Internet Assignment: Denaturing Proteins

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Class:\_\_\_\_\_\_\_\_

Go to the website below and after reading the introduction watch the narrated animation & take the quiz

<http://www.sumanasinc.com/webcontent/animations/content/proteinstructure.html>

# Introduction

1. What determines a proteins function?
2. What holds the proteins into their shape?
3. What are the 2 most important bonds in determining protein structure, and identify them as strong or weak.
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What do proteins do when heated?
5. What types of bonds break when heated (circle one)
   1. All
   2. Strong bonds
   3. Weak bonds

# Animation

1. Where are proteins found in an egg?
2. What kinds of bonds link the amino acids in chains?
3. What happens to protein structure when hydrogen bonds are broken?
   1. The proteins unravel
4. What happens when two of these proteins make contact?

Now go to:

<http://highered.mcgraw-hill.com/sites/0072943696/student_view0/chapter2/animation__protein_denaturation.html>

1. Before watching this animation define the following
   1. Coagulation
   2. Solubility
   3. Polymerize (or polymerization)
2. What changes the solubility of a protein?
3. How does the latticework of denatured proteins interact with water?
4. How are proteins synthesized?
5. What kinds of bonds link individual amino acids together\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. What color are they using for
   1. Hydrophobic portions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Hydrophilic portions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Describe the 3 structural features that influence the individual shape of a proteins?
   1. Primary structure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. Secondary structure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. Tertiary structure: : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Where are you most likely to find:
   1. Hydrophilic amino acids on a protein? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Hydrophobic amino acids on a protein? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Why?
2. Define denaturation:
3. What happens to hydrophobic amino acids as the protein becomes denatured?
4. What property of the peptide bonds recruits and entraps water molecules
5. How does the aqueous environment affect the hydrophobic amino acids
6. Is the process of forming gelatin reversible\_\_\_\_\_\_\_\_\_\_\_
7. List 3 examples aside from gelatin of denatured proteins assembling into 3-dimensional structures
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_