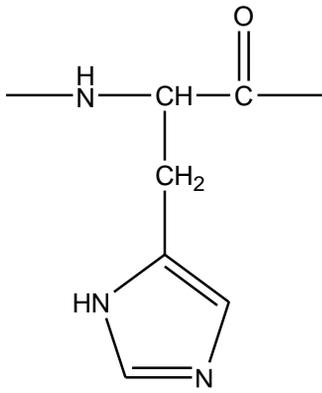
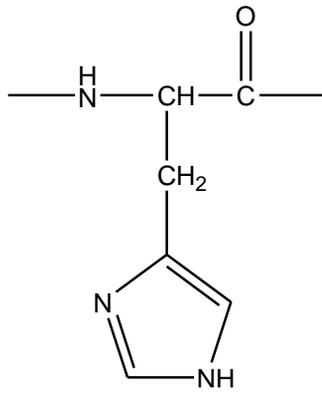


(a) δ 位にプロトン化



(b) ϵ 位にプロトン化



(c) δ 位と ϵ 位にプロトン化

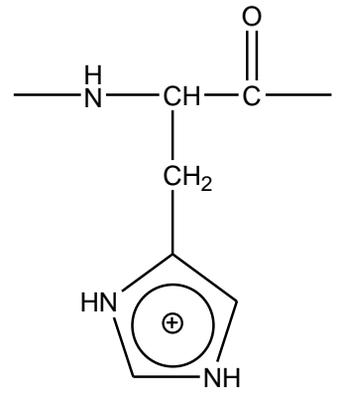


図4.19 ヒスチジンのプロトン化状態