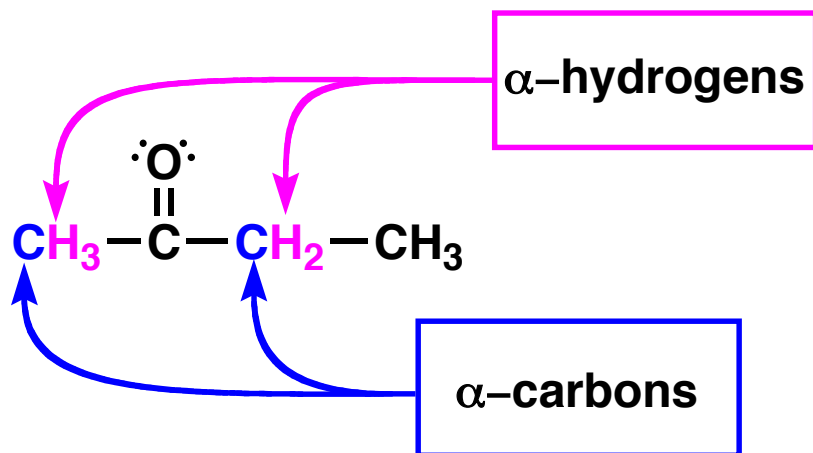
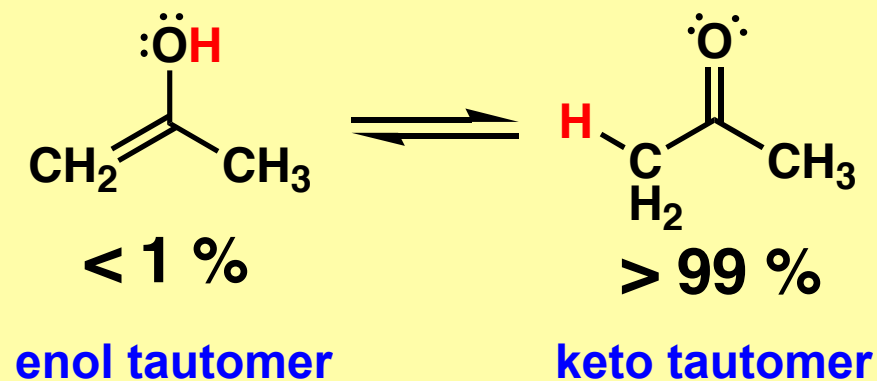


The Carbonyl's Alpha C-H is Acidic



Because of the acidity of the α -hydrogen, ketones exist in another, generally less stable form known as enol tautomer



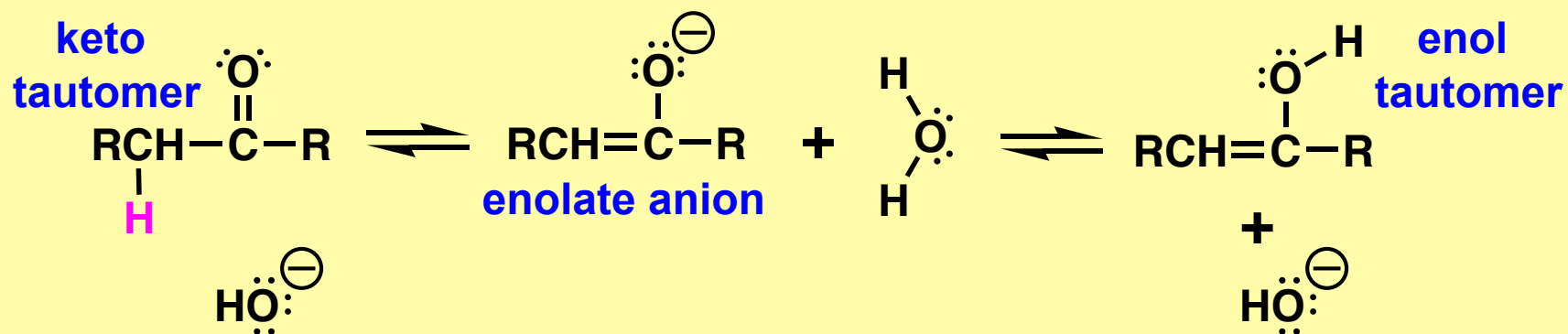
Recall, the larger the pK_a , the weaker the acid. The data below shows that of all the C-H bonds, the carbonyl $\text{C}_\alpha\text{-H}$ is the strongest acid. The unusually high acidity of this C-H bond gives it some very important reactivity (e.g., deprotonation of $\text{C}_\alpha\text{-H}$ makes the alpha position a carbon nucleophile).

<u>bond</u>	<u>pK_a</u>
$\text{CH}_3\text{CH}_2\ddot{\text{O}}-\text{H}$	16
$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{H}$	20
$\text{CH}_3-\text{C}\equiv\text{C}-\text{H}$	25
$\text{H}_2\text{C}=\underset{\text{H}}{\text{C}}-\text{H}$	44
$\text{CH}_3\text{CH}_2-\text{H}$	51



Interconversion Between Tautomeric Forms is Catalyzed by Acid or Base

Base-catalyzed mechanism of keto-enol interconversion



Acid-catalyzed mechanism of keto-enol interconversion

