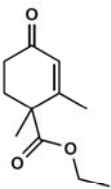


CHE 322 Problem of the Day

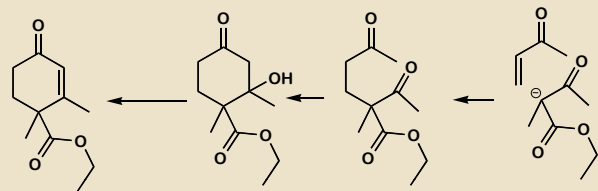


You may wish to use a variation of the Robinson annulation for this one.

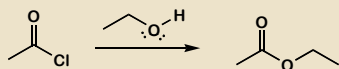
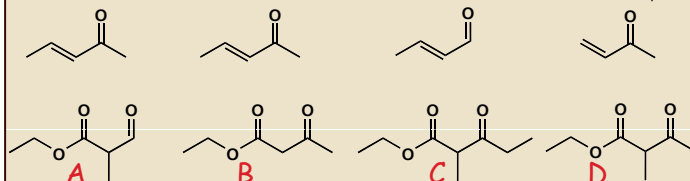
Propose a synthesis of this molecule from starting materials of five (5) carbons or less.

Room	Course ID From	To
Javits 100	2001	2270
Javits 102	2271	2371
Javits 109	2372	2422
Javits 101	2423	2475
Old Engineering 143	2476	2587

Robinson Annulation



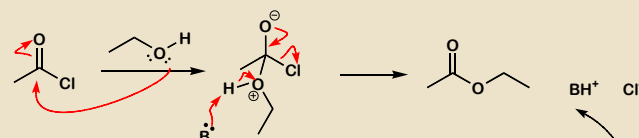
Which two reactant would give this molecule?



Let's look at the mechanism

The Good News:

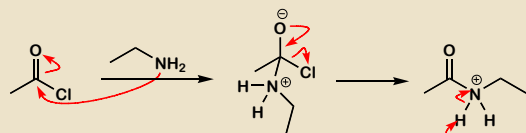
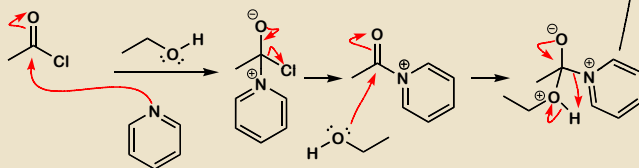
If you know one you know them all



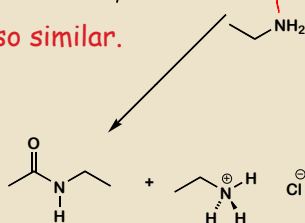
What is B?

Adding base can change the mechanism.

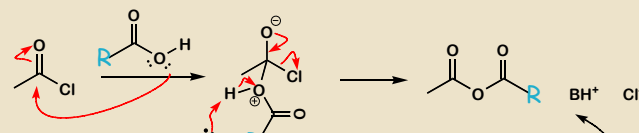
B could be excess alcohol or some solvent molecule or an added base like pyridine.



Amides are also similar.

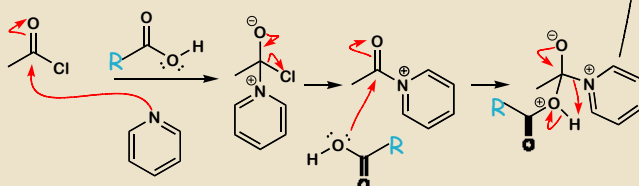


Use two moles of amine. One to make amide. One to react with HCl. Or you can add some other base.

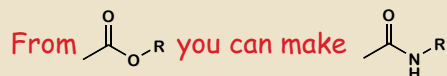
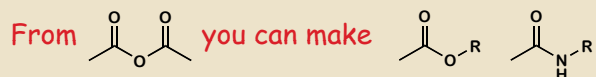
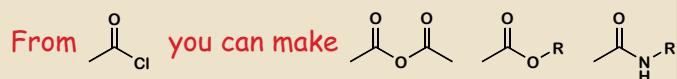


The mechanism for making an anhydride is just the same.

The two acids do not need to be the same

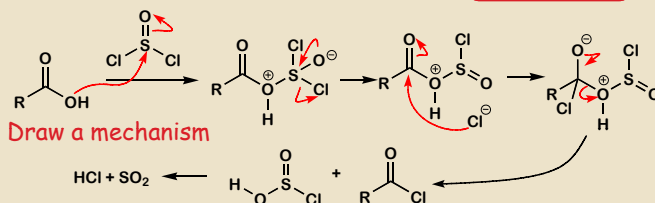


### "Easy Substitutions"

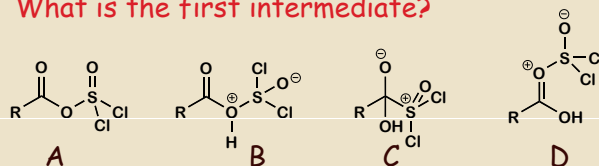


Acid chlorides are a key reagent.  
How do you make acid chlorides?

Or Use PCl3  
or PCl5

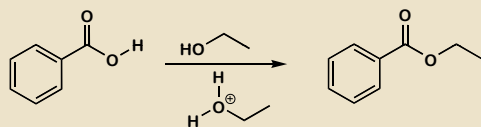


What is the first intermediate?



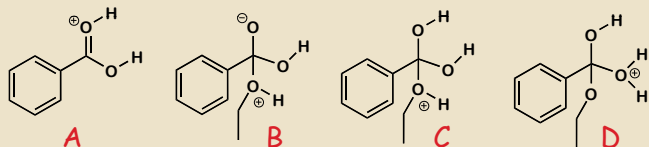
Can you make anything directly from the carboxylic acid?

How about an ester? Add some H2SO4

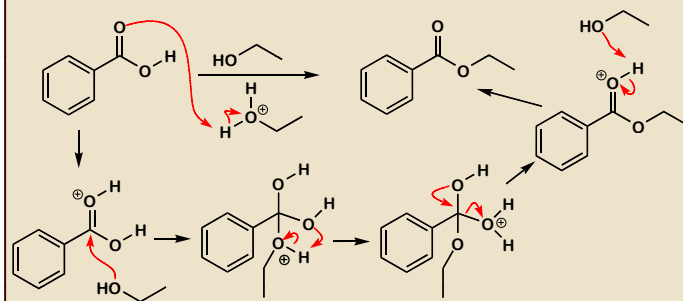


Draw a curved arrow mechanism

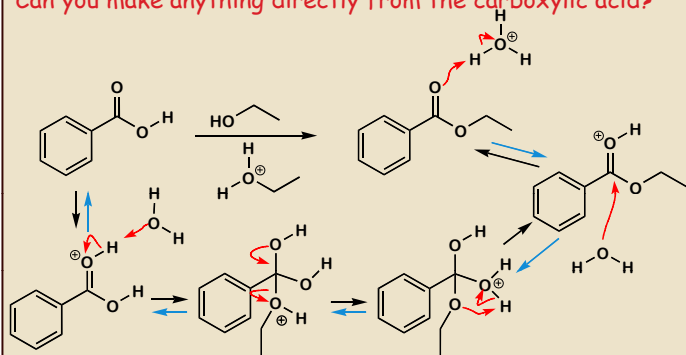
Which of the following intermediates is the most unlikely to be found in a "correct" mechanism?



Can you make anything directly from the carboxylic acid?



Can you make anything directly from the carboxylic acid?



Run it backwards  
Acid hydrolysis