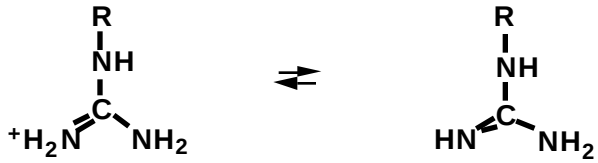
R GROUP IONIZATION REACTIONS:

Group (moiety)	Acid		Base	+	H^+
•carboxyl (C-terminal α-carboxyl or R group of Glu or Asp)	(carboxylic acid)		(carboxylate anion)		
	$R–COOH$	$\rightleftharpoons$	$R–COO^-$	+	H^+
•amino (N-terminal α-amino or ε-amino group of Lys)	(ammonium cation)		(amine)		
	$R–NH_3^+$	$\rightleftharpoons$	$R–NH_2$	+	H^+
•thiol of Cys (sulfhydryl)	(thiol or sulfhydryl)		(thiolate anion)		
	$R–SH$	$\rightleftharpoons$	$R–S^-$	+	H^+

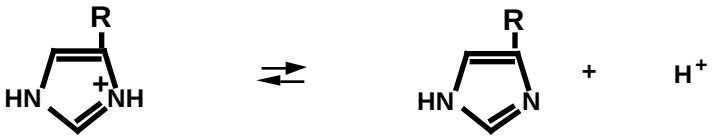
•guanidino group of Arg

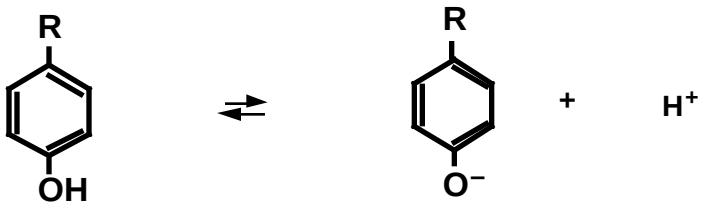
(guanidinium cation) (guanidino)



•imidazole group of His

(imidazolium cation) (imidazole)



•aromatic OH group of Tyr

(phenolic hydroxyl) (phenolate anion)