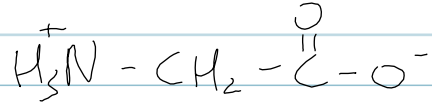


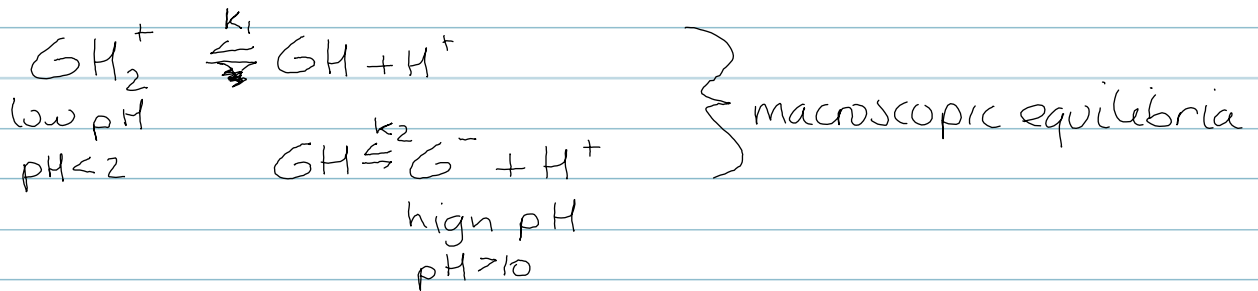
ligand equilibria

Macroscopic & microscopic equilibrium constants

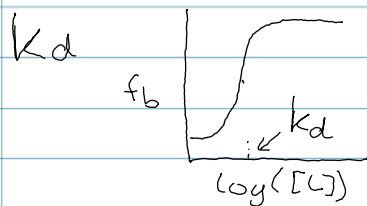
Titration of glycine



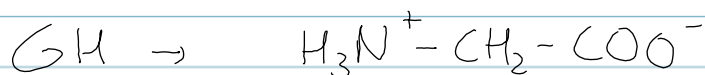
change pH of protein solution = changing protonation states of amino acids



$$K_1 = \frac{[\text{H}^+][\text{GH}]}{[\text{GH}_2^+]} \quad \text{p}K_1 = 2,35 \quad K_2 = \frac{[\text{H}^+][\text{G}^-]}{[\text{GH}]} \quad \text{p}K_2 = 9,8$$



f_b = fraction bound
 $[L]$ = ligand concentration



because ~~pK~~_{pK} of NH_3^+ is higher than ~~pK~~_{pK} of COOH