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Perspective

Effects of Biological Membranes

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DESCRIPTION

A biological membrane is also called as bio-membrane or cell membrane is a selectively permeable membrane that separates cell from the external environment creates intra cellular compartments. Biological membranes in the form of eukaryotic cell membranes is including a phospholipid bilayer with embedded, integral and peripheral proteins used in communication and transportation of chemical compounds and ions.

The number of lipid in a cell membrane provides a fluid matrix for proteins to rotate and laterally diffuse for physiological functioning. Proteins are adapted to high membrane fluidity environment of lipid bilayer with the presence of an annular lipid shell, which includes lipid molecules bound tightly to surface of integral membrane proteins. The cell membranes are different from the separating tissues formed through layers of cells, consisting of mucous, basement, and serous membranes.

Biological membranes are three types of lipid are determined in biological membranes, which are phospholipids, glycolipids and sterols. Phospholipids include fatty acid chains connected to glycerol and a phosphate group. Phospholipids containing glycerol are called as glycerol phospholipids.

In Biological Membrane is the thin layer that forms the outer boundary of a living cellular or of an internal cellular compartment. The outer boundary is the plasma membrane, and the compartments enclosed through internal membranes are known as organelles. Biological membranes have 3 primary functions: (1) they keep toxic materials out of the cellular; (2) they contain receptors and channels that allow specific molecules, consisting of ions, nutrients, and metabolic products, that mediate cellular and extra cellular activities to pass among organelles and between the cellular and the outside environment; and (3) they separate critical but incompatible metabolic techniques performed within organelles.

Biological Membranes consist largely of a lipid bilayer, which is a double layer of phospholipid, cholesterol, and glycolipid molecules that includes chains of fatty acids and determines whether a membrane is formed into long flat sheets or round vesicles. Lipid bilayer provides cellular membranes fluid character, with a consistency approaching that of light oil. The fatty-acid chains allow many fat-soluble molecules, which include oxygen, to permeate the membrane, but they repel large, water-soluble molecules, including sugar, and electrically charged ions.

Causes of biological membranes to be fluid: Cellular membrane is fluid because individual person phospholipid molecules and proteins can diffuse inside their monolayer hence move around. The fluid is affected by the length of the fatty acid chain. Here, the shorter the chain the greater fluid is the membrane.

Biological membranes described as fluid and it is sometimes called a fluid mosaic because it has many kinds of molecules which float along the lipids because of the various types of molecules that make up the cellular membrane. Properties of biological membranes are mainly consisting of lipids and proteins. While the proteins have many capabilities as single molecules, the membrane as a whole displays physical properties that cannot be described at the single molecule level. For example, biological membranes show melting events, and elasticity.

A biological membrane allows life as we know it to exist. They form cells and enable separation among the outside and inside of an organism, controlling by using their selective permeability which materials enter and leave. By allowing gradients of ions to be created across them, biological membranes are also enabling living organisms to generate energy. In addition, they control the flow of messages between cells through sending, processing, and receiving information in the form of chemical and electric signals.

Structure and organization of biological membranes is biological membranes include a double sheet is called as a bilayer of lipid molecules. This shape is usually called as the phospholipid bilayer. In addition to the various types of lipids that occur in organic membranes, membrane proteins and sugars are also key components of the structure. Membrane proteins play an essential function in organic membranes, as they help to maintain the structural integrity, organization and flow of fabric through membranes. Sugars are found on one aspect of the bilayer only, and are attached through covalent bonds to some lipids and proteins.

Three types of lipid are observed in biological membranes are phospholipids, glycolipids and sterols. Phospholipids include fatty acid chains connected to glycerol and a phosphate group. Phospholipids containing glycerol are known as glycerol phospholipids. An example of a glycerol phospholipid that is generally determined in organic membranes is phosphatidylcholine, which has a choline molecule connected to the phosphate group.

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Amphipathic lipids form bilayers is all biological membrane lipids are amphipathic that is; they contain both hydrophilic region and a hydrophobic region. Thus the most favorable environment for the hydrophilic head is an aqueous one, whereas the hydrophobic tail is more stable in a lipid environment.