CONCEPT: DENATURATION

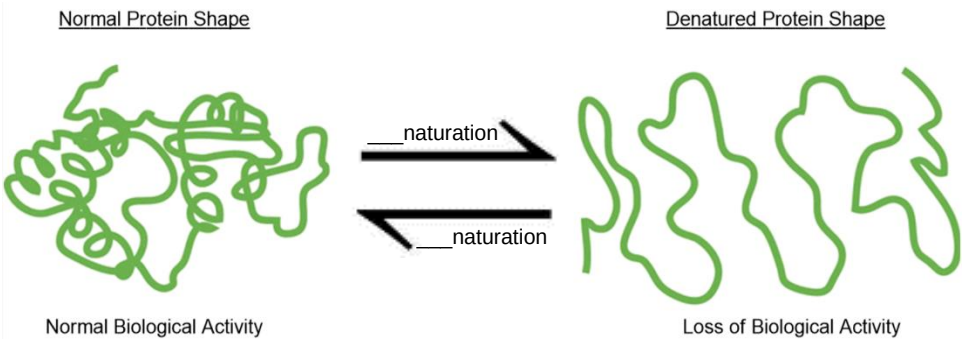
●_____: process of disrupting a protein's secondary/tertiary structure enough to cause loss of protein function.

□ _____ structure is *not* affected by denaturation.

□ Results from radiation, changes in temperature or ____, and addition of reagents affecting structure.

□ _____: reverse process of regaining a protein's original structure & function.

EXAMPLE:



PRACTICE: Which of the following is likely not affected if the pH of a protein solution is suddenly altered to 12?

a) Amino acid composition. b) α-helices. c) Motifs. d) R-group interactions. e) β-sheets

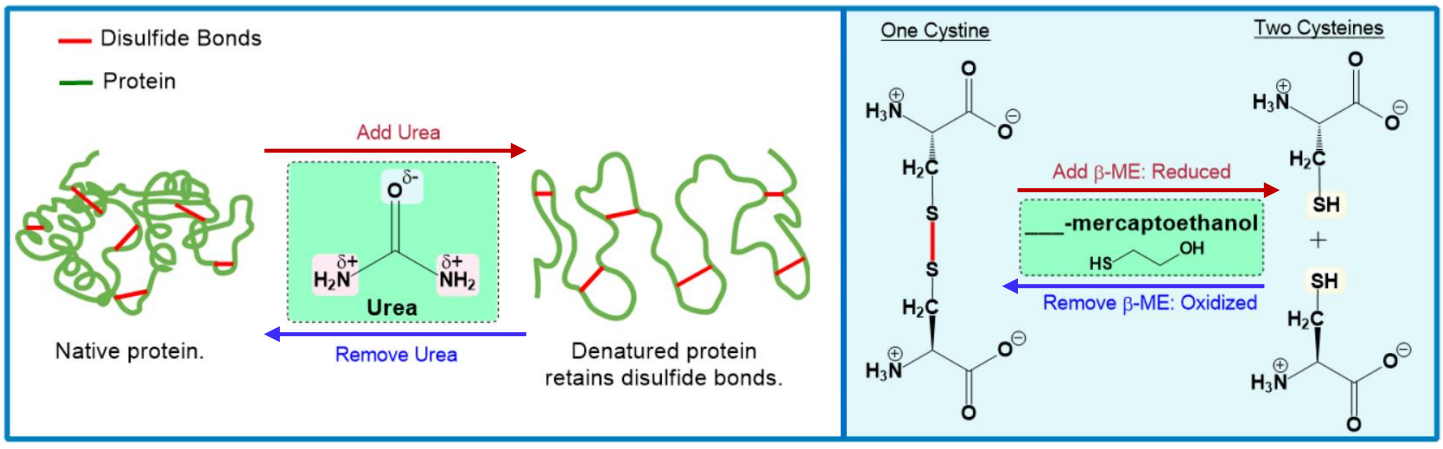
Urea & β-Mercaptoethanol Denature Proteins

●Urea is a _____ agent that only disrupts the _____ interactions of a protein.

□ *Chaotropic agent*: molecule that _____ the H-bonding network of H_2O, leading to altered protein stability.

●β-mercaptoethanol (β-ME) _____ disulfide bonds via a redox reaction.

EXAMPLE: Effects of Urea & β-ME on Protein Structure.



PRACTICE: Which of the following is least likely to result in protein denaturation?

a) Changing pH.

b) Changing the [salt].

c) Disruption of weak interactions by boiling the protein solution.

d) Exposure to chaotropic agents & detergents (such as urea & SDS).