

# ABSTRACT

## MOLECULAR STRUCTURE AND PROPERTIES OF MACROMOLECULES

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The central structural feature of organic macromolecules is the long covalent chain of carbon atoms. Because of the tetrahedral geometry of the saturated carbon atom, and the possibility of rotation about C-C single bonds, such a chain can assume a multiplicity of spatial configurations and can move from one configuration to another.

Many macromolecular chains include some atoms other than carbon, for example, nitrogen, oxygen, or sulfur. Also, the chain may be part of a more ramified structure—a branched molecule or a three-dimensional network.

The physical properties of a particular macromolecular species depend upon its chemical composition (nature of the repeating units), its molecular structure (topology of the chain or net structure), and its interaction with low-molecular-weight molecules that are also present.

Of particular biological interest are the polypeptides. This important group of substances is therefore used to illustrate the general relationships between the structures and the properties of macromolecules.

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