

Histamine receptors

- ❖ Histamine receptors are proteins present in various parts of the body that bind with histamine to produce a specific outcome.

- ❖ There are four known receptors, designated H1 - H4.

H₁ Receptor

- ❖ This is one of the most important receptors for modulating your internal clock, and are target for many clinical drugs.

- ❖ When histamine reacts with these receptors in your brain it make you more awake and alert. This is why antihistamines cause drowsiness.

- ❖ In other areas of the body, stimulation of these receptors causes skin rashes, broncho-constriction, motion sickness, and smooth muscle relaxation (consequently vasodilation - the widening of blood vessels leading to redness of the skin).

Excess activation of these receptors triggers the symptoms of hay fever and other seasonal allergies.

H₂ Receptor

- ❖ These are found on parietal cells located in the stomach lining. Histamine action at these receptors stimulates the release of gastric acid, excess of which can result in gastroenteritis.
- ❖ These receptors are also found on heart, uterus and vascular smooth muscle cells. Histamine reacting with the receptor at these places encourages smooth muscle relaxation.
- ❖ This also found on neutrophils (one type of white blood cell). Histamine inhibits antibody and cytokine production by reacting with these receptors.

H₃ Receptor

- ❖ These are present throughout the nervous system, though most notably in the central nervous system.
- ❖ They regulate histamine in the body, by inhibiting the further synthesis of histamine.

H4 Receptor

- ❖ Discovered in 2001, these receptors regulate the levels of white blood cell release from bone marrow.
- ❖ They are located in the thymus, small intestine, spleen, the colon, bone marrow and basophils.

