

Lipid

In biology, lipids comprise a group of naturally occurring molecules that include fats, waxes, sterols, fat-soluble vitamins (such as vitamins A, D, E, and K), monoglycerides, diglycerides, triglycerides, phospholipids, and others. The main biological functions of lipids include storing energy, signaling, and acting as structural components of cell membranes.

Lipids have applications in the cosmetic and food industries as well as in nanotechnology.

Scientists may broadly define lipids as hydrophobic or amphiphilic small molecules; the amphiphilic nature of some lipids allows them to form structures such as vesicles, multilamellar/unilamellar liposomes, or membranes in an aqueous environment. Biological lipids originate entirely or in part from two distinct types of biochemical subunits or "building blocks": ketoacyl and isoprene groups.

Using this approach, lipids may be divided[by whom?] into eight categories: fatty acids, glycerolipids, glycerophospholipids, sphingolipids, saccharolipids, and polyketides (derived from the condensation of ketoacyl subunits); and sterol lipids and prenol lipids (derived from the condensation of isoprene subunits).

Although the term lipid is sometimes used as a synonym for fats, fats are a subgroup of lipids called triglycerides. Lipids also encompass molecules such as fatty acids and their derivatives (including tri-, di-, monoglycerides, and phospholipids), as well as other sterol-containing metabolites such as cholesterol.

Although humans and other mammals use various biosynthetic pathways both to break down and synthesize lipids, some essential lipids cannot be made this way and must be obtained from the diet.

Bioactive lipids

Bioactive lipid

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