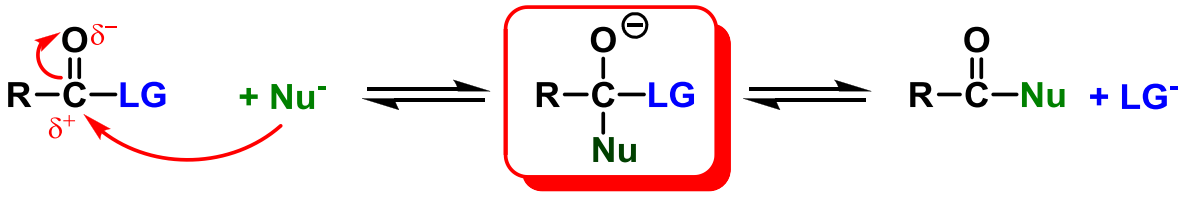
Overheads: - Outline

Recap Friday: Reactions of Carbonyl Compounds With LG's

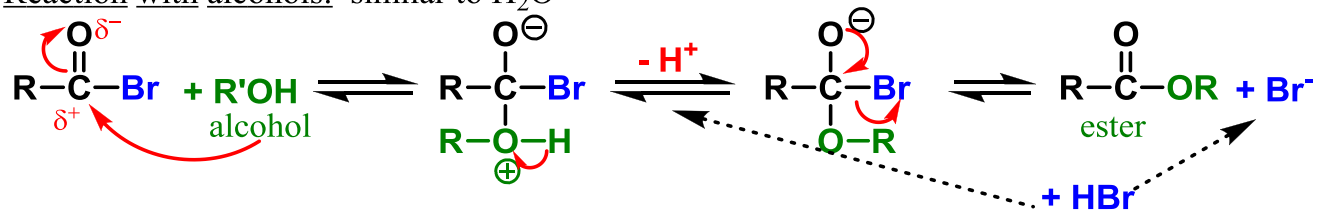



** tetrahedral intermediate

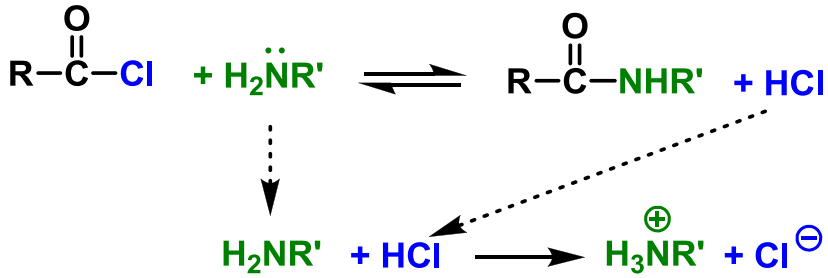
General Rule: Better LG leaves!

Acyl halides: - good LG, can use to make all others

Reaction with alcohols: similar to $H_2O$

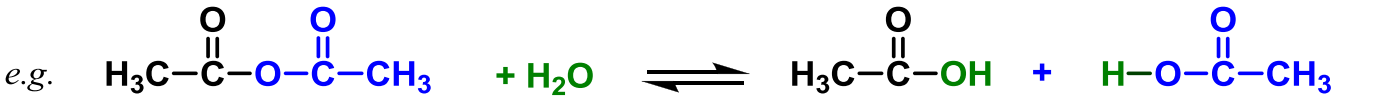



Reaction with amines: -same mechanism

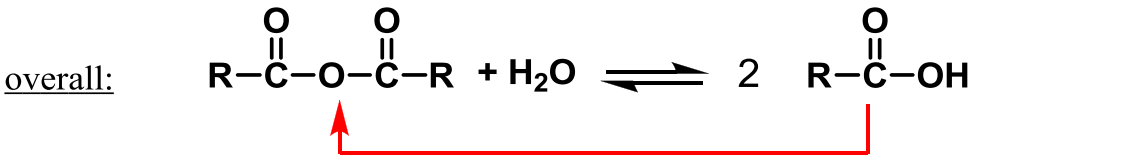



** half of amine gets wasted as base! ∴ need 2x $H_2NR'$

2) Anhydrides: - can be used to make everything except acyl halides



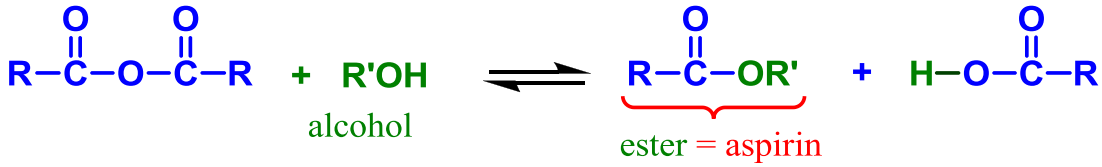

(LG + $H^+$ from $H_2O$)



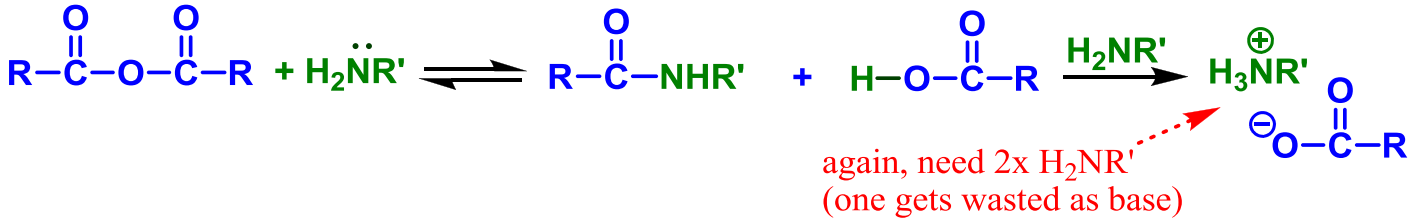

-removing $H_2O$ from carboxylic acid gives anhydride

dry = anhydrous

Lab #8:

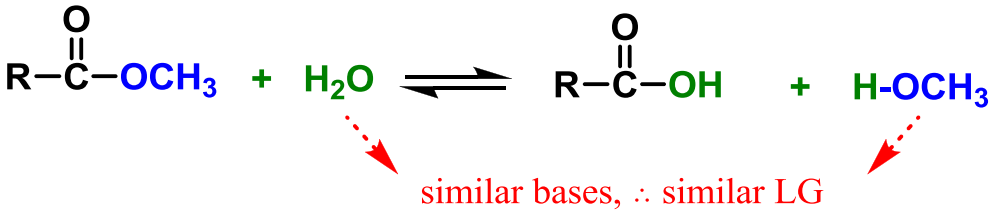



Reaction with amines:




3) Esters: - less reactive than acyl halides and anhydrides ∴ slower reactions
⇨ can only make carboxylic acids and amides

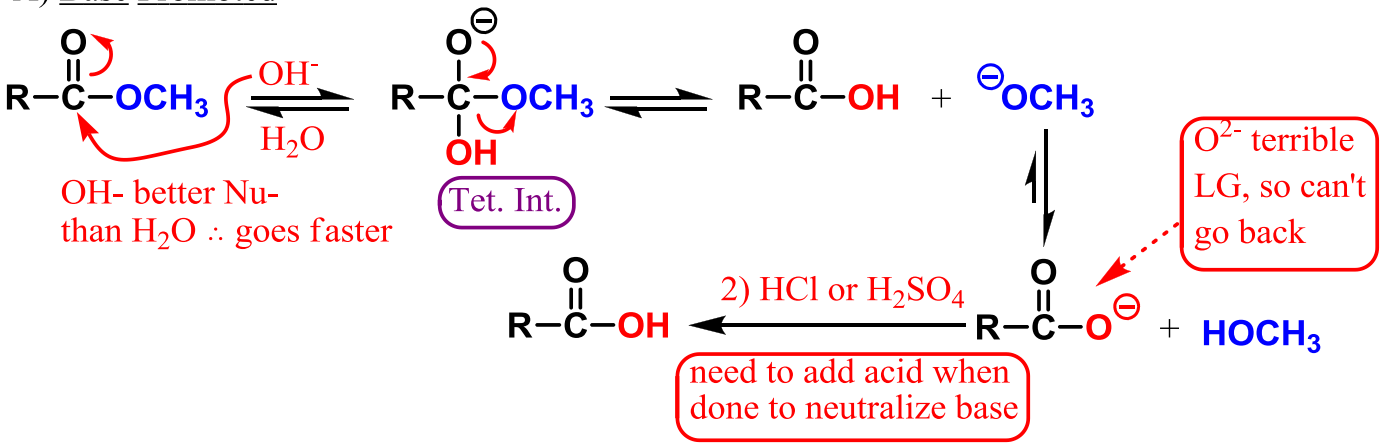
Reaction with $H_2O$ – ester hydrolysis




1) position of equilibrium can be controlled by LeChatellier
2) reaction is very slow ∴ need catalyst

2 ways to do reaction: - acid ($H^+$) catalyzed
- base (OH-) promoted

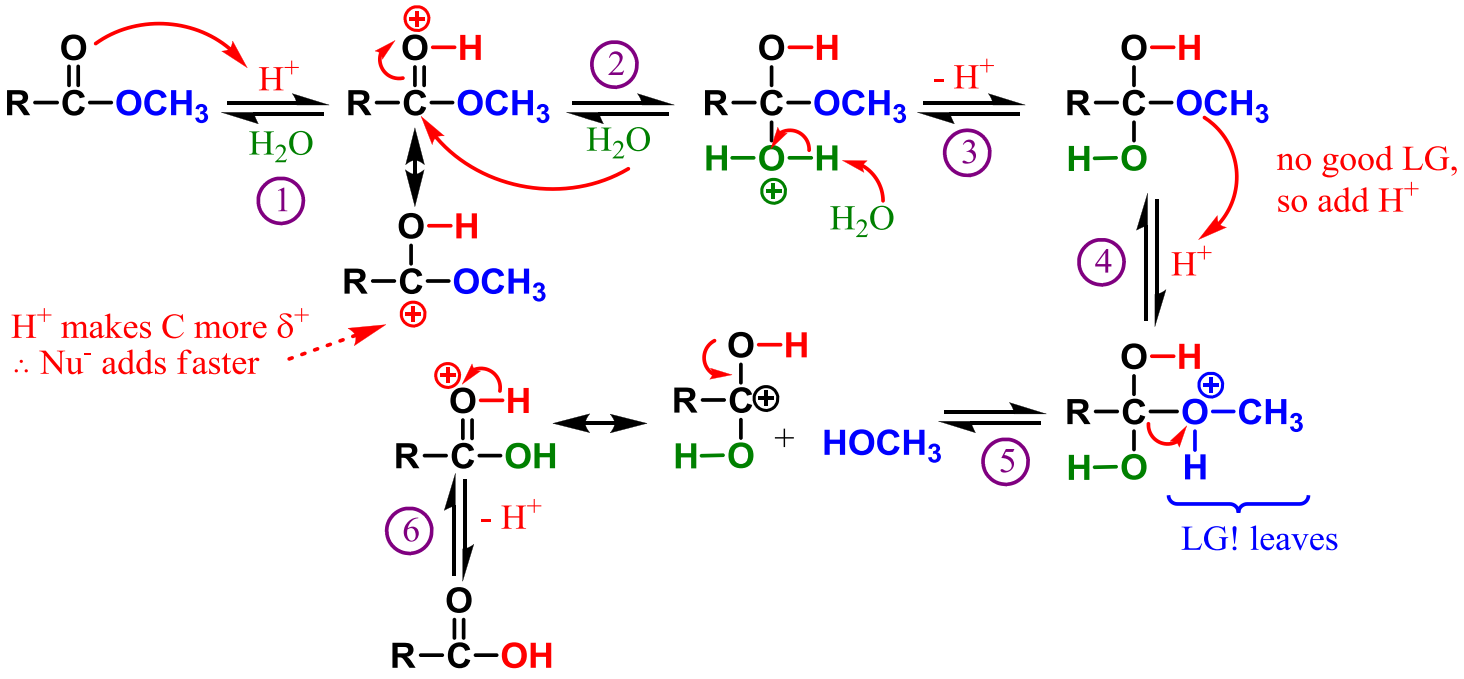
A) Base Promoted



B) Acid Catalyzed ⇒ in 6 easy steps :-)

⇒ need to: 1) add Nu- ($H_2O$) = not great Nu-
2) kick out LG ($CH_3O$-) = not great LG } slow!!

∴ use $H^+$ catalyst to help $Nu^-$ add and LG leave




6 easy steps! - same 2 as usual (+ Nu-, -LG)
+ 4 extra: + $H^+$ / - $H^+$ / + $H^+$ / - $H^+$

make C $\delta^+$ turn OR into LG