Histamine Encyclopedia Article

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Histamine

Histamine is a hormone that is chemically similar to the hormones serotonine, epinephrine, and norepinephrine. A hormone is generally defined as a chemical produced by a certain cell or tissue that causes a specific biological change or activity to occur in another cell or tissue located elsewhere in the body. Specifically, histamine plays a role in localized immune responses and in allergic reactions.

A select population of cells located in the brain manufactures histamine. After being made, the hormone is stored in a number of cells (e.g., mast cells, basophils, enterochromaffin cells).

Normally, there is a low level of histamine circulating in the body. However, the release of histamine can be triggered by an event such as a mosquito bite. Histamine causes the inconvenient redness, swelling and itching associated with the bite. For those with severe **allergies**, the sudden and more generalized release of histamine can be fatal (e.g., anaphylactic shock).

Mast cell histamine has an important role in the reaction of the **immune system** to the presence of a compound to which the body has developed an allergy. When released from mast cells in a reaction to a material to which the immune system is allergic, the hormone causes blood vessels to increase in diameter (e.g., vasodilation) and to become more permeable to the passage of fluid across the vessel wall. These effects are apparent as a runny nose, sneezing, and watery eyes. Other symptoms can include itching, burning and swelling in the skin, headaches, plugged sinuses, stomach cramps, and diarrhea. Histamine can also be released into the lungs, where it causes the air passages to become constricted rather than dilated. This response occurs in an attempt to keep the offending allergenic particles from being inhaled. Unfortunately, this also makes breathing difficult. An example of such an effect of histamine occurs in asthma.

Histamine has also been shown to function as a neurotransmitter (a chemical that facilitates the transmission of impulses from one neural cell to an adjacent neural cell).

In cases of an extreme allergic reaction, adrenaline is administered to eliminate histamine from the body. For minor allergic reactions, symptoms can sometimes be lessened by the use of antihistamines that block the binding of histamine to a receptor molecule.