Title: Protein Engineering [2-1-0-6]

Content *:*

Proteins: Protein structural levels (primary, secondary, tertiary, quaternary, quinary), Ramchandran's plot, types of protein fold, physical parameters that govern protein-folding, forces that stabilizes protein structure, De novo protein design, Structure-function relationship of proteins, Expression and purification of protein, protein folding in vitro, role of osmolytes in protein folding, protein biosynthesis, In-vivo protein folding, role of chaperones in protein folding, post translation modification of proteins and their roles in protein structure and functions, mechanisms of protein degradation, protein self-assembly for biological functions, description of fibrous proteins, protein misfolding and aggregation, ER folding diseases, lysosomal biogenesis, lysosomal storage diseases, amyloid and neurodegenerative diseases, Directed Evolution

Texts / References:

1. Cell Biology, T.D. Pollard and WC Earnshaw, SAUNDERS, 2002.
2. Proteins: Structures and Molecular Properties, T. E. Creighton, W. H. Freeman; Second Edition, 1992
3. Introduction to Protein Structure; Carl Branden, John Tooze, Garland Science; 2nd edition, (January 1, 1999)