

Proteins three-dimensional structure

Chapter 6 Learning Objectives

By the end of the chapter you should be able to:

1. Distinguish between primary, secondary, tertiary and quaternary structure.
2. Know the forces that stabilize and maintain an alpha helix and a beta-pleated sheet. Be able to compare the differences.
3. Know what a ramachadran plot is and what it is used to predict.
4. Be able to explain the difference between a globular and a fibrous protein.
5. Give examples of fibrous proteins and the clinical correlation with such proteins as collagen
6. Understand the structure of a triple helix, where it is found and the importance of the modified amino acid residues found in collagen.
7. Explain the forces that stabilize protein's three-dimensional native structure.
8. Know what a hydropathic index plot is used for.
9. Explain how proteins can fold and be renatured
10. Relate how Mad Cow disease is transmitted and know the different types of scrapie disease. It is important to realize that this is a direct application of protein three-dimensional structure and function.