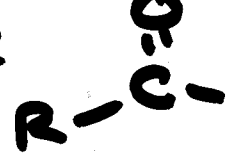
# THE OTHER  FUNCTIONAL GROUPS.

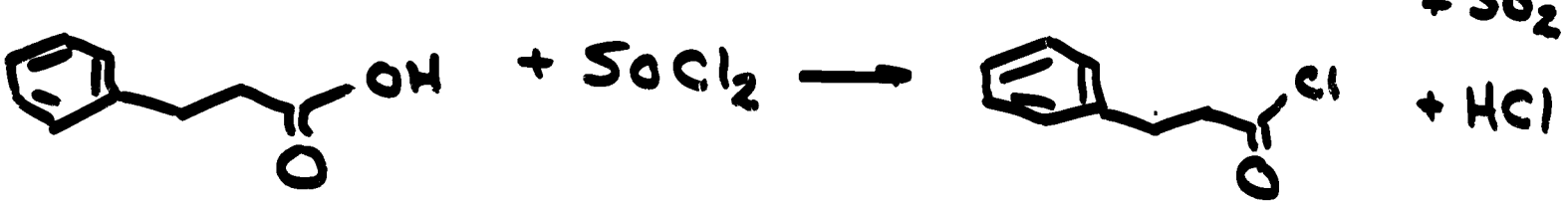
ACYL HALIDES X=Cl

ACID CHLORIDES OR ACYL CHLORIDES

- NOT A GOOD ROUTE.

MOST REACTIVE OF THE GROUP.

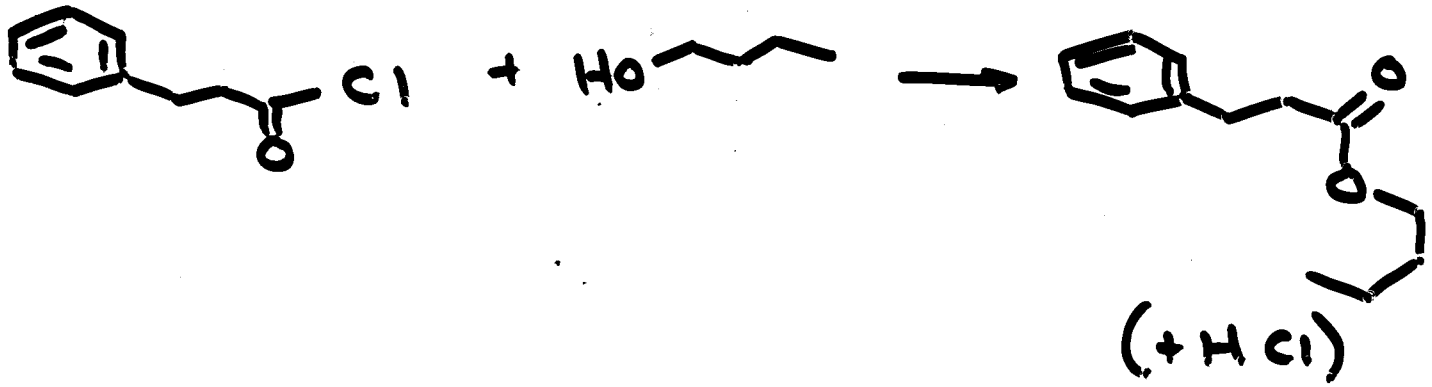
- MOST COMMON SYNTHESIS, USING $SOCl_2$ (THIONYL CHLORIDE)



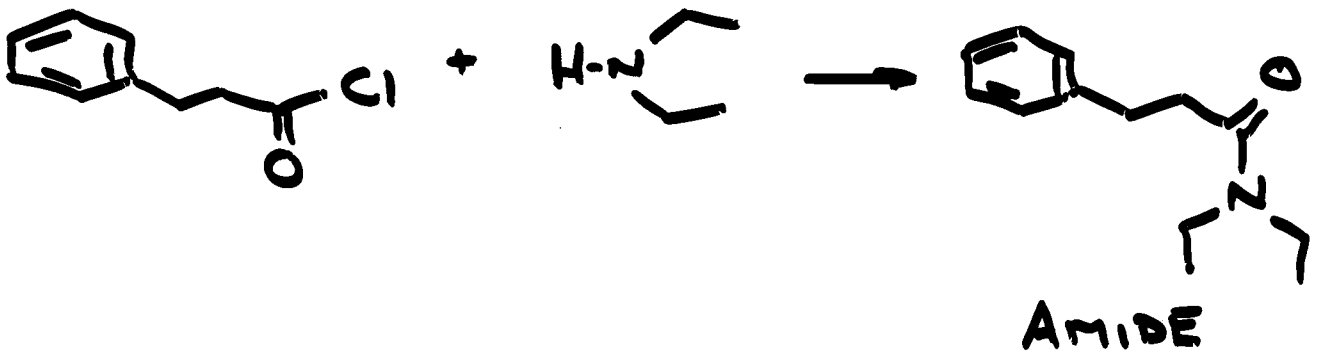
- SINCE $Cl^-$ IS GOOD L.G.
  SINCE Cl IS -I GROUP.

∴ ACID CHLORIDES QUITE REACTIVE

- USUALLY DON'T NEED A CATALYST




- CAN BE SPED UP BY ACID CATALYST ($H^+$) OR BASE (  -PYRIDINE ).

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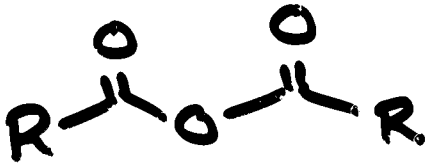
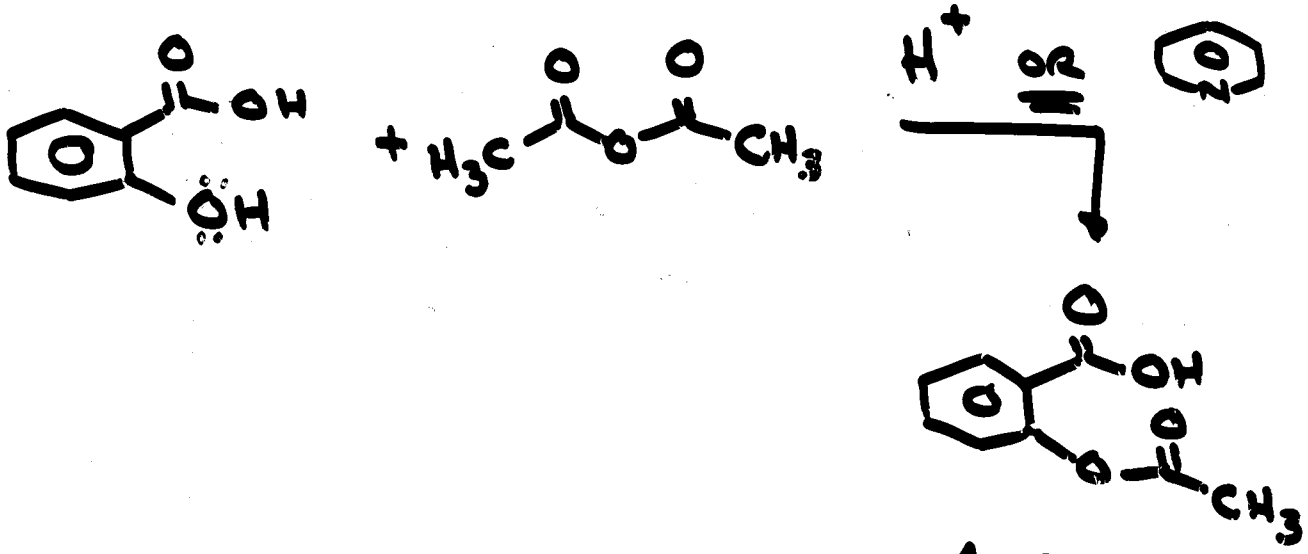
# ANHYDRIDES.



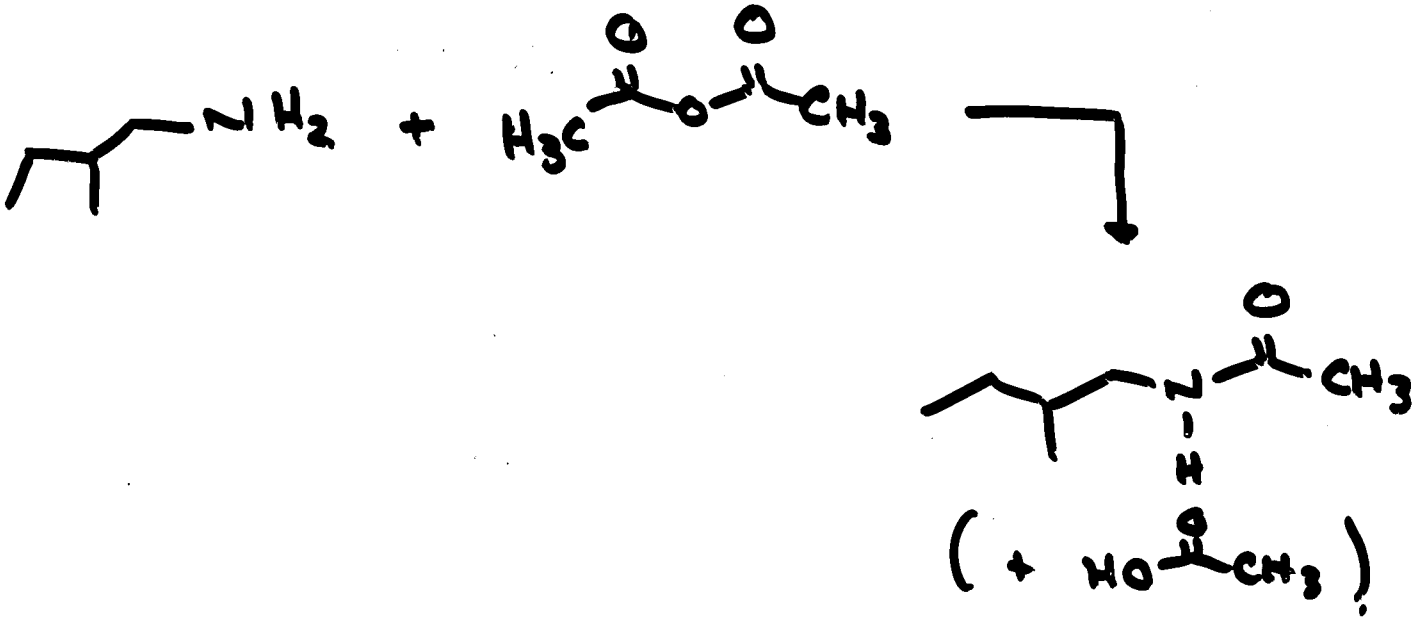

- 2ND MOST REACTIVE OF CARBOXYLIC ACID DERIVATIVES.


- NOT AS GOOD AS $Cl^-$ AS L.G., BUT BETTER THAN $^-OH$, $^-OR$, $^-NH_2$

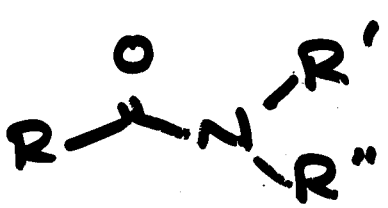
- USED FOR SAME "ACYL" TRANSFER AS ACID CHLORIDES, TO MAKE ESTERS OR AMIDES.



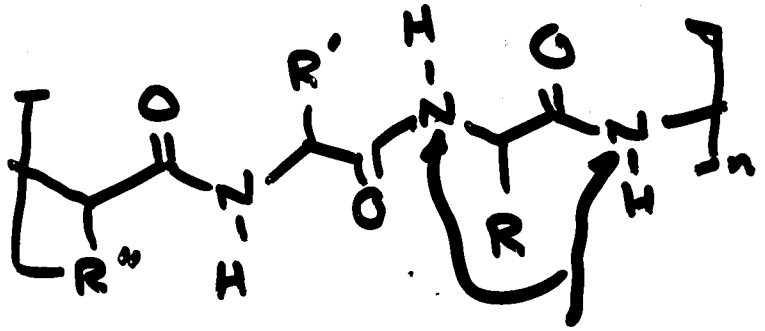

ASPIRIN.



AMIDES -



CENTRAL FUNCTIONAL GROUP OF PROTEINS



NOTE: THIS $\ddot{N}$ IS <u>NOT</u> BASIC OR NUCLEOPHILIC - CONJUGATED TO C=O .... ∴ NOT AVAILABLE

NITRILE

R-C≡N (ALSO CALLED CYANIDES)

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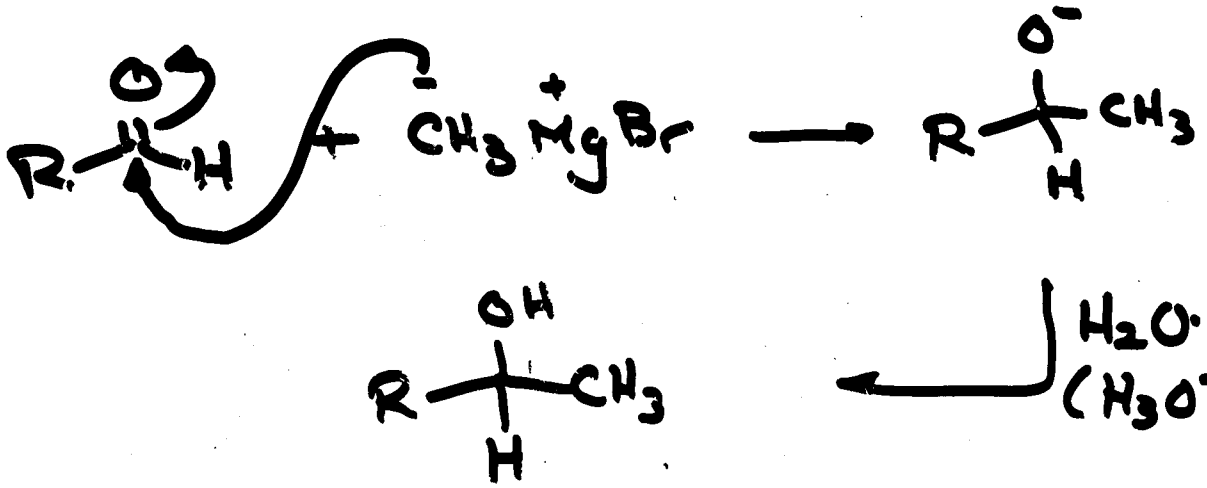
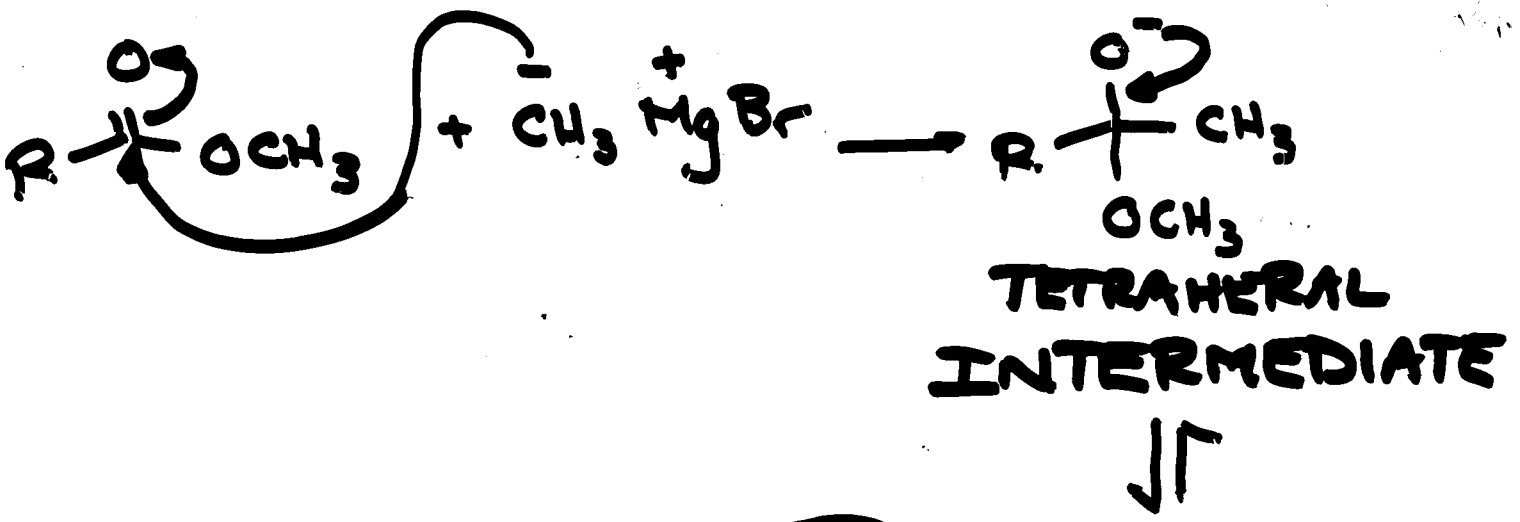
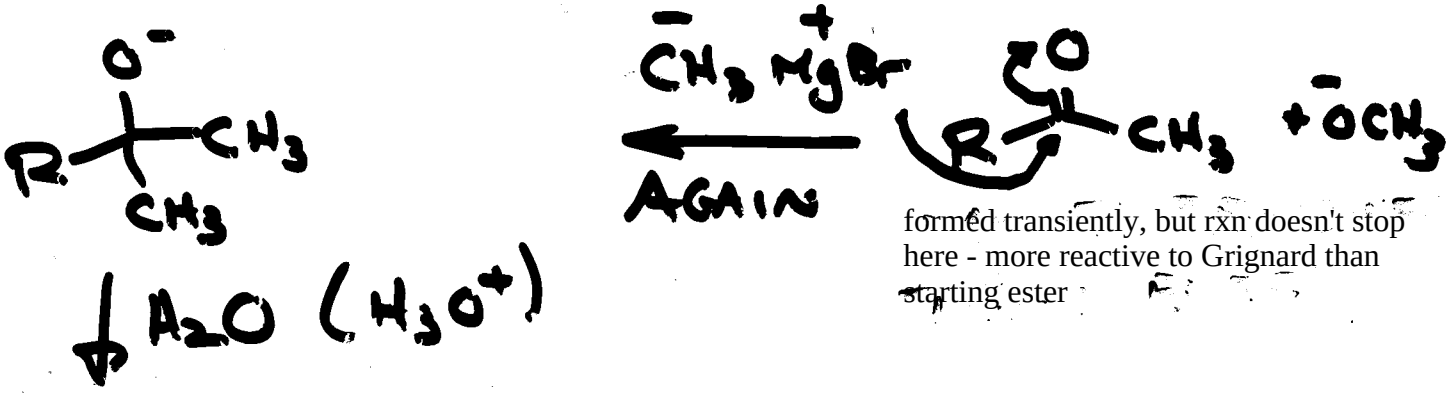
CARBON & HYDRIDE NUCLEOPHILES. WITH ESTERS.

RECALL KETONES / ALDEHYDES





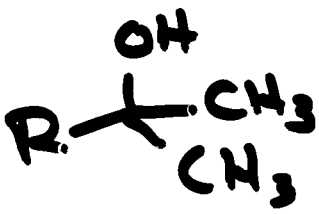

TETRAHERAL INTERMEDIATE




formed transiently, but rxn doesn't stop here - more reactive to Grignard than starting ester




$\downarrow H_2O\ (H_3O^+)$

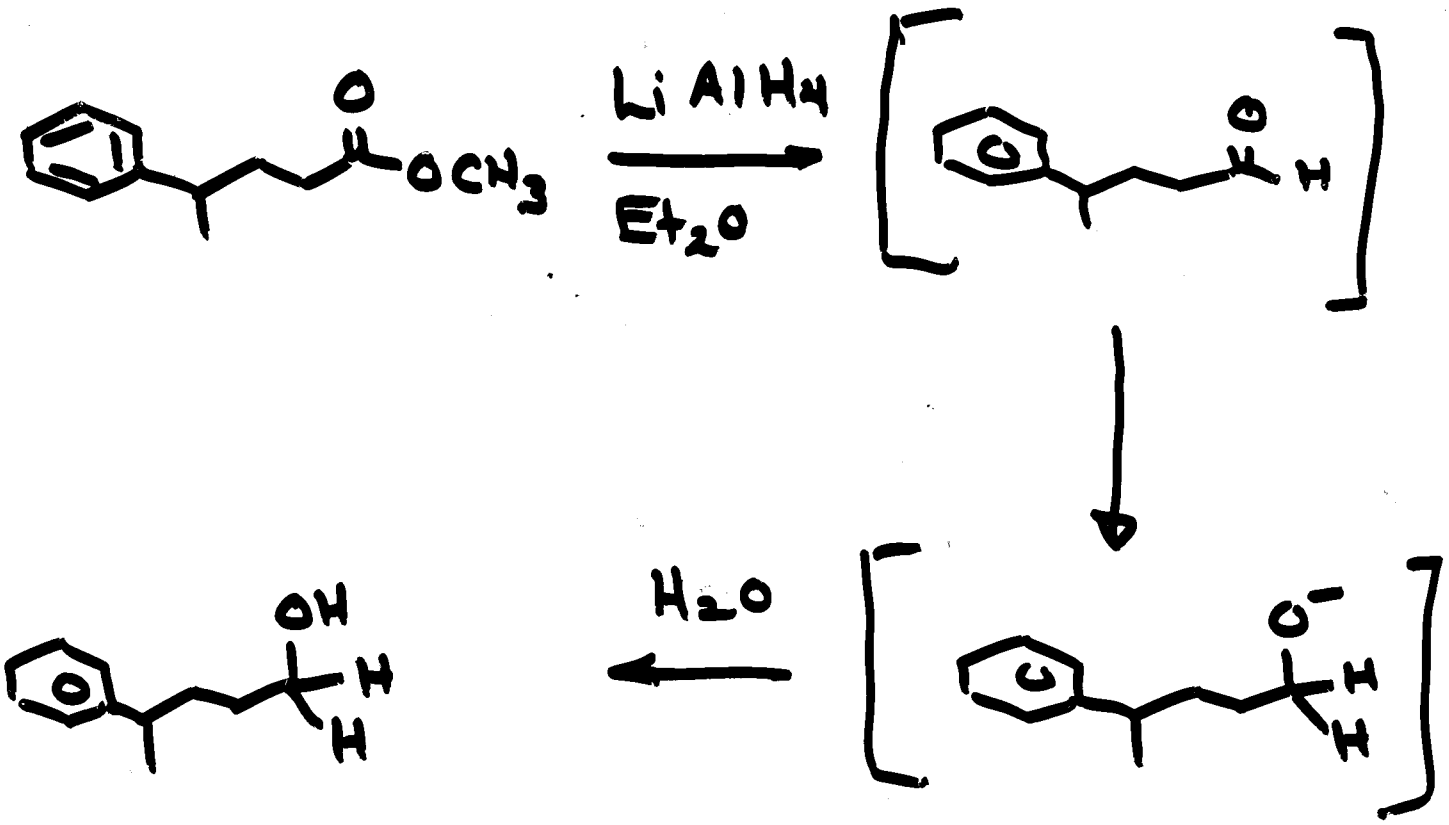



3° ALCOHOL W 2 IDENTICAL GROUPS.

SAME IS TRUE FOR $H^-$ NUCLEOPHILES.

$NaBH_4$
TOO MILD
WON'T REACT

$LiAlH_4$
- NEED THIS ONE




1° ALCOHOL - USES TWO "H⁻" FUNCTIONS.