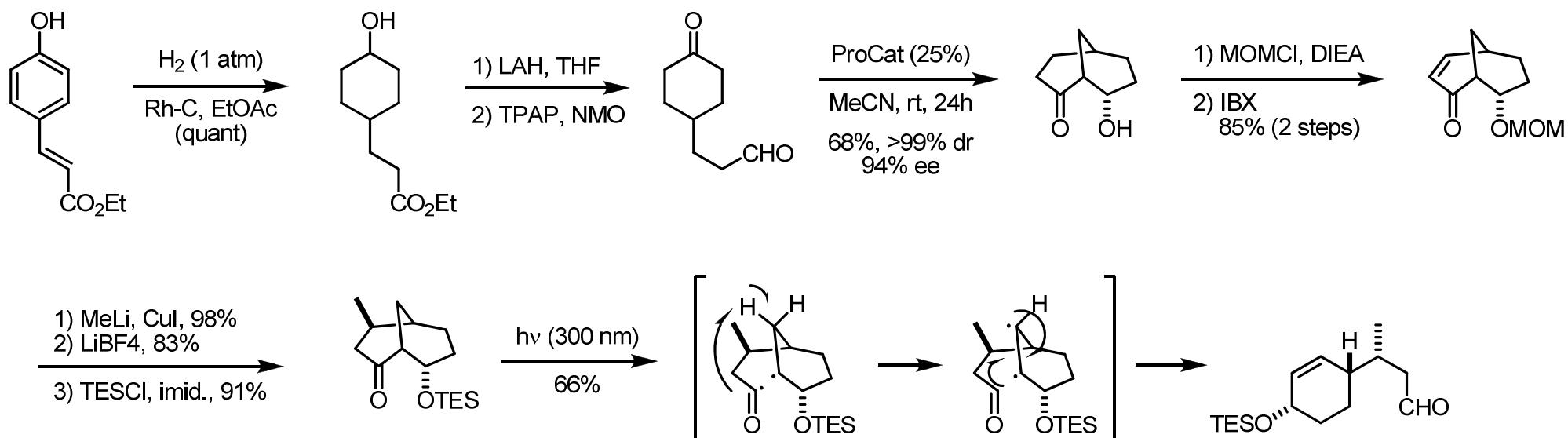
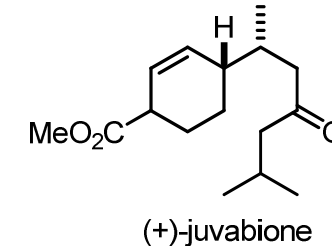
# (*R*)-4-dodecanolide



# Ketone Desymmetrization



# (+)-Juvabione



# (+)-Juvabione – Endgame

