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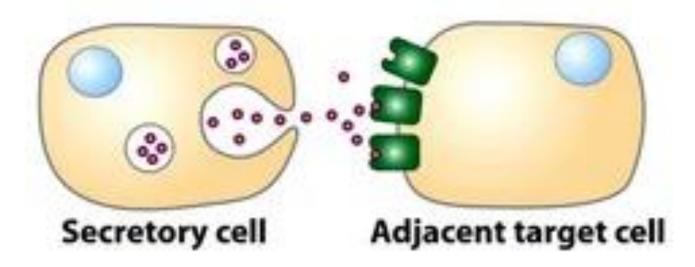
AUTACOIDS

Autacoids

- □ The word autacoids comes from the Greek "Autos" (self) and "Acos" (relief, i.e. drug).
- Autacoids are biological factors which act like local hormones, have a brief duration, act near the site of synthesis, and are not blood borne

AUTACOIDS

- Autacoids have diverse physiological and pharmacological activities.
- They usually have a brief lifetime and act near their sites of synthesis.



AUTACOIDS AND THEIR ANTAGONISTS HISTAMINE 5-HT OR SEROTONIN ANGIOTENSIN (H₁ H₂) (AT1, AT2) (5-HT₁₋₇) H₁ blockers Agonists **Blockers** Diphenhydramine Sumatriptan Losartan Chlorpheniramine Buspirone ACE inhibitors · Cetirizine, Loratadine Dexfenfluramine Captopril H2 blockers **Blockers** Enalapril Ranitidine Cyproheptadine Ramipril Famotidine Ketanserin Roxatidine Ondensetran **PROSTAGLANDINS** KININS (B₁ B₂) LEUKOTRIENES Antagonists Bradykinin Analogs Synthesis Moutelukast Misoprostol Kallidin inhibitors Zafirlukast · Dinoprostone · Aspirin · Antagonists are Lipoxygenase Carboprost being developed Indomethacin Inhibitors Zileuton Paracetamol

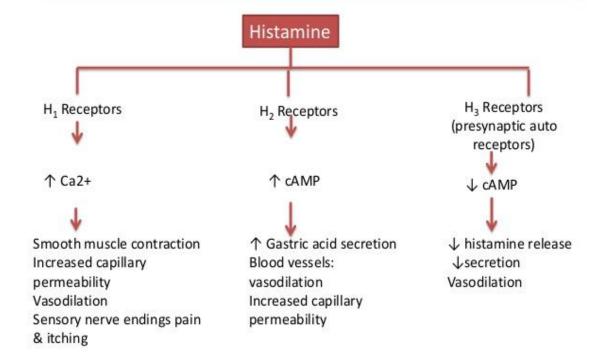
Histamine (mechanism of action)

- Histamine exerts its action by <u>combining</u> with specific cellular <u>serpentine receptors</u> located on the surface membrane (H₁-H₄);
- □ In the brain, H₁ and H₂ receptors are located on **postsynaptic** membranes, while H₃ receptors are predominantly **presynaptic**

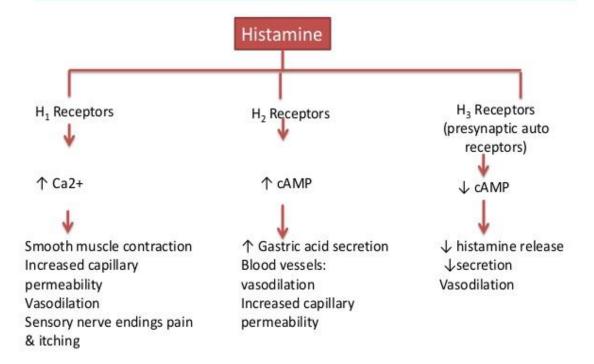
Tissue and organ <u>system effects</u> of <u>Histamine</u>

- Nervous system: powerful stimulant of sensory nerve endings, especially those mediating pain and itching
- <u>CVS</u>: decrease in systolic and diastolic BP (indirect vasodilation, NO) and an increase in HR
- 3. Bronchiolar smooth muscle: bronchoconstriction mediated by H1 receptors
- 4. GIT smooth muscle: contraction, may cause diarrhea
- Secretory tissue: powerful stimulant of gastric acid secretion
- 6. The "triple response":

Mechanism of Action of Histamine



Mechanism of Action of Histamine



Clinical Uses of Antihistamines

- Allergic rhinitis (common cold)
- Allergic conjunctivitis (pink eye)
- Allergic dermatological conditions
- Urticaria (hives)
- Angioedema (swelling of the skin)
- Puritus (atopic dermatitis, insect bites)
- Anaphylactic reactions (severe allergies)
- Nausea and vomiting (first generation H₁antihistamines)
- Sedation (first generation H₁-antihistamines)

Agonists on 5-HT receptors

5-HT_{1A}

Buspirone

5-HT_{1D}

Sumatriptan Rizatriptan Eletriptan Almotriptan Zolmitriptan 5-HT₄

Metoclopramide Domperidone

Antagonists on 5-HT receptors

5-HT_{2A}

Ergotamine Ketanserin Cyproheptadine Pizotifen 5-HT₃

Ondansetron Granisetron Tropisetron