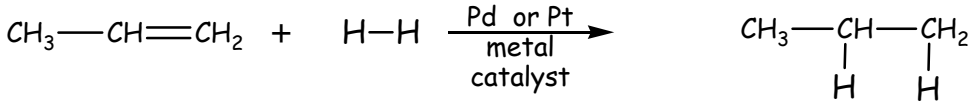
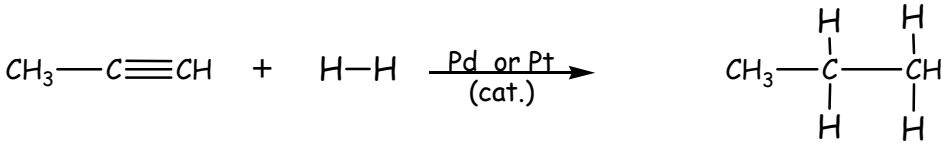
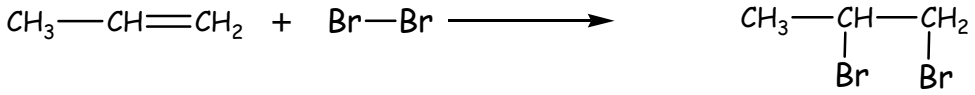
Addition Reactions of Alkenes (and alkynes)

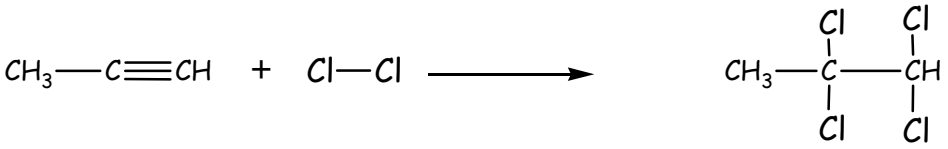
1. Hydrogenation (Addition of hydrogen)





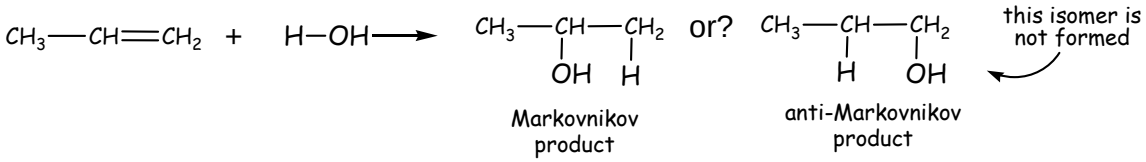
2. Halogenation (Addition of halogen)





3. Hydrohalogenation (Addition of H-X)

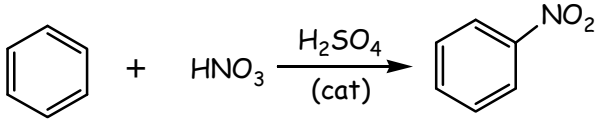
4. Hydration (Addition of water)



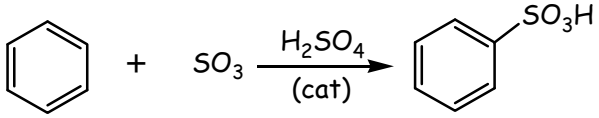
Substitution Reactions of Aromatic Compounds (benzene)

1. Halogenation (Br or Cl)

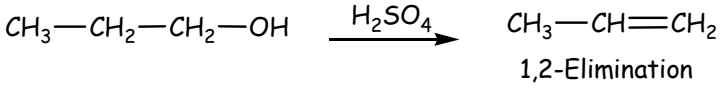
2. Nitration

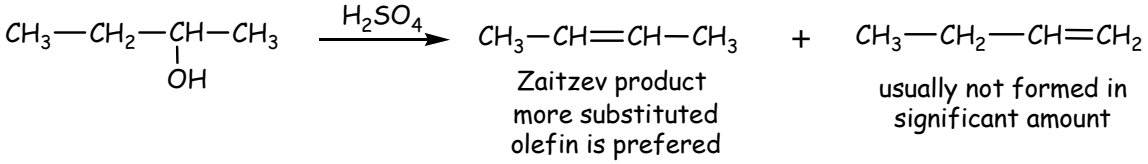


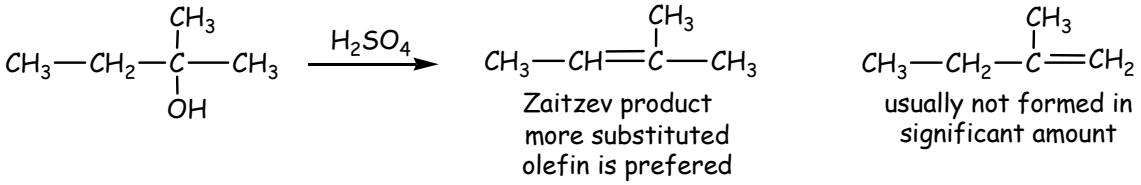
3. Sulfonation



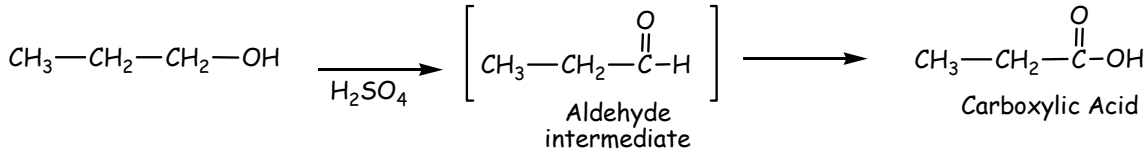
Elimination Reactions of Alcohols (1,2-Elimination)

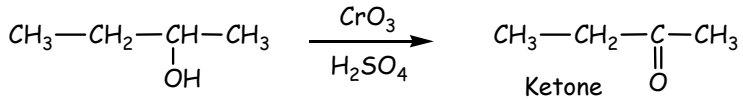


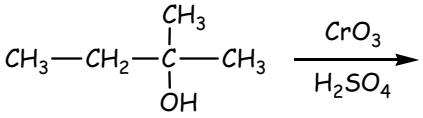




Oxidation of Alcohols



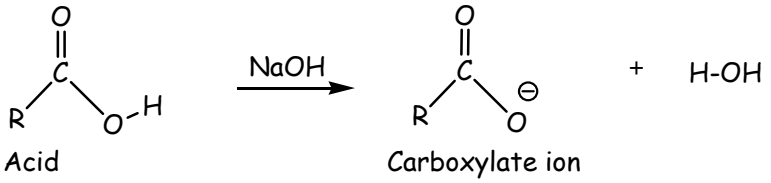




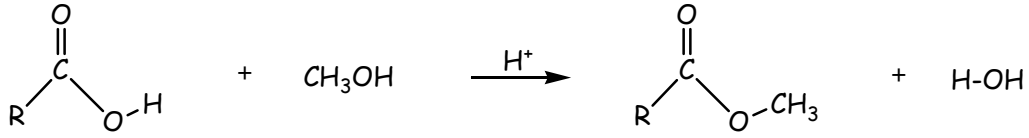
Tertiary alcohols
do not oxidize

KEY REACTIONS FOR ACIDS, ESTERS and AMIDES

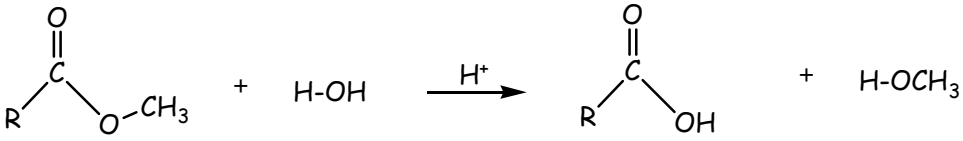
Acid-base reaction of carboxylic acids:



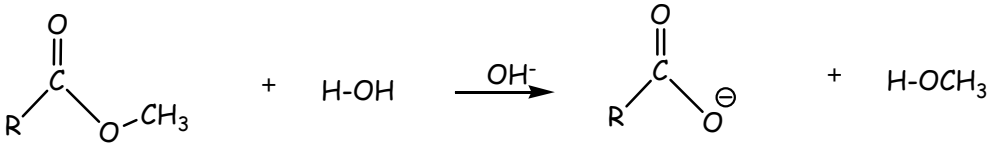
Ester Formation:



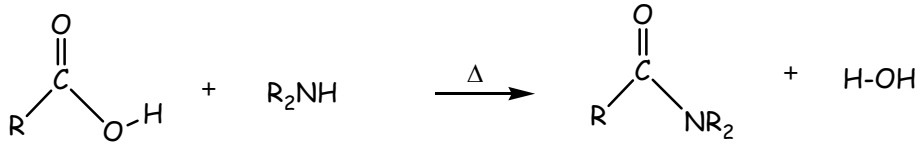
Hydrolysis of Ester under Acid Conditions:



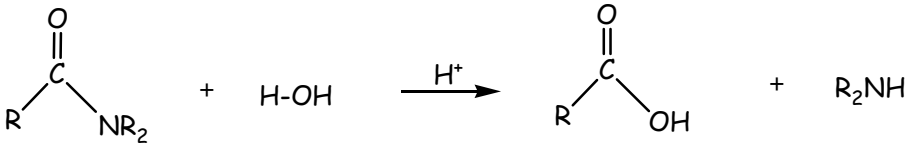
Hydrolysis of Ester under Basic Conditions:



Amide Formation:



Hydrolysis of Amide under Acid Conditions:



Hydrolysis of Amide under Basic Conditions: