Name:
Date:

WB1 – Structural Proteins: Collagen and Keratin

Download **4zry_Keratin**, and open the file in PyMOL. This is a representation of human keratin, which is a structural protein found in hair and nails. It helps give hair and nails their structure and strength.

1. What is the secondary structure which makes up keratin?

2. Keratin is described as a fibrous protein, as opposed to a globular one. What does this mean, and how does this relate to the function of keratin?

3. Keratin is held together by hydrophobic interactions between the polypeptide strands. What are hydrophobic interactions?

Download **3wn8_Collagen,** and open the file in PyMOL. This is a representation of human collagen, which is a structural protein found in bones, tendons, cartilage and other connective tissues.

1. How does the secondary structure of collagen differ from that of keratin?

2. View the collagen strands end-on. What type of shape do they form, and why is this important to their structural function?

3. Using the command **3wn8 > A > find > polar contacts > just intra main chain**, explain how collagen maintains its tertiary structure.

Produced by Adam Stubbs at Newcastle University as part of a summer outreach project.