

Biochemistry Of Macromolecules (BCH417)

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Learning Objectives For Today

1. Define macromolecules
2. Describe how polymers are assembled from monomers and how polymers can be disassembled back to monomers
3. Identify the four major classes of biological macromolecules

Definition

The term "macromolecule" was first coined in the 1920s by Nobel laureate Hermann Staudinger, who was the first to propose that many large biological molecules are built by covalently linking smaller biological molecules together.

- small particle, usually one of the building blocks of life, which contains a very large number of smaller subunits (monomers)

How polymers are assembled from monomers

- Typical macromolecules are created by polymerization involving very large numbers (often in thousands) of atoms
- There are four classes of ***macromolecules*** that constitute all living matter: carbohydrates, lipids, proteins, and nucleic acids

Key Points To Note

- ✓ Biological macromolecules are important cellular components
- ✓ Many critical nutrients are biological macromolecules that living organisms require for survival and growth
- ✓ Animals obtain nutrients by consuming food, while plants derive nutrients from soil

Key Points To Note

- ✓ Biological macromolecules perform important structural and functional roles necessary for the survival and growth of living organisms
- ✓ Biological macromolecules are polymers that are synthesized via dehydration reactions among smaller components called monomers
- ✓ Biological macromolecules can be broken back down into their simpler components via hydrolysis reactions

Types of Macromolecules

There are 4 classes of macromolecules, namely:

➤ **Carbohydrates**

➤ **Lipids**

➤ **Proteins**

➤ **Nucleic Acids**

Further Reading in preparation for the first Assessment Test

[Please copy and paste in your web browser](#)

http://www.austincc.edu/biology/assessment/pdf/Module2_Macromolecules.pdf

<https://www.boundless.com/biology/textbooks/boundless-biology-textbook/biological-macromolecules-3/synthesis-of-biological-macromolecules-53/types-of-biological-macromolecules-293-11426/>