

# Supplemental notes for Digestive System (stuff I explained in class today):

## Enzymes secreted in the Mouth:

Salivary glands secrete saliva, which contains amylase; an enzyme that digests sugars (carbs)

## Enzymes secreted in the Stomach:

Chief cells produce pepsinogen, a protein-digesting enzyme. Pepsinogen is an inactive form. The acidity in the stomach (from HCL) activates pepsinogen into its active form: pepsin

\*note there are other non-enzymatic secretions in the stomach also. Here I am highlighting the enzymes

## Enzymes of the small Intestine:

- Intestinal glands (glandular cells) secrete peptidase enzyme that digests proteins
- Intestinal glands secrete enzymes that further digest sugars like maltase, sucrase, lactase
- **\*\*the pancreas** secretes enzymes that are dropped into the small intestine for digestion. Those include:
  1. Trypsinogen, a protein digesting enzyme. It travels from pancreas to small intestine through pancreatic duct. Trypsinogen is its inactive form. In the intestine it becomes activated into trypsin
  2. Lipase, a lipid (fat) digesting enzyme. Travels from pancreas to intestine through pancreatic duct

Notes Regarding the pancreas (important points that I mentioned today):

- In addition to secreting digestive enzymes, pancreas also has an endocrine activity (i.e. hormone production). It produces two hormones insulin and glucagon. (refer to the lecture slides to see the difference between endocrine and exocrine gland)
- Insulin down regulates (decrease) blood sugar, glucagon up-regulates (increase) blood sugar
- When our blood glucose is high, Beta cells of pancreas release **insulin**. Insulin causes the liver and muscles to uptake glucose from the blood. The liver cells and muscle cells convert glucose to glycogen (liver and muscle are storage areas for glycogen). This causes the blood glucose levels to reduce.
- When our blood glucose is low, Alpha cells of pancreas release **glucagon**. Glucagon orders the liver and muscles to break down glycogen into glucose. Glucose is released into the blood to increase blood glucose levels back to normal.