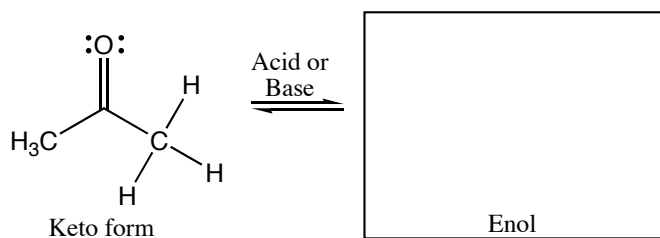
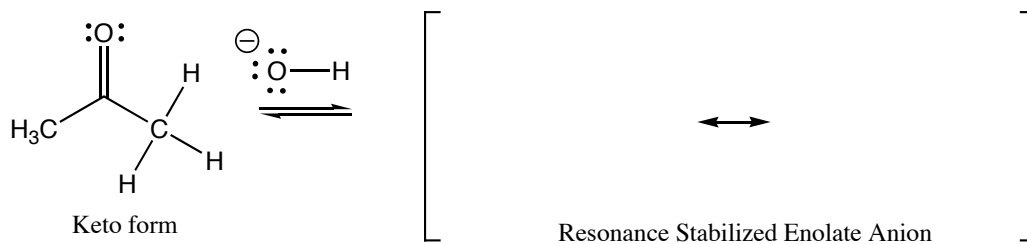


## *Keto-Enol Tautomerization vs. Enolate Resonance*

### Keto-Enol Tautomerization



### Enolate Resonance

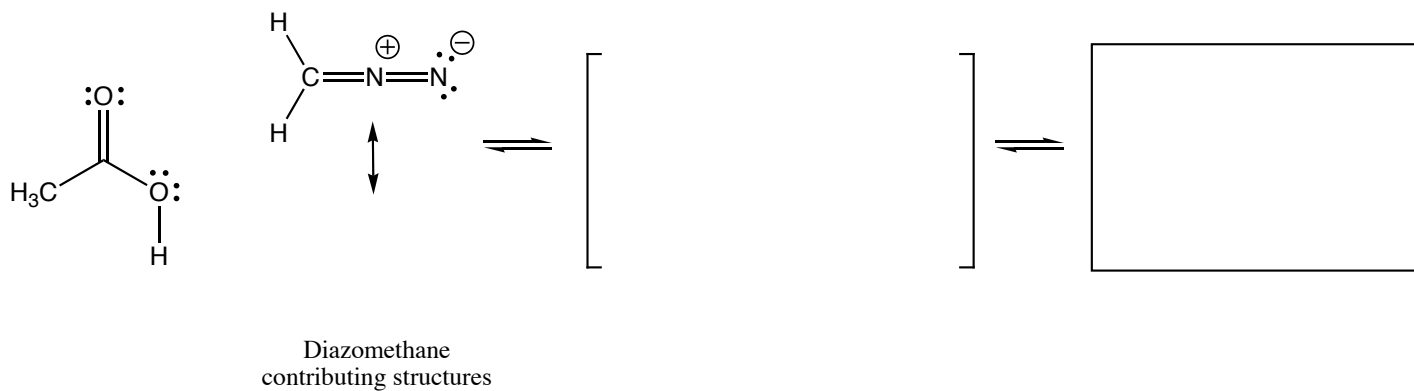


$\alpha$ -hydrogen  $pK_a = 18-20$

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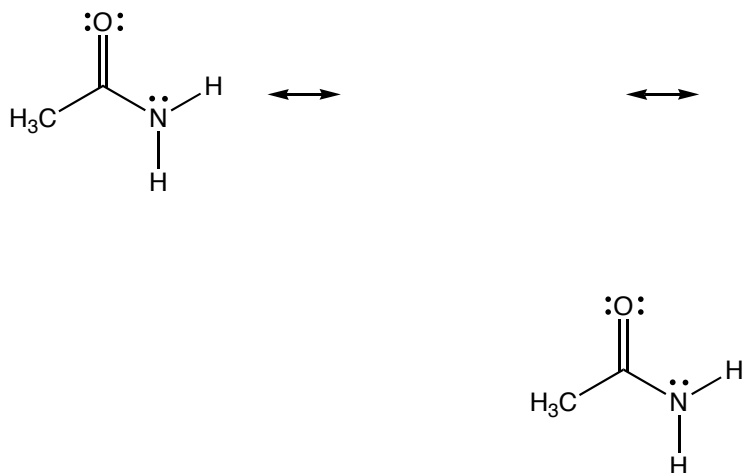
### Diazomethane reaction



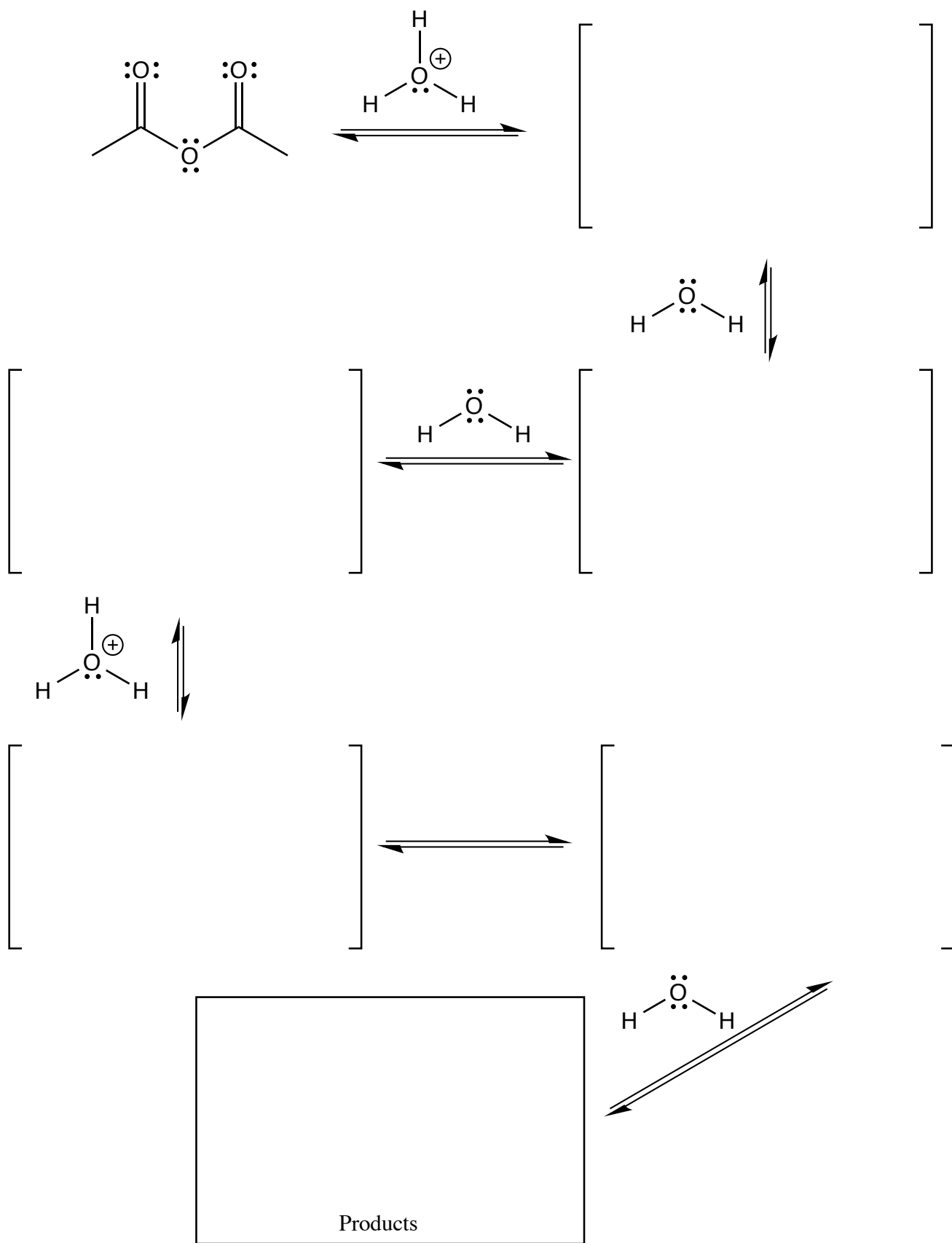
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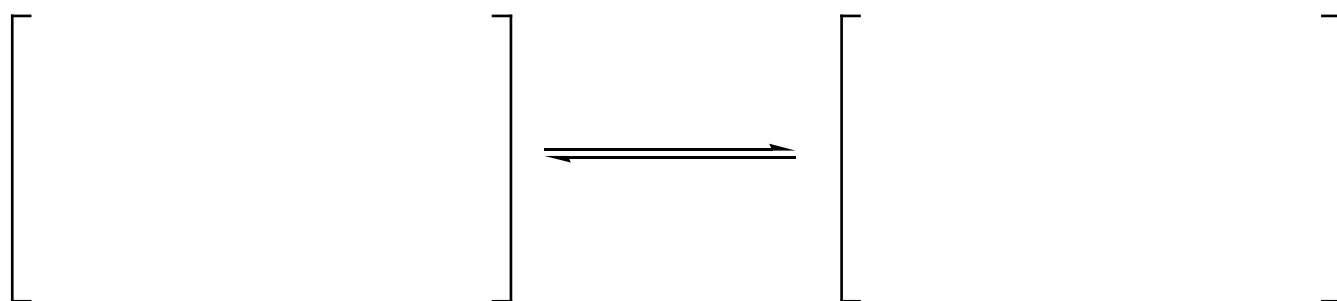
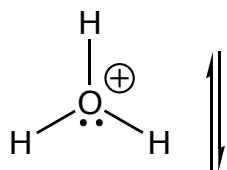
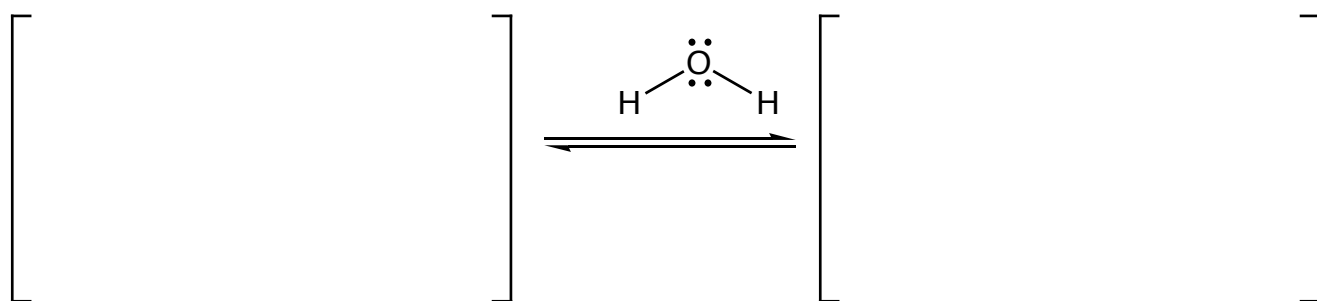
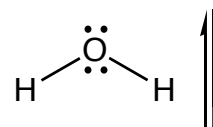
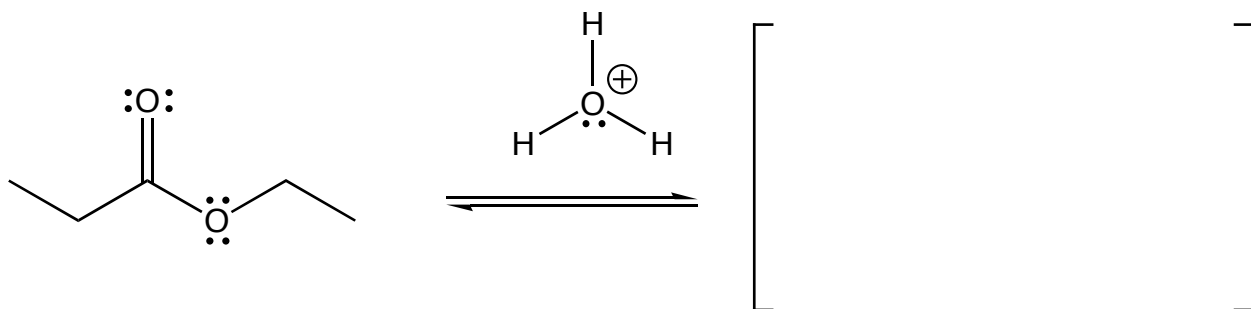
### Amide Resonance VERY IMPORTANT!!!!!!



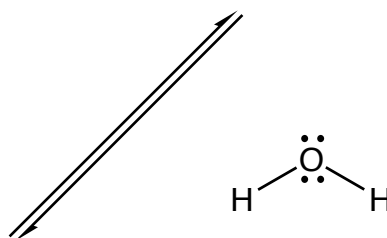
*Acid Catalyzed Anhydride Hydrolysis*



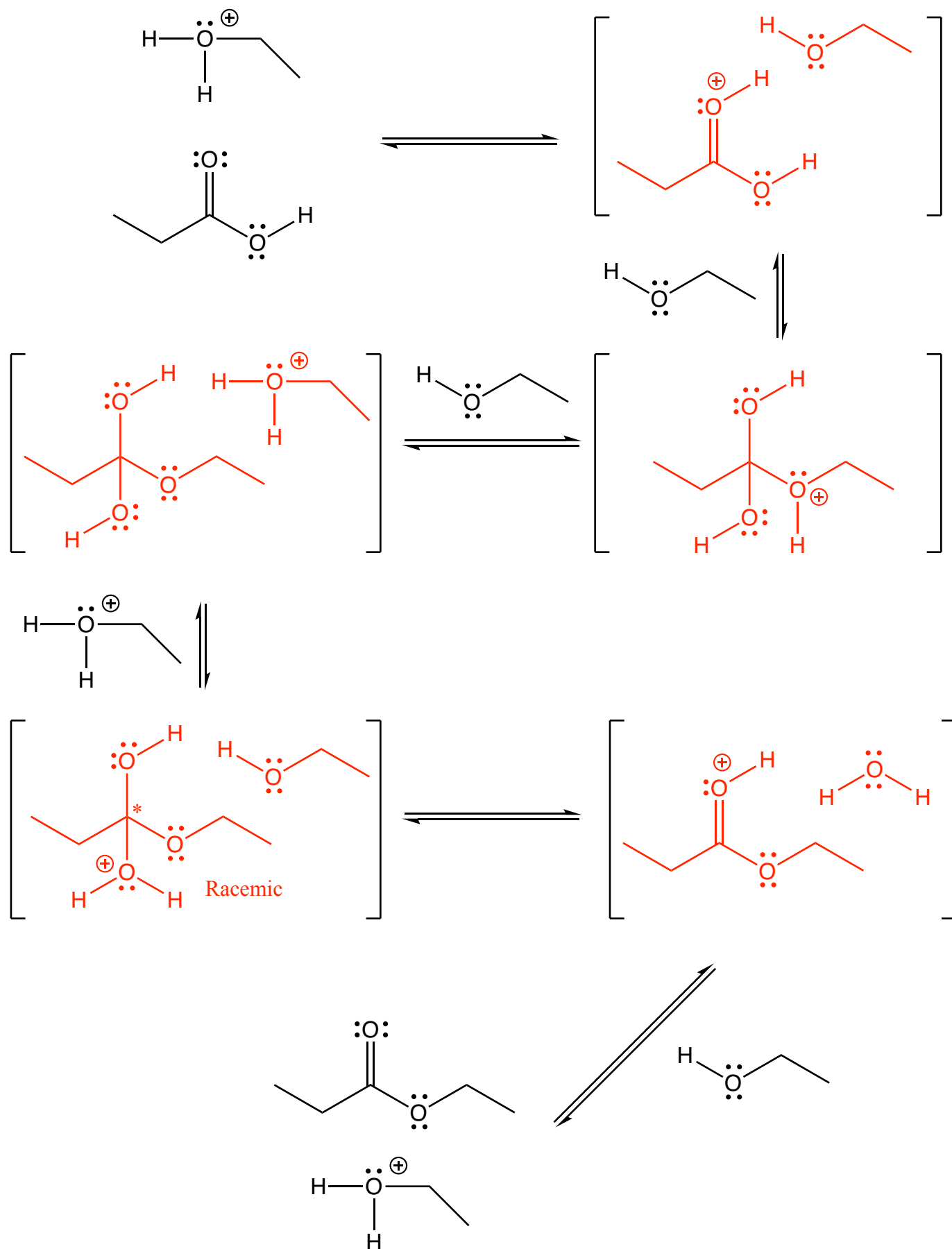
*Acid Catalyzed Ester Hydrolysis*



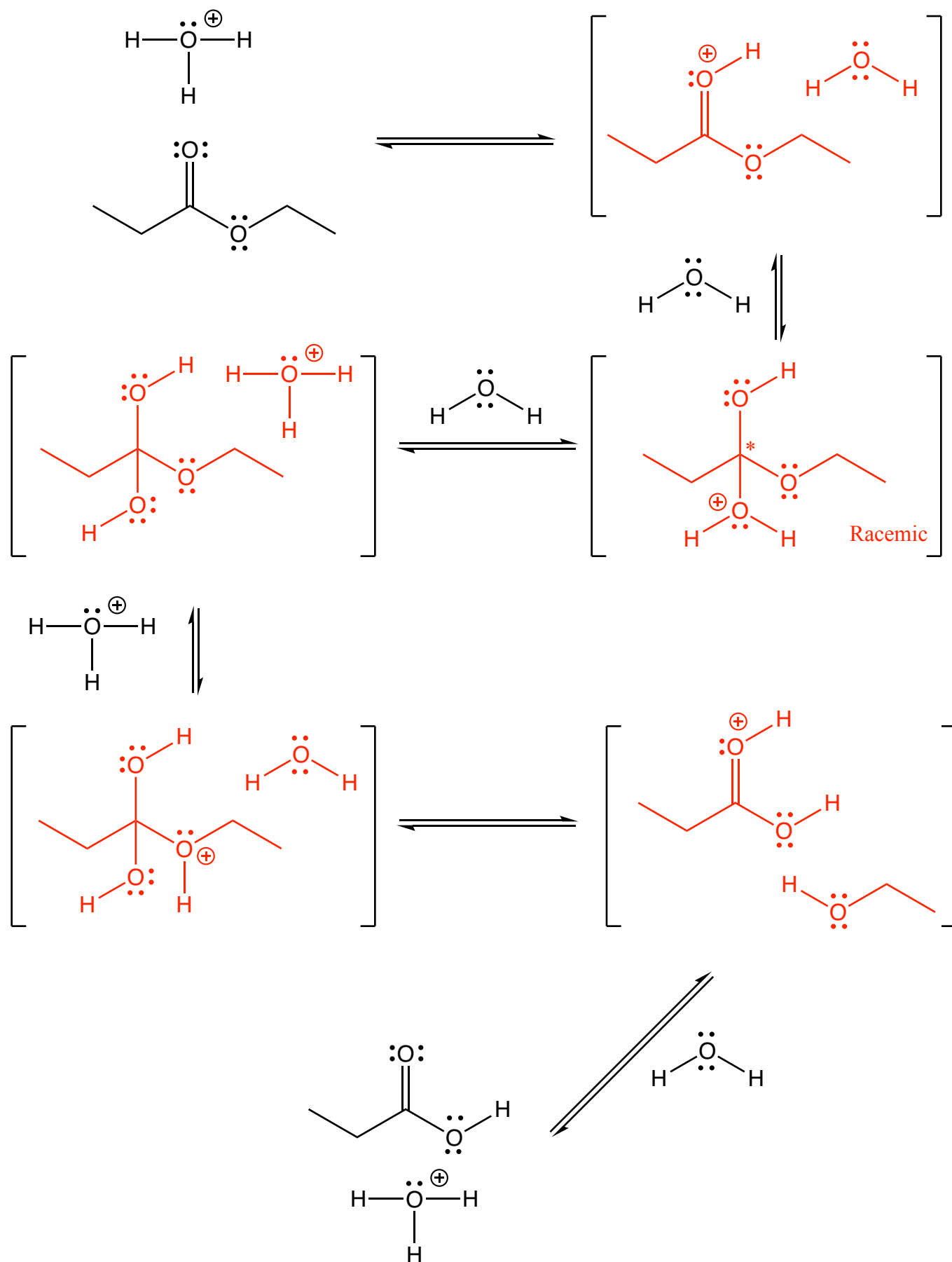
Products



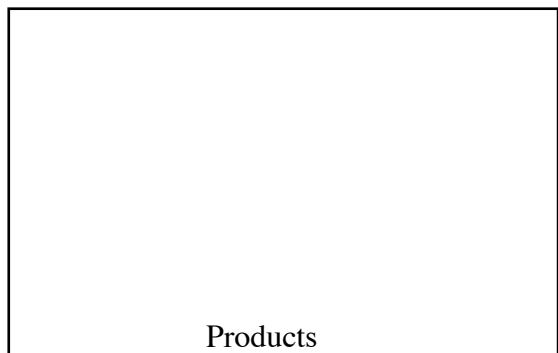
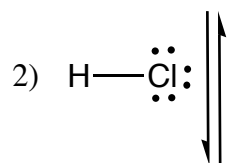
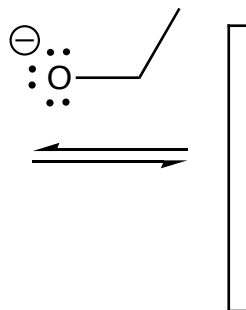
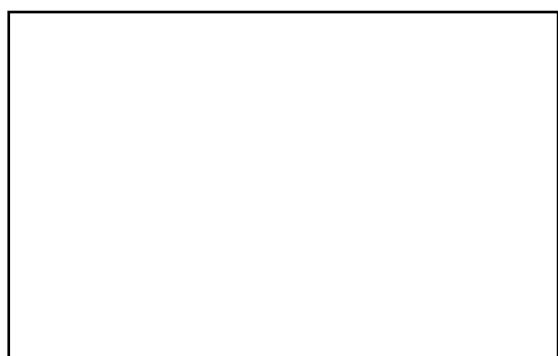
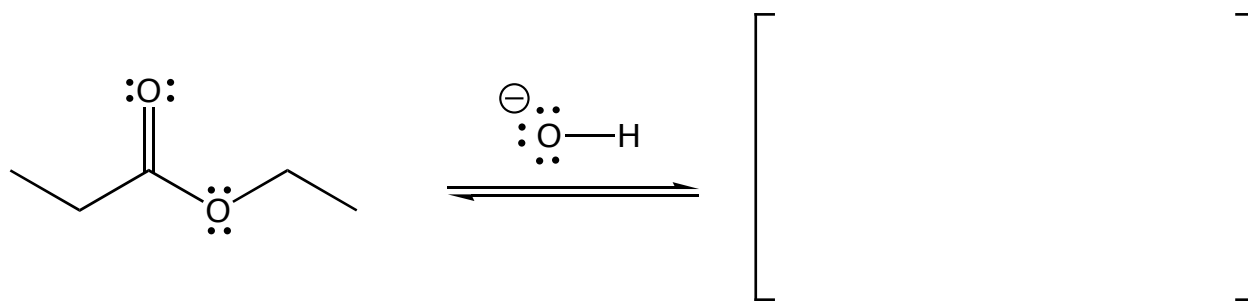
*Microscopic Reversibility: Acid Catalyzed Ester Hydrolysis-Fischer Esterification*



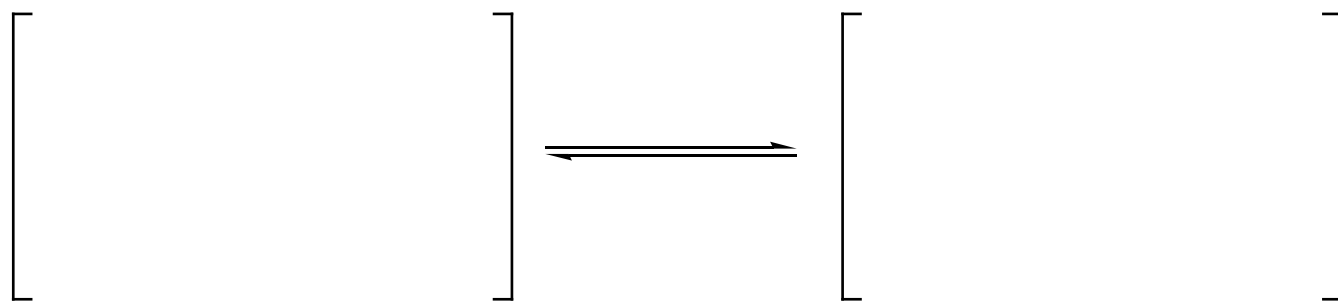
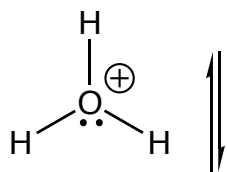
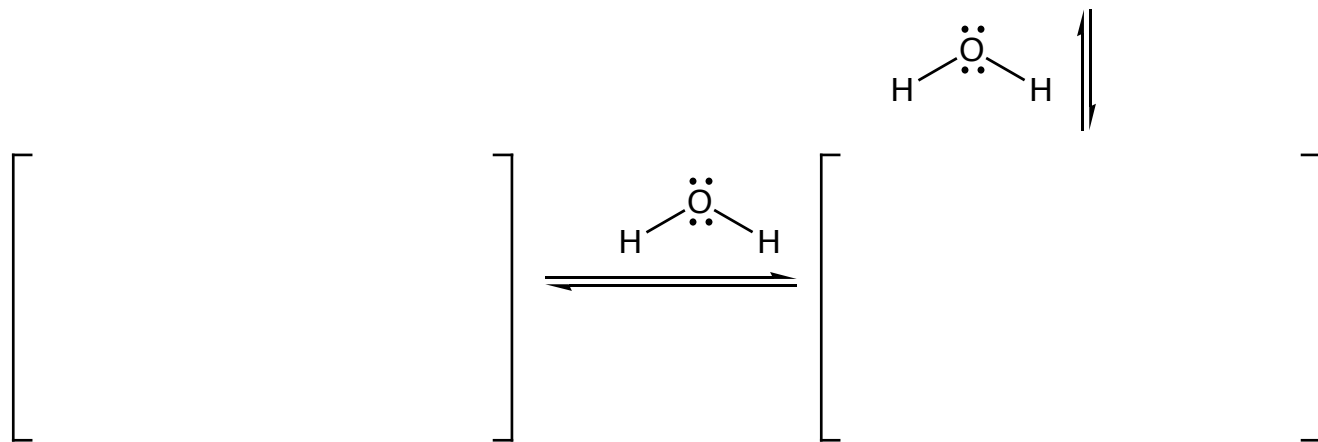
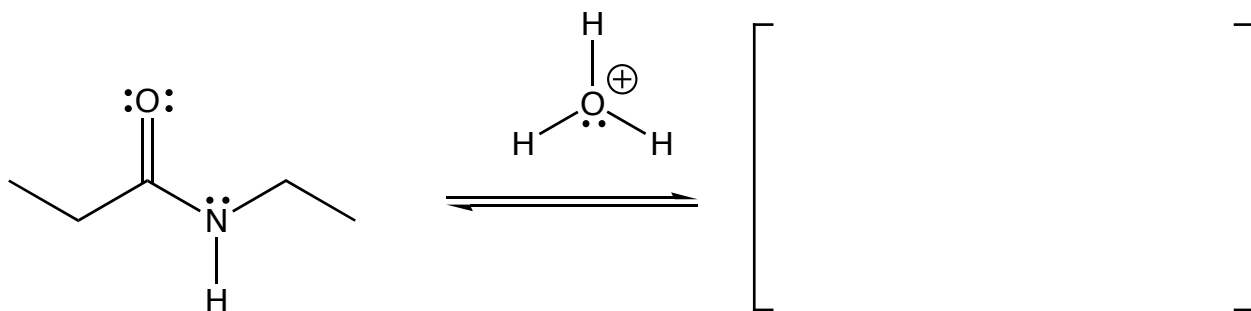
*Microscopic Reversibility: Acid Catalyzed Ester Hydrolysis-Fischer Esterification*



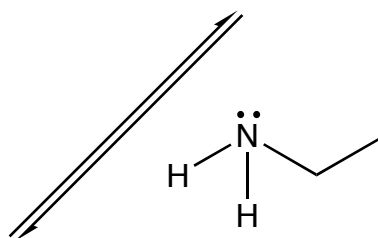
*Base-Promoted Ester Hydrolysis - Saponification*



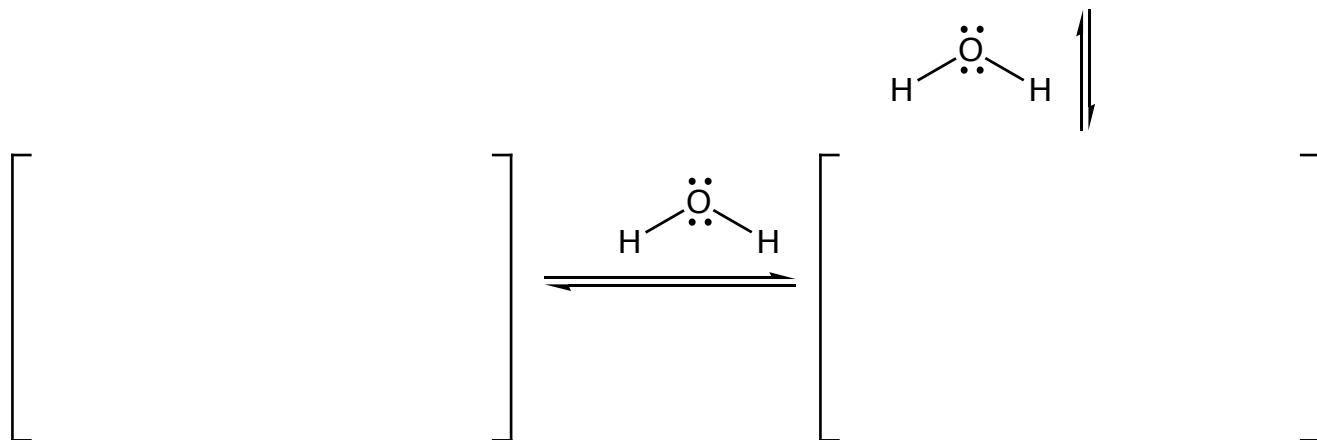
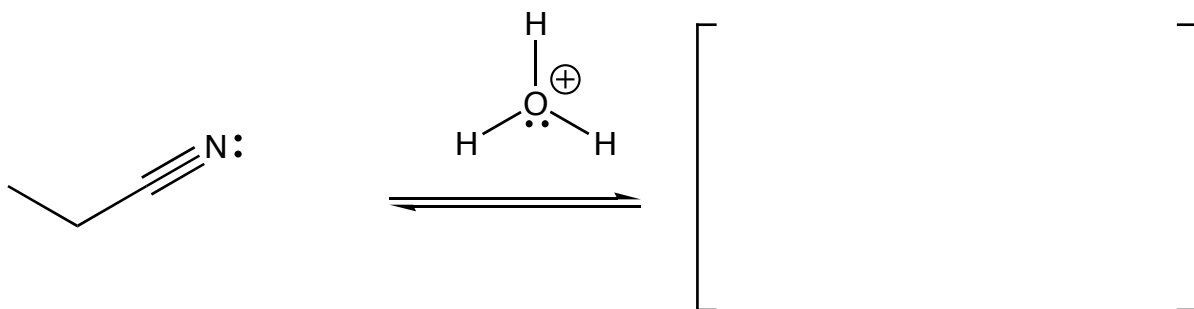
# Acid Promoted Amide Hydrolysis



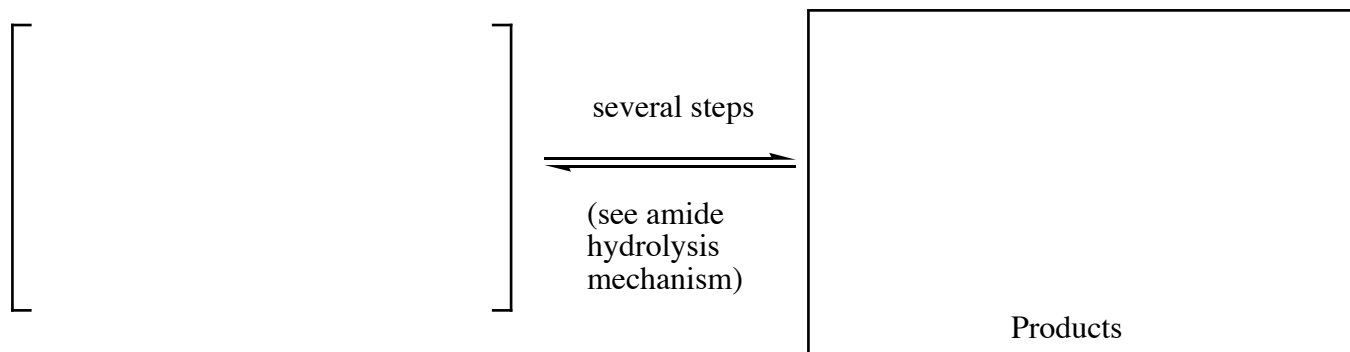
Products



# Acid Promoted Nitrile Hydrolysis

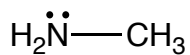
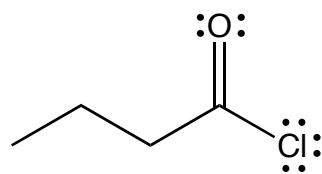


tautomerization  $\rightleftharpoons$

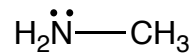
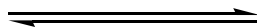




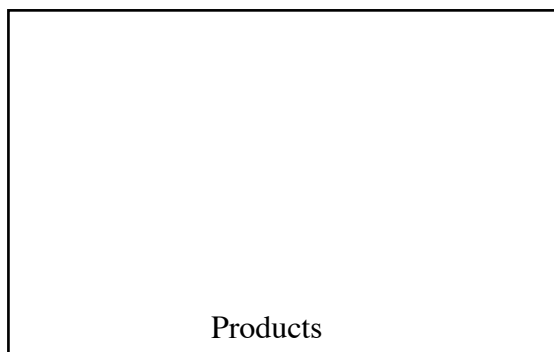
*Acid Chlorides Reacting with Amines*



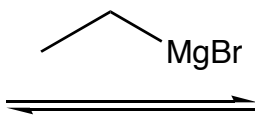
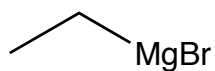
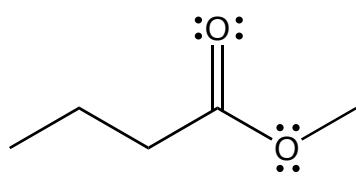
Proton transfer



Products



## Grignard Reacting with Esters



Chemist Opens Flask

2)

