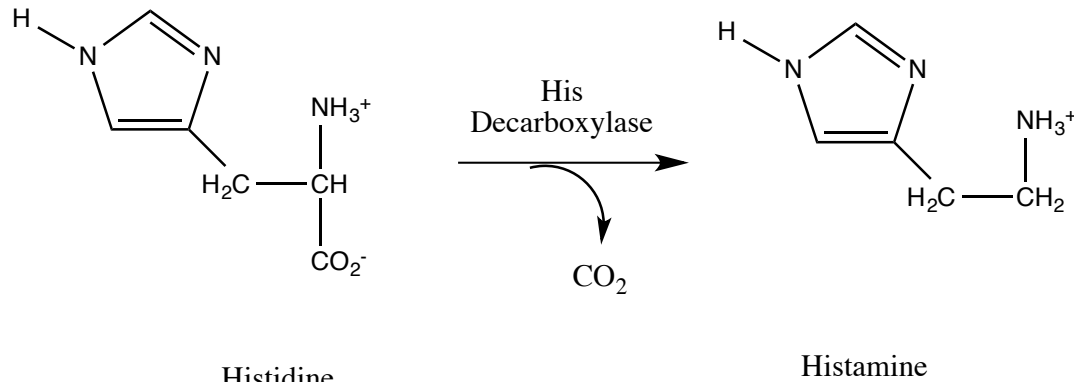


Histamine Receptors



- stored in secretory vessels
- made + used locally
- doesn't pass BBB easily

Almost
 All tissues make it
 Skin lungs GI
 most concentrated

- Allergic reactions
- GI tract (HCl release)

Histamine
- vasodilation

- increased
vascular permeability

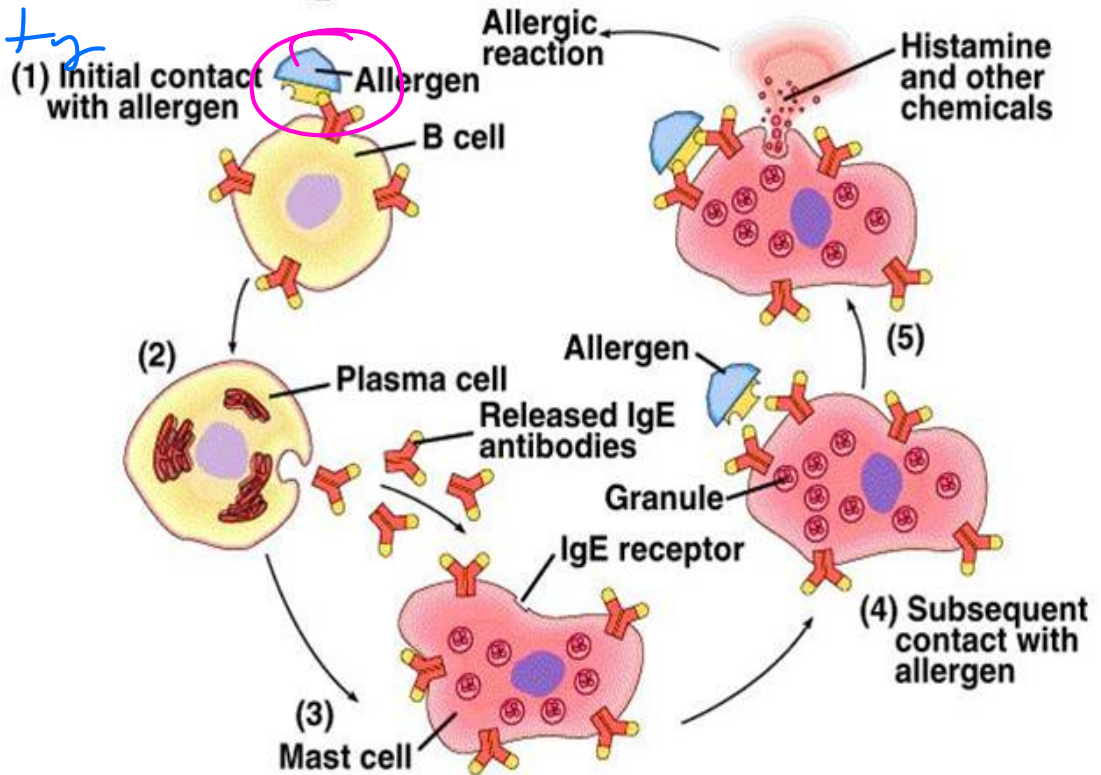
- Secretion of
other chemical
messengers

* in the stomach
causes secretion
of HCl from
parietal cells

* contraction of
smooth muscle
(bronchoconstriction)

Ricki Lewis, Life, 3e. Copyright © 1998 The McGraw-Hill Companies, Inc. All rights reserved.

An Allergic Reaction — Overview



H1 : smooth muscle, endothelial cells

involved in acute allergic reactions

Antagonists — loratadine, diphenhydramine

H2 : gastric cells, parietal cells

secretion of stomach acid

H-2 blockers Ranitidine
Cimetidine

H3 : CNS

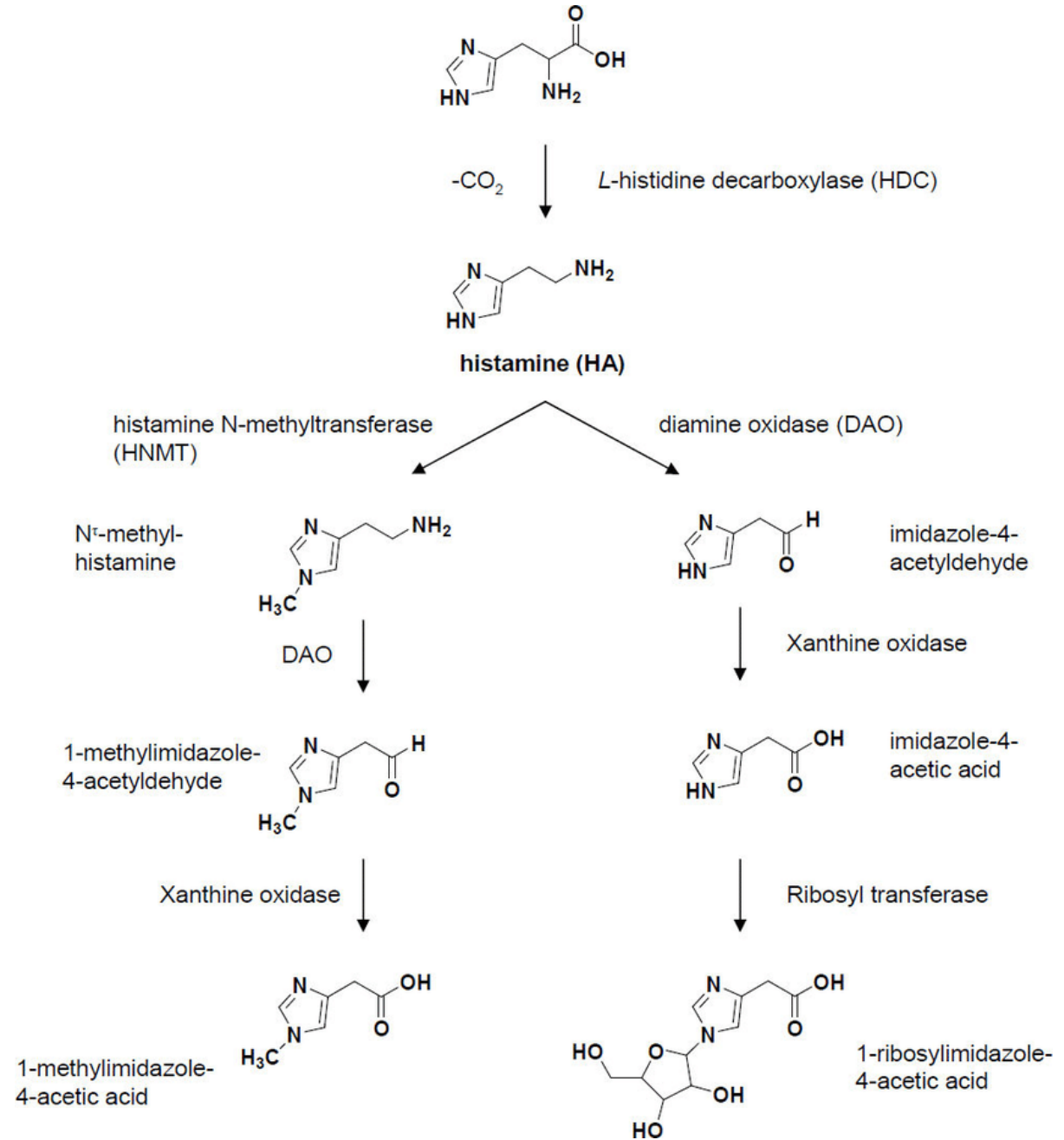
Sleepiness tricyclic stuff binds here

H4 : Immune Cells

regulate immune response

vasodilation

Histamine Deactivation



Scombroid Fish Poisoning

histamine poisoning

Spoiled fish

bacteria metabolize

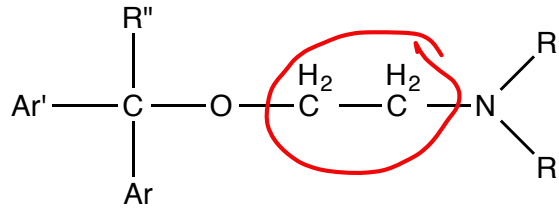
His → Histamine

headache, sweating, diarrhea, vomiting, flushing



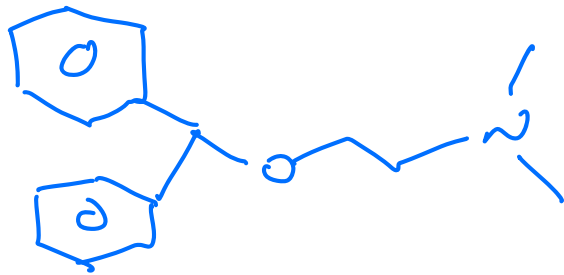
First Generation H1 Antagonists : aminoalkyl ethers (ethanolamines)

typically 2C's



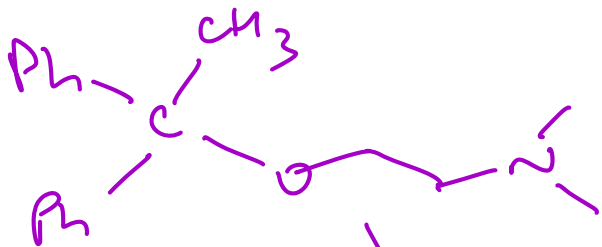
} usually dimethyl
pKa ~ 9

typically protonated at physiologic pH



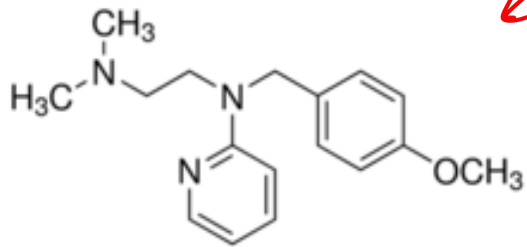
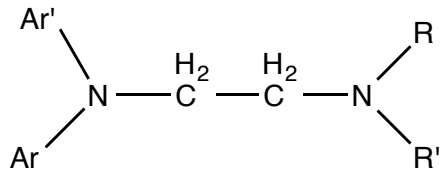
diphenhydramine

- antiemetic
 - antitussive
 - sedative
 - antidyskinetic
- ↙ motion sickness



doxylamine - Sleep aid

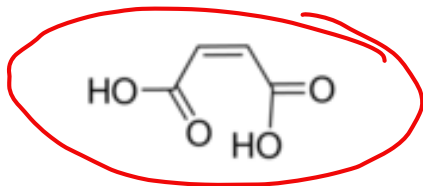
First Generation H1 Antagonists : ethylenediamines



↙ Pyrilamine
maleate

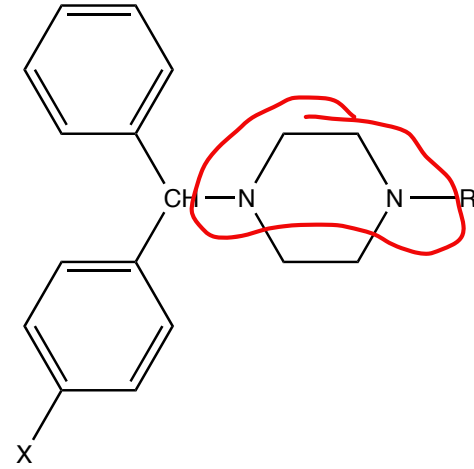
antihis for colds + flu

PMS

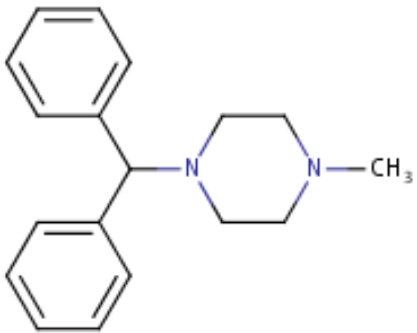


First Generation H1 Antagonists : piperazines

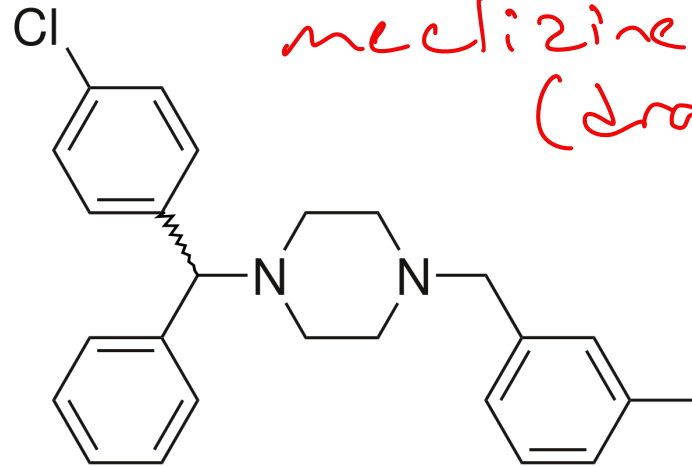
lower rate of
drowsiness
- antiemetic



cyclizine



meclizine
(dramamine)



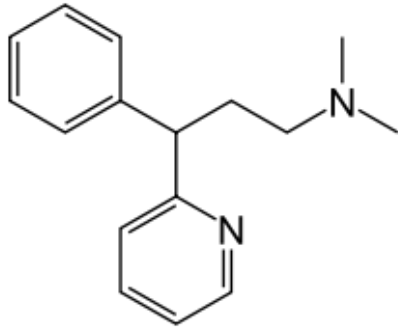
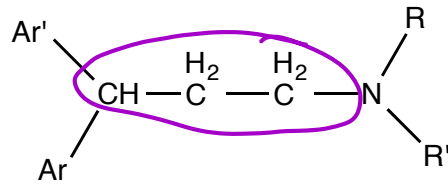
ceterizine



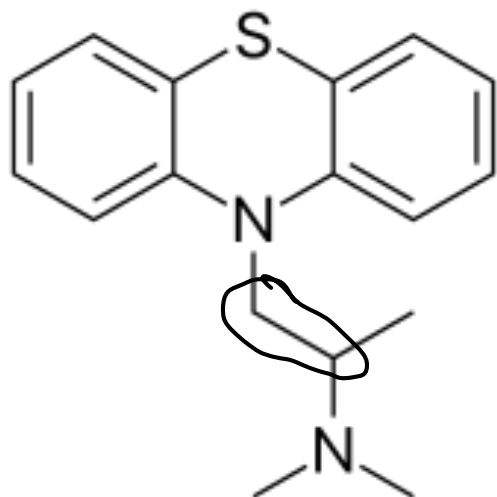
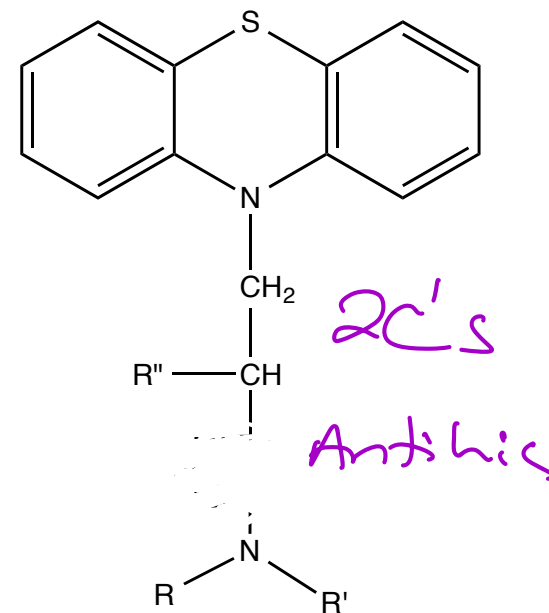
on (Zyrtec)

First Generation H1 Antagonists : propylamines

Zwitterionic
Polar doesn't
pass BBB well



First Generation H1 Antagonists : phenothiazines

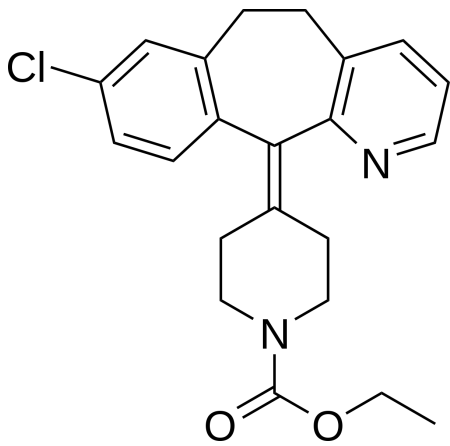
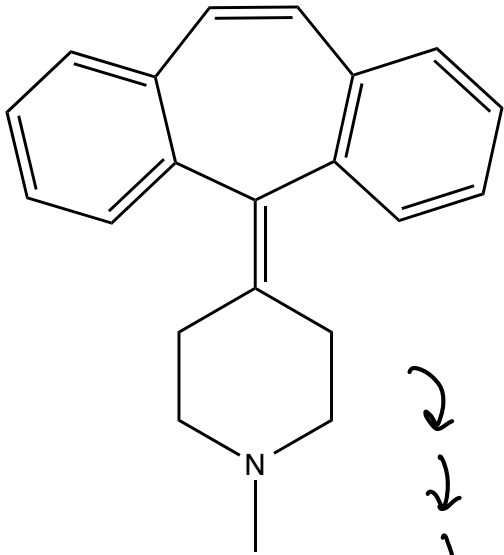


← Promethazine

antiemetic
Sedation

Dibenzocycloheptenes

annular
isosteric
substitution



loratadine

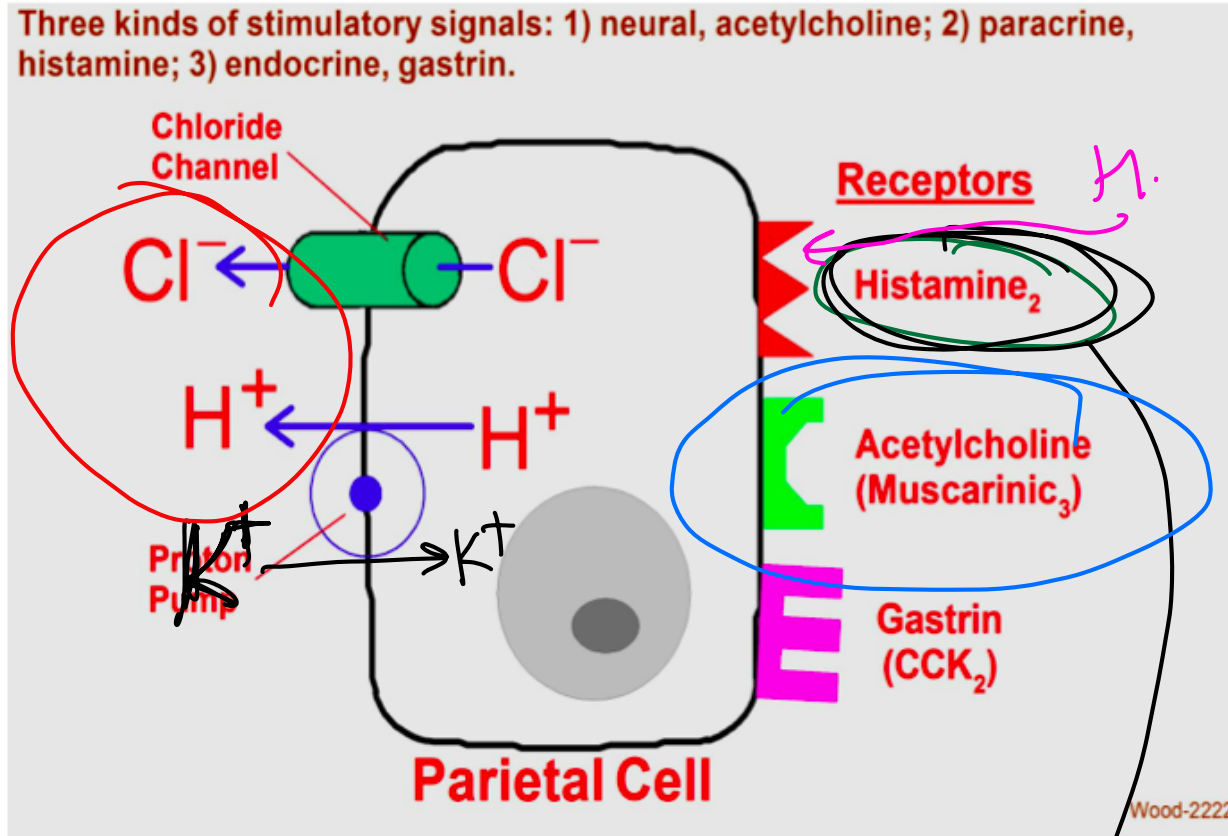
* often classified as
2nd gen antihis
more selective for
peripheral receptors

Second Generation H1 Antagonists

Seldane

Allegra

H_2 receptors responsible for HCl release

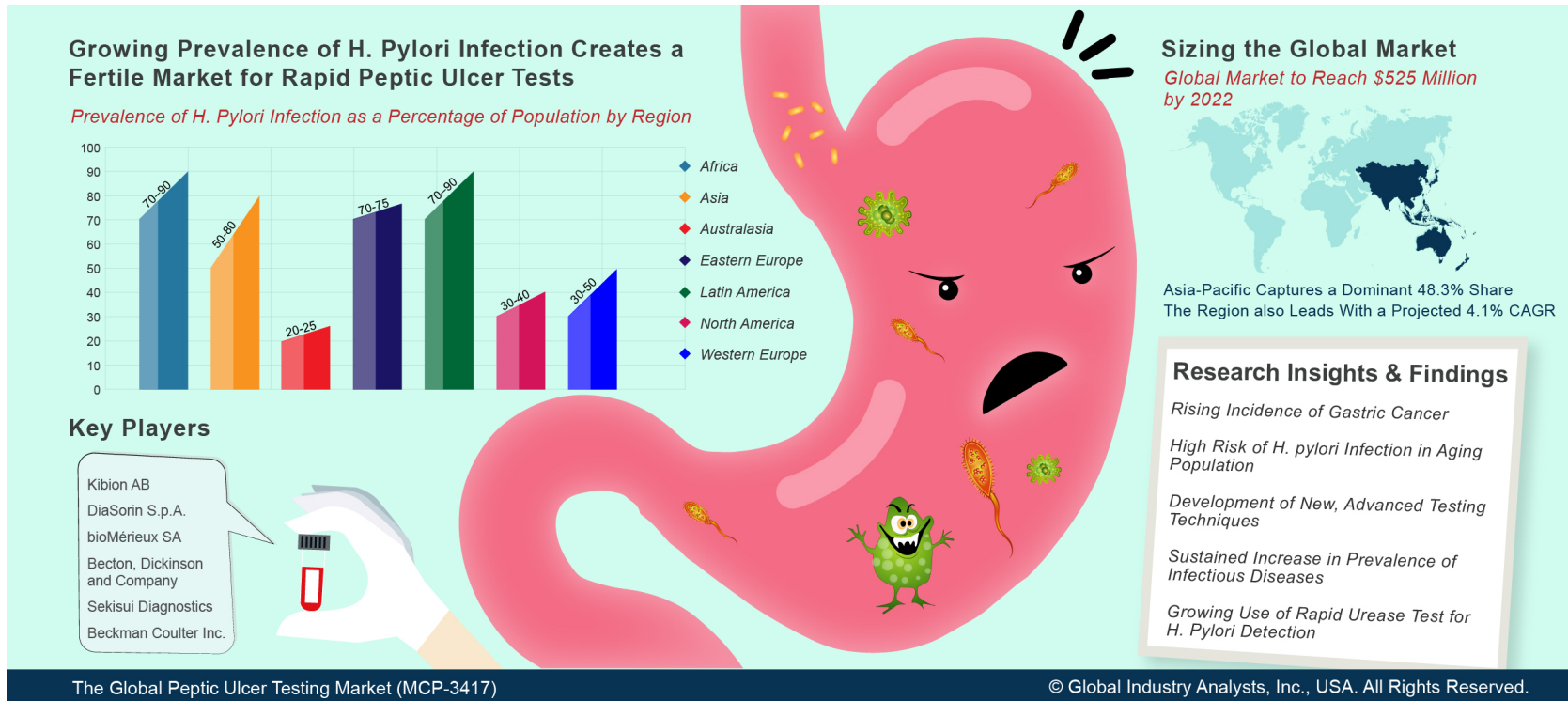


HCl

H increases
[cAMP]
to activate

H+ / K+ pump

Treating Ulcers



① lining of stomach gets attacked

decrease in mucosal lining

② bacteria colonize
helicobacter pylori:

can be caused by NSAIDs

Antacids neutralize the acid



Tums



Mylanta



Gaviscon

Antibiotics

Kill Helicobacter

Amoxicillin

Mucoprotectants

increase mucous lining

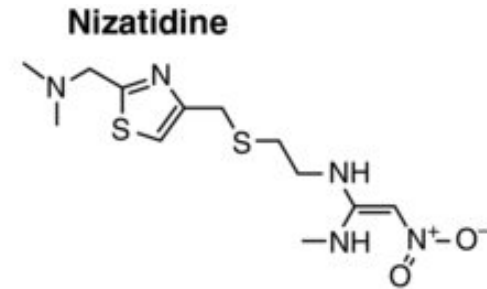
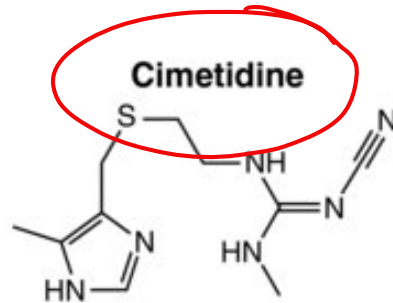
misoprostol

Anticholinergics

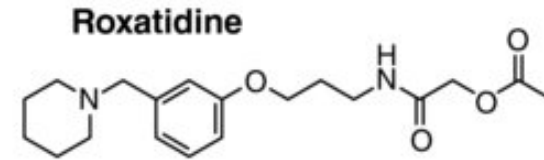
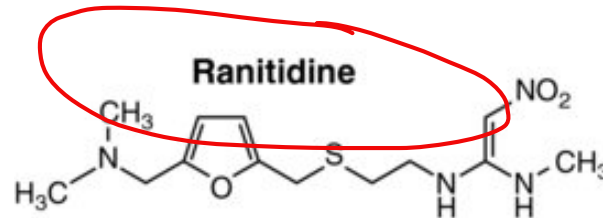
decrease acid production

H2 Antagonists — decrease acid secretion

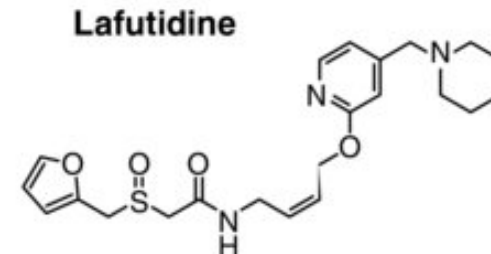
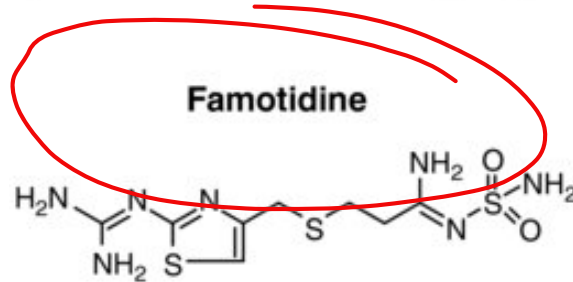
Tagamet



Zantac



Pepcid



Development of Cimetidine...

