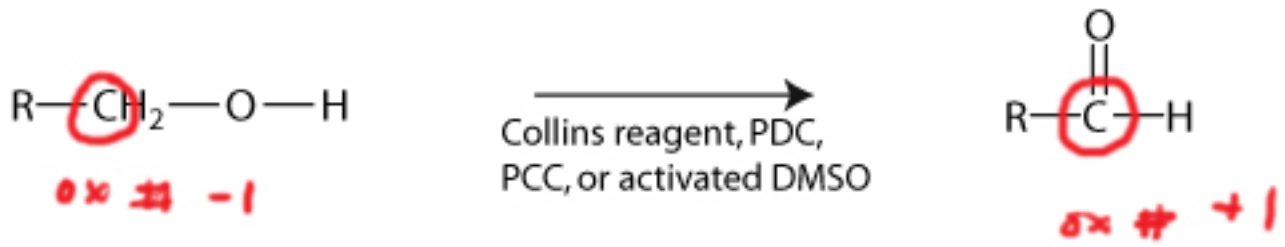
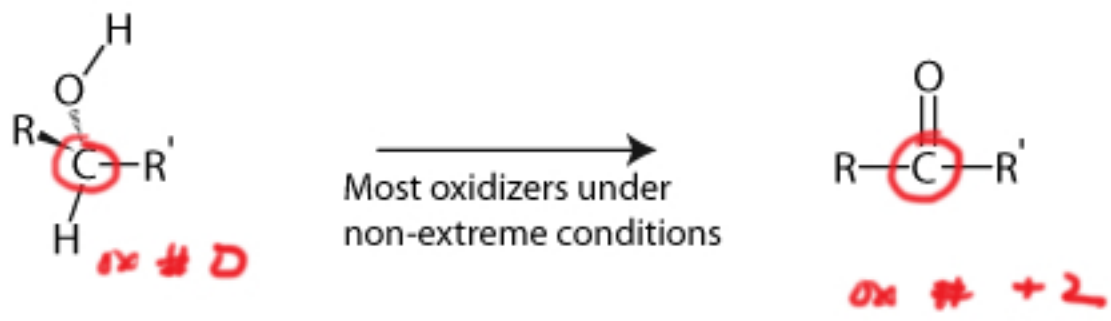
Module 6

Reactions of Alcohols

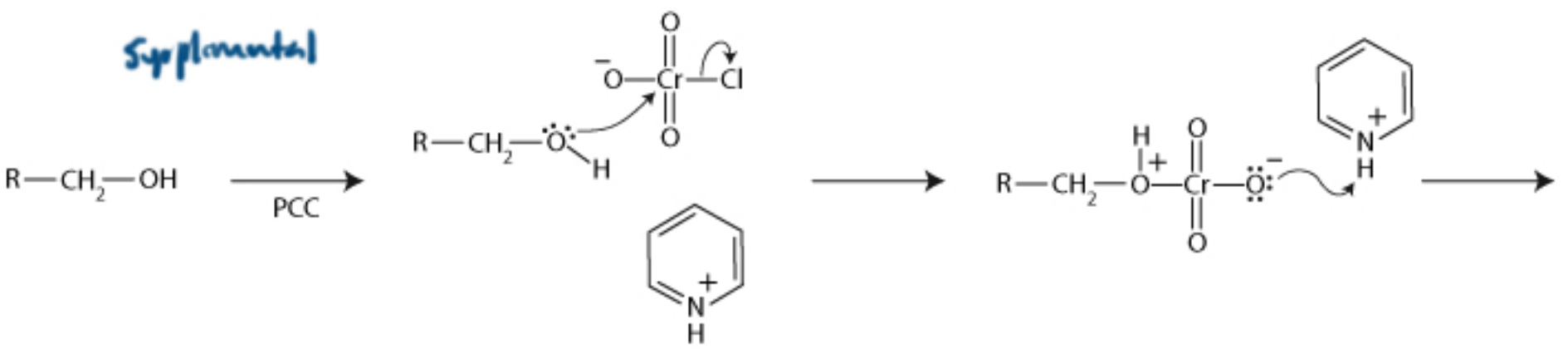
Session Slides with Notes

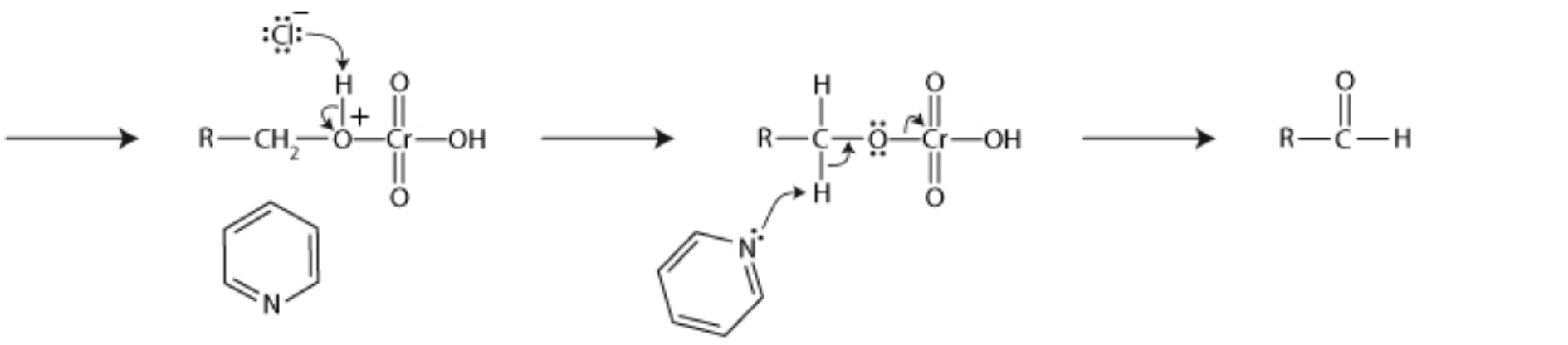
Oxidation of Alcohols





Supplemental

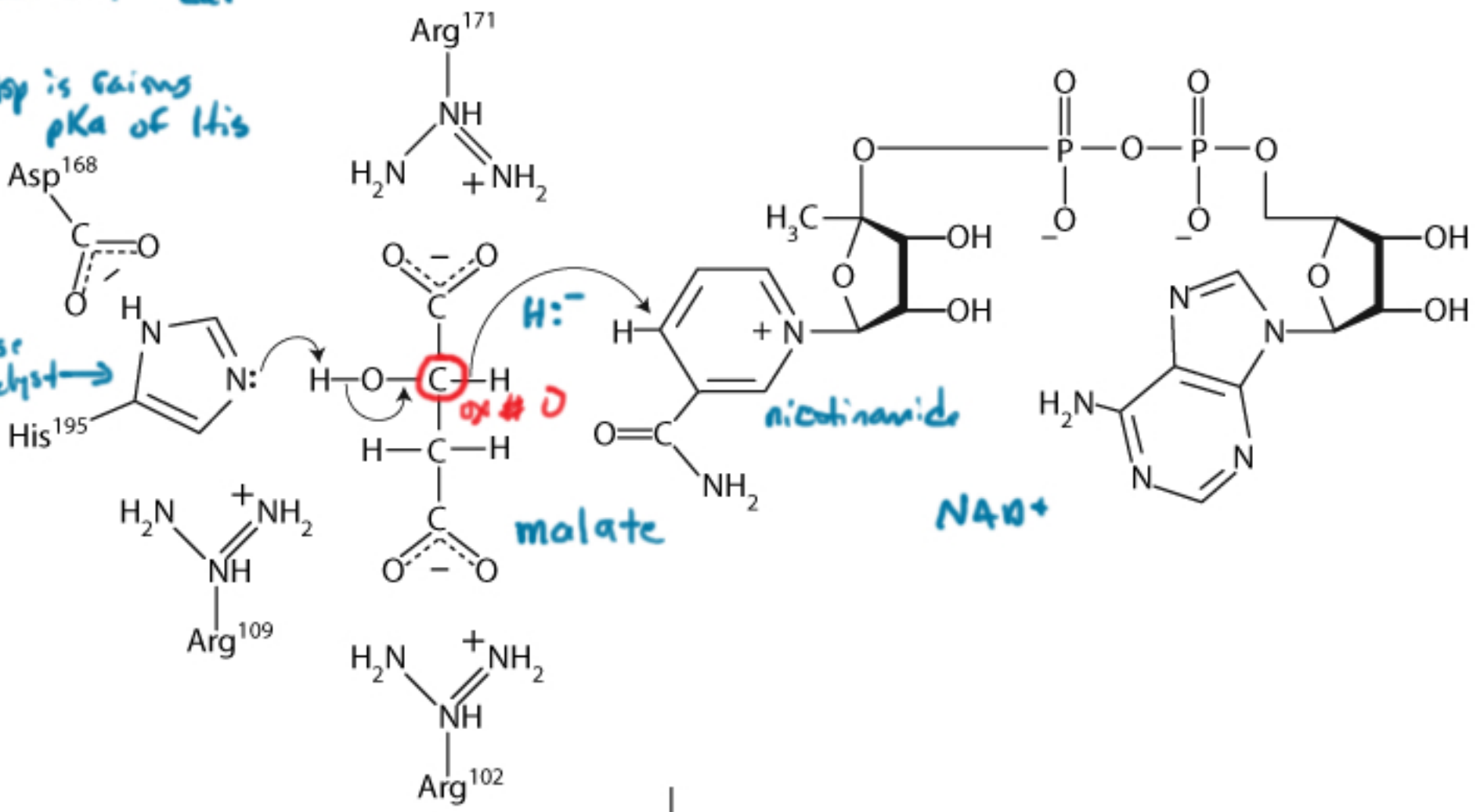




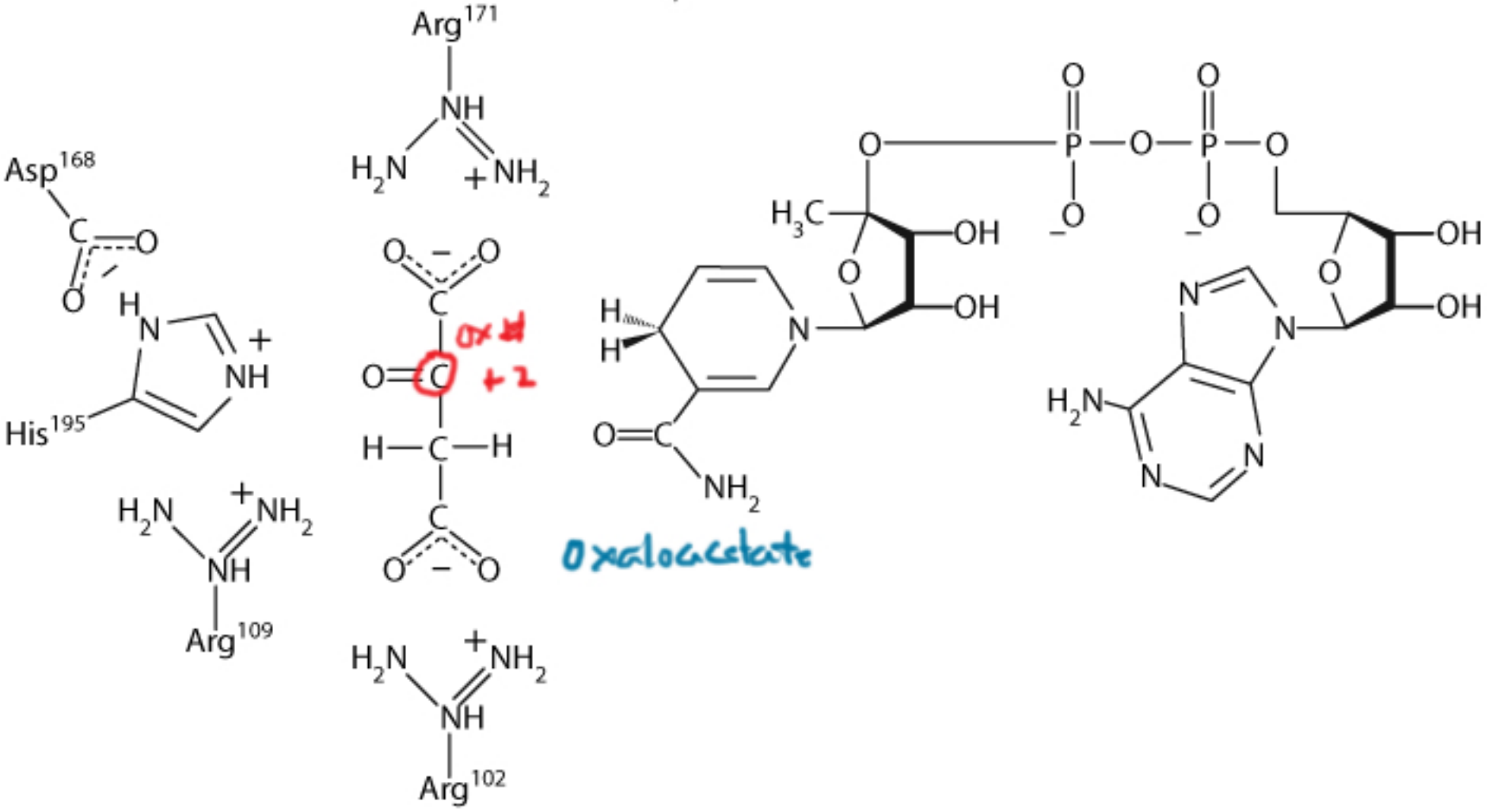
D168A
would change k_{cat}

malate dehydrogenase

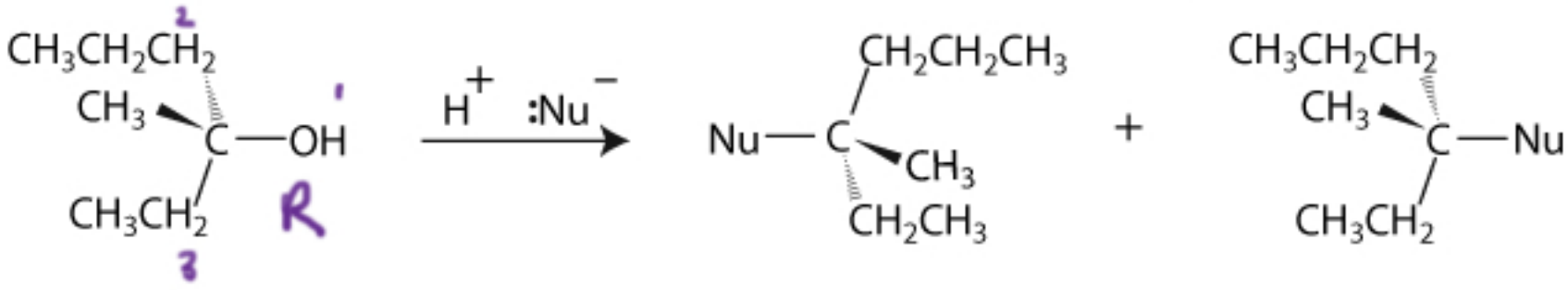
Asp is raising pKa of this



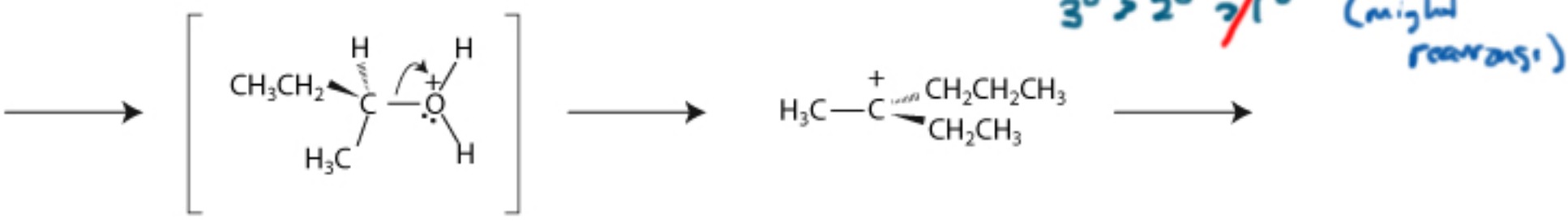
R102A
if we substituted with an alanine, would change K_M



SN1 Substitution



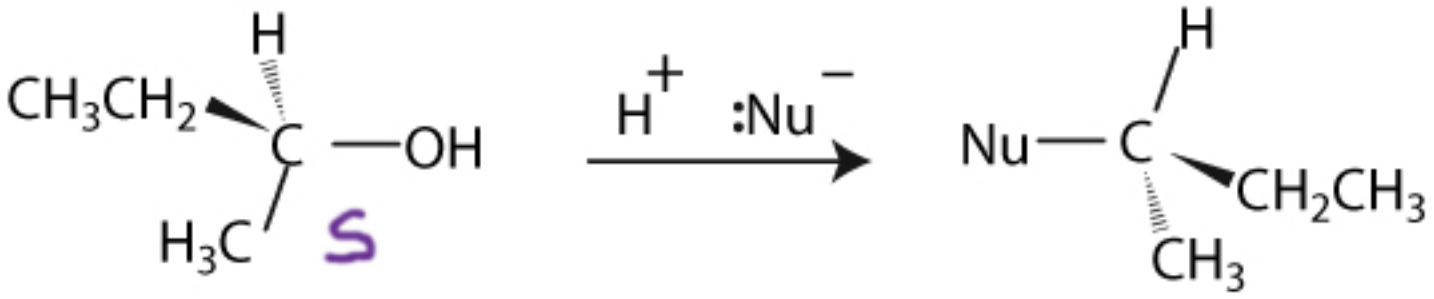
poor leaving group



3° > 2° ~~>~~ 1° (might rearrange)

racemic mixture
(not optically active)

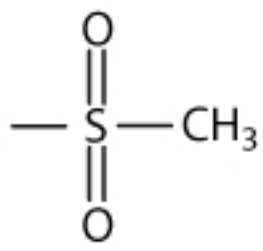
SN2

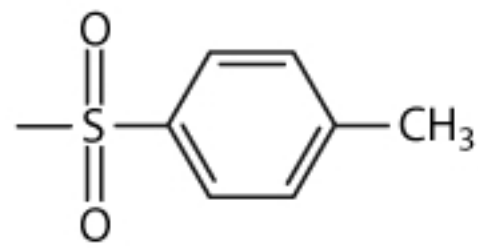


- prefers unhindered nucleophile and substrate
- polar aprotic solvent

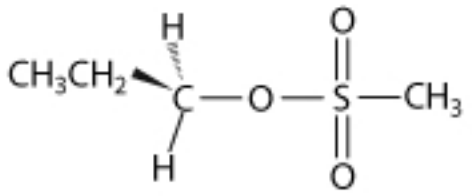
stereospecific for inversion of configuration

Mesylate and tosylate leaving group

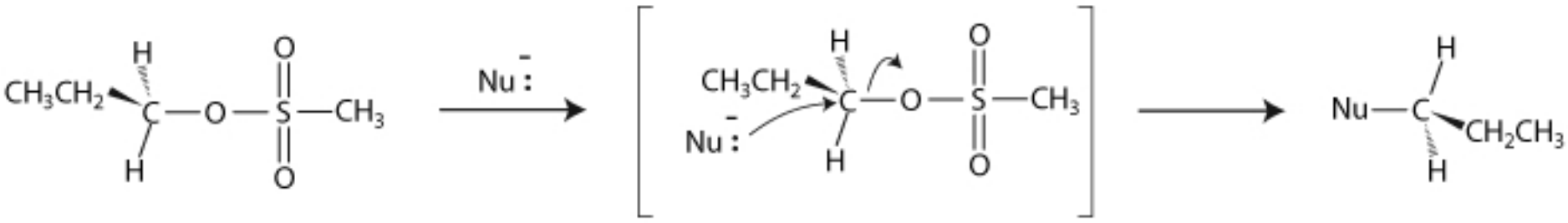




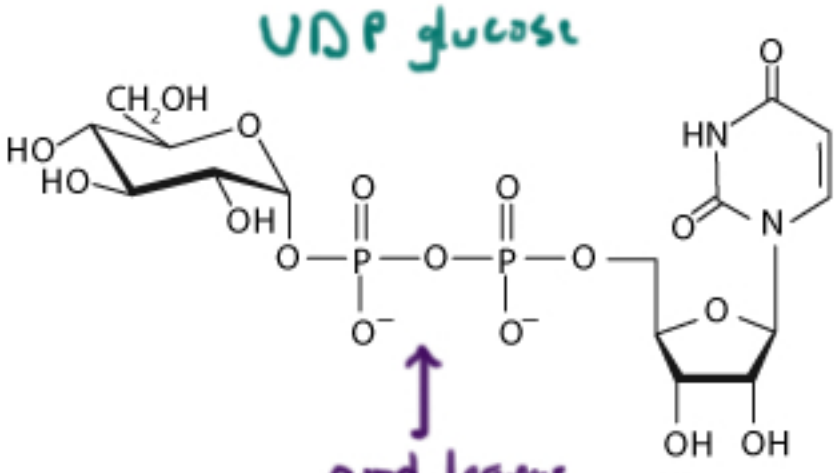
poor leaving group



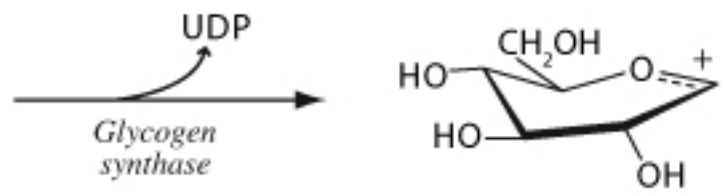
good leaving group



UDP glucose

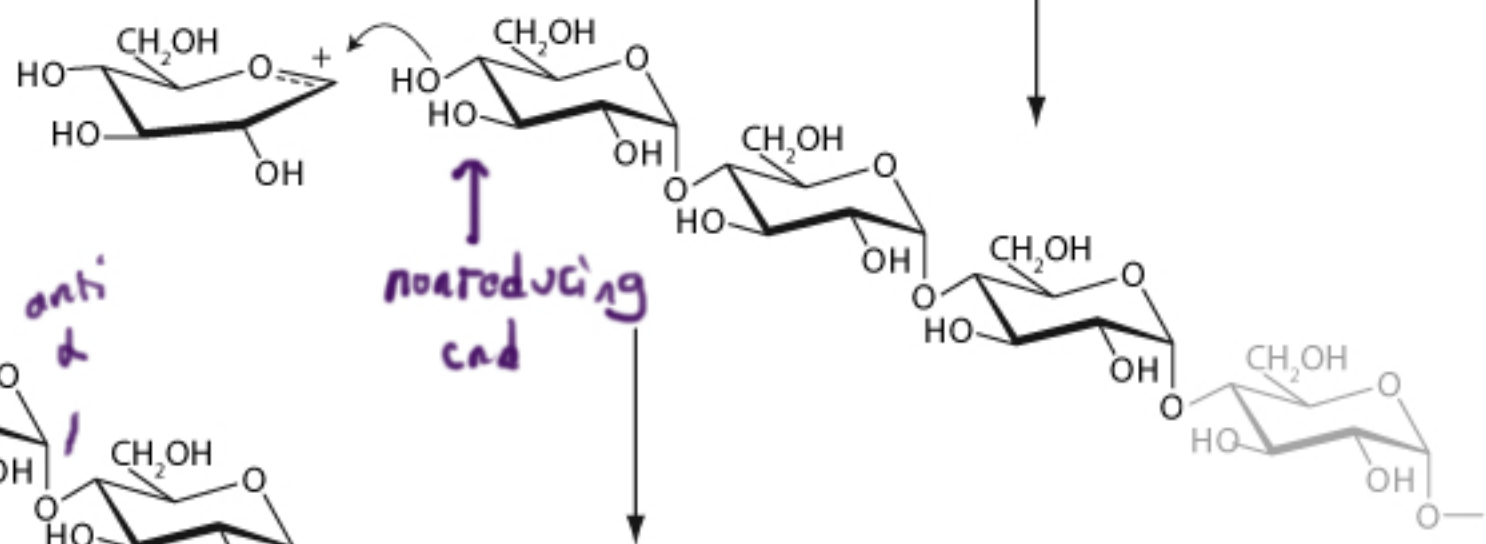


good leaving group

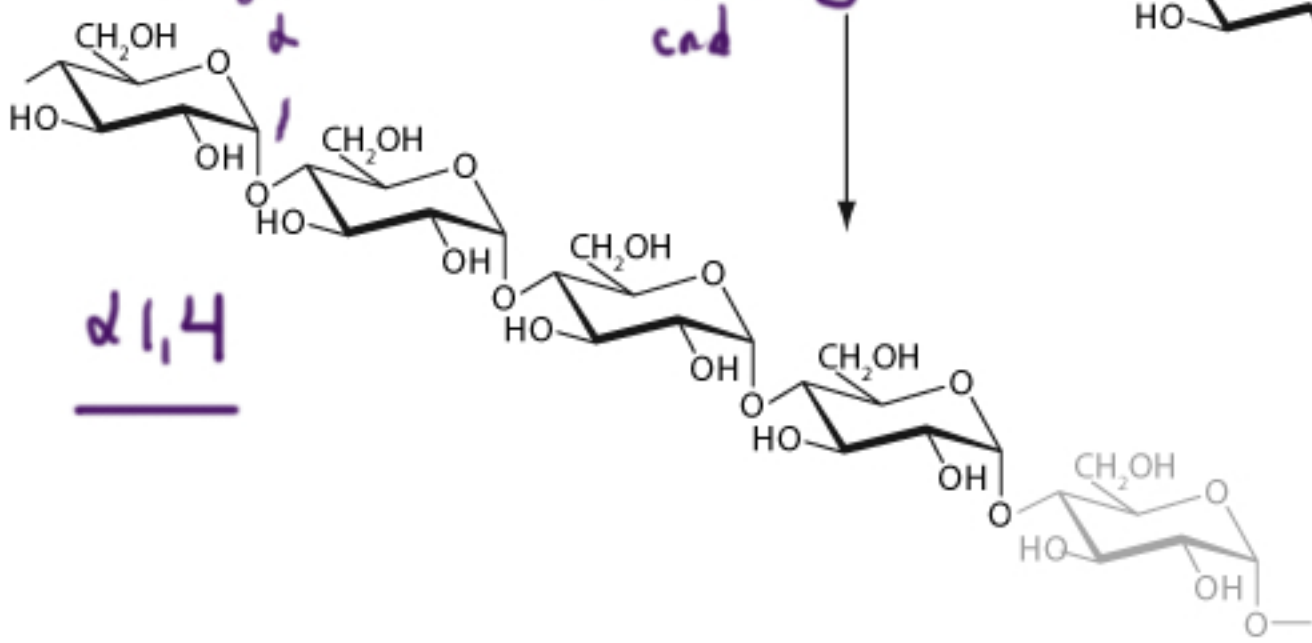


Oxonium cation

like step 2 of acetal formation

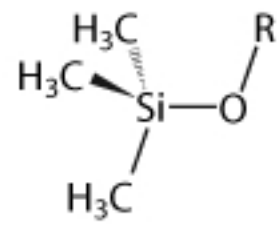


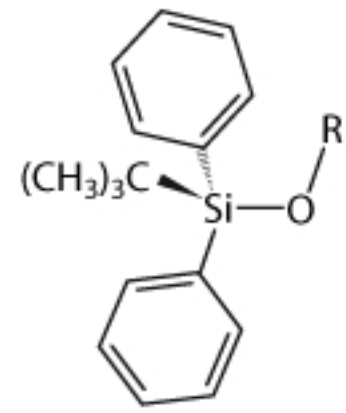
nonreducing end

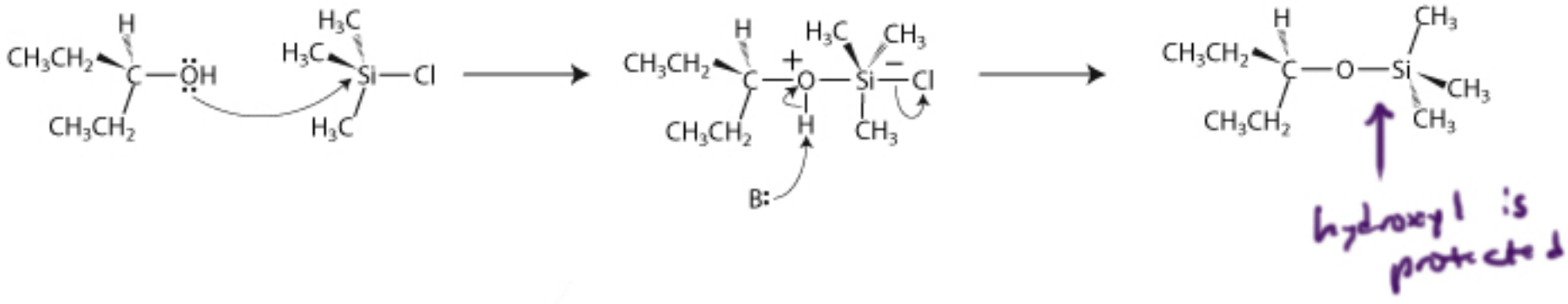


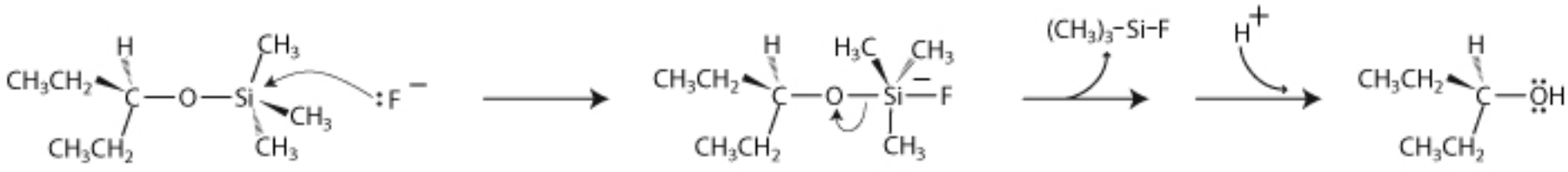
α 1,4 — anti

Silyl Protecting Group





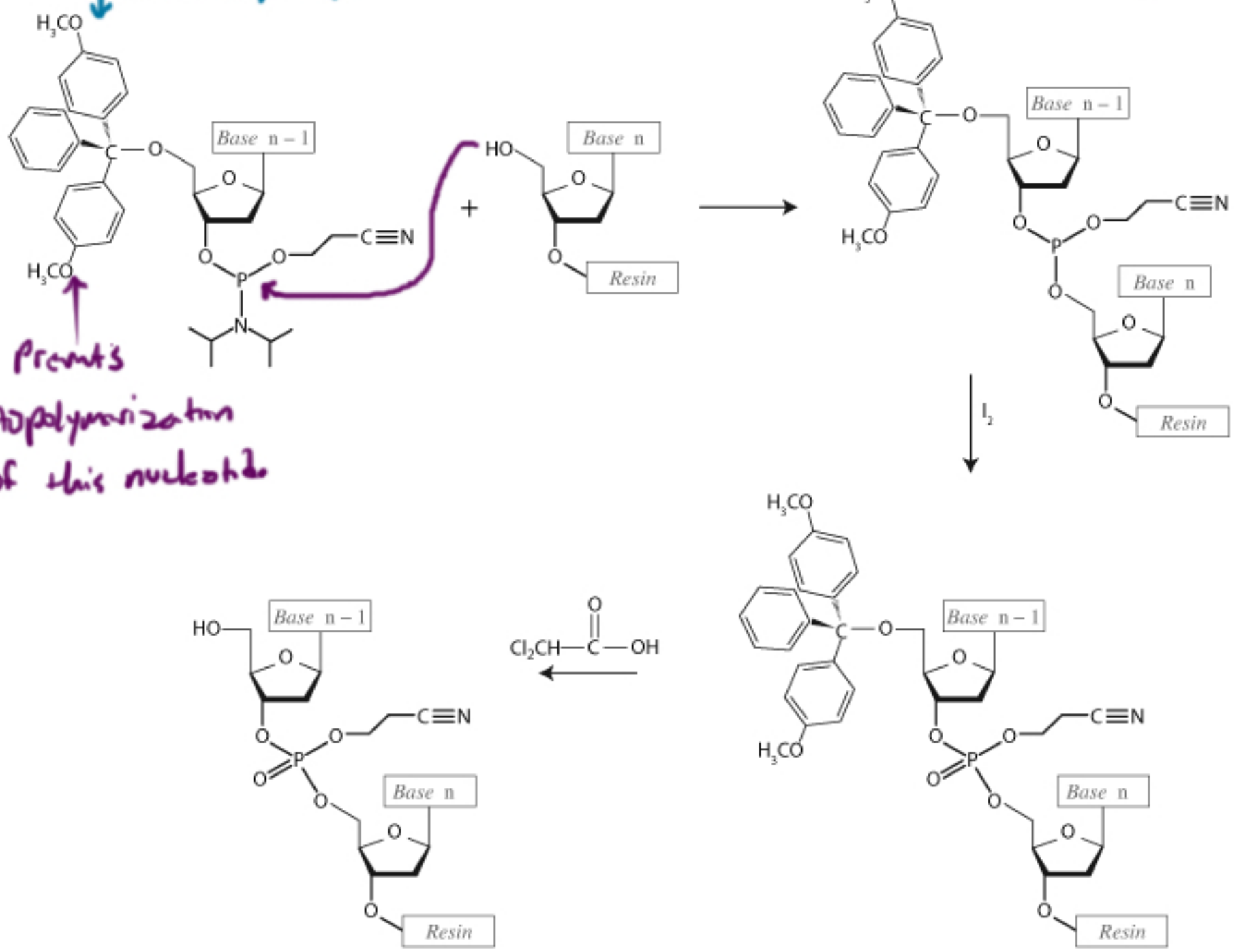




DMT
dimethoxytrityl

DMT protecting group

Solid Phase DNA Synthesis



Prevents autopolymerization of this nucleotide