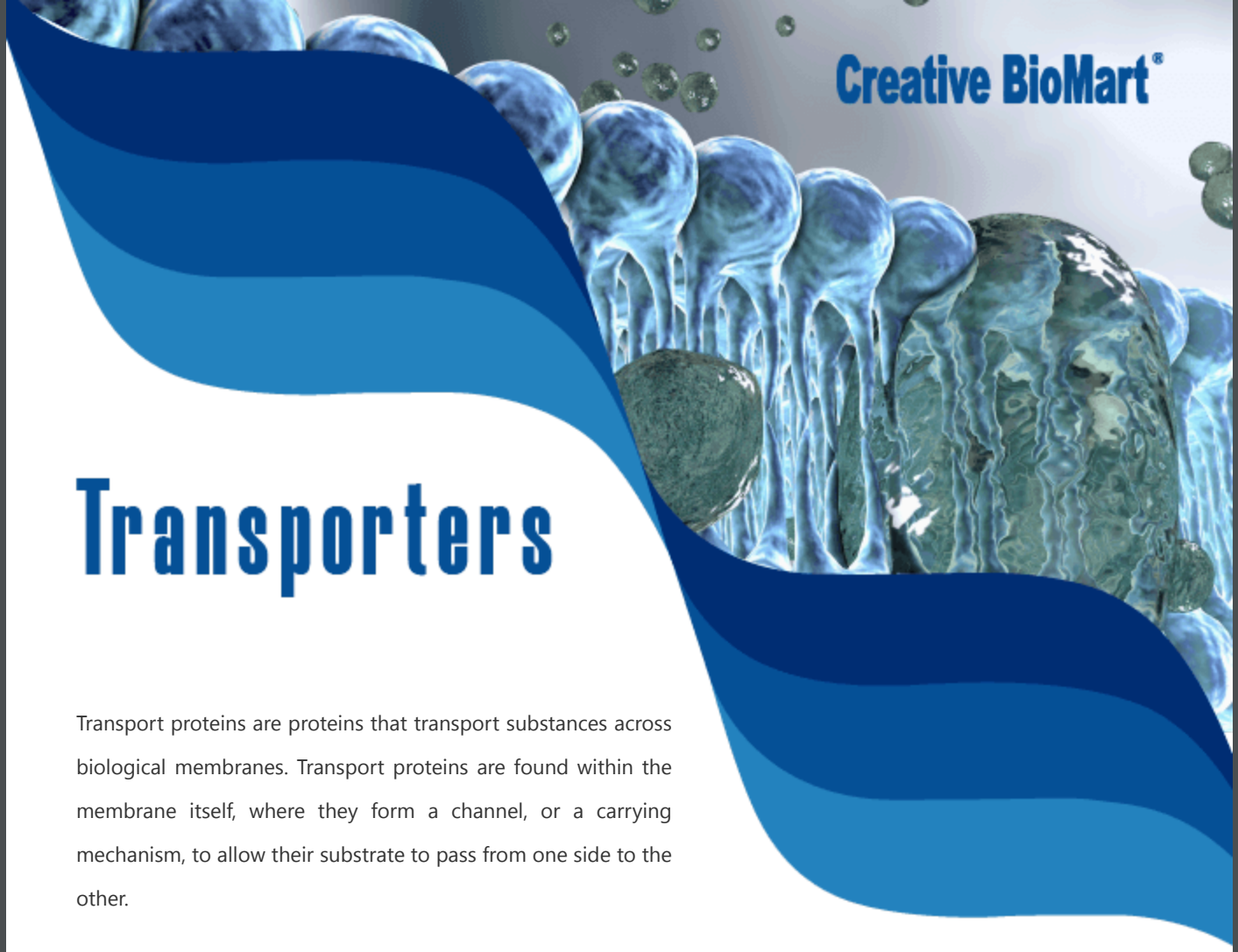

Transporters

Transport proteins are proteins that transport substances across biological membranes. Transport proteins are found within the membrane itself, where they form a channel, or a carrying mechanism, to allow their substrate to pass from one side to the other.

Very few molecules enter or leave cells, or cross organellar membranes, unaided by proteins. Even transport of molecules, such as water and urea that can diffuse across pure phospholipid bilayers, is frequently accelerated by transport proteins. All the transport proteins exhibit a high degree of specificity for the substance transported.

Transporters are typically expressed in all organs involved in the uptake, distribution, and elimination of drugs, including the gastrointestinal tract, the blood-brain barrier, the liver, and the kidneys. Interaction of drugs with transporters can alter their behavior in membrane transport, which may result in, for example, active uptake, efflux, and rapid elimination. In other words, the pharmacokinetics of a drug may be influenced by transporters. Apart from a metabolic component, drug-drug and drug-nutrient interactions may involve transporters. There is hope that in the near future the experimental 3D structures of the key transporters will be elucidated. However, while the basic knowledge of transporters is rapidly growing, their real clinical significance remains open to debate despite some convincing theories.

To study the functional properties of the different kinds of transport proteins, researchers need experimental systems in which a particular transport protein predominates. Creative BioMart provides a set of high purity recombinant transporter proteins, which are convenient research tools for transporter functional properties study.

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