

Bio& 242, Human A&P 2:

Unit 1/ Lab 4

Liver and Pancreas

G. Blevins/ G. Brady
Spring 2006



Make sure you can identify the organs of the digestive system and their associated structures on charts, models, and pictures.

9. Liver:

Right lobe	Left lobe	Quadrante lobe
Caudate Lobe	Falciform ligament,	Diaphragm
Round ligament or Ligamentum teres		Lobules
Right Hepatic duct	Left Hepatic duct	Common Hepatic duct
Cystic duct	Common Bile duct	Portal Triad
Hepatopancreatic ampulla or Ampulla of Vater		Gallbladder
Coronary ligament	Hepatic vein	Hepatic Portal vein

Histology structures:

Lobules	Hepatocytes	Central vein
Sinusoids	Kupffer's cells	Bile Canaliculi

10. Pancreas:

Head	Body	Tail
Pancreatic duct or duct of Wirsung		Accessory duct or duct of Santorini

Histology structures:

Islets of Langerhans (Beta, Alpha, Delta, and F-cells, see text)
Acini

Histology:

Pancreas:

Slide: 76

Acini:

Most of the pancreas is made of blocks of acinar cells. These cells secrete bicarbonate solution and synthesis digestive enzymes that are released into the duodenum.

Islets of Langerhans:

These islands of cells within acini contain four difference endocrine cells. With the staining techniques use to make the slide you are viewing, you will not be able to identify the different cell types. You do need to know which cells are found in the islets and what hormones they produce.

1. Alpha Cells: Secrete Glucagon (increase blood sugar)

2. Beta Cells: Secrete Insulin (decrease blood sugar)
3. Delta Cells: Secrete Somatostatin (inhibit secretion of both glucagon and insulin)
4. F-Cells: Secrete Pancreatic Polypeptide (inhibit secretion of digestive enzymes)

Liver:

Slide: 56

Hepatic Lobule:

Lobule is the basic functional unit of the liver. In the small sample of hepatic tissue on your slide, you may be able to see one or more section of lobules.

Central Canal:

Look for single large round veins. These central canals collect the blood from the liver capillaries and eventually combine to form the hepatic veins that return blood to the inferior vena cava.

Sinusoids:

Are modified capillaries (modified because it's one of the few places in the body where blood from the hepatic artery and from the hepatic portal vein mix in the capillary bed). They appear on the slide as small open spaces between the linearly arranged hepatocytes.

Bile Canaliculus:

Smaller canals, appear like smaller open spaces between the linearly arranged hepatocytes. Bile canaliculi drain bile produced by the hepatocytes into bile ducts that eventually empty into hepatic ducts. You may not be able to distinguish between bile canaliculi and sinusoids using your light microscope.

Hepatic triads:

Will appear as three tubes cut in x-section. Each triad contains a bile duct, branch of the hepatic artery, and a branch of the hepatic portal vein. As a basic rule of thumb, vein have thin vessel walls, arteries have thicker vessel walls, both lined internally with simple squamous epithelium and bile ducts are lined with simple cuboidal epithelium. Ideally there should be six hepatic triads associated with each central canal. Sinusoids run between the triad and the central canal.