

BIOMACROMOLECULES

- A distinctive feature unifies all compounds present in the acid-soluble pool—they exhibit molecular weights ranging from 18 to approximately 800 daltons (Da).
- Conversely, the acid-insoluble fraction comprises four primary types of organic compounds: proteins, nucleic acids, polysaccharides, and lipids. With the exception of lipids, these compounds boast molecular weights within the range of ten thousand daltons and beyond. Consequently, biomolecules, denoting chemical compounds within living organisms, are categorized into two types based on molecular weights. The first group includes micromolecules or biomolecules, characterized by molecular weights less than one thousand daltons. The second group, identified in the acid-insoluble fraction, is referred to as macromolecules or biomicromolecules.
- Although lipids, with molecular weights not exceeding 800 Da, fall into the category of small molecular weight compounds, they are incorporated into structures like cell membranes. When tissues are ground, causing disruption to cell structures, cell membranes and other membrane components are fragmented into vesicles that are not water-soluble. Consequently, these membrane fragments, in the form of vesicles, become part of the acid-insoluble pool, leading to their inclusion in the macromolecular fraction. It is essential to note that lipids are not strictly considered macromolecules.
- The acid-soluble pool is a representation of the cytoplasmic composition, while the macromolecules originating from the cytoplasm and organelles constitute the acid-insoluble fraction. Together, these fractions offer a comprehensive representation of the entire chemical composition of living tissues and organisms.