

Macromolecules

| Biological Macromolecule | Elements Ratio | Function | Monomer | Examples | Functional Group(s) |
|--------------------------|---------------------|--|---|---|---|
| Carbohydrate -ose | CHO 1:2:1 | <ul style="list-style-type: none"> - Short term energy storage - Structure (cell walls & exoskeletons) | Monosaccharide | <ul style="list-style-type: none"> -Glycogen -Chitin -Cellulose -Glucose fructose galactose -sucrose lactose maltose | -OH (hydroxyl) |
| Lipids | CHO 1:2:very few | <ul style="list-style-type: none"> - long term energy storage - Insulates body - Cushions body organs | Triglyceride (Glycerol + 3 fatty acids) | Fats, Waxes, Oils, Steroids | <ul style="list-style-type: none"> -CH₃ (methyl) -OH |
| Proteins | CHON No ratio | <ul style="list-style-type: none"> - Transports O₂ - Structural support - Enzymes - Receptors (cell membranes) - Defense | Amino Acids (20) | <ul style="list-style-type: none"> - Hemoglobin - Catalase - Antibodies - Keratin (hair, nails) - Actin/Myosin (muscles) | <ul style="list-style-type: none"> -NH₂ (amino) -COOH (carboxyl) |
| Nucleic Acids | CHONP No ratio | <ul style="list-style-type: none"> - Instructions for making proteins - Genetic information passed from parent to offspring | Nucleotide (5-C sugar + phosphate + nitrogen base) | DNA RNA | -PO ₄ |

HYDROLYSIS - adding water to split polymers

CONDENSATION - removing water to join monomers together