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Heme is a [molecule](#) composed of a porphyrin ring and an [iron atom](#) that is essential for various biological functions. It is a component of hemoglobin, the protein in red blood cells that is responsible for carrying oxygen from the lungs to the tissues of the body, and myoglobin, which is found in muscle tissue and helps to store and transport oxygen.

Heme is also a key component of several enzymes that are involved in cellular respiration and energy production. These enzymes include cytochromes, which play a role in the electron transport chain, and catalase and peroxidase, which are involved in the breakdown of hydrogen peroxide.

Heme is synthesized in the body through a complex process involving multiple enzymes and regulatory factors. It can also be obtained from the diet through the consumption of heme-containing foods, such as red meat and organ meats.

Excess heme can be toxic to the body and must be broken down and eliminated. The breakdown of heme is carried out by an enzyme called heme oxygenase, which converts heme to biliverdin, carbon monoxide, and iron. Biliverdin is then converted to bilirubin, which is excreted in bile and ultimately eliminated from the body.

Heme is an important molecule for human health and has numerous biological functions. Dysregulation of heme metabolism can lead to a variety of health problems, including anemia, liver disease, and oxidative stress.

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Last update: **2024/06/07 02:59**

