

Digestive glands

Digestive glands include Salivary glands, Gastric glands, Intestinal glands, Liver and Pancreas.

Salivary Glands

There are three pairs of salivary glands in man. These are Parotid glands, Sub maxillary glands and Sublingual glands. Parotid glands are present below and in front of ears. Parotid gland is the largest salivary gland and its duct is Stenson's duct. Sub maxillary glands are located at the angle of lower jaw. The duct of sub maxillary gland is Wharton's duct. Sublingual glands are located below the tongue and its duct is duct of Rivinus. Salivary glands secrete saliva, which contains enzymes Ptyalin (salivary amylase) and Lysozyme. Ptyalin hydrolyses cooked starch into maltose and limit dextrins. Lysozyme destroys bacteria present in the food.

Gastric Glands

Gastric glands are small tubular glands present on the inner lining of the stomach. Gastric glands contain four types of cells namely Chief cells, Parietal cells, Goblet cells and Argentaffin cells. Chief cells secrete Pepsinogen, Prorennin and Gastric lipase enzymes. Parietal cells or Oxyntic cells secrete HCL and Castle's intrinsic factor. Intrinsic factor helps in the absorption of Cobalamin or Vitamin B12. Goblet cells are mucous cells. Argentaffin cells are located between the chief cells and secrete gastrointestinal hormones like Gastrin, Secretin and CCK. Secretion of gastric glands is gastric juice, which is highly acidic (pH 2).

Intestinal Glands

Intestinal glands are located on the inner epithelium of intestine. These are very small glands occurs as Crypts of Lieberkuhn and Brunner's glands. Secretion of intestinal glands is called as Succus entericus. It is slightly alkaline and contains many enzymes and mineral salts.

Liver

Liver is the largest digestive gland. It is brownish and has four lobes. The right lobe is the largest one and is further divided into three lobes namely right lobe proper, quadrate lobe and caudate lobe. Liver is covered by two layers and the inner connective tissue layer is called Glisson's capsule. Liver has many vascular hepatic sinusoids. Kupffer cells present on the inner lining of the sinusoids are phagocytic and destroy germs and old RBC. Gall bladder is located on the inferior surface of right lobe. Its duct is called Cystic duct that carry stored bile. The main bile duct is surrounded by the Sphincter of Boyden. The digestive secretion of liver is bile, which contains no digestive enzymes. Bile is a greenish yellow alkaline fluid secreted by the hepatocytes of the liver. It contains bile salts (Sodium taurocholate and Sodium glycocholate) involved in the Emulsification (conversion of fat globules into fat droplets) of fat for the easy action of lipases. Bile also contains bile salts like Bilirubin (yellow) and biliverdin (green) cholesterol and water. Bile pigments are excretory products formed from the haemoglobin of old RBC. In addition to the digestive functions, liver is the site of metabolism and synthesis. Liver synthesise Heparin (anticoagulant) Vitamin A, Glycogen etc. It also produces RBC during embryonic life (Erythropoiesis). Conversion of ammonia to urea (Ornithine cycle) also takes place in liver. Cirrhosis refers to the condition in which the hepatic cells of the liver becomes non functional. Hepatitis is the inflammation of the liver due to infection.

Pancreas

Pancreas is a racemose gland located near the duodenum. It is a pale coloured Heterocrine gland (digestive and endocrine). The enzyme secreting cells of pancreas are Pancreatic acini and the hormone (insulin and glucagon) secreting cells are Islets of Langerhans. Secretion of pancreas is the pancreatic juice, which contains enzymes Trypsinogen, Chymotrypsinogen, Carboxypeptidase (proteases), Amylopsin, Nucleases and Steapsin (lipase). The main pancreatic duct is Duct of Wirsung and accessory duct is Duct of Santorini.