

## Secondary Structure Of Protein

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Before understanding how the proteins are classified on the basis of the secondary structure of protein, it is essential to know why proteins are so important. Nearly every single function in the organisms is a result of the proteins. These components account for about 50% of the entire [cell](#) mass and have a pivotal role to play in every single process of the body.

There are different types of proteins that play different roles in speeding up the chemical reactions, providing defense, storage, movement of cells and communication, and structural support in organisms. Human beings have thousands of different proteins existing in their bodies at any particular time. Every single one of these proteins has its very own function and structure.

### **Classifying Proteins According to the Secondary Structure**

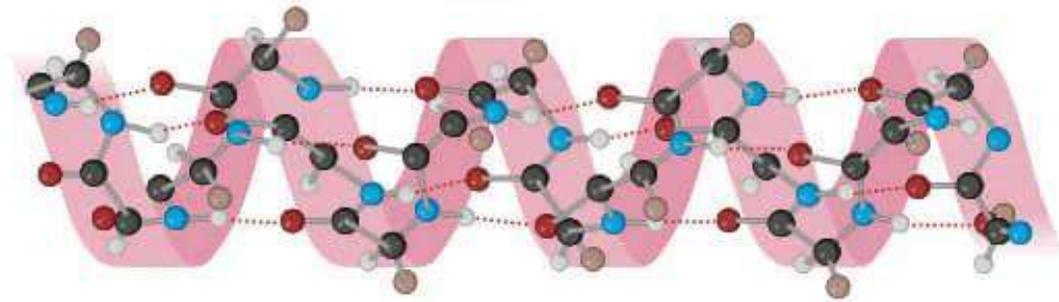
Every protein has its description from the structure that it has. These structures are primary structure, secondary structure, tertiary structure, and quaternary structure. To explain it in brief, the primary structure focuses on the linear chains consisting of amino acids.

The secondary structure consists of different regions stabilized due to the presence of hydrogen bonds. The tertiary structure represents the 3-D protein shape determined by all the stabilized regions due to the interactions of side chains. The Quaternary structure is an association created by polypeptides. In this article, students will get to focus on the secondary structure of protein example.

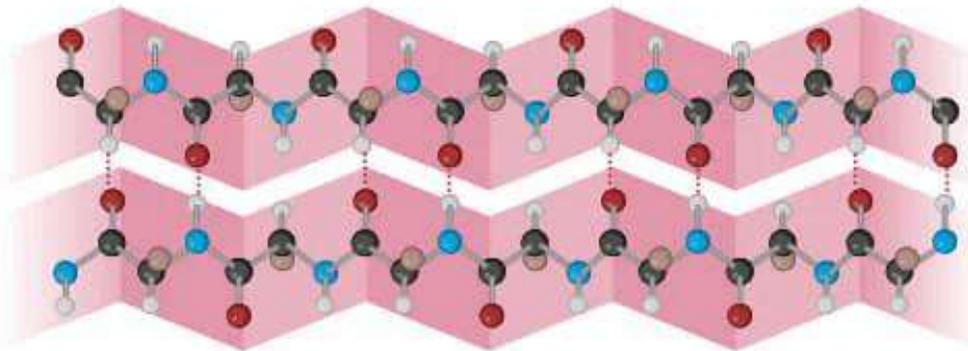
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# Secondary structure

$\alpha$ -helix



$\beta$ -pleated sheet



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**What is the Secondary Structure of a Protein?**

The secondary structure of protein refers to the three-dimensional form associated with the local segments that are present in proteins. The two common elements in the classification of the secondary structure of protein include beta-sheets and alpha-helices. Although beta turns and omega loops are occurrences of the secondary structure too, they are not very common. The elements of secondary structure are spontaneously formed as a type of intermediate before the protein is folded into the three-dimensional structure.

The hydrogen bonds formed in the secondary structure between the carboxyl oxygen and amino hydrogen atoms help describe the structure perfectly. These bonds occur on the backbone of the polypeptides. The secondary structure might be alternatively defined on the basis of some regular patterns seen in the backbone dihedral angles.

There are two different structures included in the secondary structure. Alpha helix and beta-pleated sheets are the most commonly occurring elements. Since the polypeptide chain backbone is constantly folding due to the presence of hydrogen bonding, the structure is

created. There are certain segments belonging to the chain of proteins that might have their very own fold locally. This enables the structure to become much simpler. Such local folds are named secondary elements and result in the formation of the secondary structure of proteins.

## **Conclusion**

The secondary structure of protein takes the next level upwards from the protein's primary structure. It is also the regular folding of different regions into certain specific structural patterns that exist within a single polypeptide chain. The secondary structures' primary function is to hold the hydrogen bonds together that are created between the amide hydrogen and the carbonyl oxygen in the peptide bonds.