

DAY 14-4



RX RARE IN NATURE

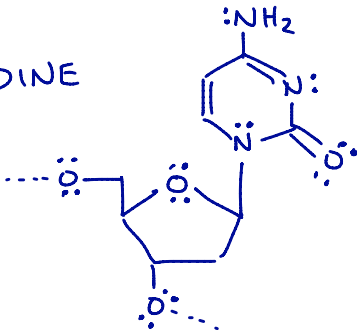
EXCEPTION:
RCl in
MARINE ORGS

S_N1 REACTIVE \rightarrow DESTROYED
BY H_2O



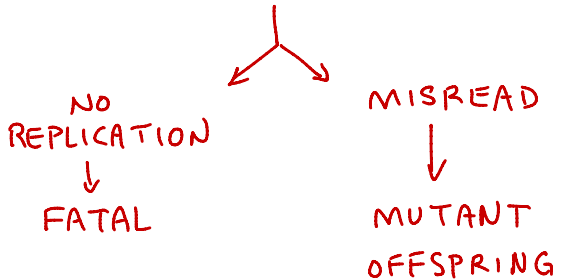
S_N2 REACTIVE \rightarrow TOXIC

CYTIDINE



ONLY SOME
ATOMS ARE Nu

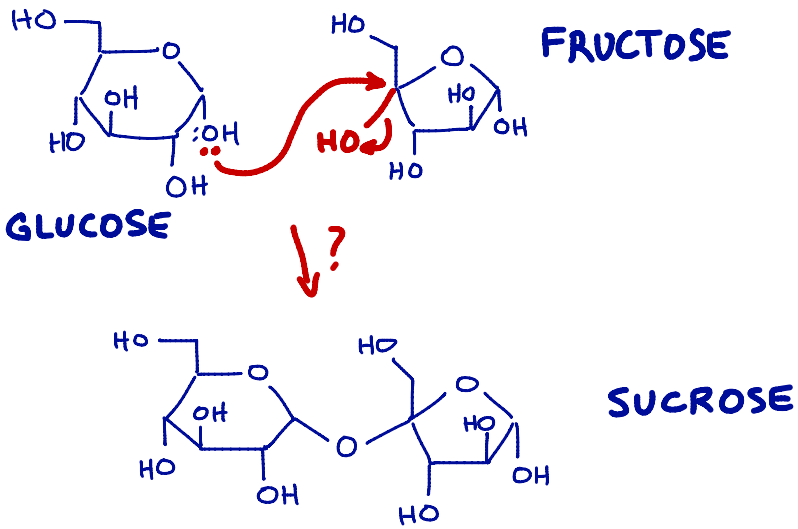
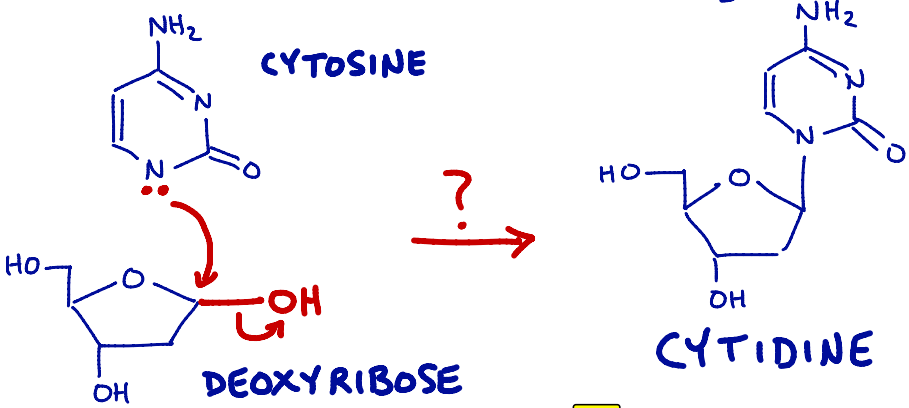
REACTS w/ CH_3I
 \rightarrow MODIFIES DNA



BOTTOM-LINE:
 S_N2 REACTIVE RX
NOT PRODUCED
BIOCHEMICALLY

DAY 14-5

"NATURAL" RX ARE RARE, BUT
NOT "NATURAL" S_NX 1) COMMON
2) OH Lg

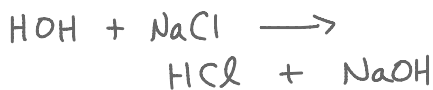


DAY 14-6



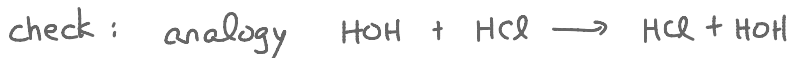
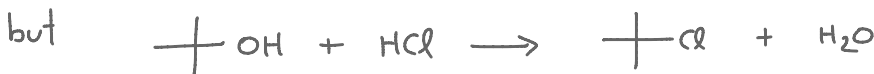
reverse OK
 Rcts [‡] Pcts
 OK

Analogy $\text{R} \rightarrow \text{H}$



very unfavorable

R-O-T **strong BASE**

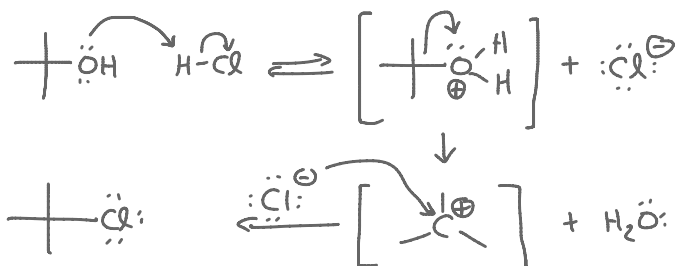


ROT HOH weak base (H_3O^+ -2)

mechanism: $\text{S}_{\text{N}}1$

PRINC. MICROSCOPIC REVERSIBILITY

if we know **BEST PATH** $\text{A} \rightarrow \text{B}$
 then also " " " $\text{B} \rightarrow \text{A}$



DAY 14-7

① Rxn w/ HCl too slow 1° & 2° ROH

② ROH $\xrightarrow{\text{HBr}}$ RBr faster for 3°/2° ROH
b/c HBr stronger acid

WHICH RXNS WILL NOT WORK?



A 1 & 2

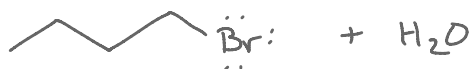
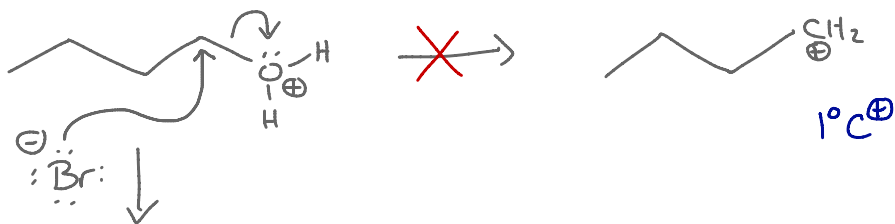
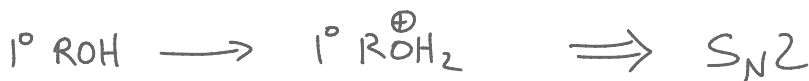
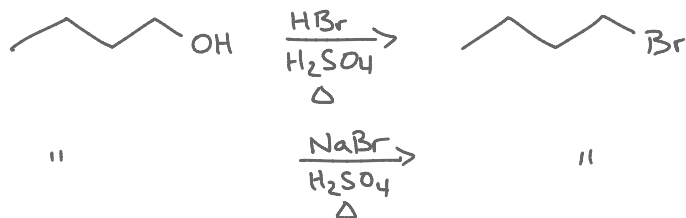
C 2 & 3

B 1 & 3

D ONLY ONE RXN FAILS

E THEY ALL FAIL

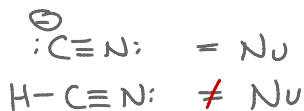
DAY 14-8



IN YOUR GROUPS, DESIGN A SYNTHESIS



Can't do



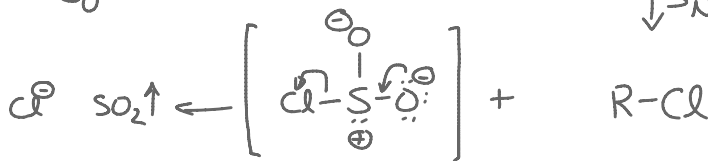
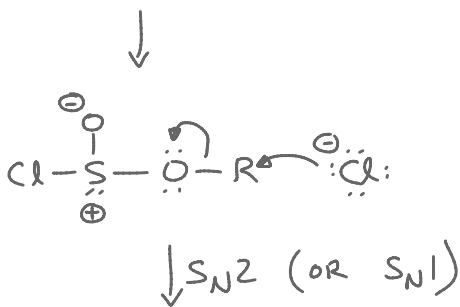
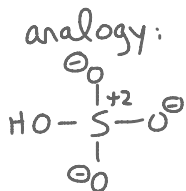
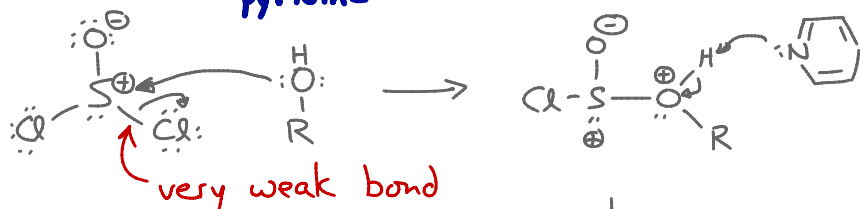
only Nu that "tolerate"
low pH $\text{Cl}^-/\text{Br}^-/\text{I}^-$

DAY 14-9

SPECIAL REAGENTS FOR



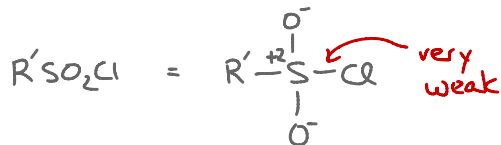
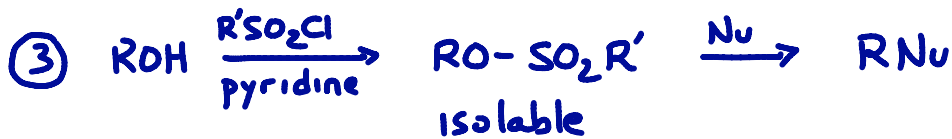
W/O STRONG ACID



similarities to SOCl_2

- P-Br very weak
- ROH does $\text{S}_{\text{N}2}$ attack @ P making P-O
- $-\overset{\oplus}{\text{P}}-\overset{\ominus}{\text{O}}$ Lg analogous to $\text{HO}-\overset{\ominus}{\text{O}}-\overset{\oplus}{\text{P}}-\overset{\ominus}{\text{O}}$ weak base

DAY 14-10



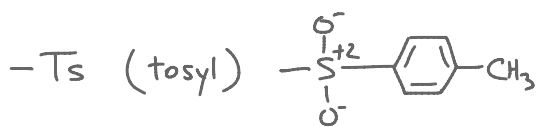
$\text{S}_{\text{N}}2$ by ROH @ S



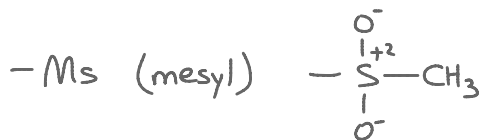
Points of confusion:

① Must learn to draw $\text{R-O-SO}_2\text{R}'$
 "alkyl sulfonate"

② Must learn abbreviations



$\left\{ \begin{array}{l} \text{TsCl} \quad \text{tosyl chloride} \\ \text{ROTs} \quad \text{tosylate} \\ \ominus \text{OTs} \quad \ominus \text{Lg} \end{array} \right.$



similar

DAY 14-11

IN YOUR GROUP, IDENTIFY THE
ERRORS IN

