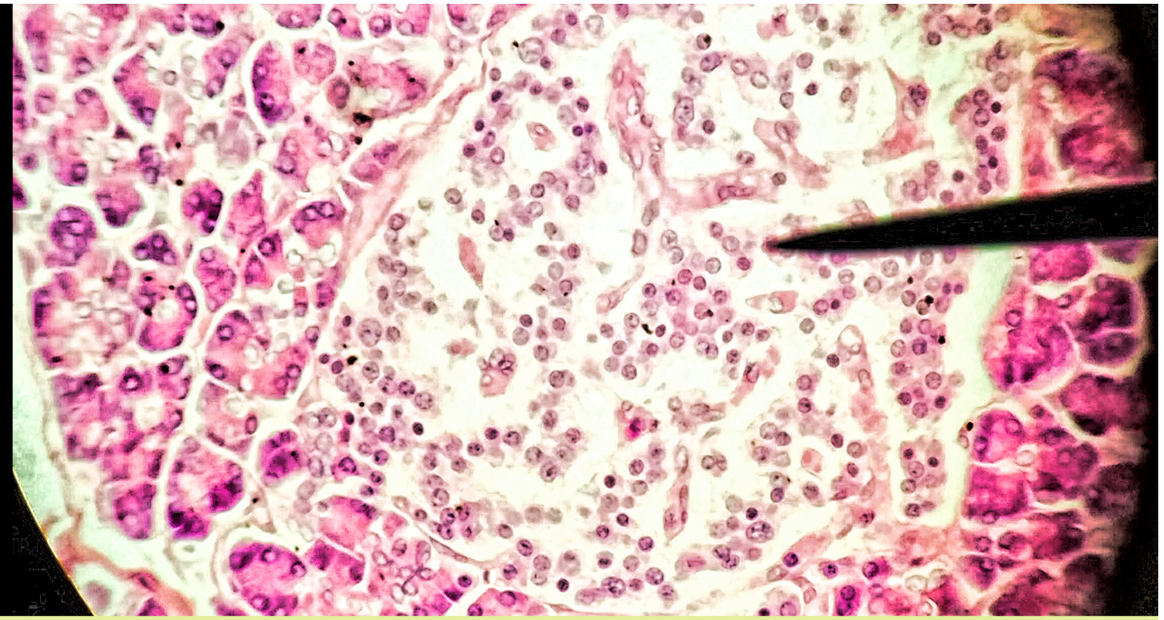
PANCREAS

Thyroid-Adrenal-Pancreas Axis



CELLS: Alpha-Cells, Islets of Langerhans	**CELLS:** Beta-Cells, Islets of Langerhans	**CELLS:** D-Cells, Islets of Langerhans	**CELLS:** F/D1-Cells/PP-Cells, Islets of Langerhans
SECRETION: Glucagon	**SECRETION:** Insulin	**SECRETION:** Somatostatin, SS-14.	**SECRETION:** Pancreatic polypeptide.
STIMULATED BY: Δ [blood glucose]. The concentration of blood glucose falls below normal range. Promoted by sympathetic nervous system.	**STIMULATED BY:** Δ [blood glucose]. The concentration of blood glucose rises above normal range. Promoted by parasympathetic nervous system. Indirectly by growth hormone and adrenocorticotropic hormone.	**STIMULATED BY:** Δ [blood glucose]. High blood glucose levels and amino acids. Food intake. Changes in other pancreatic hormone levels.	**STIMULATED BY:** Parasympathetic vagal cholinergic innervation. Food intake proportional to caloric consumption.
TARGETS: Primarily skeletal muscles and liver.	**TARGETS:** The plasma membranes of almost all cells except: neurons and red blood cells; epithelial cells of kidney tubules; epithelial cells of intestinal lining.	**TARGETS:** SS-14 form targets nervous system and pancreas.	**TARGETS:** Mainly digestive organs.
EFFECTS: • Skeletal muscles and liver break down glycogen into glucose. • Regulation of carbohydrate, protein, lipid metabolism. • Adipose tissues release fatty acids; proteins are broken down into amino acids. Catabolic.	**EFFECTS:** • Promotes glucose transport into cells and cell metabolism of glucose. • Promotes ATP synthesis. • Increase cellular energy reserves. • Increase protein synthesis rates. • Increase amino acid transport across plasma membrane. • Stimulate fat cells to increase triglyceride synthesis/ storage. • Promotes glycogen formation in liver/muscles. • Promotes growth, glycogen storage, increased fat reserves.	**EFFECTS:** • Inhibits secretion of other pancreatic hormones like glucagon and insulin. Paracrine. • Inhibits secretion of other hormones. • Suppress pancreatic exocrine secretions by inhibiting cholecystokinin-stimulated enzyme secretion and secretin-stimulated bicarbonate secretion. • Neurotransmission. • Neuromodulatory activity.	**EFFECTS:** • Anoretic peptide. • Promotes satiety. • Promotes gastric emptying. • Promotes gall bladder contraction. • Promotes pancreatic exocrine function. • Decreases corticotrophin-releasing factor. • Biomarker for ectopic fat deposition.