

1. What is meant by secondary structure? **Local arrangement of amino acids – dominated by H-bonds in the backbone**
2. What is meant by tertiary structure? **3D structure of a polypeptide – this includes side chains**
3. Match the bond with the torsion angle. **Phi = C α -N Psi = C α -carbonly**
4. Where do alpha helices appear on a Ramachandran Diagram? **Bottom left quadrant**
5. What value are the values of phi and psi when a peptide is fully extended? **180 degrees each – however when we cast these values in terms of a polypeptide chain, it becomes -180 for psi**
6. Secondary structure stability relies on hydrogen bonds between atoms of the **side chains**
7. Coiled-coils have a seven amino acid repeating pattern. Typically, hydrophobic amino acids are found at what position(s)? **a and d**
8. Collagen is a protein with a three amino acid repeating pattern: Gly X Y. Proline is commonly found at the X position and a modified version of Proline populates the Y position. What is this modification?**5-hydroxyproline → C5 of proline is oxidized**
9. What is the most common structural motif found in proteins? **$\beta\alpha\beta$ motif**
10. What two techniques can be used to determine the structure of proteins? **X ray crystallography and NMR**