



# DIGESTIVE SYSTEM 3

- Big salivary glands
  - parotid gland
  - submandibular gl.
  - sublingual gl.
  
- Liver
- Gallbladder
- Pancreas

# Salivary glands - schema

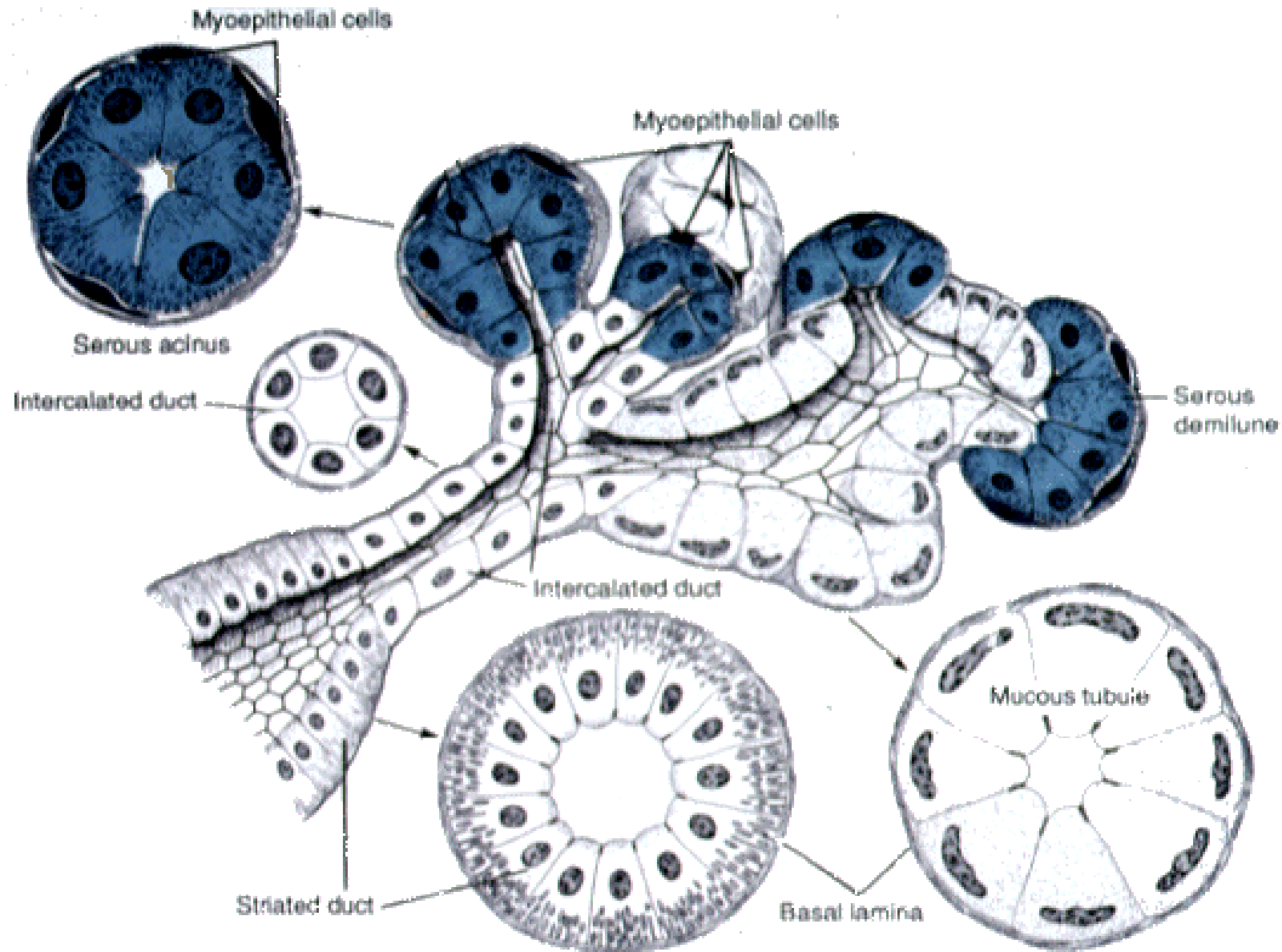
## Glandular parenchyma

### secretory portion

serous acini  
mucous tubules  
mixed /serous demilunes  
of Gianuzzi/  
+ myoepithelial cells

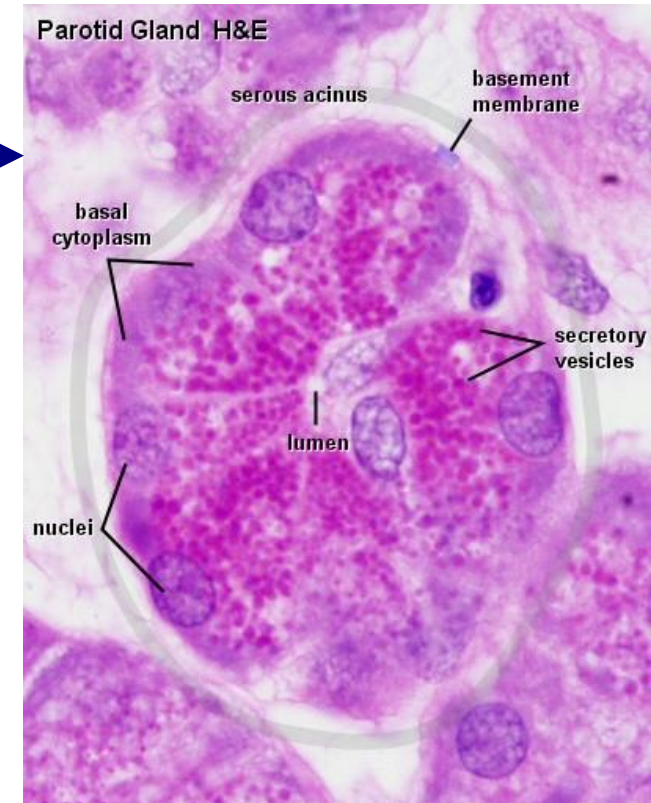
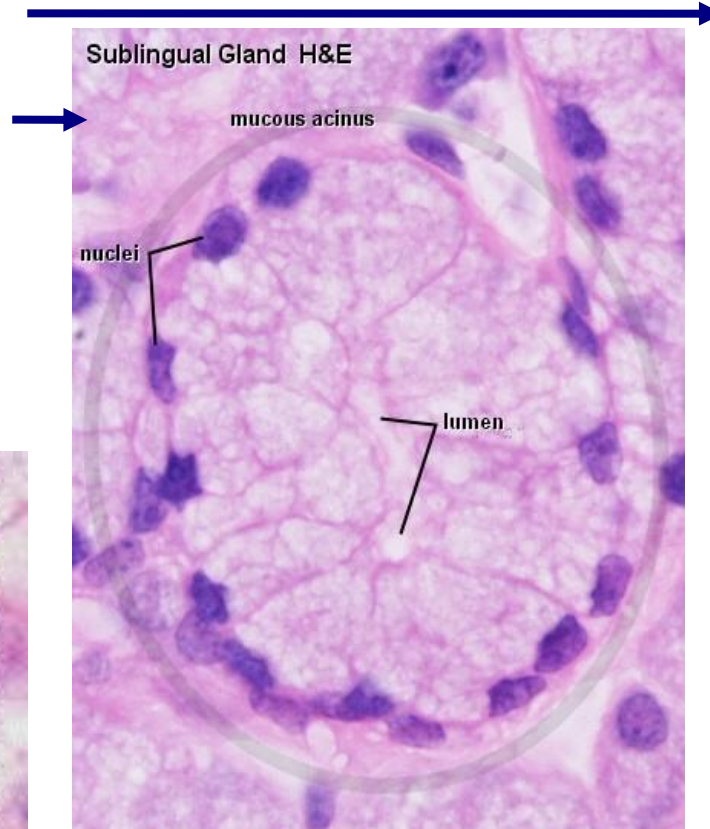
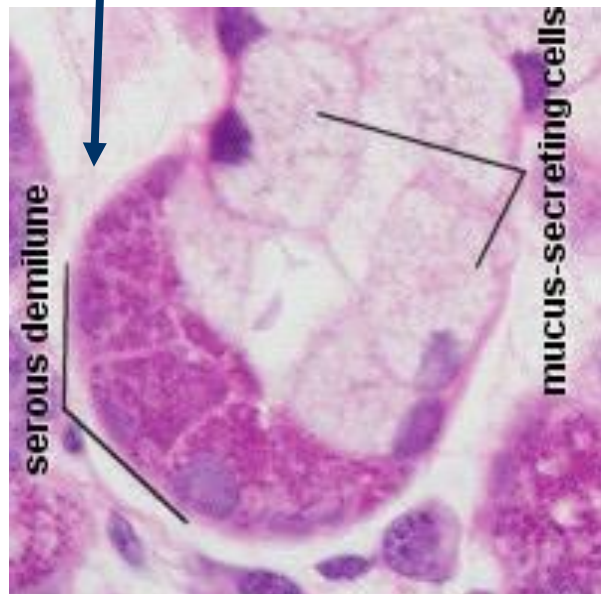
### duct system

intercalated ducts  
intralobular /striated/  
ducts  
interlobular and  
interlobar ducts  
main excretory duct



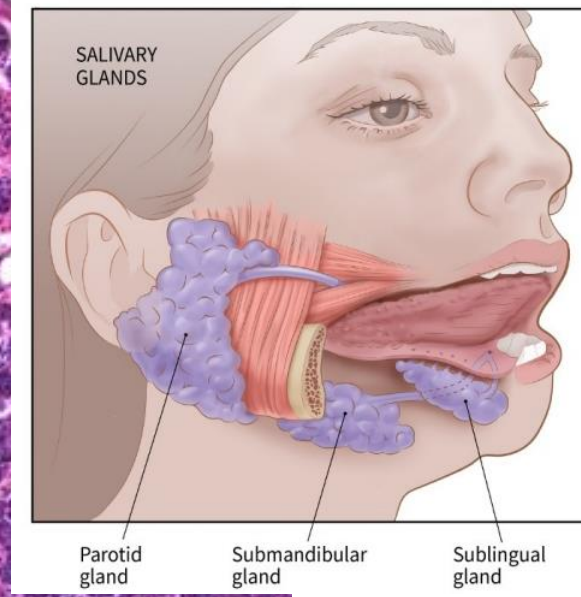
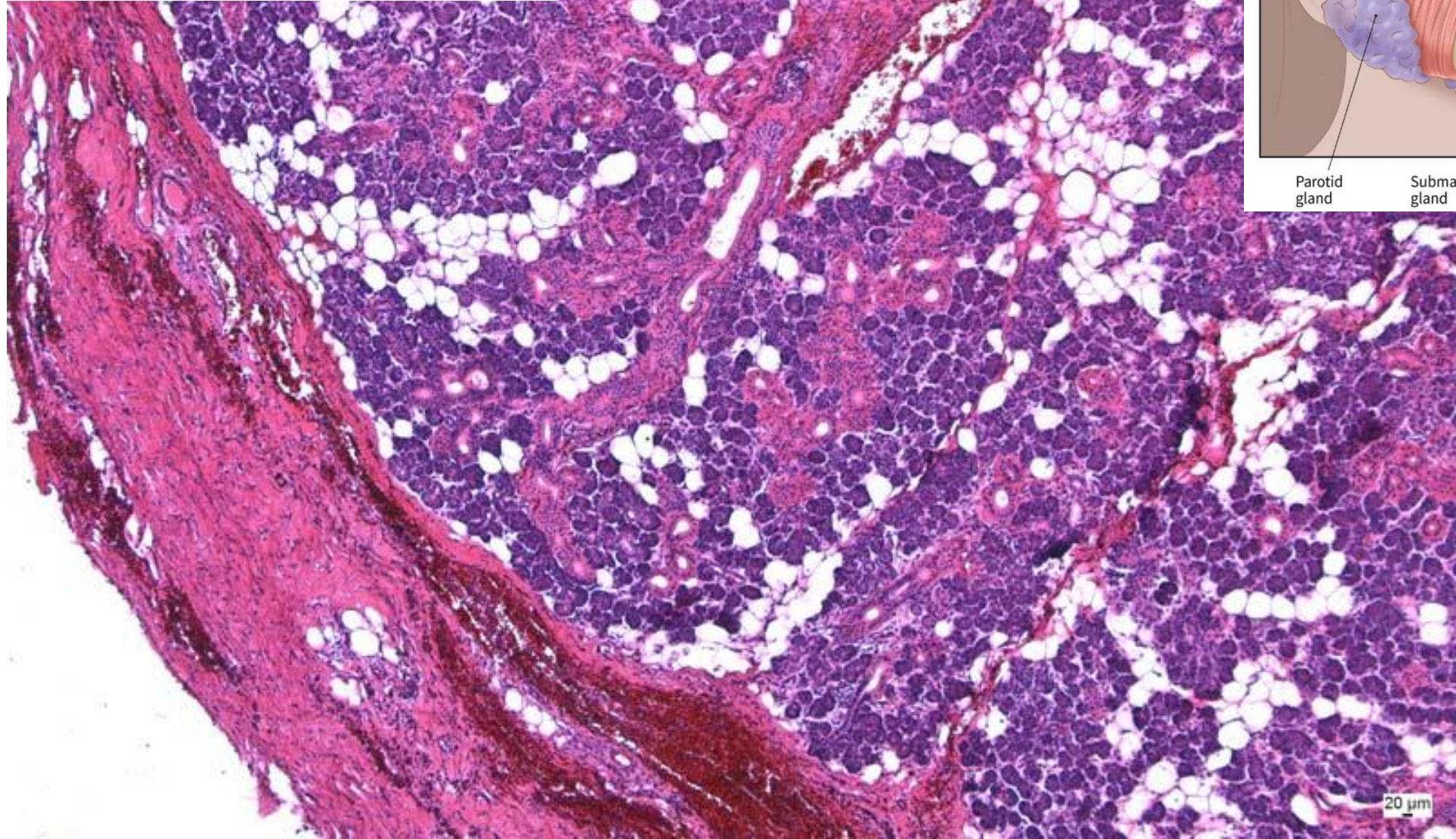
# Secretory portion of salivary glands

- serous acini
- mucous tubules
- mixed (serous demilunes of Gianuzzi)



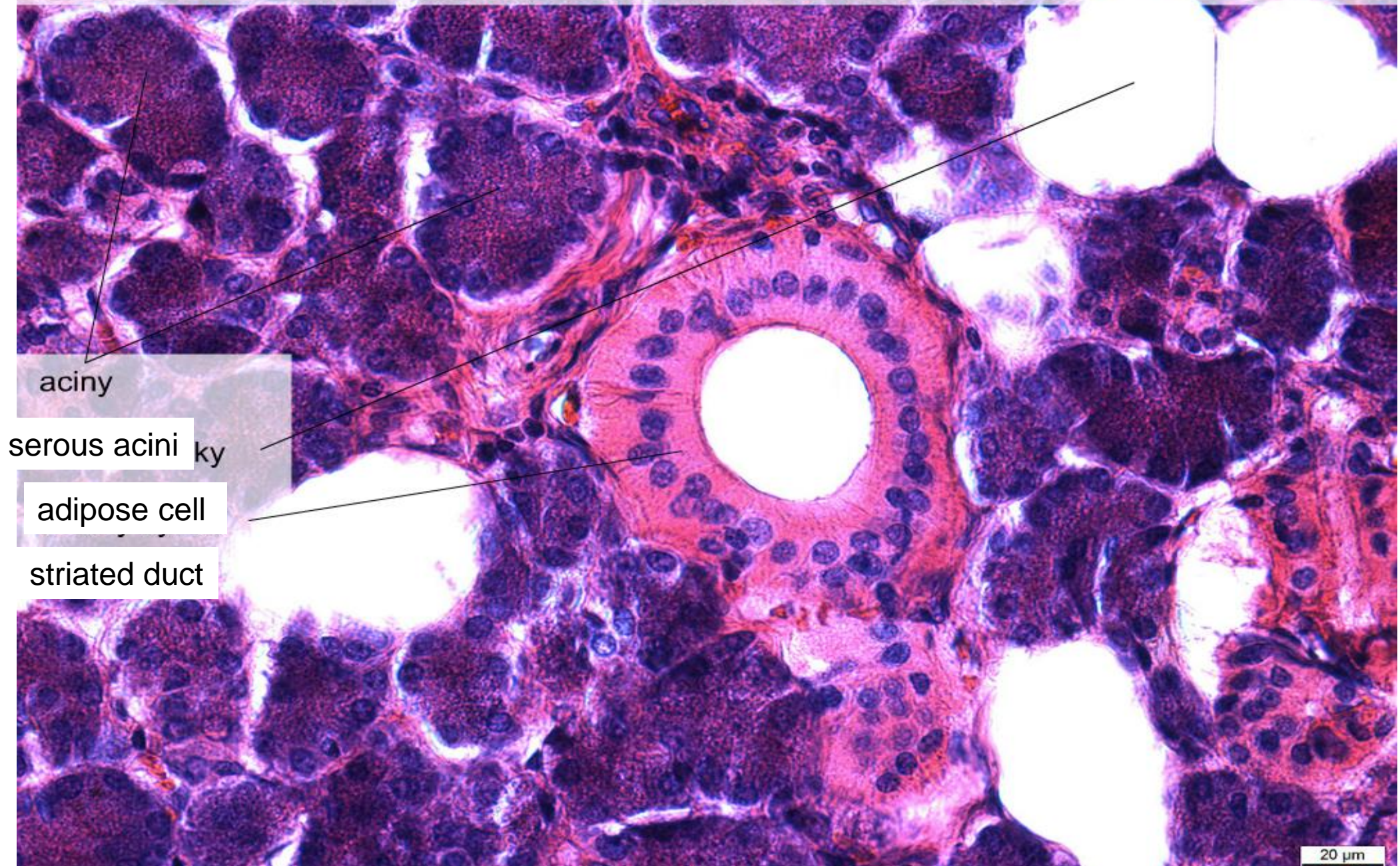
# Parotid gland

Compound acinar serous gl.  
ducts – intercalated, striated, interlobular,  
excretory ducts  
Adipose tissue



20  $\mu$ m

Gl. parotis – detail, (HE), objektiv 40×



aciny

serous acini

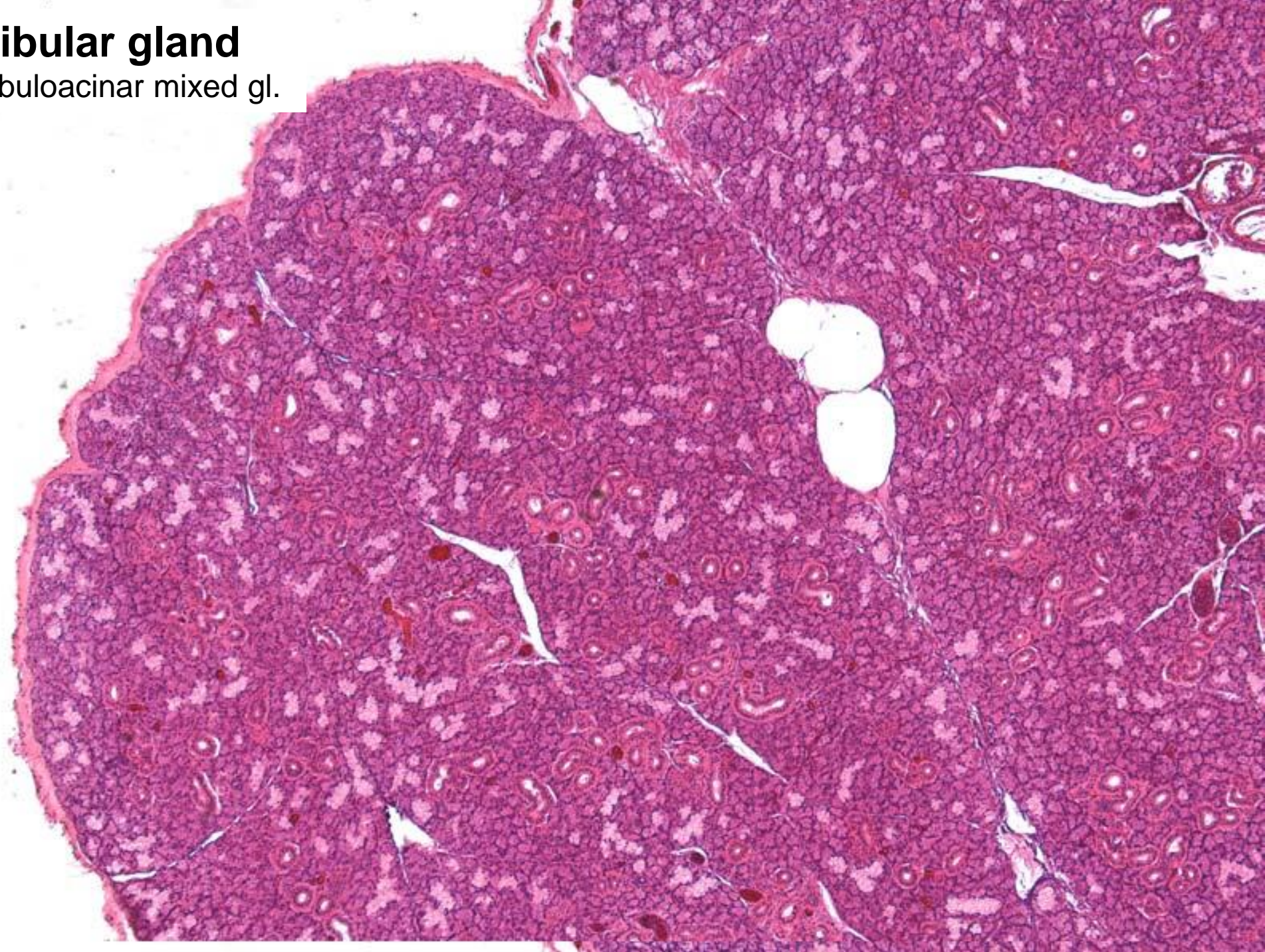
adipose cell

striated duct

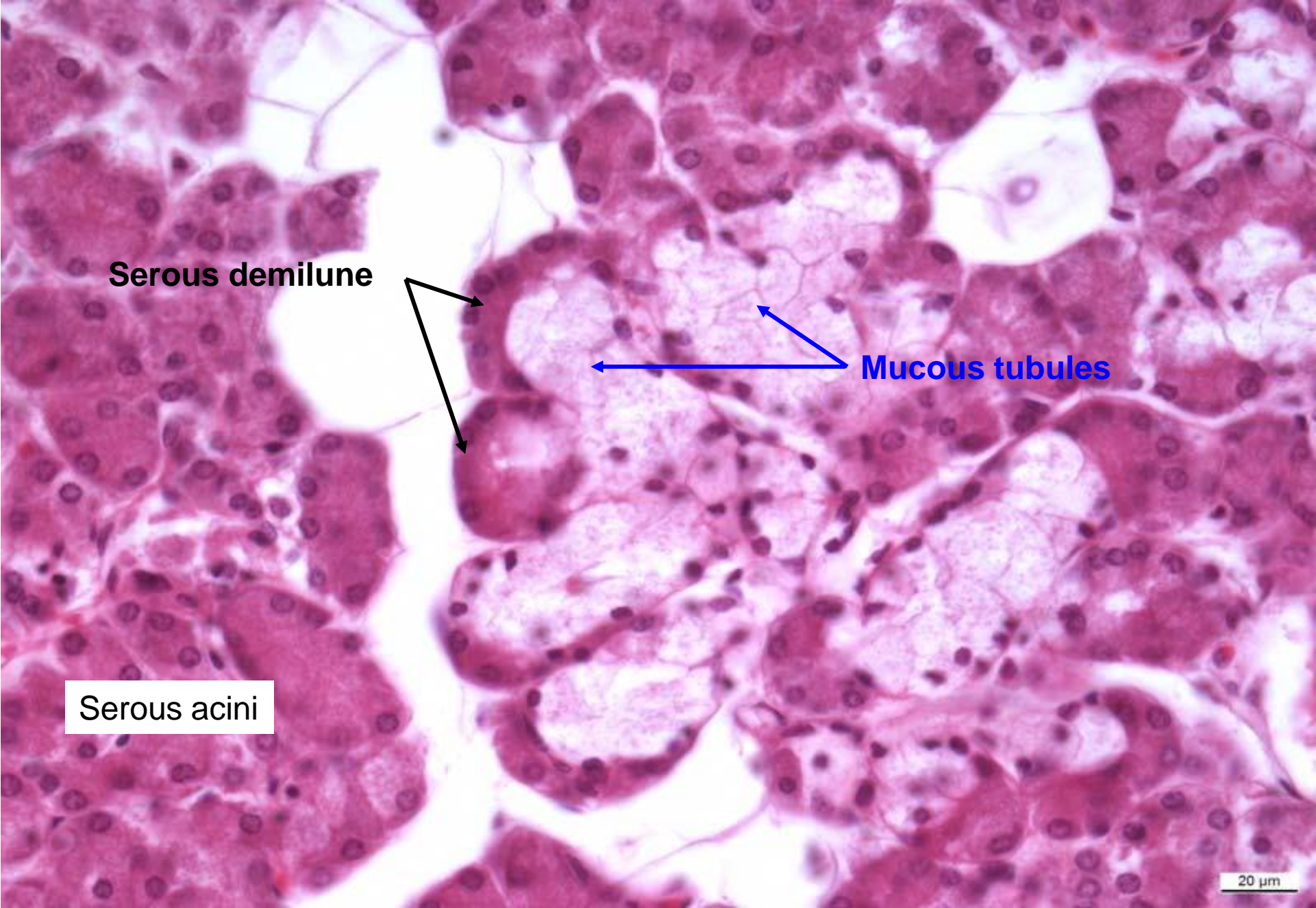
20 μm

# Submandibular gland

Compound tubuloacinar mixed gl.



# Submandibular gland



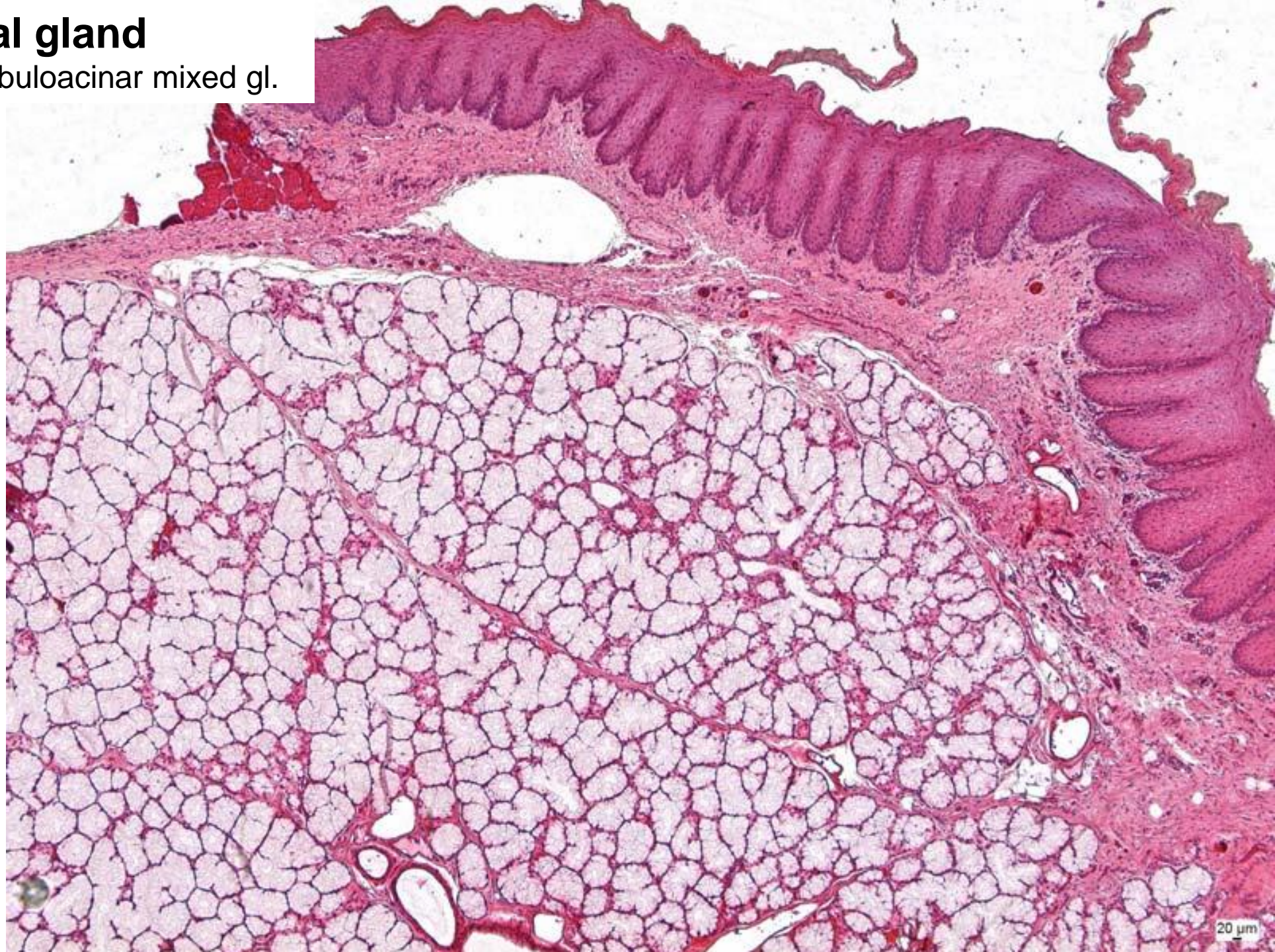
Serous demilune

Mucous tubules

Serous acini

# Sublingual gland

Compound tubuloacinar mixed gl.



20  $\mu$ m

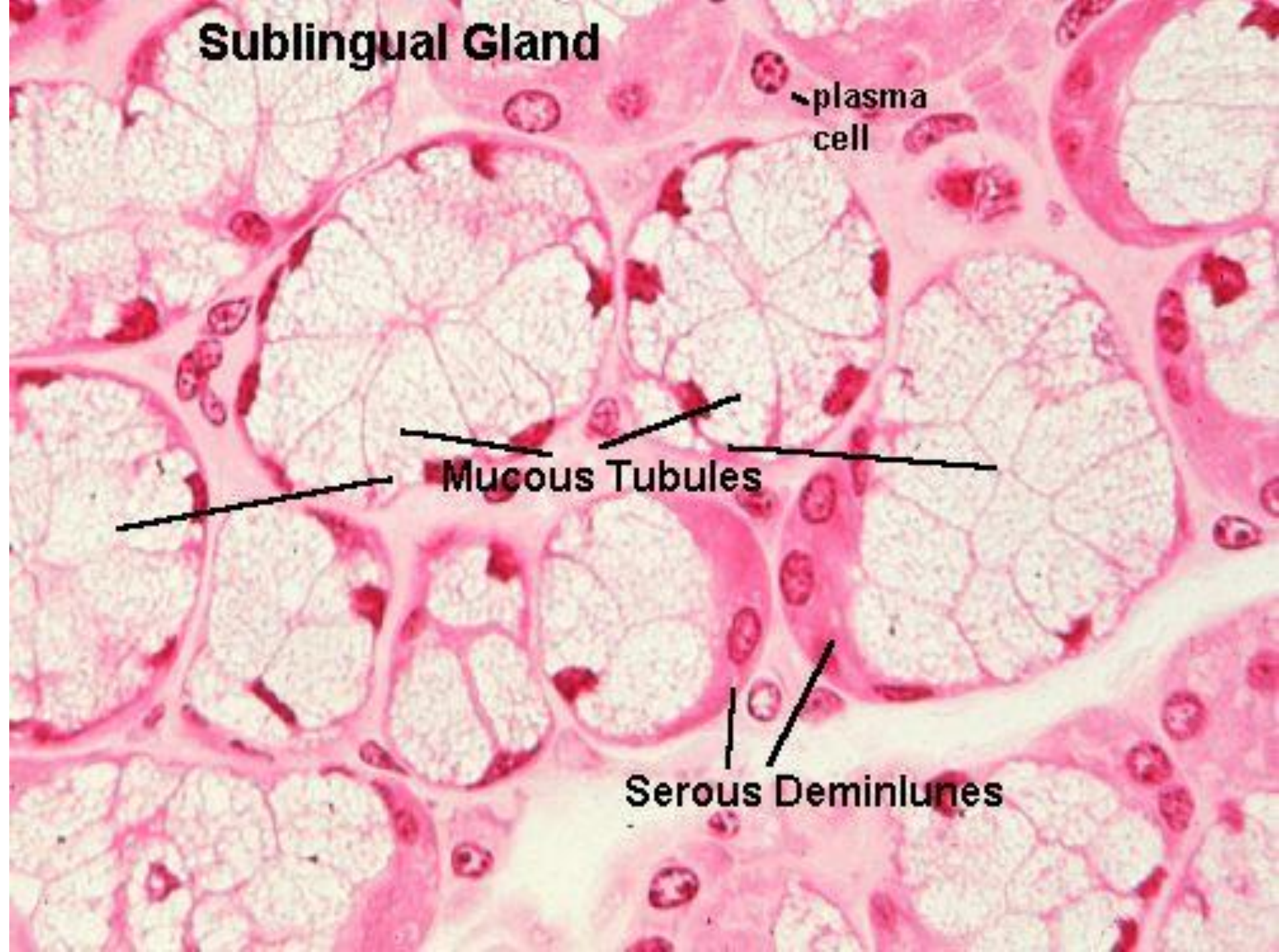


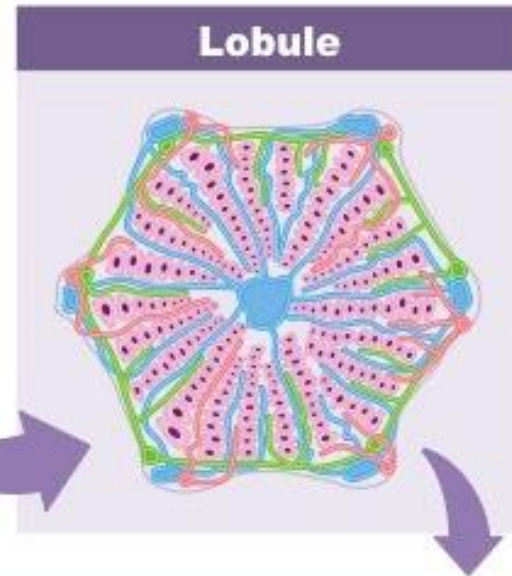
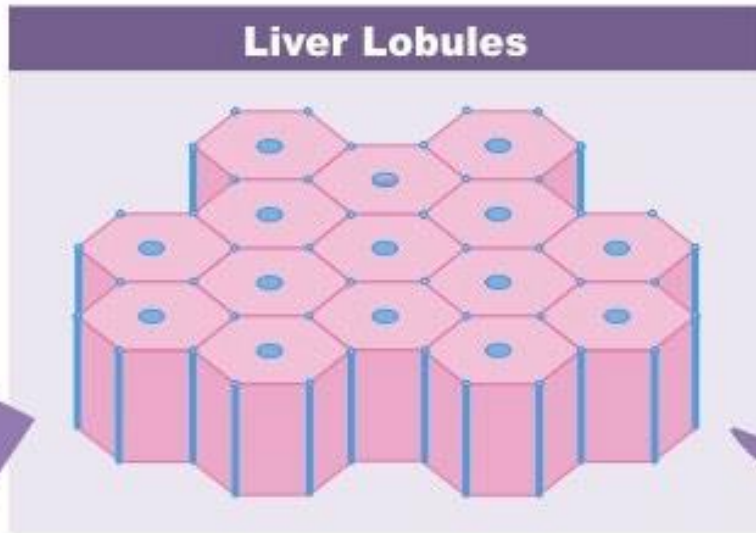
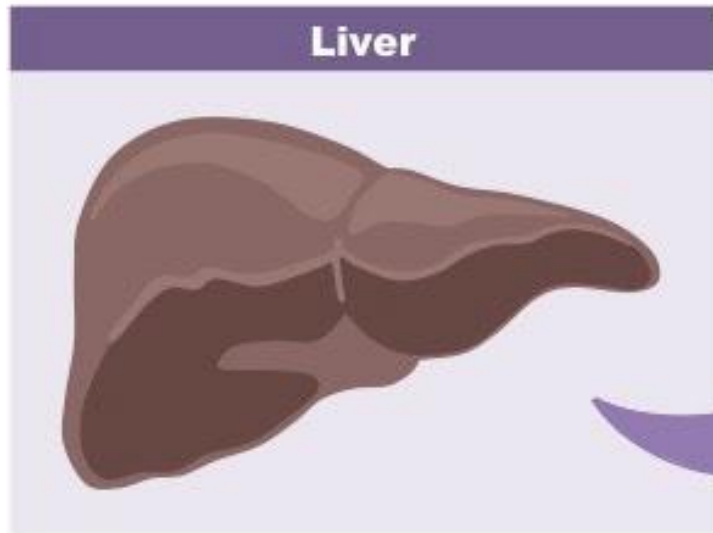
# Sublingual Gland

plasma cell

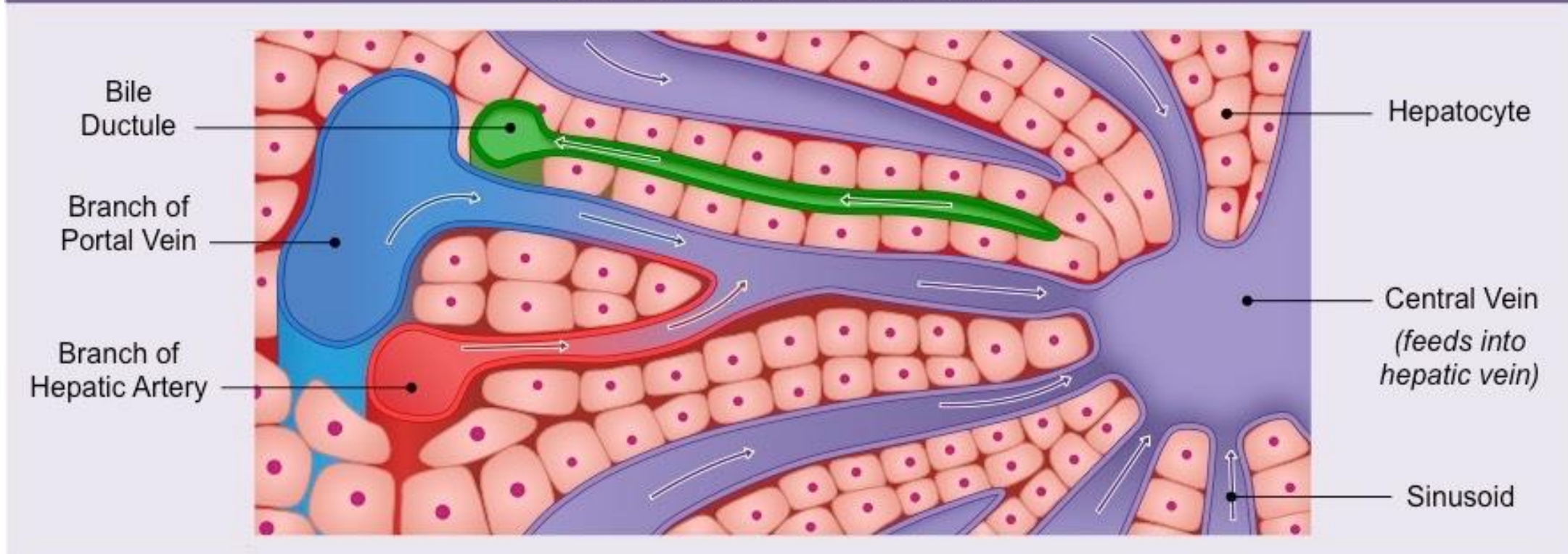
Mucous Tubules

Serous Deminlunes



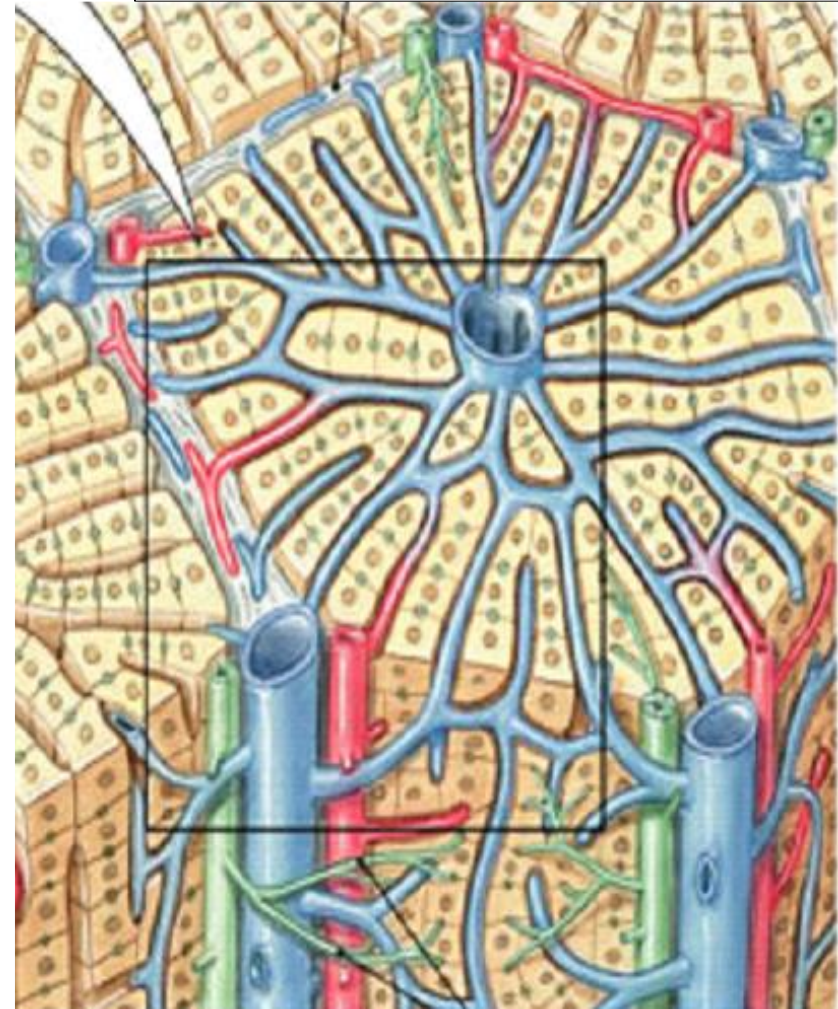
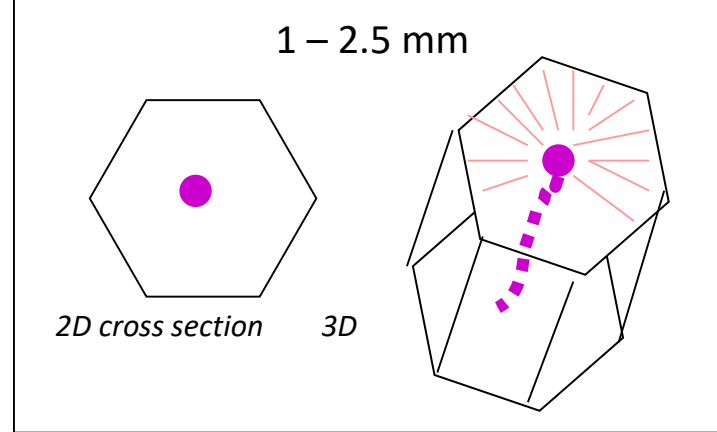


## Cross-Section of a Liver Lobule



# Classic liver lobule

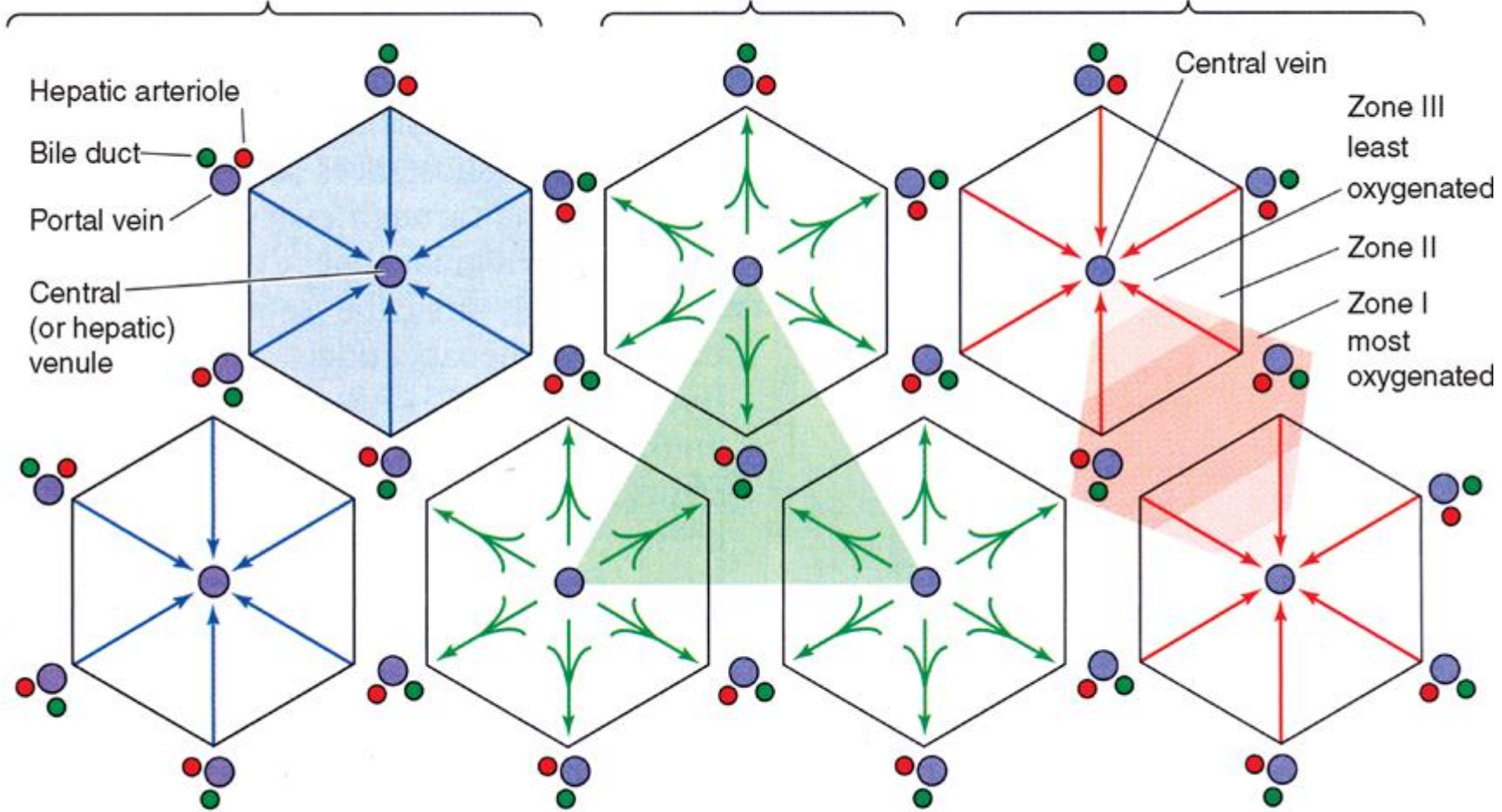
- Shape – polygonal ( polyhedral )
- Central vein
- Hepatocytes in interconnected plates
- Liver sinusoids
- Bile canaliculus



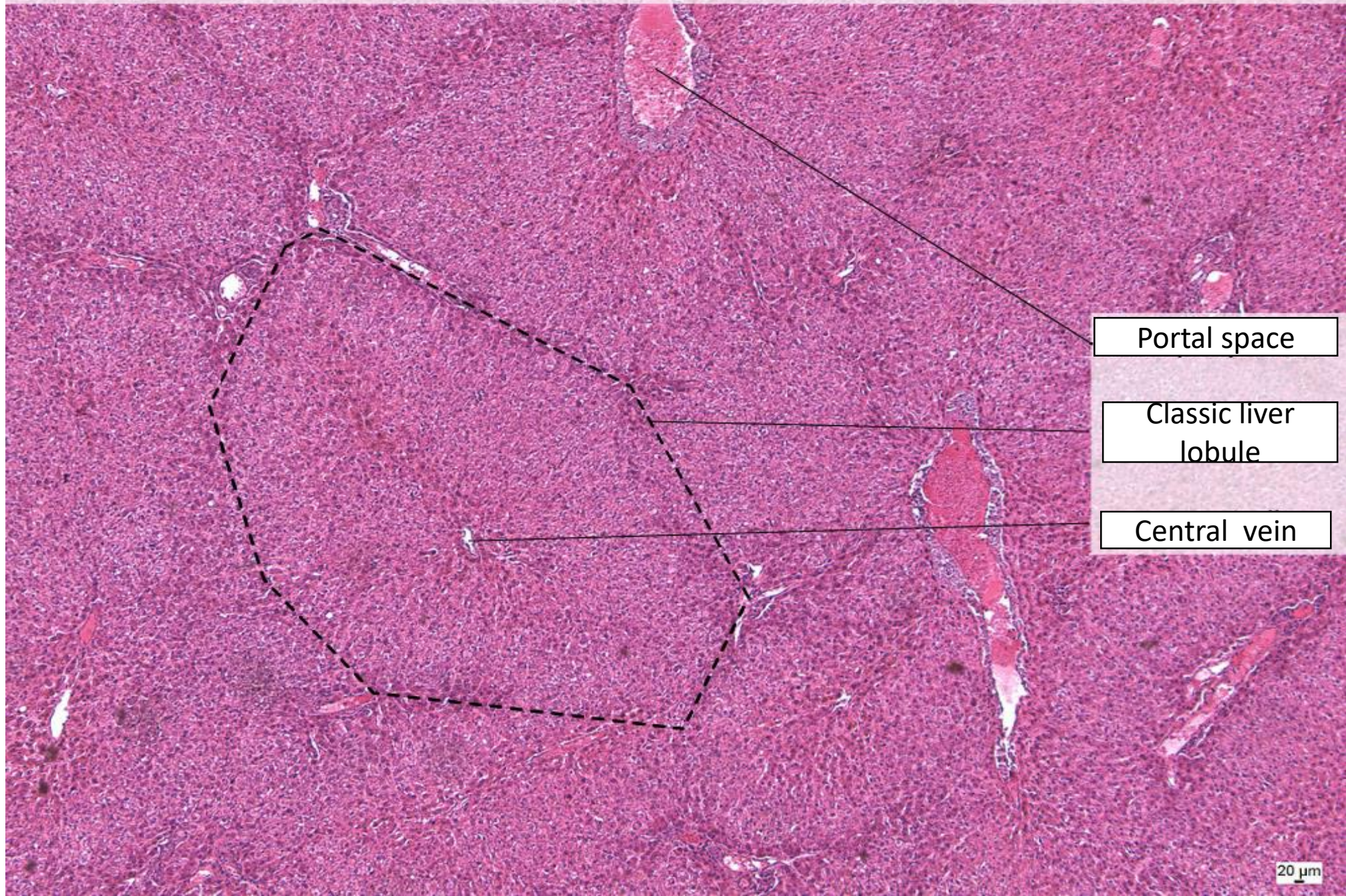
**(a) Classic Hepatic Lobule**  
Drains blood from the portal vein and the hepatic artery to the hepatic or the central vein

**(b) Portal Lobule**  
Drains bile from hepatocytes to the bile duct

**(c) Hepatic Acinus**  
Supplies oxygenated blood to hepatocytes



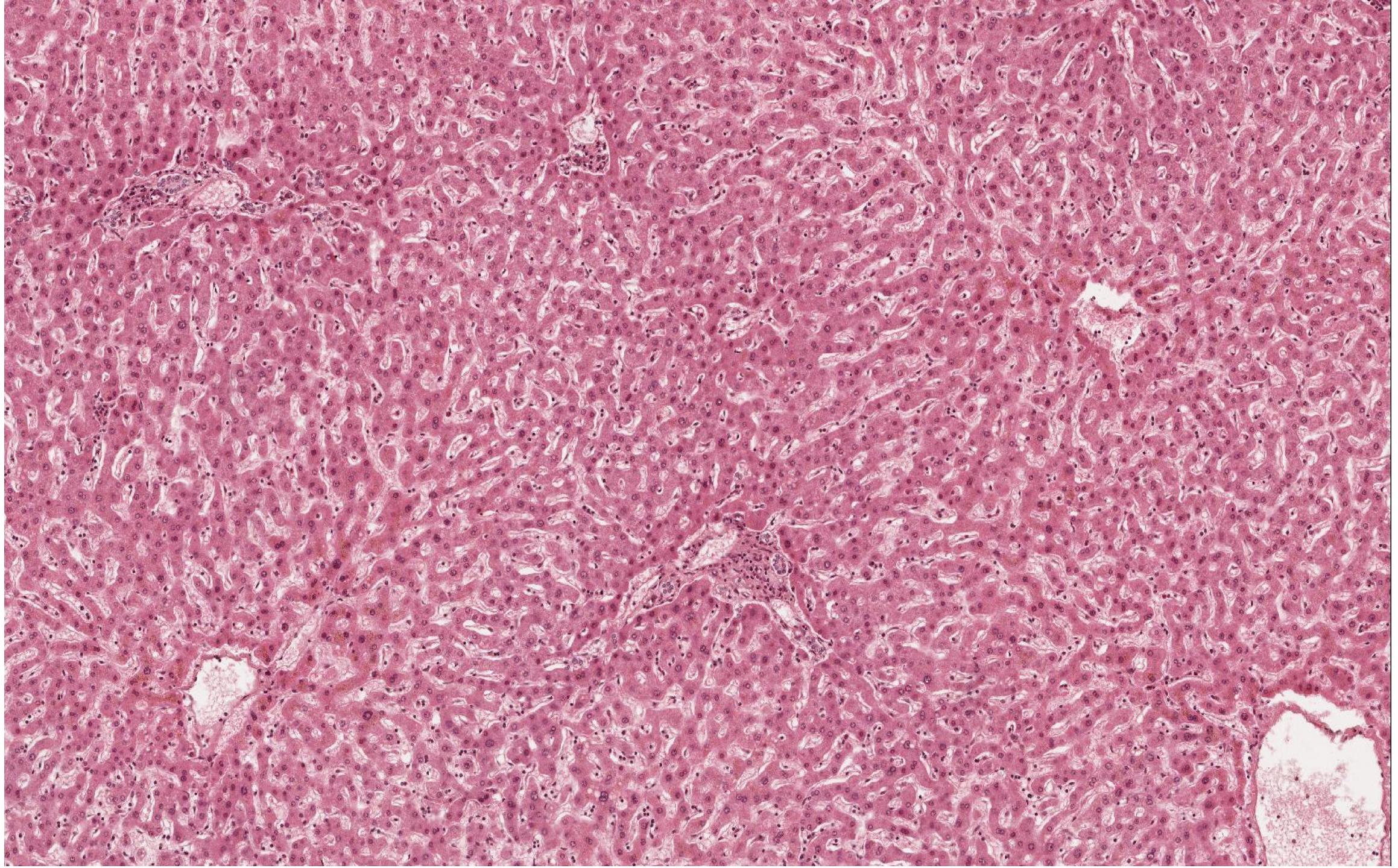
Hepar – lobulus venae centralis, (HE), objektiv 5×



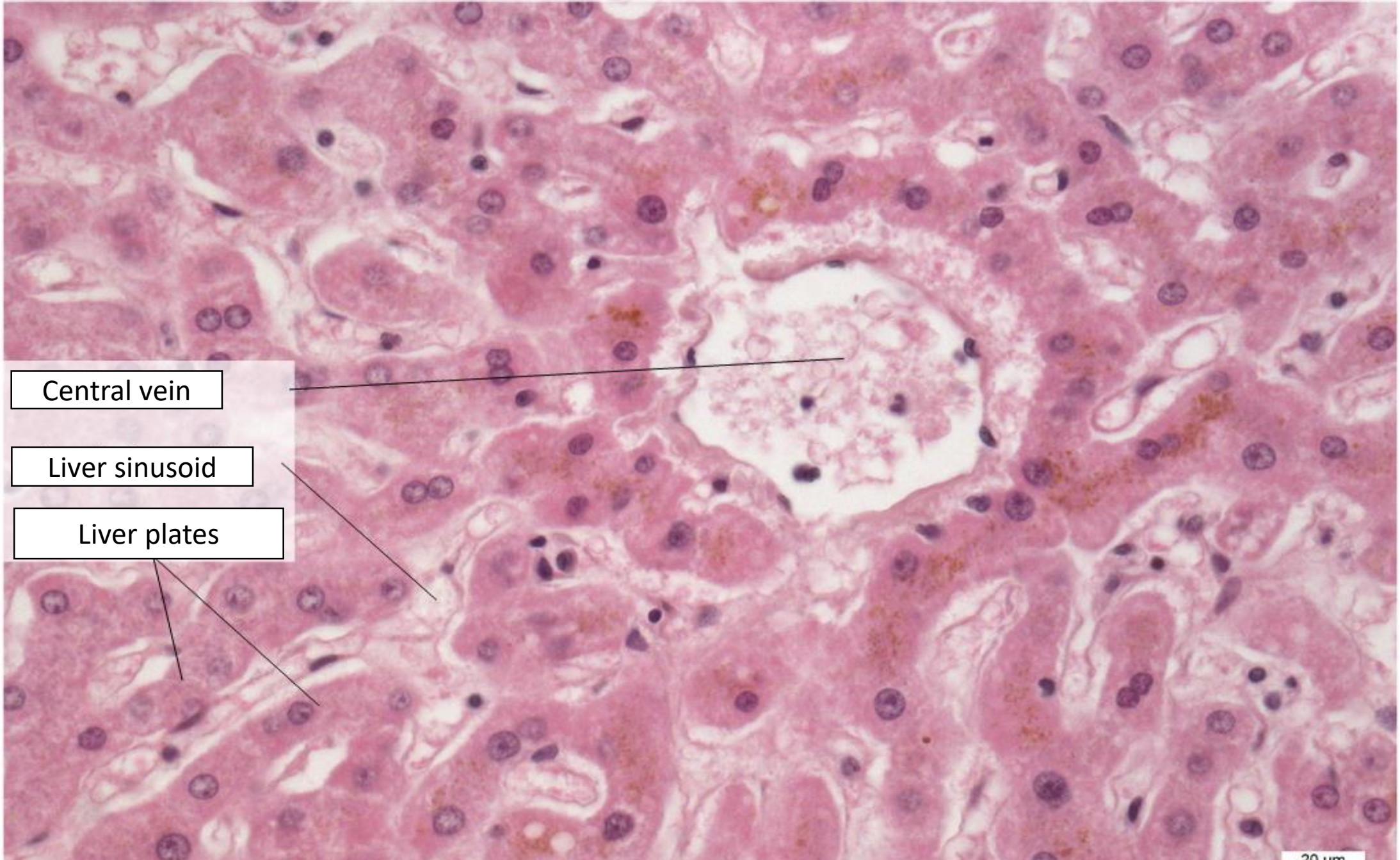
Portal space

Classic liver lobule

Central vein



Hepar – detail lalůčku, (HE), objektiv 40×

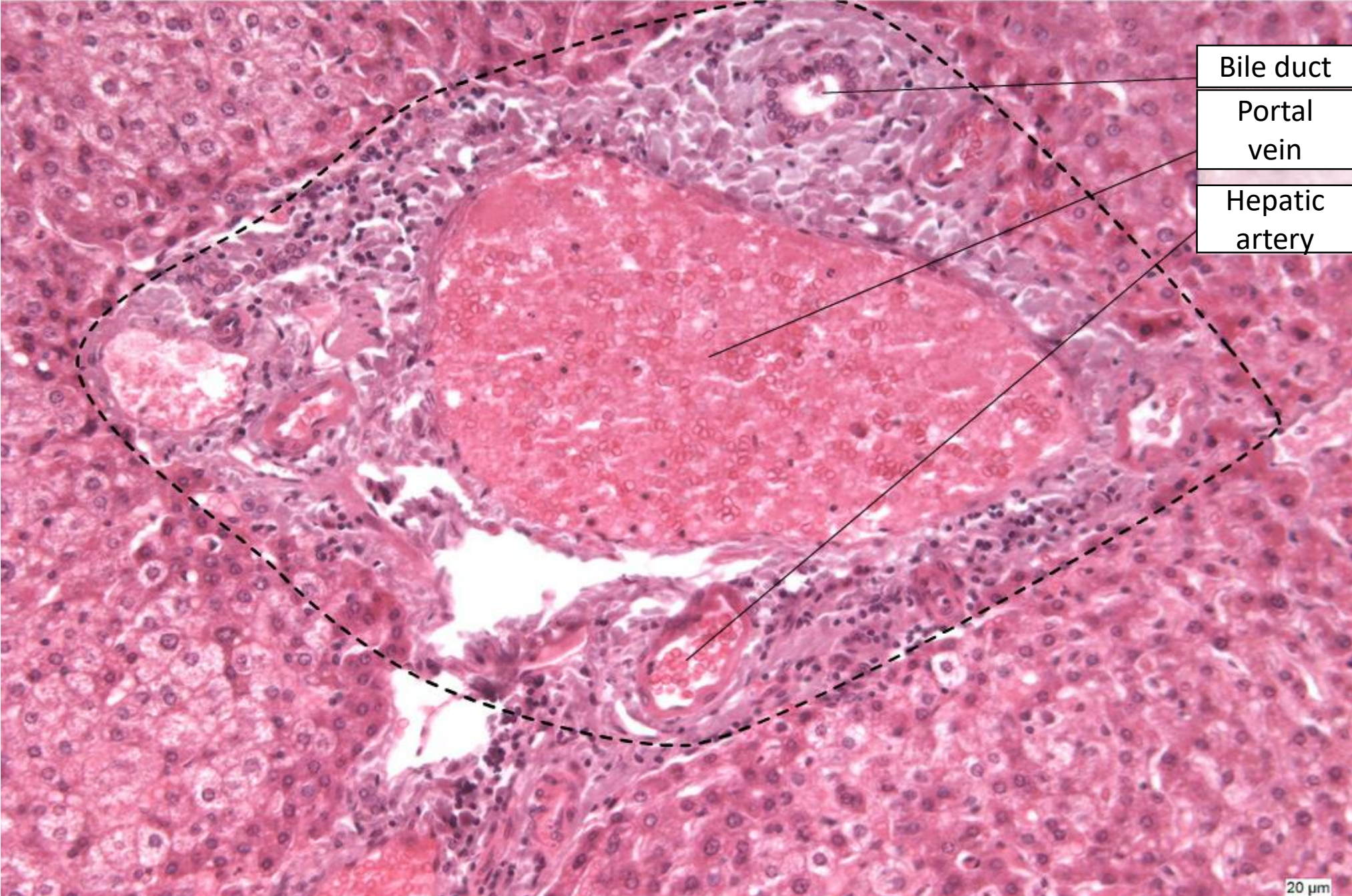


Central vein

Liver sinusoid

Liver plates

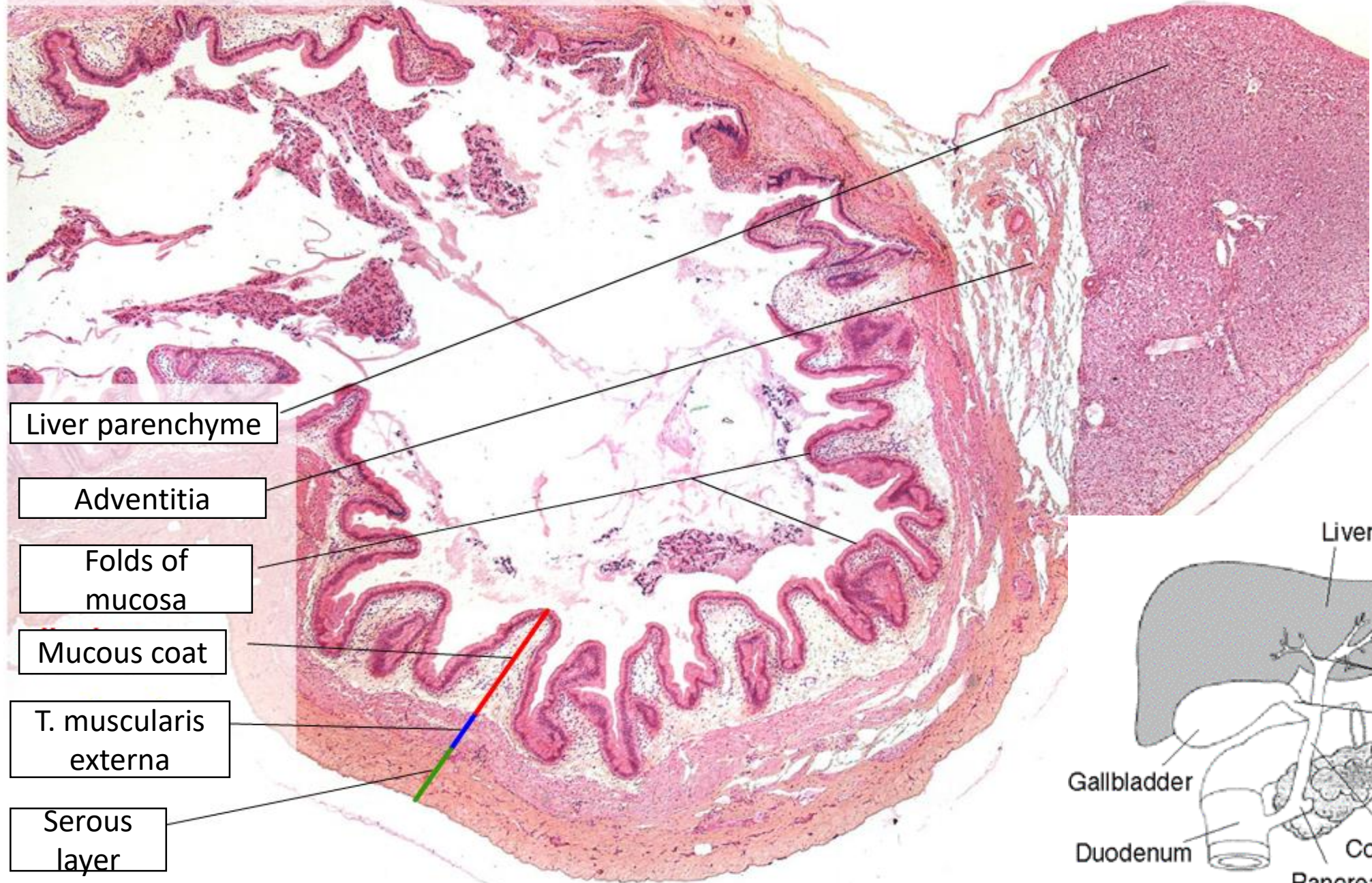
Hepar – area periportalis, (HE), objektiv 20×



- Bile duct
- Portal vein
- Hepatic artery



Vesica fellea, (HEŠ), objektiv 2,5×



Liver parenchyme

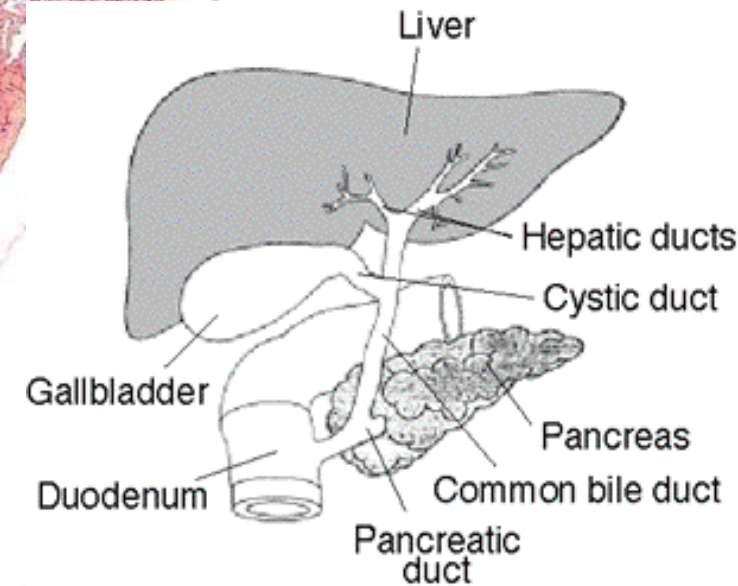
Adventitia

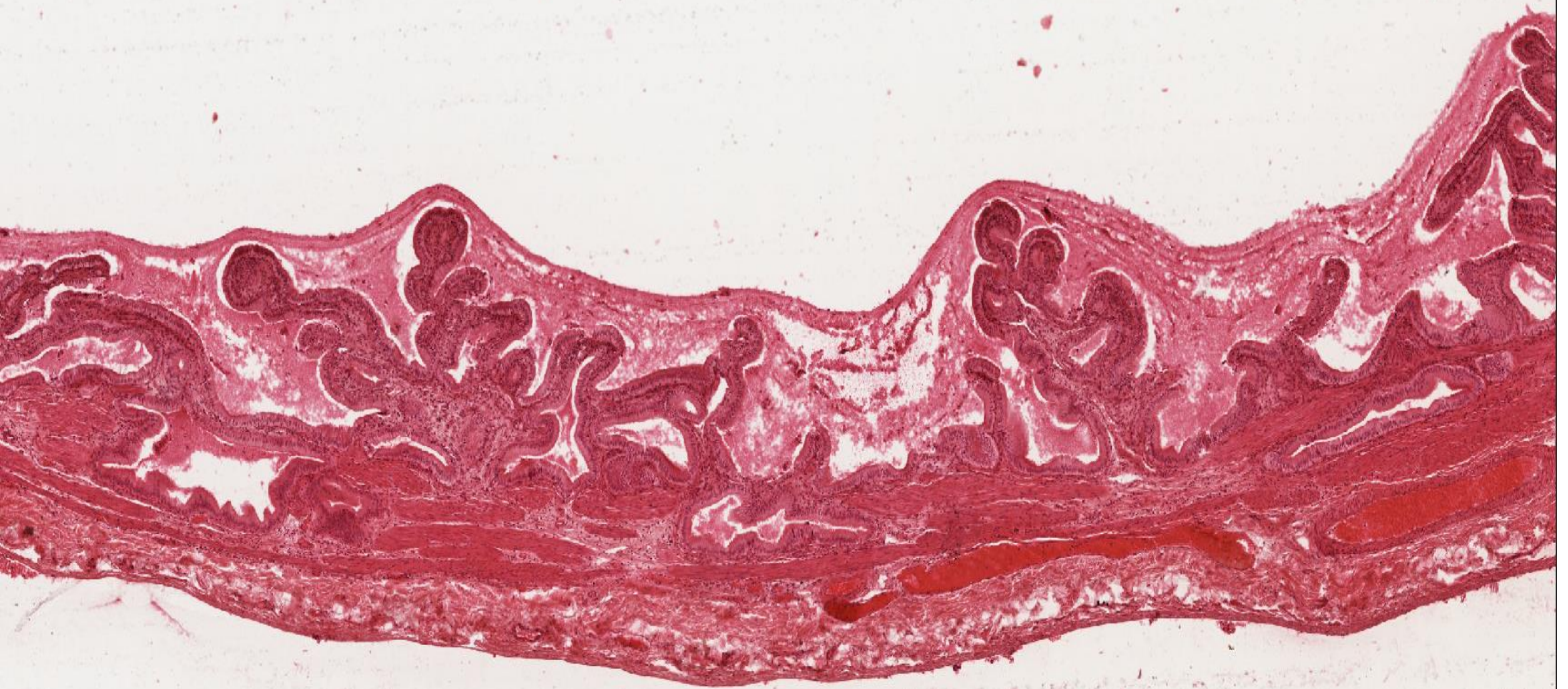
Folds of mucosa

Mucous coat

T. muscularis externa

Serous layer





Gallbladder with mucus

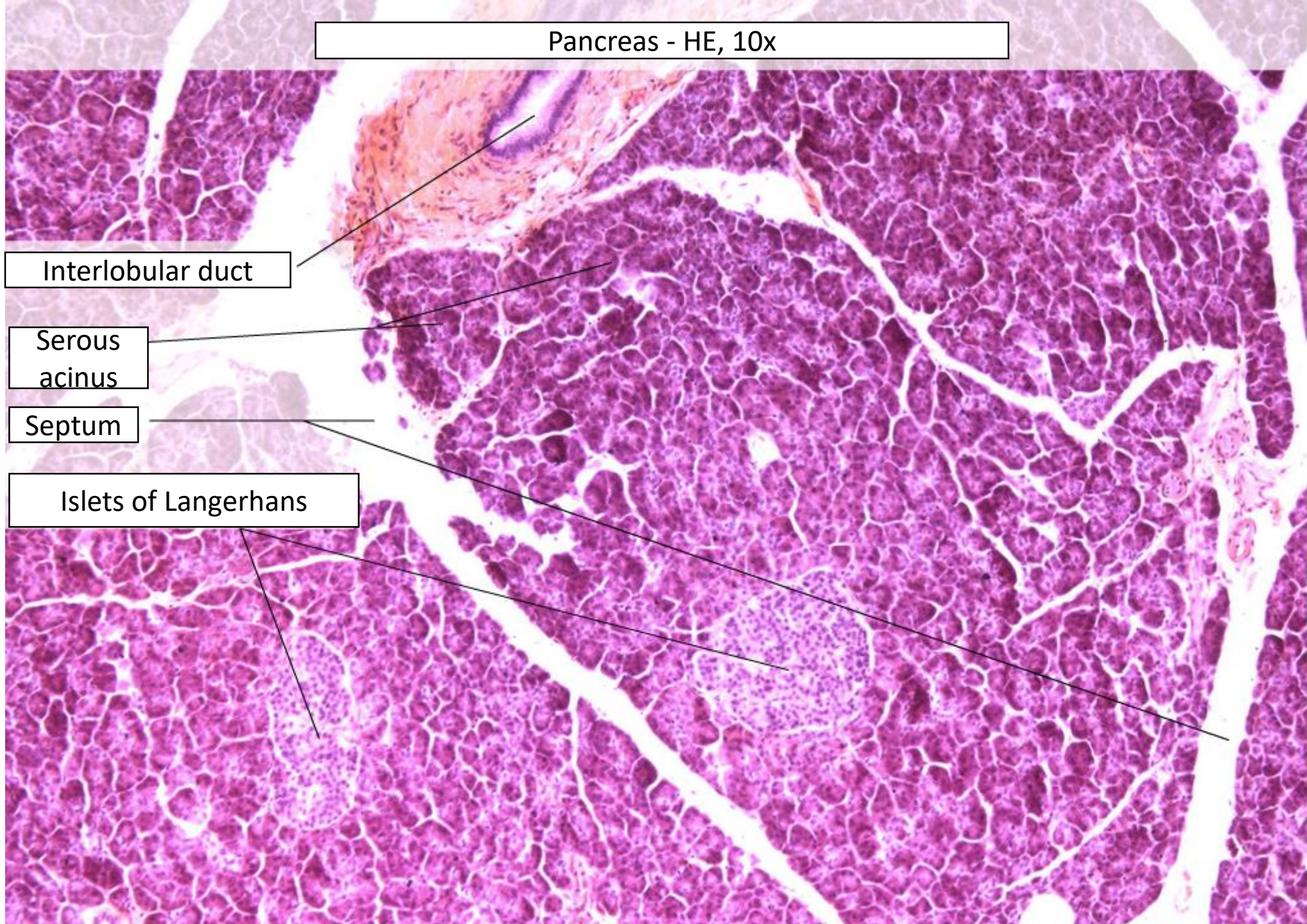
Pancreas - HE, 10x

Interlobular duct

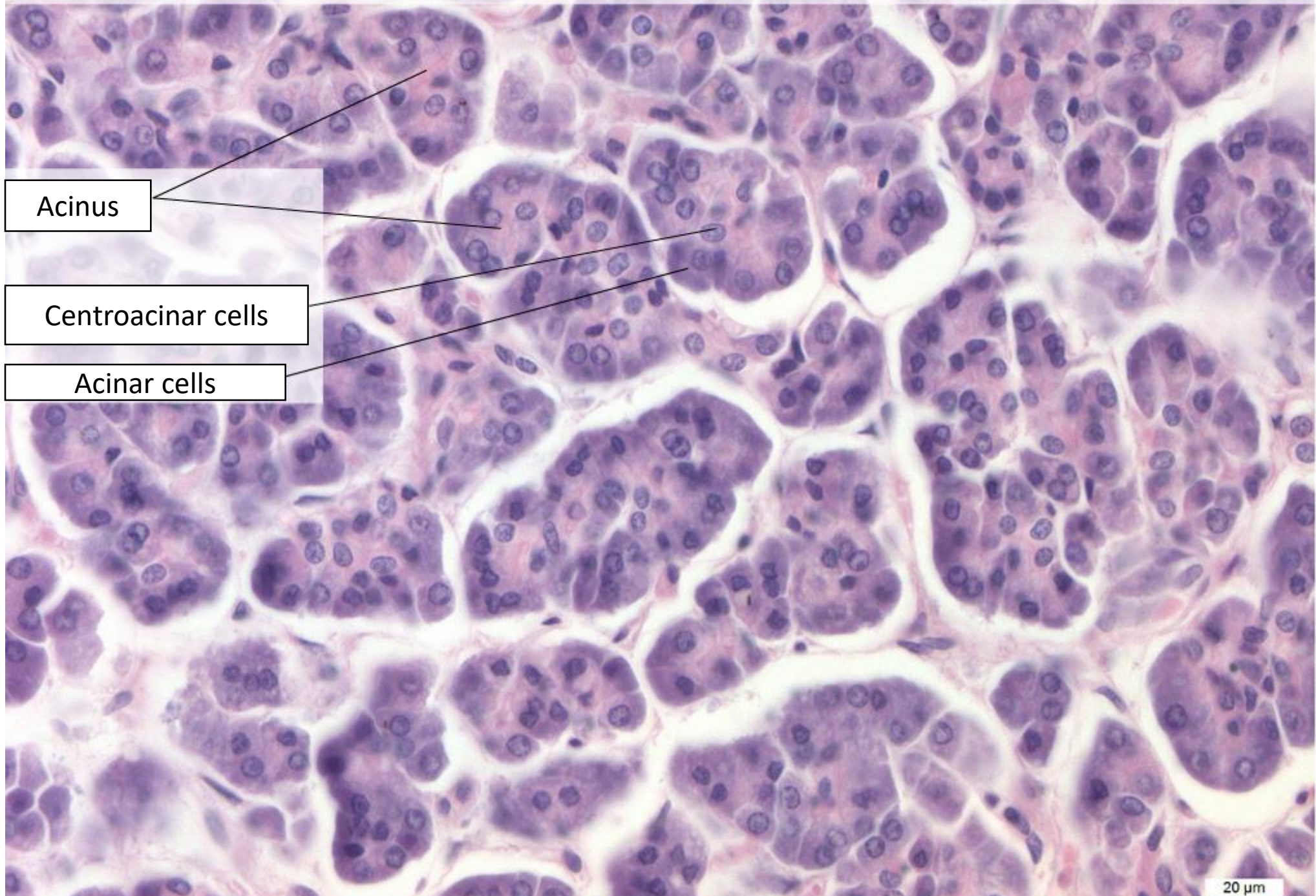
Serous  
acinus

Septum

Islets of Langerhans



Pancreas – serous acinus, HE , 10x



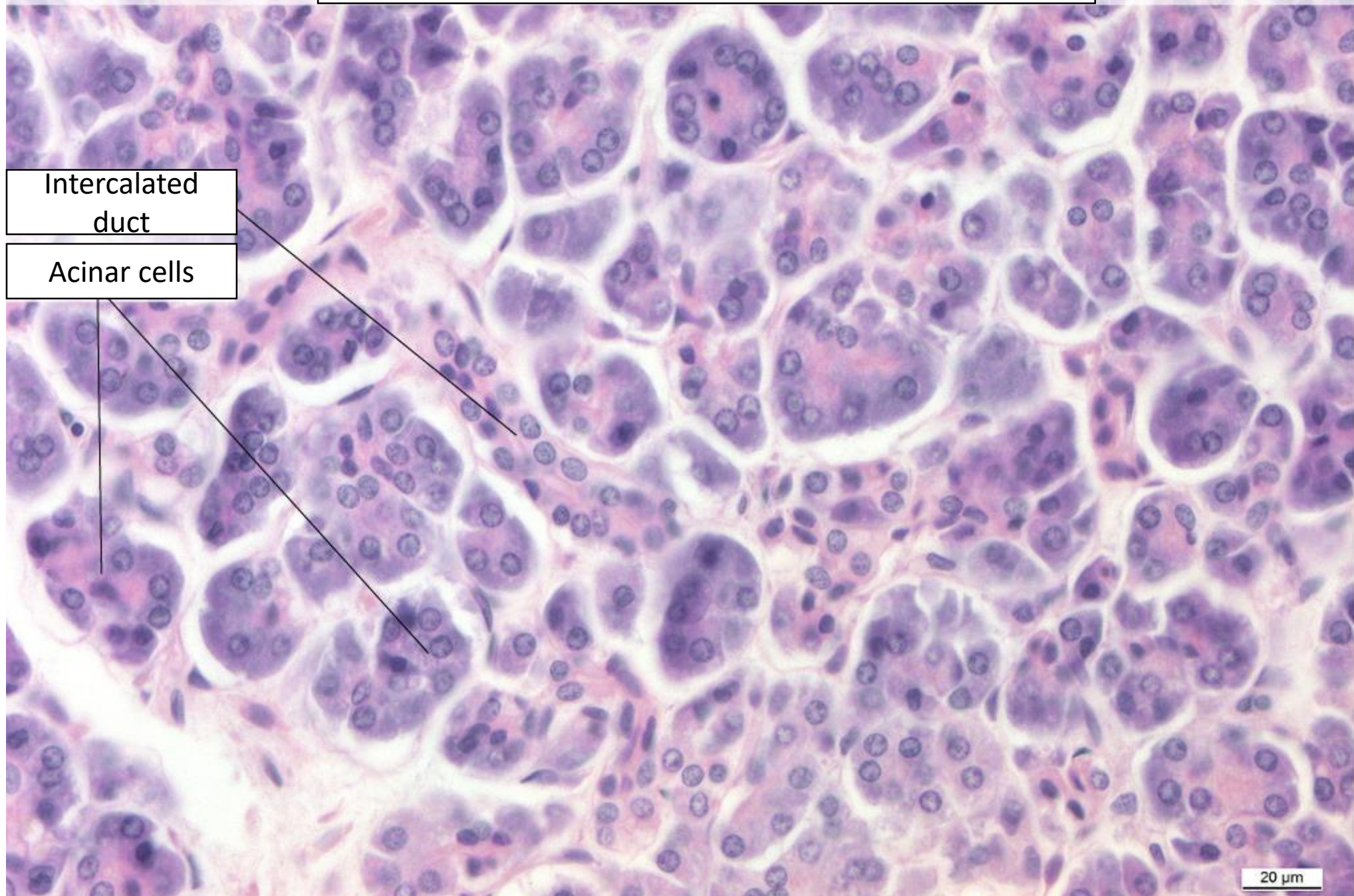
Acinus

Centroacinar cells

Acinar cells

20 μm

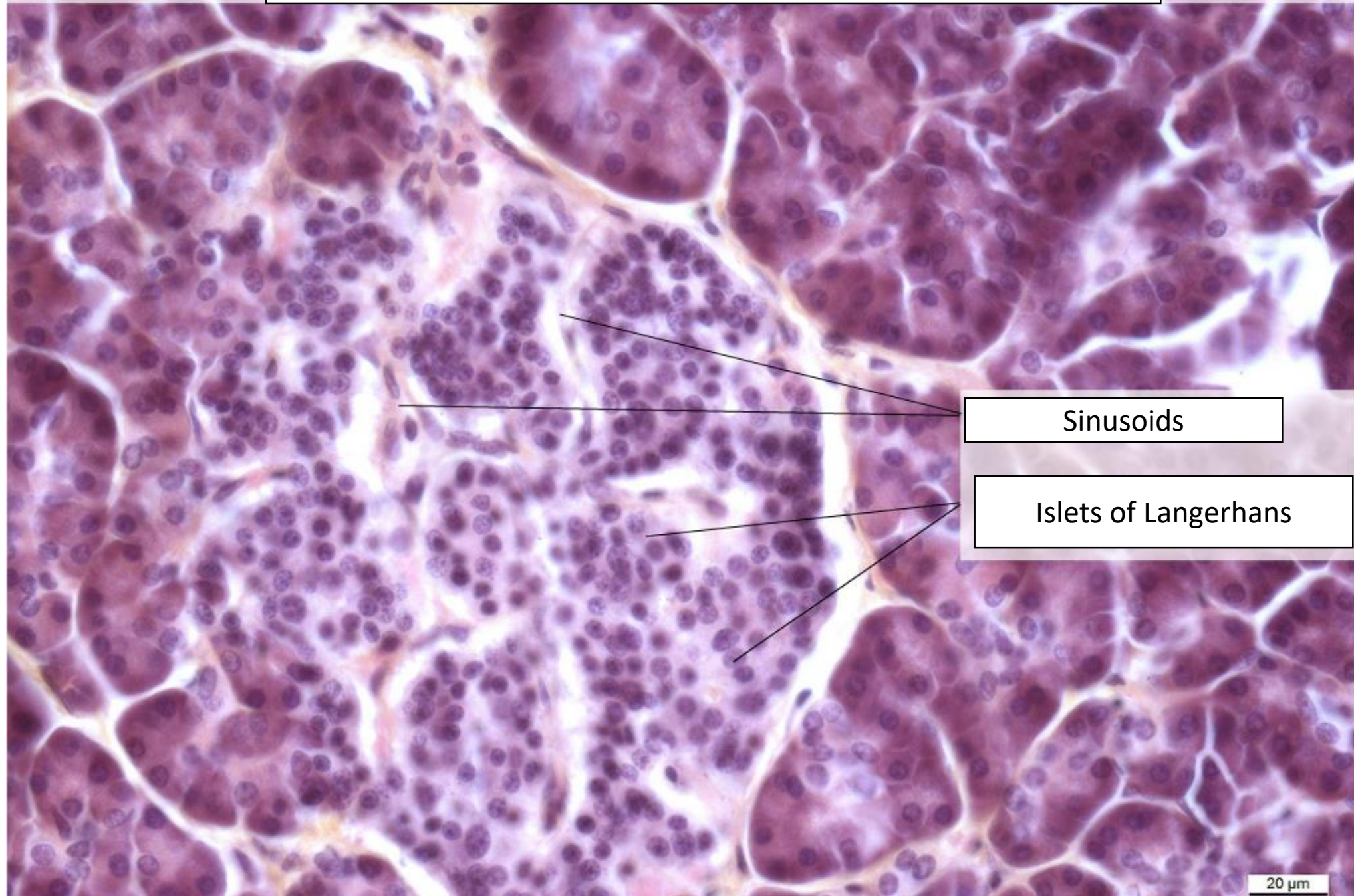
Pancreas, He, 10x



Intercalated  
duct

Acinar cells

20  $\mu$ m



Sinusoids

Islets of Langerhans

# 3.

## Digestive system - III



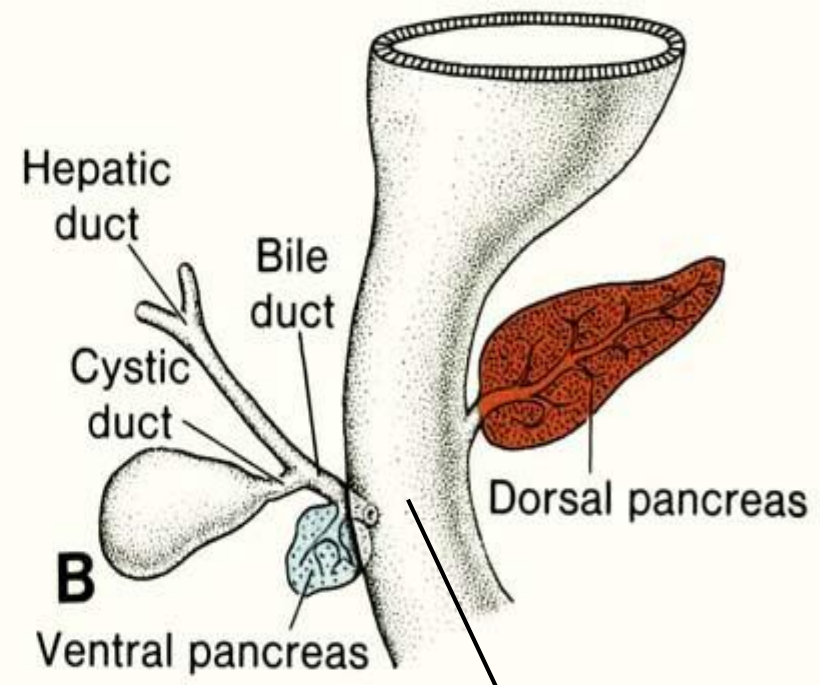
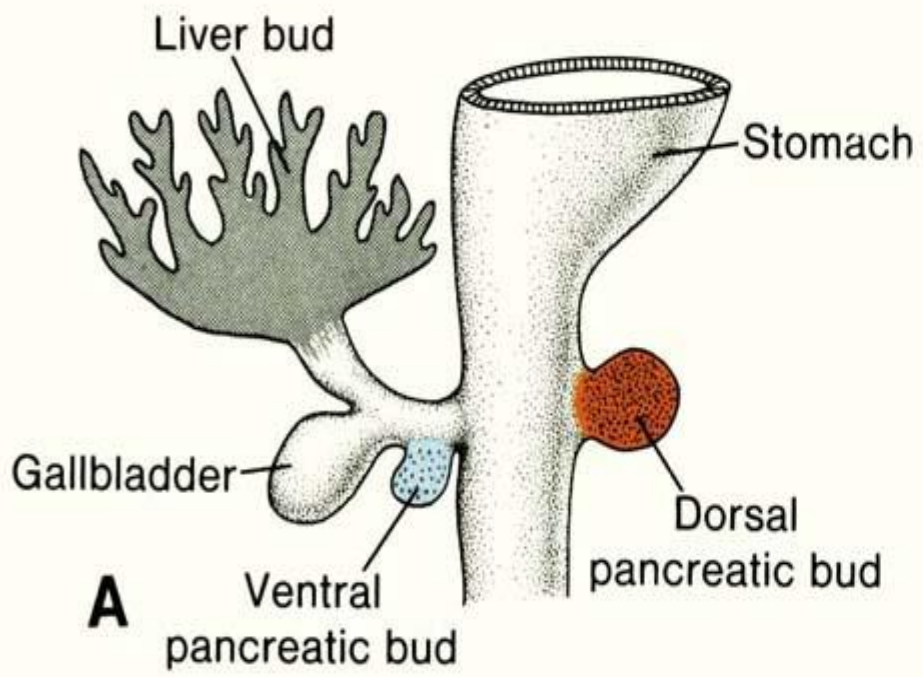
### Slides:

- 8. Glandula parotis (HE)
- 9. Glandula submandibularis (HE)
- 10. Glandula sublingualis (HE)
- 20. Hepar (HE)
- 21. Hepar (AZAN)
- 22. Vesica fellea (HE)
- 23. Pancreas (HE)

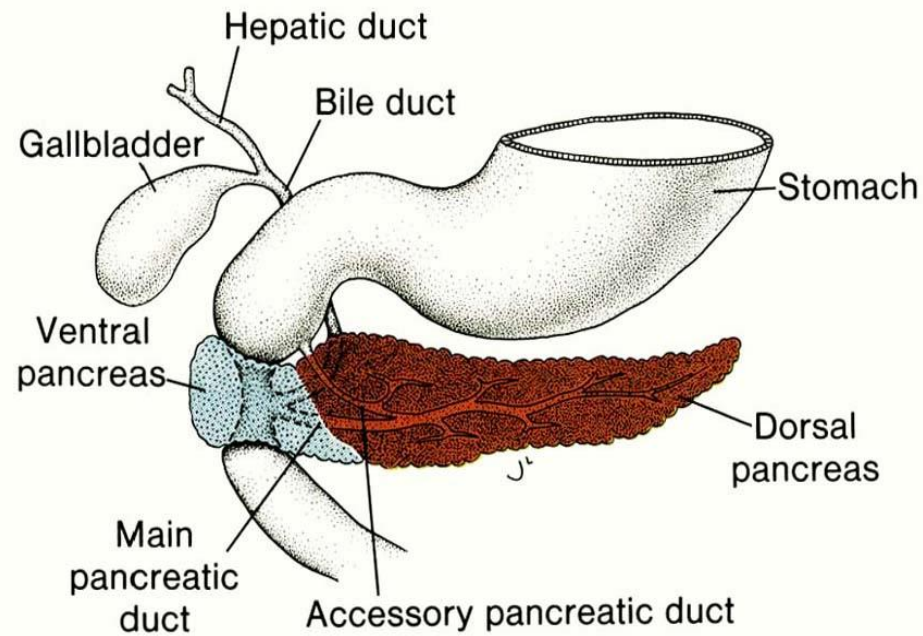
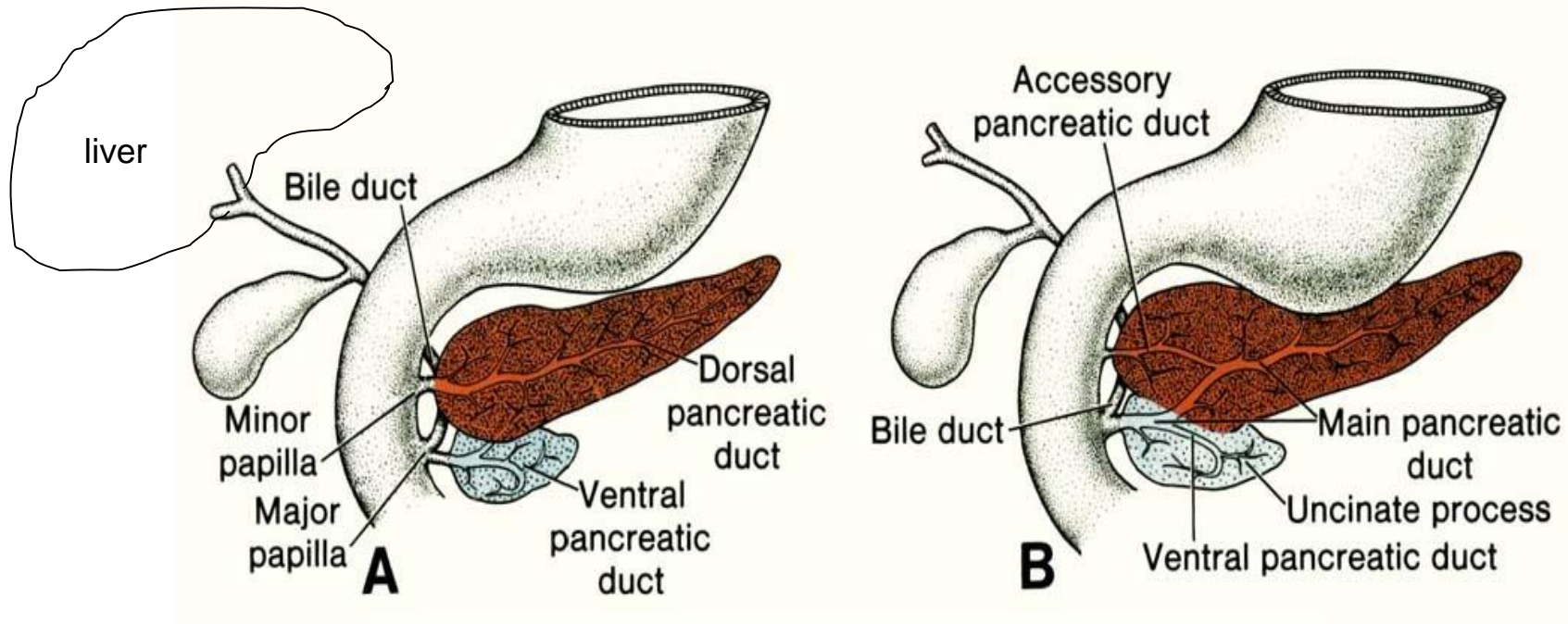


### Atlas EM:

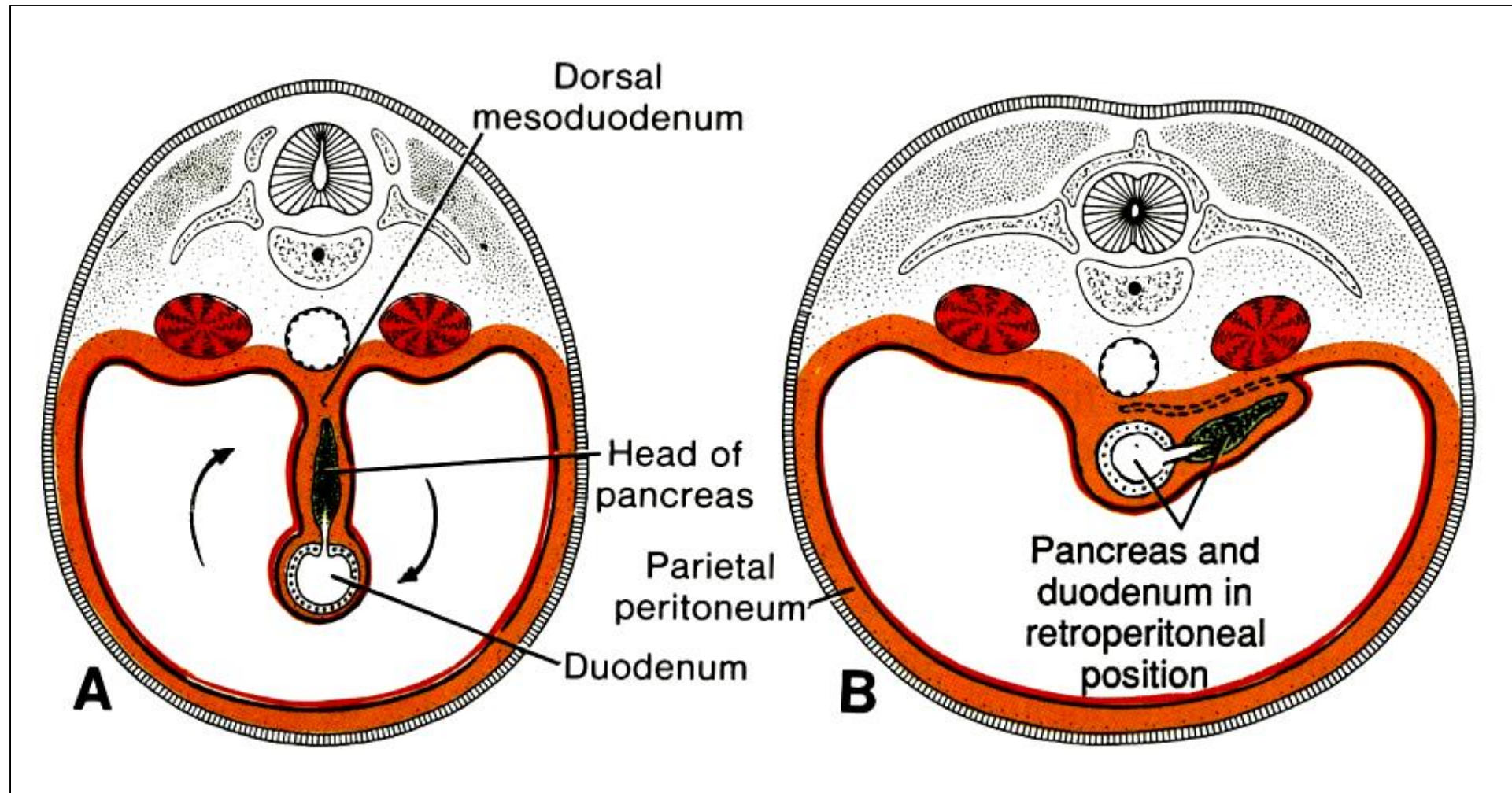
- Bile canaliculus 9
- Hepar – Kupffer cells 67
- Pancreas – Islets of Langerhans 66
- Development of pancreas 85





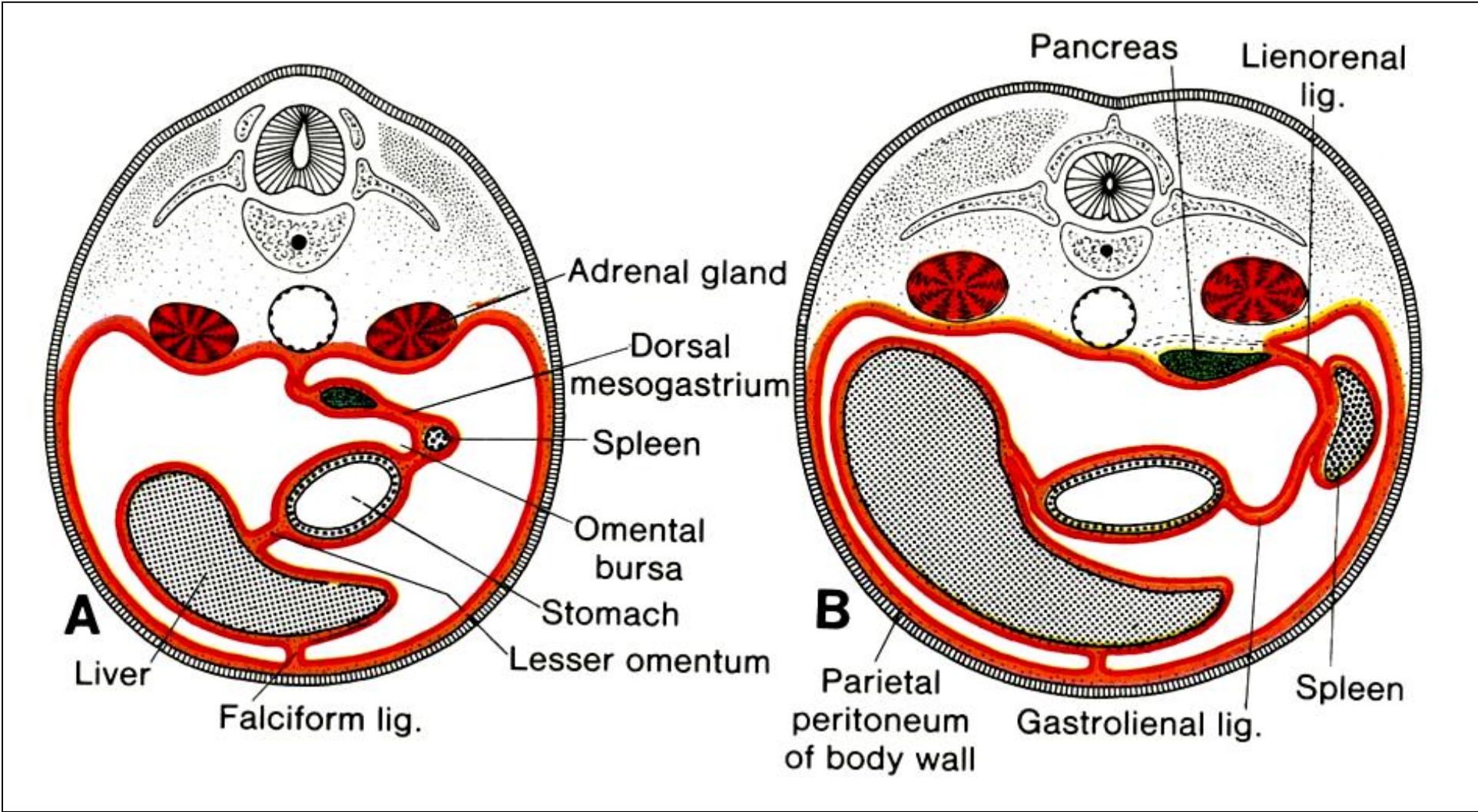


**Pancreas** – passes into dorsal mesoduodenum and mesogastrium by proliferation of endoderm of duodenal loop;  
During rotation of stomach and duodenum – duodenum + pancreas are situated retroperitoneally



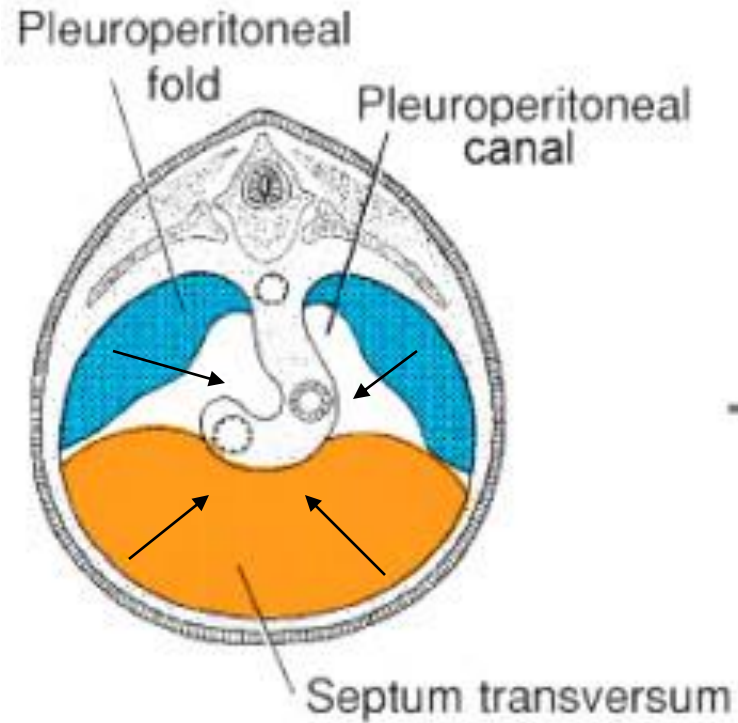
**Lien** – arises by proliferation of mesoderm cells in dorsal mesogastrum, which is transformed into lig. gastrolienalis and lig. lienorenalis.

Spleen is intraperitoneal organ, its surface is covered by mesothelium.

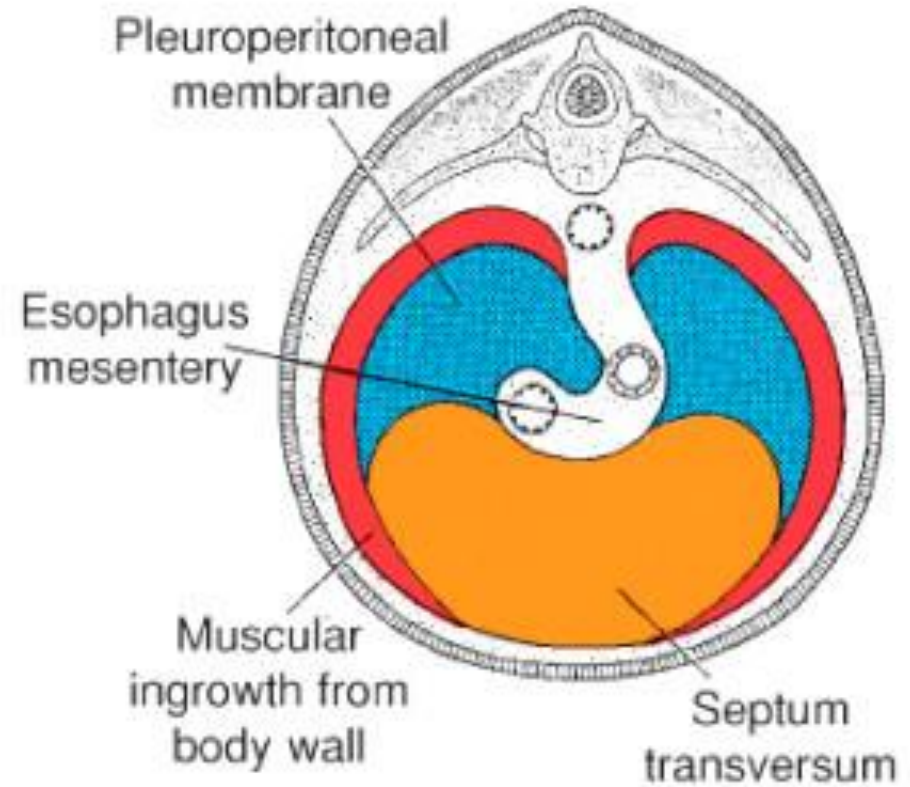


# Development of diaphragm

**A** week 5



**B** month 4



The diaphragm originates from:

1. **septum transversum** (mesoderm mass)
2. **plicae pleuroperitoneales**
3. **mesoesophageum dorsale**
4. **dorsolateral wall of the body**