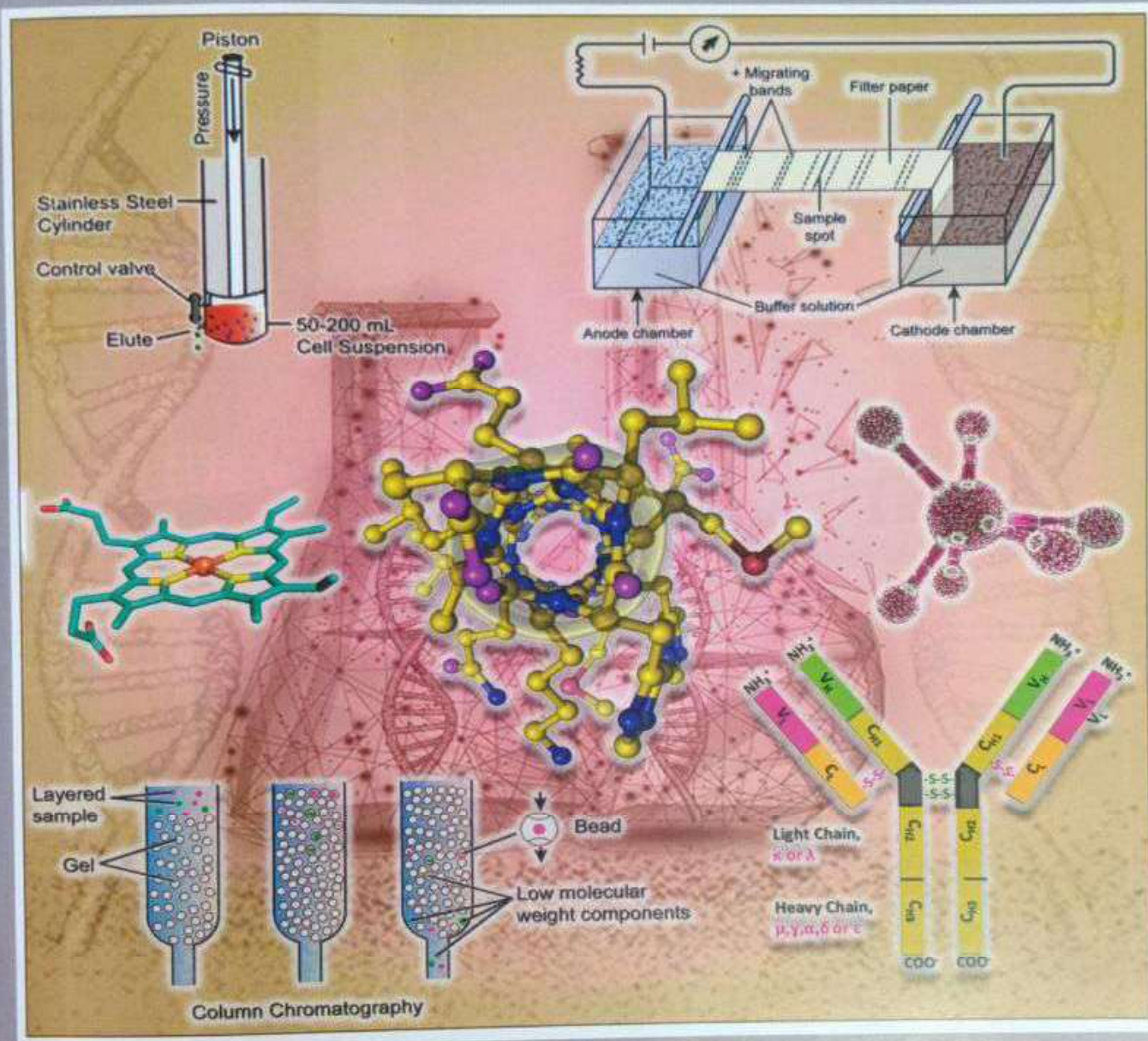




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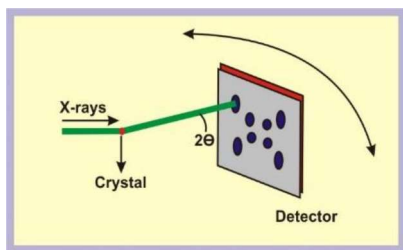
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UNIT 9

TECHNIQUES USED IN STUDYING 3-D STRUCTURES

Structure

9.1	Introduction	Levels of Protein Structures
	Expected Learning Outcomes	Motifs and Domains
9.2	Techniques to study protein 3-D structure	9.4 Protein 3-D Structure
	Peptide Mapping	Myoglobin
	Circular Dichroism	Hemoglobin
	X-Ray studies	9.5 Summary
	Nuclear Magnetic Resonance (NMR)	9.6 Terminal Questions
9.3	Structural Hierarchy of Proteins	9.7 Answers
		9.8 Further Readings

9.1 INTRODUCTION

In the previous unit you have learnt about structural aspects of proteins. Now, we will be studying about techniques used for understanding and analysing the 3-D structures of proteins. The more we know their structural arrangement, will help us to understand their functional dynamics. The second half of the unit will be focussing on the role of motifs and domains in proteins.

Proteins are the most versatile macromolecules in living systems and serve crucial functions in essentially all biological processes. The complexities of protein structure make the elucidation of a complete protein structure extremely difficult even with the most advanced analytical equipment. An amino acid analyser can be used to determine which amino acids are present and the molar ratios of each of them. The sequence of the protein can then be analysed by means of peptide mapping and the use of Edman degradation or