

Fluid Compartments

The cell is the functional unit of the body, but it cannot survive outside of an environment of water, nor without its most important structure, the biological membrane. This membrane effectively separates water in the body into two distinct fluid compartments, the **intracellular fluid** compartment (ICF) and the **extracellular fluid** compartment (ECF). Water movement is an essential characteristic of life, a phenomenon called **osmosis**. Movement of water between the ICF and ECF must occur through cell membranes that are essentially impermeable to water. Thus, the movement occurs through special protein water channels called **aquaporins** and is driven by **osmotic pressure gradients**. The pressure gradients are determined by the molecules or ions dissolved in the water. These molecules and ions (**solutes**) exist in a state of **chemical disequilibrium**, which means they are not equally distributed between the ICF and ECF (see figure below).

Osmosis
Diffusion of Solutes



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