



An Overview of Hemoglobin and its Importance in the Body

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Description

Hemoglobin is a protein molecule found in red blood cells that is responsible for the transportation of oxygen from the lungs to the body's tissues and organs. It is an essential component of the circulatory system, as it enables the delivery of oxygen to all parts of the body. The structure of hemoglobin is composed of four subunits, each containing an iron atom. These iron atoms are responsible for binding to oxygen molecules, which are then carried to different tissues and organs throughout the body. Each subunit of hemoglobin contains a heme group, which is a complex organic molecule that binds to the iron atom and allows it to bind to oxygen.

The function of hemoglobin is critical to human survival. Oxygen is required by every cell in the body to produce energy, and without hemoglobin, oxygen cannot be delivered to these cells. Therefore, any disruption to hemoglobin's structure or function can have severe consequences for the body. One of the most common disorders associated with hemoglobin is sickle cell anemia. This is a genetic disorder that affects the shape of red blood cells, causing them to become rigid and assume a crescent shape. This abnormal shape of red

blood cells can result in a decreased ability of hemoglobin to carry oxygen, as well as a decreased ability of red blood cells to travel through small blood vessels. As a result, sickle cell anemia can cause severe pain, organ damage, and other health complications.

Another disorder related to hemoglobin is thalassemia, which is an inherited blood disorder characterized by abnormal hemoglobin production. This condition can result in a decreased amount of hemoglobin in the body, leading to anemia and other health problems. To diagnose disorders associated with hemoglobin, healthcare providers can perform a blood test to measure the levels and quality of hemoglobin in the body. This test is known as a hemoglobin electrophoresis test and it is used to detect abnormal hemoglobin types.

Treatment for hemoglobin disorders may vary depending on the specific condition and its severity. In some cases, patients may require regular blood transfusions or bone marrow transplants to manage their symptoms. In other cases, medications may be prescribed to alleviate pain or other symptoms associated with the condition. In addition to its role in oxygen transport, hemoglobin has also been found to play a role in the regulation of blood pressure. Recent studies have suggested that hemoglobin can release nitric oxide, which is focusing on human that helps to relax blood vessels and lower blood pressure. This finding has important implications for the treatment of hypertension, as it may lead to the development of new drugs that target hemoglobin and its nitric oxide releasing properties. Another area of research related to hemoglobin is its potential use as a therapeutic agent.

Hemoglobin has been anti-inflammatory properties and can scavenge free radicals, which are harmful molecules that can damage cells and tissues. These properties make hemoglobin a promising candidate for the treatment of various inflammatory conditions and oxidative stress-related diseases. Hemoglobin is produced through a complicated process. The heme component is produced in a number of stages in the mitochondria and cytosol of immature red blood cells, whereas the globin protein components are produced by ribosomes in the cytosol.

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