Digestion & Absorption of Nucleic Acids

Overview

- Nucleotides are both:
  - Taken in diet
  - Synthesized in the body
- Dietary nucleotides:
  - Cannot be used in our body
- We are dependent exclusively on:
  - Endogenously synthesized nucleotides

Digestion of dietary Nucleic Acids

- In food, nucleotides are present mainly in form of:
  - Nucleoproteins
- The protein part is degraded by:
  - Proteolytic enzymes in the GIT
- The nucleic acids are hydrolyzed by:
  - Nucleases
- Nucleases are present in:
  - Pancreatic Juice
  - Intestinal Secretion

Pancreatic Secretions

- It includes:
  - Ribonucleases
  - Deoxyribonucleases
  - Breaks Phosphodiester Bond
- Ribonuclease:
  - Hydrolyze RNA to oligonucleotides
- Deoxy-Ribonuclease:
  - Hydrolyze DNA to oligonucleotides

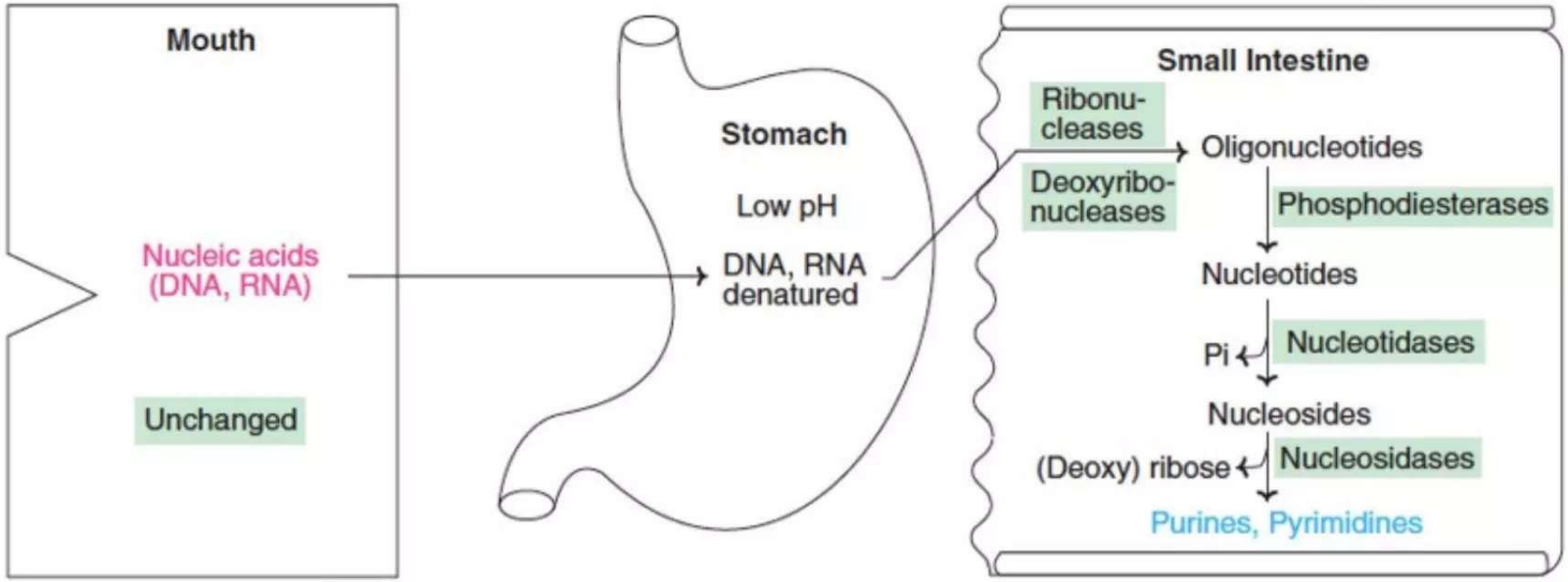
Intestinal Secretions

- It includes:
  - Phosphodiesterase
  - Nucleotidases
  - Nucleosidases
- Phosphodiesterase:
  - Degrades oligonucleotides to mononucleotides
- Nucleotidases:
  - Degrades Nucleotides to Nucleosides & Phosphates

Intestinal Secretions Cont.....

- The nucleosides may be either:
  - Directly absorbed
  - Or degraded to free bases and sugars by nucleosidases

Overview of Nucleic Acids Digestion



Digsetion & Absorption of Nucleic Acids

Absorption of Nucleosides

- Nucleosides are absorbed by mucosal cells of intestine through:
  - Carrier Mediated Transport or simple diffusion
- In intestinal mucosal cell:
  - They are broken down to their final end products
- The end products are released into:
  - Circulation
- They are excreted in:
  - Urine

References

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