

# DAY 14 - OCT 22-23 HIGHLIGHTS

## LEAVING GROUPS

ROH unreactive,  $^{\ominus}\text{OH}$  NEVER A Lg

$[\text{ROH}_2^{\oplus}]$  reactive,  $\text{H}_2\text{O}$  weak base, good Lg

$[\text{RO}-\overset{\oplus}{\text{S}}\text{<}]$  reactive,  $^{\ominus}\text{O}-\overset{\oplus}{\text{S}}\text{<}$  weak base, good Lg

$\text{RO}-\text{SO}_2\text{R}'$  reactive,  $^{\ominus}\text{O}-\overset{\oplus}{\text{S}}(\text{O})_2-\text{R}'$  weak base, good Lg

$[\text{RO}-\overset{\oplus}{\text{P}}\text{-}]$  reactive,  $^{\ominus}\text{O}-\overset{\oplus}{\text{P}}\text{-}$  weak base, good Lg

## REAGENTS

HCl  $3^{\circ}\text{ROH} \rightarrow 3^{\circ}\text{RCl}$   $\text{S}_{\text{N}}1$  only useful if other molecules are inert wrt strong acid

HBr  $3^{\circ}\text{ROH} \rightarrow 3^{\circ}\text{RBr}$   $\text{S}_{\text{N}}1$  see above  
 $2^{\circ}\text{ROH} \rightarrow 2^{\circ}\text{RBr}$  " " (slower)

HBr,  $\text{H}_2\text{SO}_4, \Delta$   $1^{\circ}\text{ROH} \rightarrow 1^{\circ}\text{RBr}$   $\text{S}_{\text{N}}2$  "  
or NaBr,  $\text{H}_2\text{SO}_4, \Delta$  (slow)

# REAGENTS cont'd

$\text{SOCl}_2$ , pyridine  $\quad 1^\circ \text{ROH} \rightarrow 1^\circ \text{RCl}$   $\quad \text{S}_{\text{N}}2$  only useful if other molecules are inert w.r.t. pyridine (base)  
 (2° works but slower)

$\text{PBr}_3$   $\quad 1^\circ \text{ROH} \rightarrow 1^\circ \text{RBr}$   $\quad \text{S}_{\text{N}}2$  rxn creates an acid,  $\text{H}_3\text{PO}_3$  so not useful w/ acid-sensitive substrates  
 (2° works but slower)

$\text{TsCl}$ , pyridine  $\quad \text{ROH} \rightarrow \text{ROTs}$  } alkyl sulfonates are isolated & can be used in place of  $\text{RX}$  for all rxns covered in previous chapter  
 or  
 $\text{MsCl}$ , pyridine  $\quad \text{ROH} \rightarrow \text{ROMs}$  }

$\text{PPh}_3, \text{DEAD}, \text{HNu}$   $\quad 1^\circ \text{ROH} \rightarrow 1^\circ \text{RNU}$   $\quad \text{S}_{\text{N}}2$   $\quad \text{HNu}$  must be weak acid:  
 (2° works but slower)  
 $\text{RCO}_2\text{H}, \text{ArOH}, \text{HN}_3, \text{RSH}$

# INTERMEDIATES

