

Q1 What is the purpose of Na^+/K^+ pump?

Ans It accomplishes the transport of three Na^+ to the outside of the cell and the transport of two K^+ ions to the inside.

This unbalanced charge transfer contributes to the separation of charge across the membrane. The Na^+/K^+ pump is an important contributor to action potential produced by NERVE CELLS.

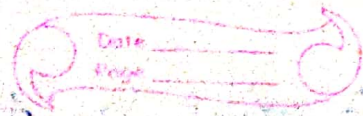
Q2 What human body system depends on the Na^+/K^+ Pump?

Ans. In the kidney the Na-K Pump help to maintain sodium and potassium balance in our body. It also play a key role in ~~the~~ ^{maintaining} blood pressure and controls cardiac contractions. Failure of the Na-K pump can result in the swelling of the cell.

Q3 Why did K^+ and Na^+ move?

Ans. The Na^+/K^+ pump illustrates "active transport". Since it moves Na^+ and K^+ against their concentration gradients. That is because there is already a high concentration of Na^+ outside the cell and a high conc of K^+ inside the cell.

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Q. Do all cells have Na^+/K^+ pump?

Ans. The Na^+/K^+ pump is found in the plasma membrane of almost every human cell and is common to all cellular life. It helps maintain cell potential and regulates cellular volume.

Q.5. Why is the Na^+/K^+ pump so necessary and so important?

Ans. Na^+/K^+ pump is integral in maintaining the acid-base balance as well as in healthy kidney function. Energy is derived from pumping Na^+ out side the cell, where it becomes concentrated, wanting to push its way back in. This energy is used to remove acid from the body.

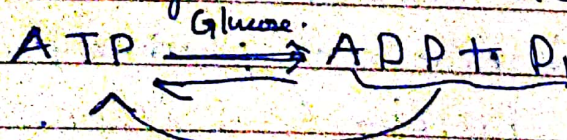
Q.6. What cells use the sodium potassium pump?

Ans. The Na^+/K^+ pump is an important contributor to action potential produced by nerve cells. This pump is called P-type ion pump because the ATP interactions phosphorylates the transport protein and causes a change in its conformation.

Q. What is ATP and ADP.

Ans. The ~~name~~ of ATP (Adenosine diphosphate), also known as Adenosine Pyrophosphate (APP), is an important organic compound in metabolism and is essential to the flow of energy in living cells. ATP is a nucleotide that consists of three main structure, the nitrogenous base, adenine, the sugar, ribose and a chain of three phosphate gr. bound to ribose. The phosphate tail of A.T.P is the actual power source.

ATP is converted to ADP after a simple reaction. This is done by a simple process, in which one of the 3 phosphate mol. is broken off, therefore reducing the ATP from 3 phosphates to 2, forming ADP (Adenosine Diphosphate after removing one of the phosphate (P_i)). This is commonly written as ADP + P_i.



While ATP constantly being used up by the body, the energy supply can be bolstered by new source of glucose being

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made available via eating food which is then broken down by the digestive system to smaller particles that can be utilized by the body. This helps ADP to build back into ATP.

Toxic heavy Metals and Detoxification

Arsenic, Aluminium

Hg, Cd and Pb are known to cause damage to living organisms, including human beings. Heavy metals such as Cu and Zn are essential for normal plant growth, although elevated concentrations of both essential and non essential metals can result in inhibition and toxicity.

Symptoms - Some metals are necessary to support life. However, in larger amounts, they become toxic.

Detoxification :- Heavy metal detox is the removal of metallic toxic substances from the body. In conventional medicine, detoxification can also be achieved artificially by techniques such as dialysis and chelation therapy. Many alternative medicine practitioners promote various other types of detoxification such as "diet detoxification".

① D.S.P. *Spirulina* (preferably from Hawaii)

This edible blue-green algae draws out heavy metals from our brains, central nervous system and liver and soaks up heavy metals extracted by barley grass juice extract powder.

② Cilantro → great for the ~~the~~ Mercury.

③ Wild blueberry → Draw heavy metals out of our brain tissues, healing and repairing any gaps created by oxidation when the heavy metals are removed.

④ Atlantic dulse — This edible seaweed binds to lead, cadmium and Nickel.

⑤ Barley grass juice extract powder: — Has ability to draw heavy metals out of our spleen, intestinal tract, Pancreas, Thyroid, and reproductive system.

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Role of Selenium in biolo.

Selenium is involved in maintaining normal liver function, protein synthesis and protect the body from toxic minerals such as Arsenic, cadmium, Hg and lead. It plays an important role in the creation of male reproductive capacity and maintain the health of eyes, hair and skin. Although it is toxic in large ~~to~~ doses, selenium is an essential microelement of thyroid glands. It is an antioxidant and protect cell from damage.

Evidence that selenium supplements may reduce the odds of prostate cancer. Selenium is an essential

component of various enzymes and proteins called selenoproteins, that help to make DNA and protect against cell damage and infection. These proteins are also involved in reproduction and metabolism of thyroid hormones. When ~~to~~ taken by mouth doses less than 400 mcg daily short term, possibly unsafe when taken high doses or for a long time.

What are the symptoms of Selenium deficiency?

- I. infertility in men and women
- II. muscle weakness
- III. fatigue
- IV. mental fog
- V. hair loss
- VI. weakened immune system

Main source — Pork, beef, turkey, chicken, Fish, shellfish and eggs contain high amount of Selenium. Some beans and nuts, especially Brazil nuts contain Selenium.

Q. What is TRS heavy metal detox?

Ans. Advanced TRS uses breakthrough nanotechnology to remove and clean toxic and heavy metals from the body.

All this is performed at the cellular level with its proprietary Clinoptilolite zeolite formula.