Glossary

Adenosine triphosphate (ATP): Adenosine with three phosphates attached to the 5 carbon of ribose. ATP is a coenzyme and one of the cell's energy currencies.

Adenyl cyclase: Enzyme that converts ATP to the intracellular messenger cyclic AMP (cAMP). Also called adenylate cyclase.

Adherens junctions: type of anchoring junction in which the cell adhesion molecules are linked to actin microfilaments.

Amphipathic: "Hating both"—a molecule with a hydrophobic region and a hydrophilic region is said to be amphipathic.

ATP synthase: Carrier of the inner mitochondrial membrane that is built around a rotary motor. Ten H+ enter the mitochondrial matrix for every three ATP made.

Carrier: An integral membrane protein that forms a tube through the membrane that is never open all the way through. Solutes can move into the tube through the open end. When the channel changes shape, so that the end that was closed is open, the solute can leave on the other side of the membrane.

Cell adhesion molecule: Integral membrane protein responsible for sticking cells together. The extracellular domain binds a cell adhesion molecule on another cell while the intracellular domain binds to the cytoskeleton, either directly or via a linker protein.

Cell junctions: Points of cell–cell interaction in tissues; includes tight junctions; anchoring junctions and gap junctions.

Cell membrane: Membrane that surrounds the cell; also known as the plasmalemma or plasma membrane.

Cell surface membrane: Another name for the plasma membrane.

Cytoplasm: The substance of a cell between cell membrane and nucleus.

Cytoskeleton: A network of protein microfilaments and microtubules within the cytoplasm of a eukaryotic cell that maintains the shape of the cell, anchors its organelles, and is involved in animal cell mobility.

Desmosome: Type of anchoring junction that joins the intermediate

filaments of neighboring cells. Desmosomes are common in tissues such as skin.

Diffusion: Movement of a substance that results from the individual small random thermal movements of its molecules.

Endocytosis: (Gr. endon, within+ kytos, hollow vessel). The uptake of material into cells by inclusion within an invagination of the plasma membrane; the uptake of solid material is phagocytosis, while that of dissolved material is pinocytosis.

Endoplasmic reticulum: It is a well-developed electron-microscopic network of interconnected cisternae, tubules and vesicles present throughout the cytoplasm in cells of eukaryotes.

Erythrocyte: (Gr. Erythros, red+kytos, hollow vessel) Red blood vessel, the carrier of haemoglobin.

Eukaryote: (Gr. eu, good+ karyon, kernel). A cell characterized by membrane- bound organelles, mostly notably the nucleus, and one that possesses chromosomes where DNA is associated with proteins; an organism composed of such cells.

Exocytosis: (Gr. ex, out+kytos, hollow vessel). A type of bulk transport out of cells where a vacuole fuses with the cell membrane, discharging the vacuole's contents to the outside.

Fluid mosaic model: Generally accepted hypothesis of how cell membranes are formed from a lipid bilayer plus protein.

Gap junction channel (connexon): Channel in the plasma membrane with a central hole about 1.5 nm in diameter. Gap junction channels only open when they contact a second channel on another cell, in this case they open and form a water-filled tube that runs all the way through the plasma membrane of the first cell, across the small gap between the cells, and through the plasma membrane of the second cell, so allowing passage of solute from the cytosol of one cell to the cytosol of the other.

Gap junction: Type of cell junction that allows solute to pass from the cytosol of one cell to the cytosol of its neighbor without passing through the extracellular medium. Gap junctions

consist of many paired gap junction channels or connexons.

Glycogen: (Gr. glykys, sweet+gen, of a kind). Animal starch; a complex branched polysaccharide that serves as a food reserve in animals, bacteria and fungi.

Glycoprotein: Protein molecule having a short sugar chain (polysaccharide) attached.

Lipid: (Gr. lipos, fat). A nonpolar hydrophobic organic molecule that is insoluble in water, but that dissolves readily in nonpolar organic solvents; includes fats, oils, waxes, steroids, phospholipids, and carotenoids.

Lipid-layer: The structure of a cellular membrane in which two layers of phospholipids spontaneously align so that the hydrophilic head groups are exposed to water, while the hydrophobic fatty acid tails are pointed towards the centre of the membrane.

Lysosome: A membrane-bound cytoplasmic organelle containing a rich variety of hydrolytic enzymes capable of breaking down most types of biological molecules.

Nuclear Envelope: Flattened sac or double membrane surrounding the nucleoplasm and genetic material.

Nucleus: In eukaryotic cells the membranous organelle that houses the chromosomal DNA.

Organelle: (Gr. organelle, a little tool). Specialized part of a cell, literally a small cytoplasmic organ.

Phospholipid: Similar in structure to a fat, but having only two fatty acids attached to the glycerol backbone, with the third space linked to a phosphorylated molecule; contains a polar hydrophilic "head" end (phosphate group) and a nonpolar hydrophobic "tail" end (fatty acids).

Plasma membrane: The membrane surrounding the cytoplasm of a cell, consists of a single phospholipid bilayer with embedded protein.

Protein: (Gr. proteios, primary). A chain of amino acids joined by peptide bonds.

Unit Membrane: A concept of membrane structure consisting of a bilayer of polar lipids coated with extended proteins.

Vesicle: A small, spherical, membrane-bound organelle containing a fluid with dissolved molecules.