

TRANSPORTERS

Overview: The majority of biological solutes are charged organic or inorganic molecules. Cellular membranes are hydrophobic and, therefore, effective barriers to separate them allowing the formation of gradients, which can be exploited, for example, in the generation of energy. Membrane transporters carry solutes across cell membranes, which would otherwise be impermeable to them. The energy required for active transport processes is obtained from exploiting ion gradients or from ATP turnover.

Many hydrophobic molecules, both endogenous and exogenous, display significant binding to plasma proteins, such as albumin and globulin, and are thus transported around the body. Lipoproteins provide a mechanism for plasma transport of particular fatty acid and sterol derivatives. Alongside these, chaperone proteins, such as the fatty acid-binding proteins, allow both transcellular and intracellular transport of particular hydrophobic molecules, which would otherwise be poorly soluble in biological fluids.