



438
HISTOLOGY TEAM
KING SAUD UNIVERSITY



BILIARY PASSAGES & PANCREAS

Objectives:

The student should be able to identify & describe the histological features of:

1. Intrahepatic biliary passages.
2. Extrahepatic bile ducts.
3. Gall bladder.
4. Exocrine pancreas.

- ▣ **Editing file**
- ▣ **Important**
- ▣ **Doctor notes / Extra**



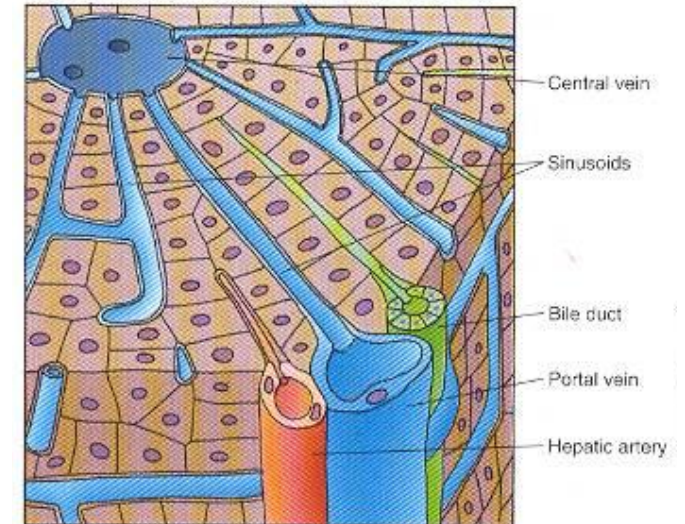
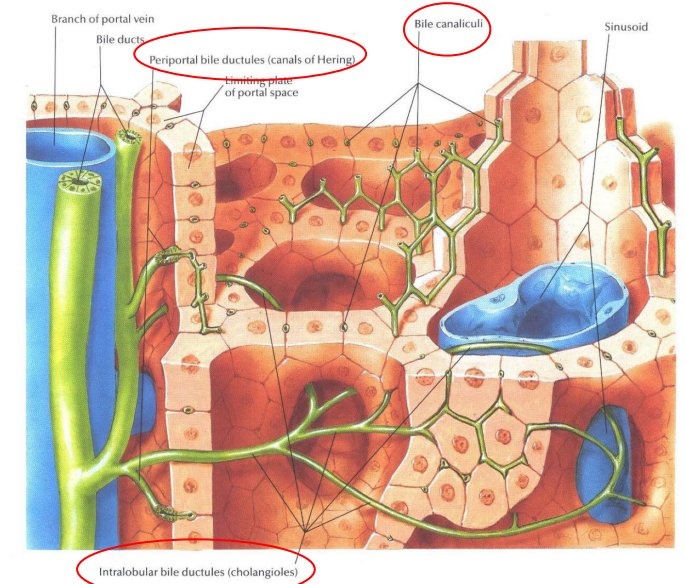
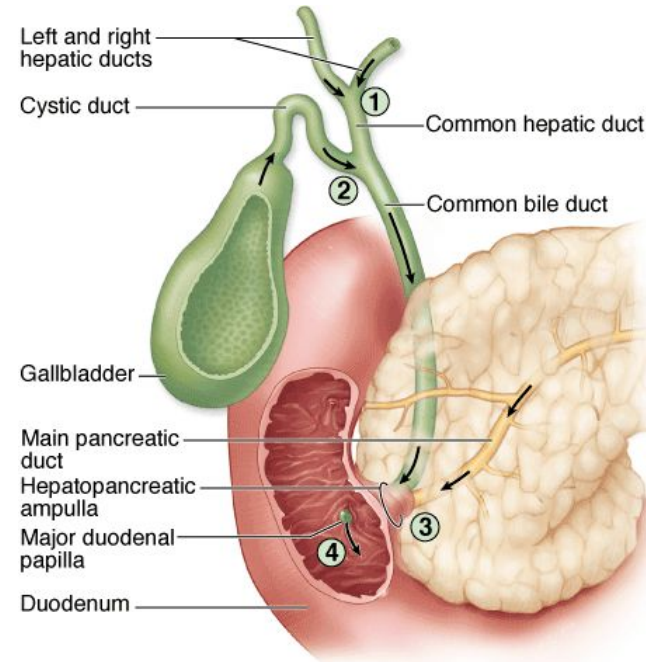
Biliary Passages

Intrahepatic passages:

- 1- Bile canaliculi.
- 2- Bile ductules (canals of Hering).
- 3- Interlobular bile ducts.

Extrahepatic passages:

- 4- Right & left Hepatic ducts.
- 5- Common hepatic duct.
- 6- Common bile duct.



Intrahepatic passages

Bile Canaliculi

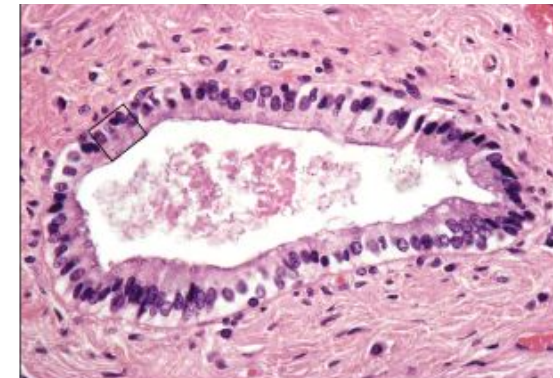
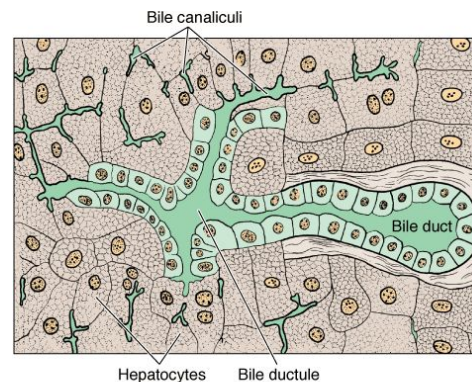
Bile Ductules (Canals of Hering)

Interlobular Bile Ducts

- Narrow channels located between hepatocytes, limited only (& formed) by the cell membranes of 2 hepatocytes.
- **They are the first portions of the bile duct system.**
- Microvilli project from the hepatocyte into the bile canaliculi, thus increasing the surface area.
- Tight junctions between the cell membranes of the 2 hepatocytes prevent leakage of bile.

- Near the peripheral portal areas, bile canaliculi empty into **bile ductules** composed of cuboidal epithelial cells called **cholangiocytes**.
- After a short distance, these ductules collect and end in the **interlobular bile ducts** in the portal areas

- Are in the portal areas.
- Lined by simple cuboidal epithelium (becomes simple columnar epithelium near the porta hepatis).
- Interlobular bile ducts merge to form larger ducts, which eventually unite to form the right and left hepatic ducts.



Extrahepatic passages:

Right & left Hepatic ducts.

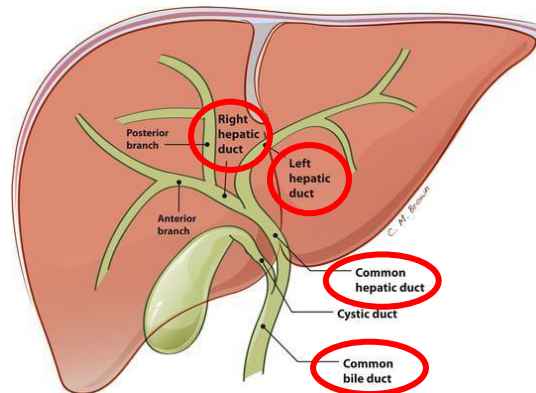
Common Hepatic Duct

Common bile duct.

Formed by union of the right & left hepatic ducts. It joins the cystic duct, arising from the gallbladder, forming the common bile duct.

Similar in structure to the wall of gallbladder and other extrahepatic bile ducts.

- **Mucosa:** (no muscularis mucosae & submucosa)
 - Epithelium: Simple columnar.
 - Lamina propria.
- **Muscularis:** bundles of smooth muscle fibers in all directions.
- **Adventitia.**



❑ Gallbladder

A saclike structure that stores, concentrates and releases bile

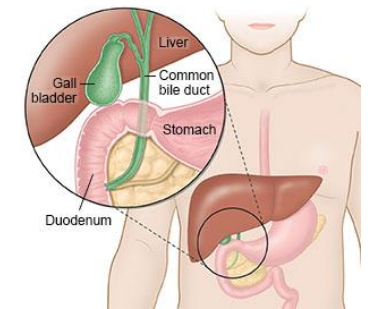
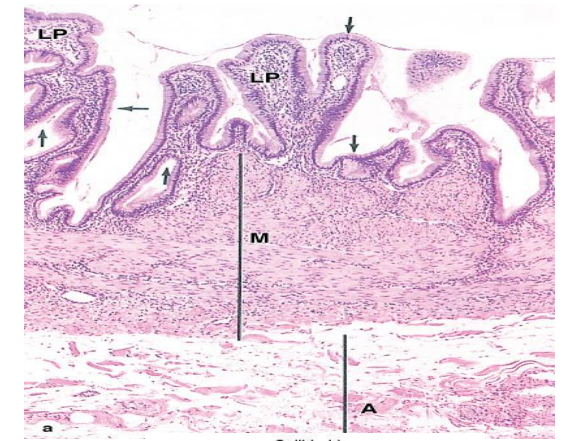
Its wall is formed of:

Mucosa: highly folded.

- Simple columnar epithelium.
- Lamina propria: **contains mucous glands in the neck of gallbladder.**

Muscularis: bundles of smooth muscle fibers oriented in all directions.

Serosa or adventitia.



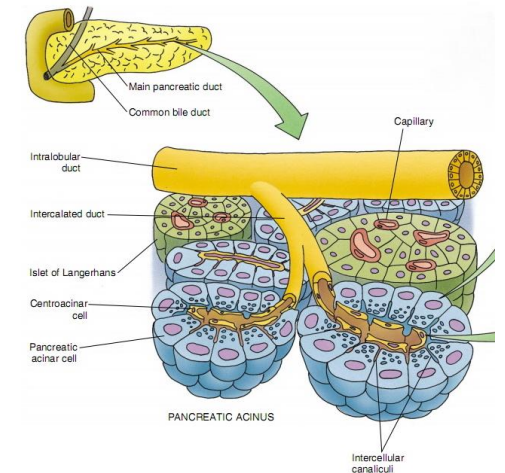
❑ Pancreas

Stroma: capsule, septa & reticular fibers.

Parenchyma: Pancreas is a **mixed** gland:

Exocrine part (acini & ducts): produces digestive pancreatic enzymes.

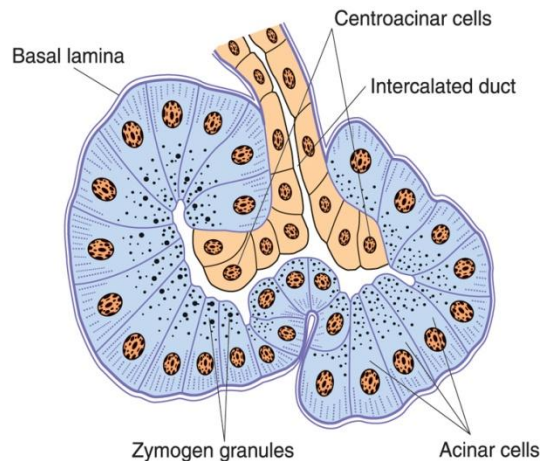
Endocrine part (islets of Langerhans): produces hormones.



Exocrine Pancreas

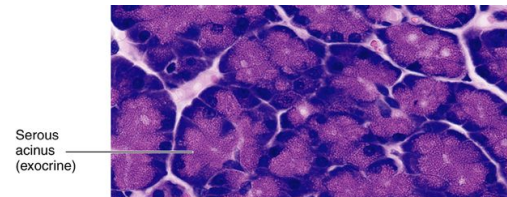
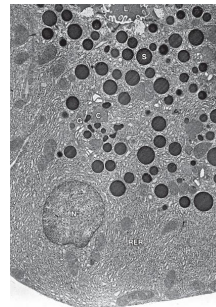
Pancreatic Acini

- **They are serous acini:** secreting a thin fluid rich in digestive pancreatic enzymes.
- Centroacinar cells: Their nuclei appear in the center of the acini. They represent the beginning of the ducts.
- **No myoepithelial cells around the acini.** (Stimulated by stomach hormones (hormonal Not neuronal))



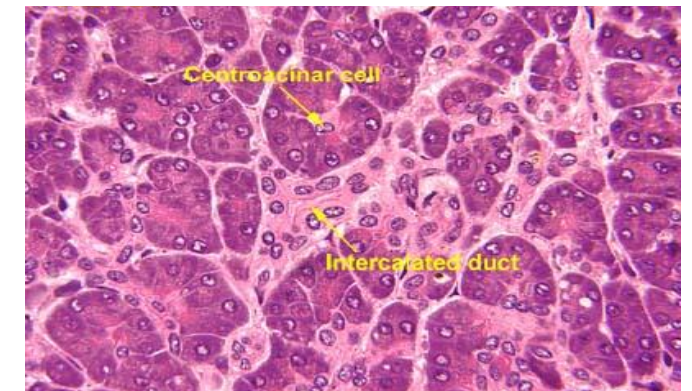
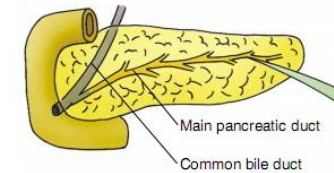
Pancreatic Acinar Cells

- Pyramidal in shape.
- Nuclei are basal.
- Cytoplasm:
- **Basal part basophilic** (due to abundant rER).
- **Apical part acidophilic** (due to secretory granules).



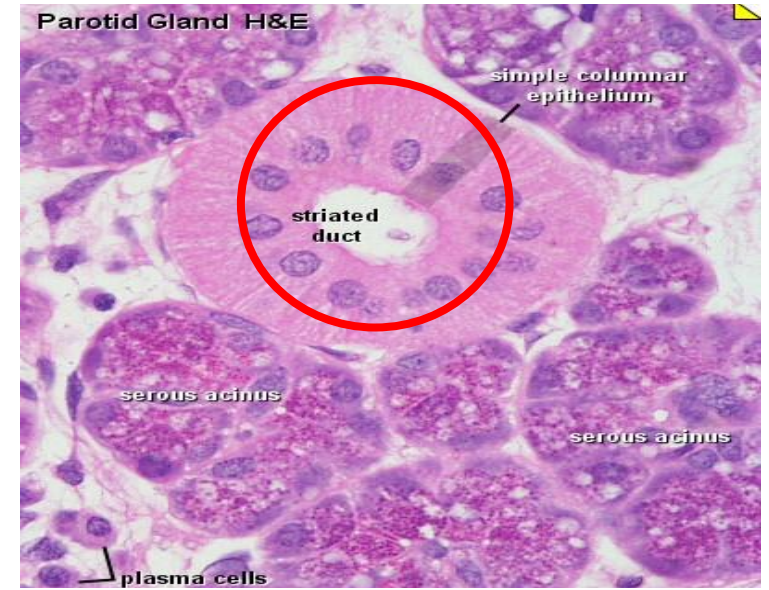
Duct System:

- Centroacinar cells.(flat cells)
- Intercalated ducts (low cuboidal).
- Intralobular ducts (**NOT prominent**).
- Interlobular ducts.
- Main pancreatic duct.



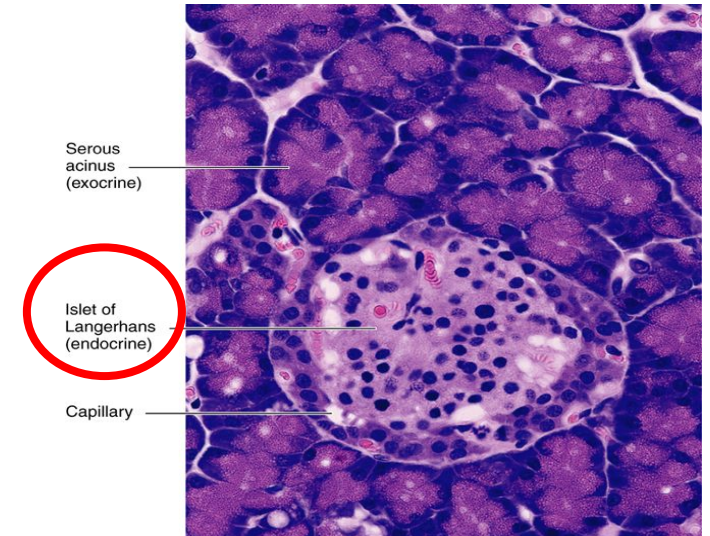
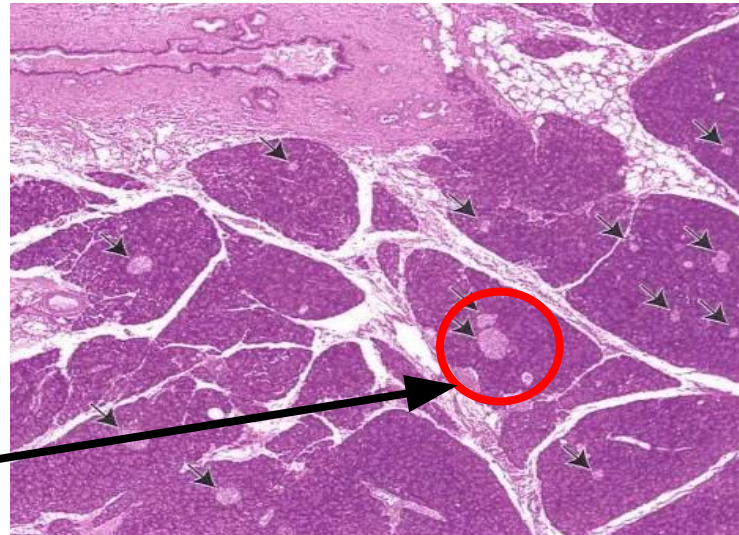
Parotid gland

intralobular duct = striated duct



Pancreas

islets of Langerhans



Under microscope we can differentiate Between parotid gland and pancreas by :
• prominent intralobular duct (in parotid gland) • islets of Langerhans (in pancreas only)

Quiz

1- What is the lining epithelium of the gallbladder?

- A. Simple columnar
- B. Simple cuboidal
- C. Simple squamous
- D. Transitional epithelium

2- Which one of the following is Formed by union of the right & left hepatic ducts:

- A. Interlobular bile ducts.
- B. Common bile duct.
- C. Common Hepatic Duct
- D. Right bile duct

3- Which of the following is true about Bile Ductules

- A. end in the intralobular bile ducts
- B. composed of columnar epithelial
- C. empty into bile canaliculi.
- D. end in the interlobular bile ducts

4- Which one of the following is lined by simple columnar epithelium.

- A. Bile Ductules
- B. Common bile duct.
- C. Interlobular Bile Ducts
- D. A & B

5- Which cells are not found in the pancreatic acini?

- A. Centroacinar cells
- B. Serous cells
- C. Myoepithelial cells

6- the Basal part of Pancreatic Acinar Cells is basophilic due to

- A. due to abundant rER
- B. due to abundant sER
- C. due to secretory granules
- D. due to myoepithelial cells



Team Leaders

- ☐ Abdullah shadid
- ☐ Sarah aflaij

Good luck