

Secretin

Several hormones control GI secretion and motility of the GI tract:

- **Secretin**: was the first GI hormone discovered and is secreted by the “S” cells in the mucosa of the duodenum in response to **acidic** gastric juice emptying into the duodenum from the pylorus of the stomach. Secretin functions as a type of firefighter: secretin stimulates the pancreas to release a **flood of bicarbonate base**, which neutralizes the acid. **Secretin** has the following functions:
 - **Inhibits** stomach motility and gastric acid secretion
 - **Stimulates** the pancreatic duct cells to secrete a fluid that contains a lot of **bicarbonate ions** but is low in enzymes
 - **Stimulates** the secretion of **bile** from the gallbladder
- **Cholecystokinin** plays a key role in facilitating digestion within the small intestine. Cholecystokinin is secreted by the “I” cells in the mucosa of the duodenum and jejunum mainly in response to digestive products of fat, fatty acids, and monoglycerides in the intestinal contents. This hormone strongly contracts the gallbladder, expelling **bile** into the small intestine where the bile in turn plays important roles in emulsifying fatty substances, allowing them to be digested and absorbed. Cholecystokinin also **inhibits** stomach contraction moderately. Therefore, at the same time that this hormone causes emptying of the gallbladder, it also slows the emptying of food from the stomach to give adequate time for digestion of the fats in the upper intestinal tract.
- **Gastric inhibitory peptide (GIP)** is secreted by the **mucosa** of the upper small intestine, mainly in response to fatty acids and amino acids but to a lesser extent in response to carbohydrates. It has a mild effect in decreasing motor activity of the stomach and therefore slows emptying of gastric contents into the duodenum when the upper small intestine is already overloaded with food products.
- **Gastrin** is a major physiological regulator of gastric acid secretion. Gastrin also has an important trophic or growth-promoting influence on the gastric mucosa. Gastrin is secreted by “G” cells of the antrum of the stomach in response to stimuli associated with ingestion of a meal, such as distension of the stomach, the products of proteins, and **gastrin releasing peptide**, which is released by nerves of the gastric mucosa during vagal stimulation. The primary actions of gastrin are **(1)** stimulation of gastric acid secretion and **(2)** stimulation of growth of the gastric mucosa.