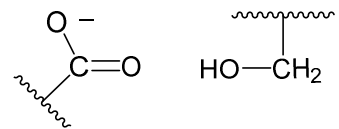
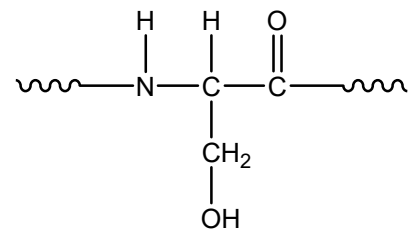


5. Explain what causes a protein's secondary structure to be different to its primary structure.

6. Using the following diagram, explain how these two groups could interact and make a polypeptide chain fold. Draw the interaction.



7. The amino acid residue serine is shown below. Using your knowledge of intramolecular interactions, explain how a serine residue could interact with another part of a polypeptide chain.

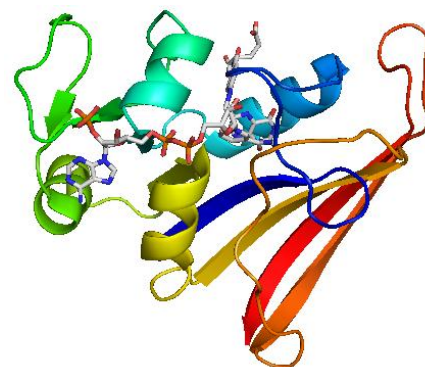


8. Why can secondary structures be easily disrupted by gentle heating or changes in pH?

9. State what happens to the α -helices and β -sheets to form a tertiary structure.

10. In a protein's tertiary structure, where do ionic bonds occur?

11. The enzyme dihydrofolate reductase is shown below, PDB entry 7dfr. Identify the types of protein structure which are visible.



12. Which type of interaction is unique to cysteine residues, which have the side chain $-\text{CH}_2\text{SH}$?

13. The above interaction between cysteine residues can be either intramolecular or intermolecular. Explain why.

14. The two amino acid residues shown below are leucine and isoleucine respectively. Which type of interaction can they exclusively take part in?

