

BIOLOGICAL MEMBRANES AND THEIR IMPORTANCE IN TRANSPORT PROCESSES

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***Abstract** Biological membranes cell main structural from parts one are , they are cell external environment with mutual connection provides . Membrane not only protection task will do , maybe substances exchange selectivity , energetic of processes face to give , signal molecules transmission and cell inside metabolic balance in management important importance profession This will in the article biological membranes structure , their main functions and especially transport processes – passive , active transport, osmosis , ion channels , pumps mechanisms and their molecular mechanisms wide Also , in the transport processes of violations in diseases place and modern biotechnological manuals also analyze will be done .*

***Key words :** Transport mechanisms : Passive transport, Carbohydrates and glycoprotein or glycolipid , Na^+/K^+ pump inhibitors .*

Introduction : Biological chemistry science cell life activity molecular at the level as a fundamental science to study separately importance profession The cell alive organisms the most small structural and functional unit as all vitality processes in itself embodied This of processes stability , consistency and external environment with mutual coordination , first of all , of the cell external and internal membranes through done increases . Biological membranes cell in the structure and functional in activity extreme important place holds . Membrane through

cell not only external from the environment protected , but his/her using cell internal environment constancy – homeostasis preserved It stands . With that together , membrane selective (conductive) and only known molecule and ions This feature because of cell external environment to changes adapt takes and own metabolic processes manages . Transport processes membrane the most important from functions one They are using water , ions , small molecules and even big biological molecules and cells inside enters or Transport mechanisms study biology , medicine , pharmaceuticals and biotechnology of sciences in development solution doer importance Because in transport processes disorders many diseases – for example , diabetes , neurodegenerative diseases , hypertension and other metabolic to disruptions take is coming . Therefore , this in the article biological membranes and their transport mechanisms theoretical and practical in terms of deep analysis will be done .

Home part :

Biological membranes structure Biological membranes mainly lipids , proteins and from carbohydrates organization found complicated structure Lipids main part – phospholipids are , they are two bilayer structure harvest This will do . structure to the membrane flexibility , elasticity and selective conductivity feature gives . Proteins and on the membrane various tasks performs : transport proteins , receptors , enzymes , structural elements . Carbohydrates and glycoprotein or glycolipid in the form of as the cell 's " passport " service does , that is intercellular recognizing to take in the processes participates . Biological membranes functions Protection – cell external harmful from the effects protection Transport – the movement of substances selective entrance and exit Signal transmission – external signals acceptance so , cell inside delivers . Energetic center – mitochondria and chloroplast membranes

ATP synthesis via done increases . Mechanical stability – to the cell form and strength Transport mechanisms : Passive transport This process energy without spending , concentration gradient according to done increases . Diffusion – small of molecules (O_2 , CO_2) . free to pass .

Osmosis – the movement of water concentration difference according to Transition . Facilitated diffusion – special carrier proteins using molecules from the membrane Active transport Energy (ATP) consumption on account of of substances concentration to the gradient against transition. Sodium-potassium pump (Na^+/K^+ -ATPase) – cell ionic balance within The proton pump is a protein found in mitochondria . oxidizing in phosphorylation participation Calcium pump – muscle contraction and in signal transmission important role plays . Ion channels Special protein structures is , ions fast the passage They provide **to voltage** bound to , ligand related and mechanoreceptor channels to be possible . Energy in exchange membranes role Mitochondria internal on the membrane located electronic carrier via chain (ETS) oxidizing phosphorylation done In this process, the proton gradient increases . harvest ATP synthase enzyme ATP synthesis using is done . Therefore membranes cell of energy main source is considered . Transport disruptions pathobiochemistry Some diseases membrane transport violation with related : Cystic fibrosis – chloride ion channels of activity violation . Diabetes – glucose carrier proteins of activity decrease . Neurodegenerative diseases – neuron of ion currents in membranes Hypertension – ion pump dysfunction defect with related to be possible . Modern research and practical manuals Membrane transport mechanisms study in pharmaceuticals new medicine tools in creation For example : Ion channels blocker drugs heart rhythm in normalization Na^+ / K^+ pump inhibitors – heart shortage in treatment

Transport proteins are used . based on medicine to deliver systems – nano-biology promising is the direction .

Conclusion Biological membranes cell main structural part is , their main function cell external from the environment separation , substance and energy exchange control , signal transmission and cell inside metabolic balance from storage consists of . Membrane through done increased transport processes alive organisms life for extreme important . Their molecular mechanisms study not only biology and medicine in science , maybe practical in the fields of pharmaceuticals , biotechnology , clinical diagnostics also large in directions importance profession will reach .

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