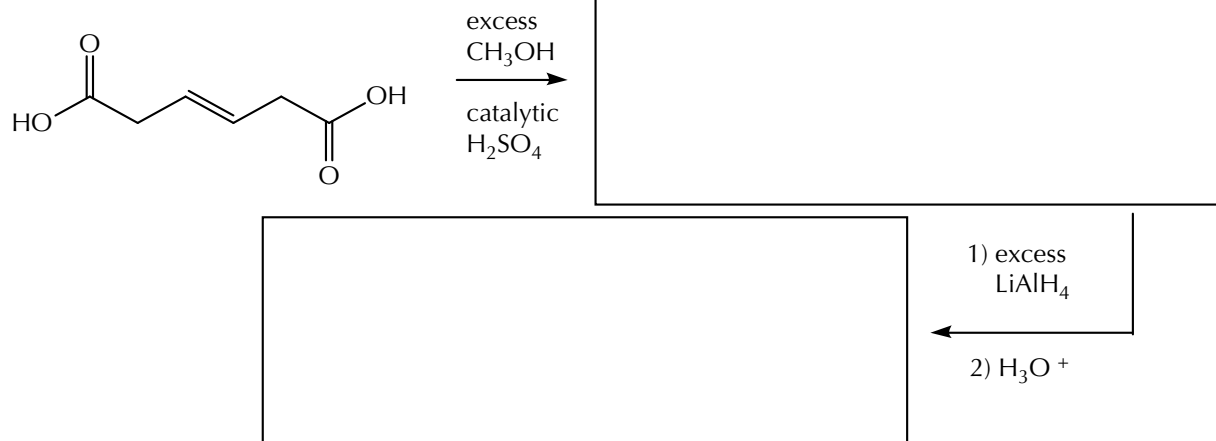
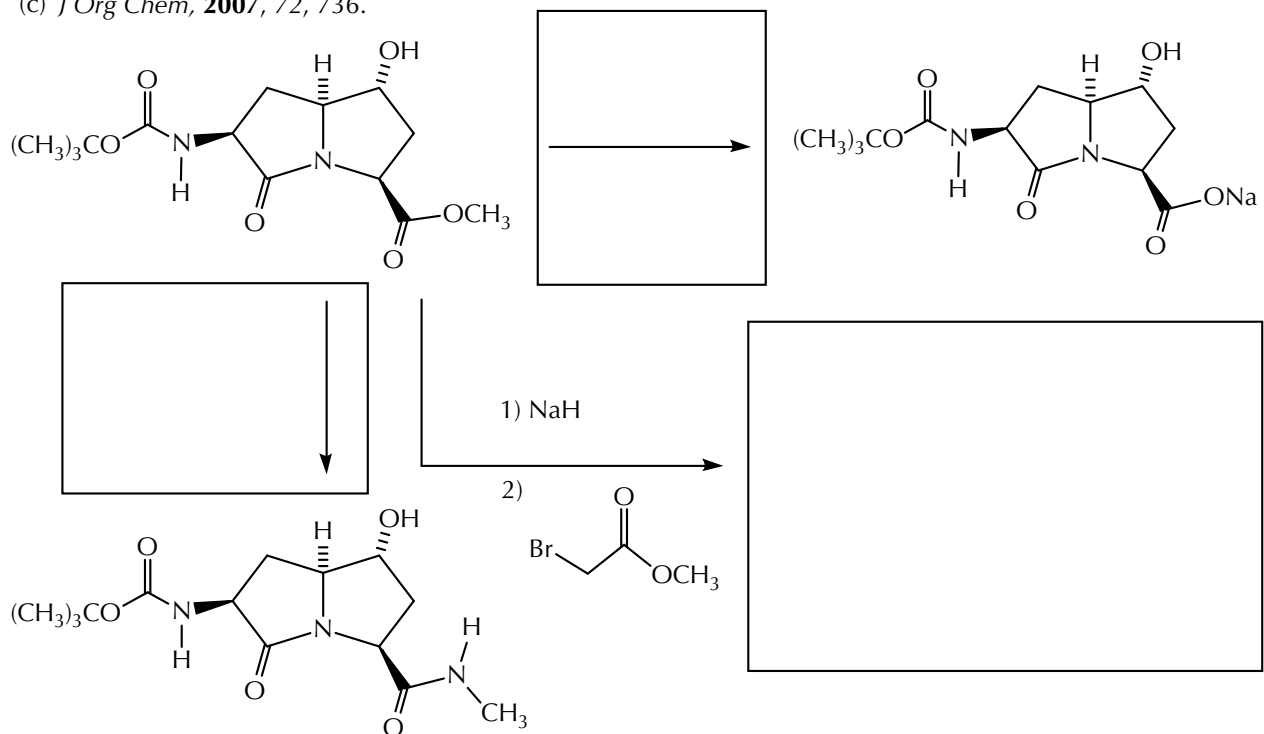


13.41 Complete the following, as directed.

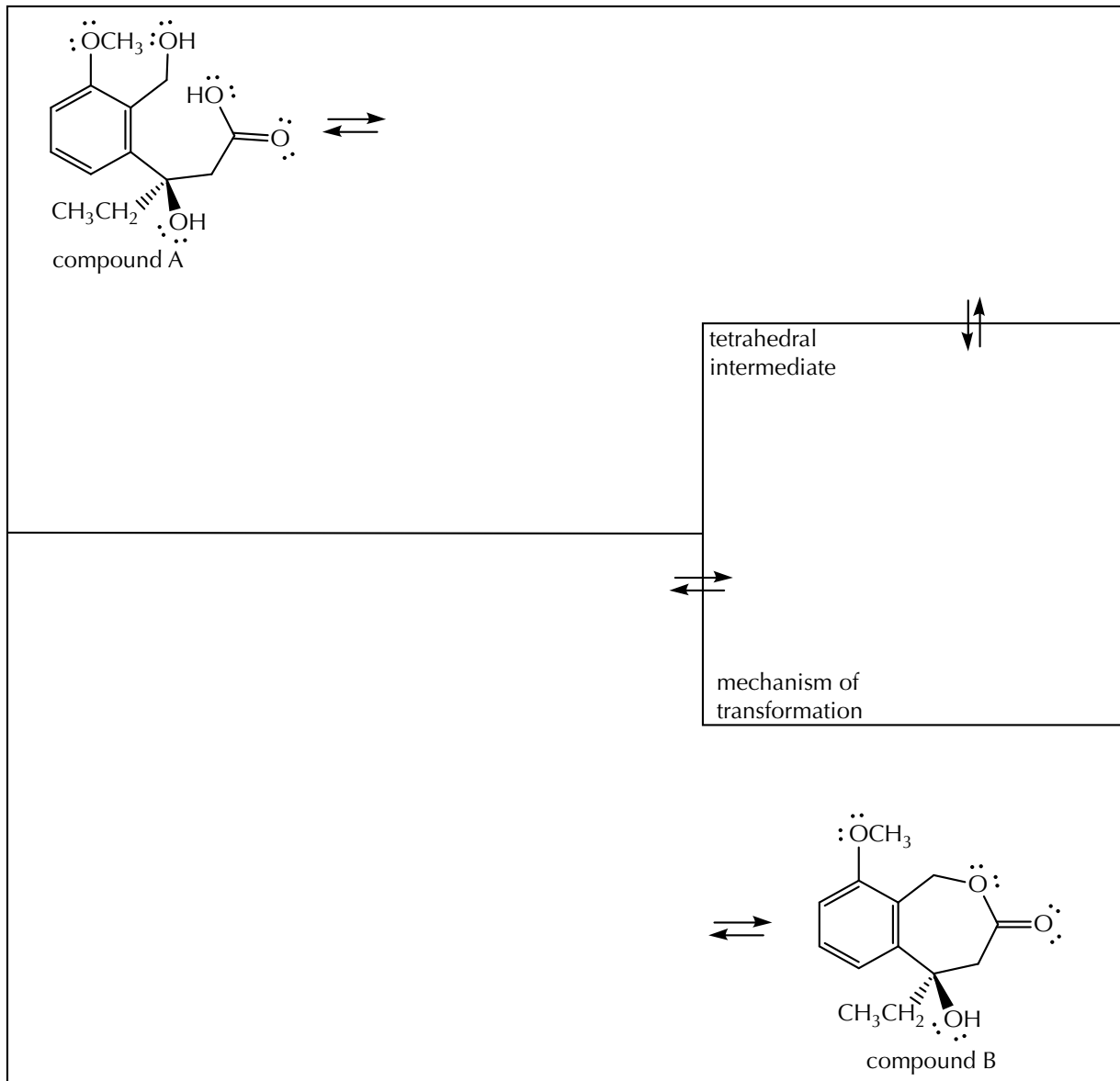
(a) *Org Lett*, **2007**, 9, 445.

(b) Provide the complete IUPAC name for the starting material in part (a).

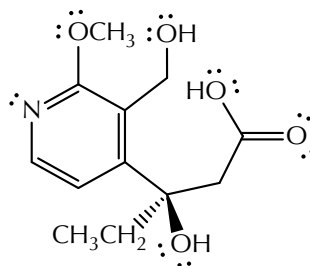
(c) *J Org Chem*, **2007**, 72, 736.(d) Draw: (*S*)-*N*-benzoyl-3,4-dihydroxybutanamide

13.42 Cyclic esters are called lactones. When compound A is treated with excess HBr, an intramolecular acylation reaction takes place, resulting in a 7-membered ring lactone (compound B).

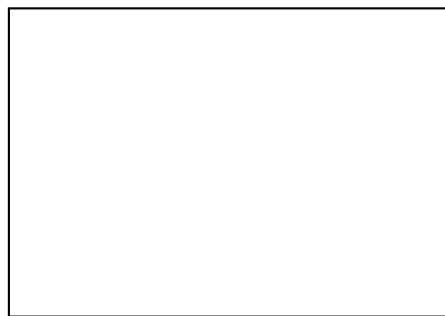
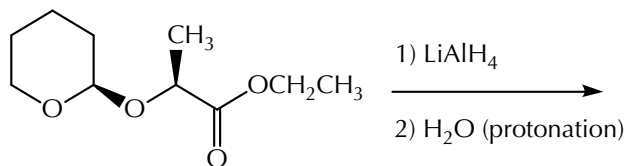
- (a) Draw the structure of the expected uncharged, tetrahedral intermediate in this reaction. Provide the stepwise, curved arrow reaction mechanism for this entire transformation starting from the hydroxy acid structure (A), and giving compound B, through the intermediate. You may use H-B and B[⊖] for the acid and its conjugate base, respectively.



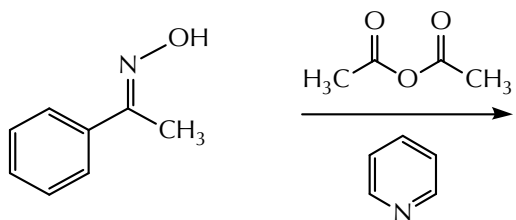
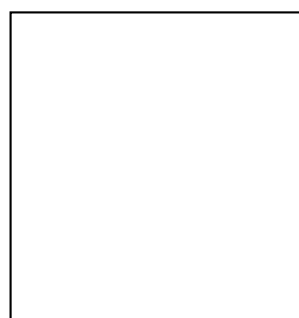
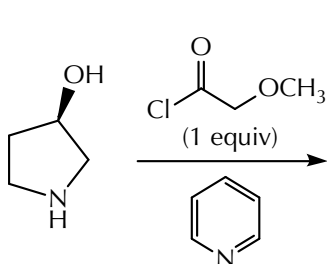
- (b) In *J Org Chem*, **2006**, 71, 7583, a substance similar to compound A was studied (shown here). Under neutral pH conditions, its actual structure would be different than what is drawn here. Take a look at the functional groups and predict what its actual structure ought to be under neutral pH conditions.



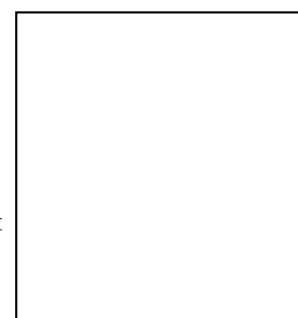
13.43 Complete the following transformations. Be sure to number sequential experimental steps.

(a) *Org Proc Res Dev*, **2002**, 6, 606.

(b)

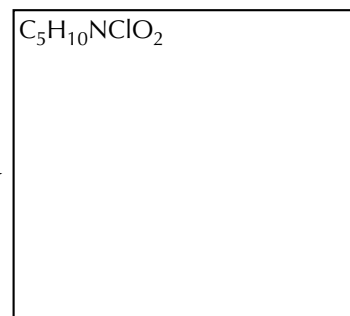
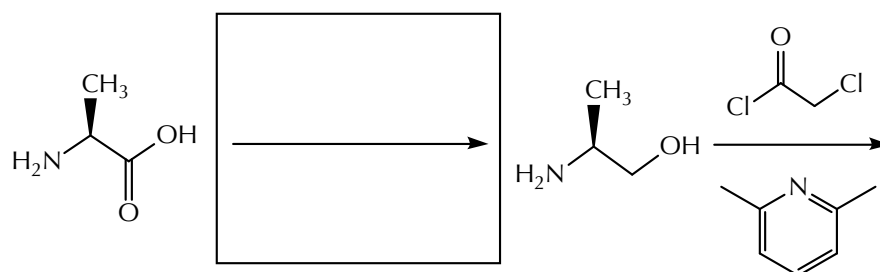
(c) *J Org Chem*, **1998**, 63, 8266.

1) LiAlH_4 (excess)
2) H_2O to give neutral
(uncharged) product



pK_a of most acidic
proton ~ 17

pK_a of most acidic
proton ~ 17

(d) *Org Lett*, **2011**, 13, 4486.

$\text{H}_2 + \text{NaCl} +$

NaH

