Primary Intestinal Tract
Endocrine Hormones

Gastrin:

Endocrine hormone, secreted by G-cells in antrum stomach mucosa
Stimulates secretion of gastric acids, lowers pH
Stimulates growth of gastric mucosa (cell-proliferative)
Exists in glycine-bound precursor in intercellular fluid (progastrin), the probable growth-stimulating factor
Stimulates pancreatic, gallbladder and small intestinal secretions
Diminished gastric acid, increased serum gastrin
Increased gastric acidity, decreased serum gastrin
Too much gastrin, stomach mucosa hyperplasia
enterochromaffin-like cells (ECL, found only in the acid-secreting stomach) proliferate in diminished acidity, dangerously so when inhibited by H2 blockers...even anticholinergics.
Infection with Helicobacter pylori causes hypergastrinemia, often causing gastric ulcer
Yeast metabolites (such as in beer or bread) stimulate gastrin
Normal gastrin response stimulates acquired immunity in gut
Diminished OR excessive levels impair normal resistance

Secretin:

Endocrine hormone, secreted by cells in upper small-intestinal mucosa
Stimulates stomach enzymes, water and alkali secretions from pancreas and liver: SUPPRESSES gastric acids
Complex meals stimulate the most; fluids and sugars the least

Somatostatin:

Paracrine/endocrine hormone (in the intestinal tract)
Made by D-cells in gastric mucosa
Suppresses gastric secretions; Gastrin rises, until suppressed by a combination of luminal acids and somatostatin
Infection with Helicobacter pylori causes somatostatin suppression, usually causing duodenal ulcer
Somatostatin also produced in small intestines and large intestines.
Somatostatin also produced in brain, and released by myenteric plexus cells
It inhibits motility and tone of stomach and small intestines and gall bladder, and inhibits formation of liver bile, but NOT bilirubin
It STIMULATES motility and tone of esophagus
It is elevated in blood and cerebrospinal fluids of obsessive-compulsives
It inhibits the release of ALL known GI hormones

It inhibits saliva, gastric, pacreatic, small intestinal and liver secretions
It inhibits splanchnic blood flow
It inhibits intestinal absorption
In the brain it inhibits somatotropin release by the hypothalamic/ pituitary axis.
It is also secreted into the bloodstream by the hypothalamus, where it acts on the primary target tissues in the gut.
Like epinephrine, it is made LOCALLY (paracrine), and secreted SYSTEMICALLY (endocrine)

Bombesin

A paracrine hormone in brain, it moderates blood flow (somehow)
It is an endocrine hormone, secreted from cells in the duodenum and jejunum.
It stimulates gastric ACID and pancreatic ENZYMES.
It stimulates contractions of the gall bladder and the biliary duct
It relaxes the common duct and sphincter of Oppy (see: Garfield)
It strongly stimulates acquired immunity and antibody response in biliary apparatus AND duodenum/jejunum
It helps trigger Cholecystokinin release
It is a vasoconstrictor to breast arteries (??)

Cholecystokinin (CCK)

An endocrine hormone secreted by cells in the mucosa of the duodenum the jejunum, also (natch) by the hypothalamus
Meals stimulate CCK secretions by BOTH the gut and CNS simultaneously
It stimulates gall bladder contractions and pancreatic enzymes
Release of CCK GENERALLY satiates the appetite for more food.
Coincidentally, it is also the LAST major gut hormone secreted in a food cycle
A secondary rise of CCK (following the initial release) inhibits stomach motility and emptying, but NOT peristaltic action.
CCK can slow colon transit (unpredictable)
CCK has nor effect on small intestinal transit.
CCK is secreted MORE with unsaturated dietary fats than with saturated fats, and least of all with butterfats.
Coffee (intact or decaffeinated) increases intestinal CCK secretions.
Secretion stimulated by phenylalanine
It is part of the "antianalgesia response" in the spinal chord, following endorphin or opiate activity.
It is directly involved in opiate tolerance
CCK-4 (CCK-tetrapeptide) is associated, and may induce, panic states

CCK-8 (CNS) stimulates and modifies appetite for food
CCK-8 is VERY low in those with anorexia and/or bulimia
Anorectic/bulimics produce less gut CCK (usually CCK-4)
CCK is also a gut immuno-stimulant, but less active than gastrin and Bombesin (the most active)