

Macromolecules: Structure & Function

A. Lipids: Water-Insoluble Molecules

1. Fats & Oils store energy
2. Phospholipids form the core of biological membranes
3. Carotenoids trap light energy
4. Steroids are signal molecules
5. Some lipids are vitamins

B. Macromolecules: Giant Polymers

1. Macromolecules form by condensation reactions

C. Carbohydrates: Sugars and Sugar Polymers

1. Monosaccharides are simple sugars
2. Glycosidic linkages bond monosaccharides together
3. Polysaccharides are energy stores or structural materials
4. Derivative carbohydrates contain other elements

D. Proteins: Amazing Polymers of Amino Acids

1. Proteins are composed of amino acids
2. Peptide linkages covalently bond amino acids together
3. The primary structure of a protein is its amino acid sequence
4. The secondary structure of a protein requires hydrogen bonding
5. The tertiary structure of a protein is formed by bending and folding
6. The quaternary structure of a protein consists of subunits
7. Molecular chaperones help shape proteins

E. Nucleic Acids: Informational Macromolecules

1. The nucleic acids have characteristic structures and properties
2. The uniqueness of a nucleic acid resides in its base sequence
3. DNA is a guide to evolutionary relationships

F. The Interactions of Macromolecules

1. Structure & Function
2. Emergent Properties