

Histology Lab # 8 Digestive System

Slides: #59 Esophagus
 #60 Stomach
 #61 Stomach-----DO NOT DRAW
 #62 Small Intestine
 #63 Small Intestine
 #64 Small Intestine
 #53 Large Intestine
 #67 Salivary
 #65 Salivary
 #68 Pancreas
 #69 or 70 Liver

Background:

The digestive system is composed of a tube that consists of four layers:

Mucosa

Is the innermost and contains a surface epithelium, loose connective tissue, glands, lymphatics, and smooth muscle cells. Three layers can be described: an innermost moist Epithelium, on top of a loose connective tissue, the Lamina Propria, many glandular structures are often present here, and a thin layer of smooth muscle, the Muscularis Mucosae.

Submucosa

Contains a dense connective tissue with blood vessels and lymphatics.

Muscularis Externa

Contains two layers of smooth muscle. The inner is circularly arranged; the outer is longitudinal.

Serosa

Consists of loose connective tissue

Esophagus:

Is bordered by a nonkeratinized stratified squamous epithelium whose muscularis externa layer contains Skeletal (upper 1/3), Skeletal and Smooth (middle 1/3), and Smooth muscle (lower 1/3). Some glands may be present.

Stomach:

Regions are defined by glandular composition: Cardiac, Corpus (body including the Fundus), and Pyloric regions

The Cardiac stomach is a narrow band around the esophageal junction
 Note the epithelial transition between esophagus and stomach, Rugae, cardiac glands

Corpus glands contain parietal (staining pink, most abundant in the upper region of the gastric pits, secrete HCl) and chief cells (staining bluish, most abundant deeper in the gastric pits, secrete pepsin)

Glands in the cardiac region tend to be shorter and coiled, glands in the corpus are longer and narrow, glands in the pyloric region have deeper gastric pits and abundant mucous-type cells

Small Intestine:

The small intestine is composed of three regions, the duodenum, the jejunum, and the ileum. Throughout most of its length transverse ridges, the plicae circulares, tall, finger-type projections of the mucosa form villi, tubular glands project into the lamina propria and may extend into the submucosa. The epithelium is simple columnar with microvilli at the surface and interspersed goblet cells.

Duodenum villi, glands of Lieberkuhn (or crypts of Lieberkuhn or intestinal glands), Brunner's glands (or duodenal glands)

Jejunum has the tallest villi, no Brunner's (duodenal) glands

Ileum contains aggregated lymphoid follicles (Peyer's patches) in the submucosa and sometimes the lamina propria

Large Intestine

Has a smooth surface, no villi, and numerous crypts of Lieberkuhn organized as straight tubular glands with many goblet cells

II. Digestive Glands

A. Salivary Glands: Three: parotid, submandibular (submaxillary), and sublingual.

Parotid gland: Is composed of serous secreting acini

Submandibular or submaxillary gland: Is a mixed gland, containing both mucous and serous cells, but the relative abundance of each type of cell can vary.

Sublingual is a mixed gland

Serous secreting cells tend to be pyramidal, cuboidal, or crescent shaped. Their basal cytoplasm stains the hematoxylin, while their apical cytoplasm stains with eosin with numerous zymogen granules in the cytoplasm.

Mucous secreting cells tend to not stain well with hematoxylin and eosin, mucus droplets may give the cytoplasm a foamy appearance and the nucleus may be displaced or flattened at the base of the cell.

B. Pancreas:

Is a mixed endocrine and exocrine gland that produces hormones (Islets of Langerhans) and digestive enzymes (Acinar structures)

C. Liver:

Lobules, hepatocytes, central vein

Hand in your drawings before leaving lab today

Recommendations for the drawings:

Label: Figure Number
Organ (Where appropriate)
Tissue
Cell Type
Total Magnification
Important Features