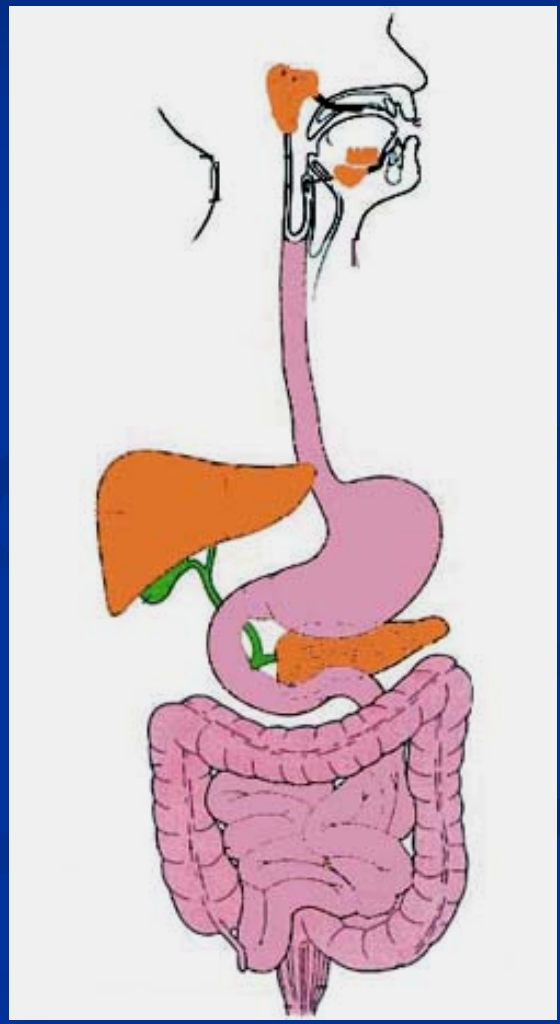
digestive gland

刘佳梅

Components

digestive glands found in the wall of digestive tract

accessory digestive glands:
salivary glands
pancreas
liver



Salivary glands

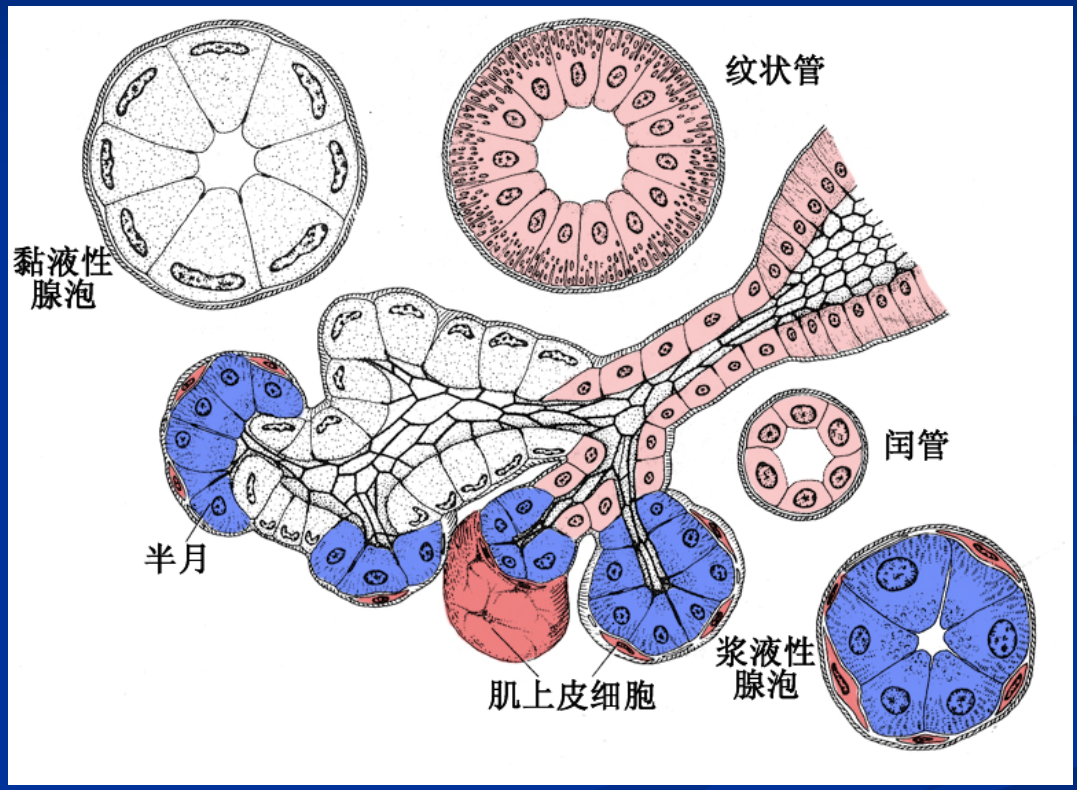
* Parotid
* Submandibular G.
* Sublingual G.

Three types of acini

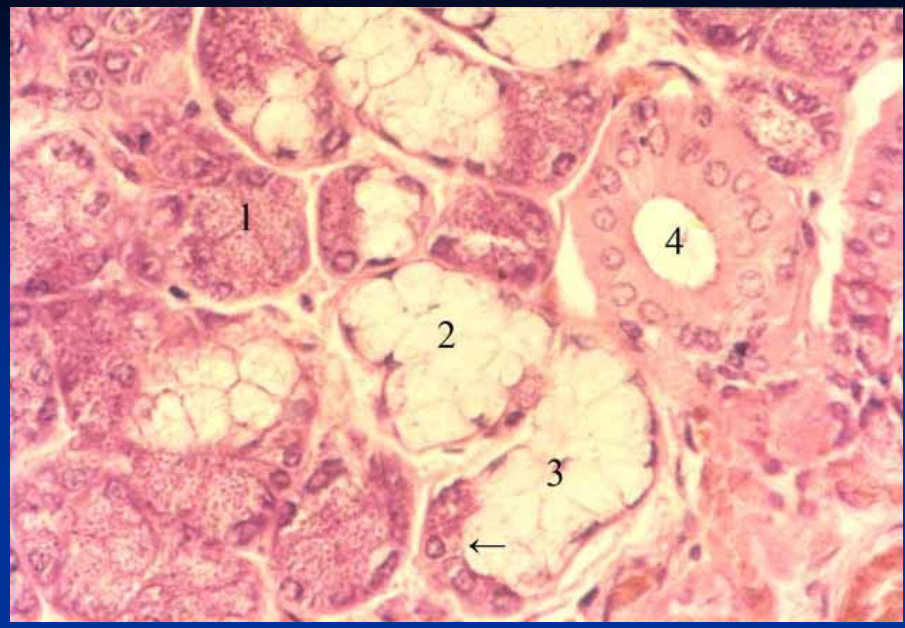
* serous
* mucous
* seromucous

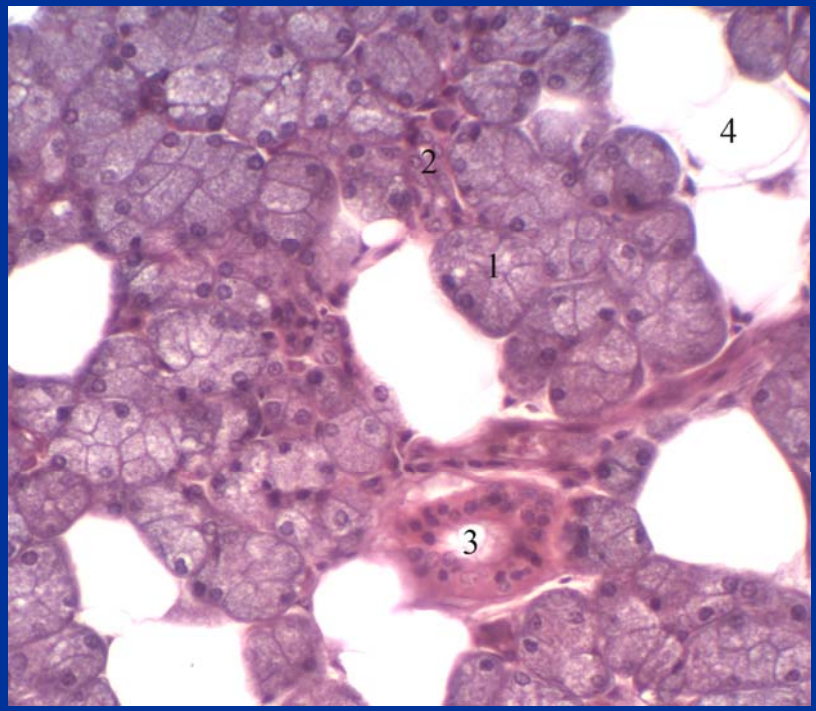
Function:

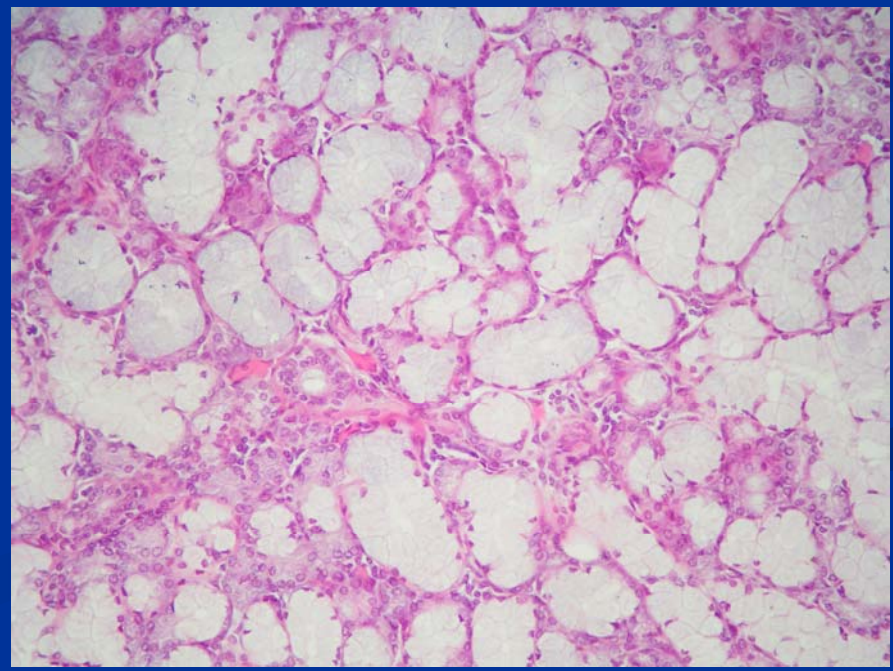
* *moistening food*
* *carbohydrate digestion*
* *Secrete IgA*



* Parotid
* Submandibular G.
* Sublingual G.

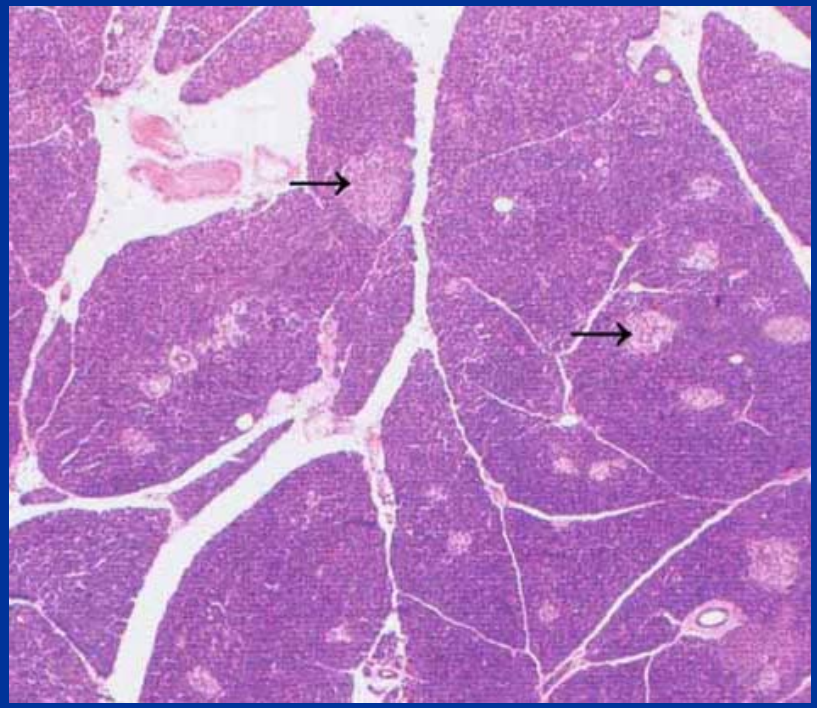


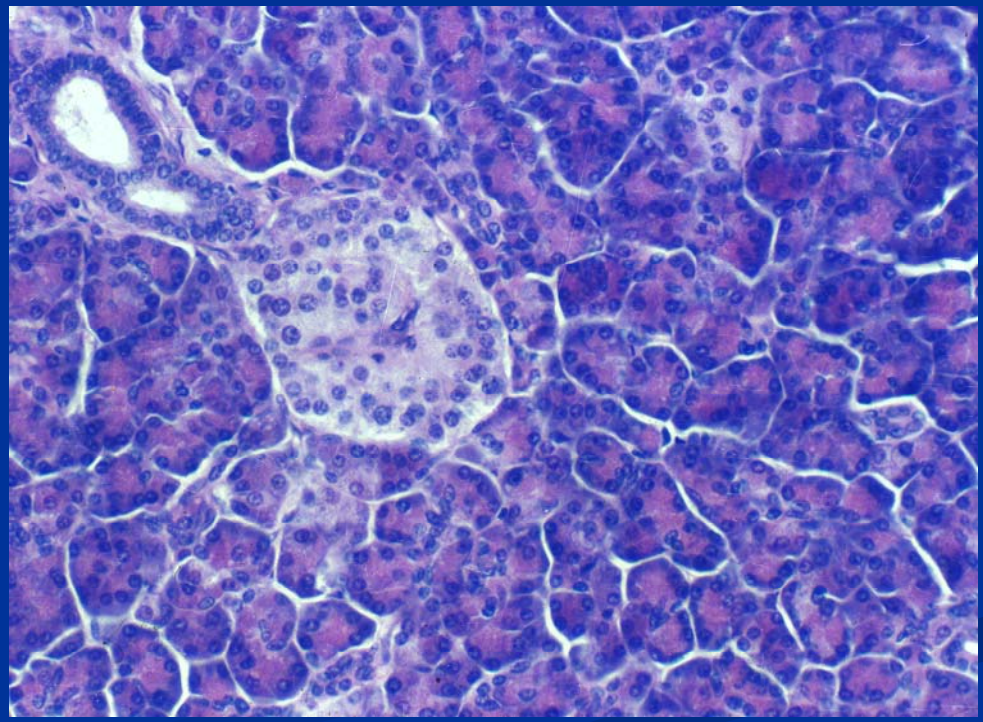




Pancreas

capsule
exocrine portion
endocrine portion





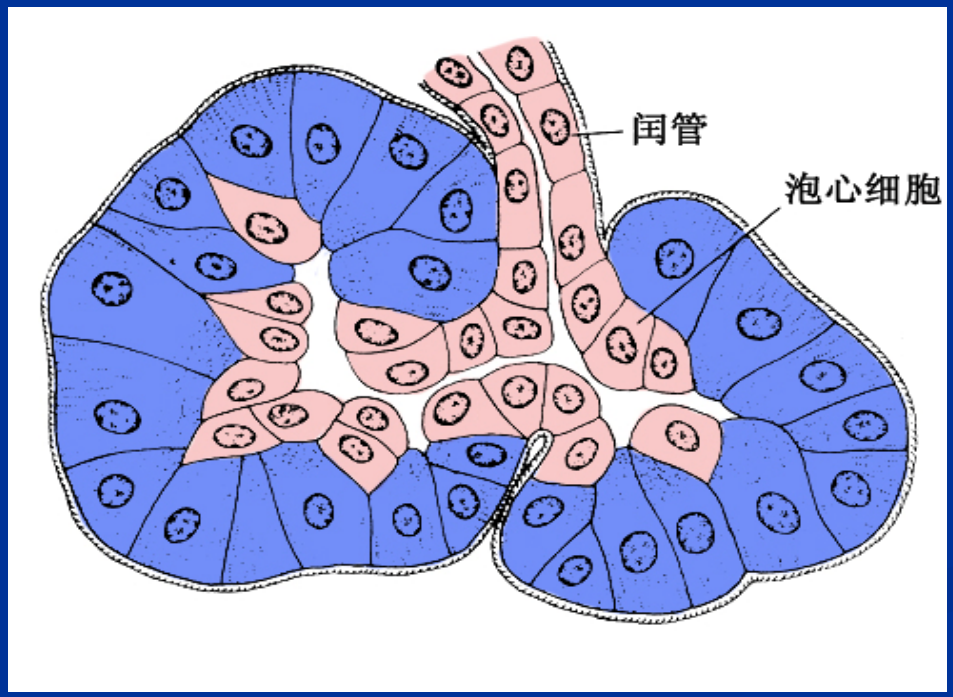
1. Exocrine Portion

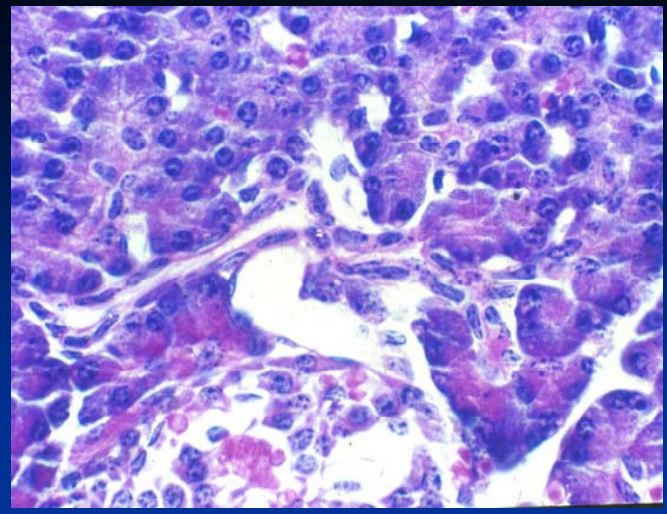
acinus： **serous cells**

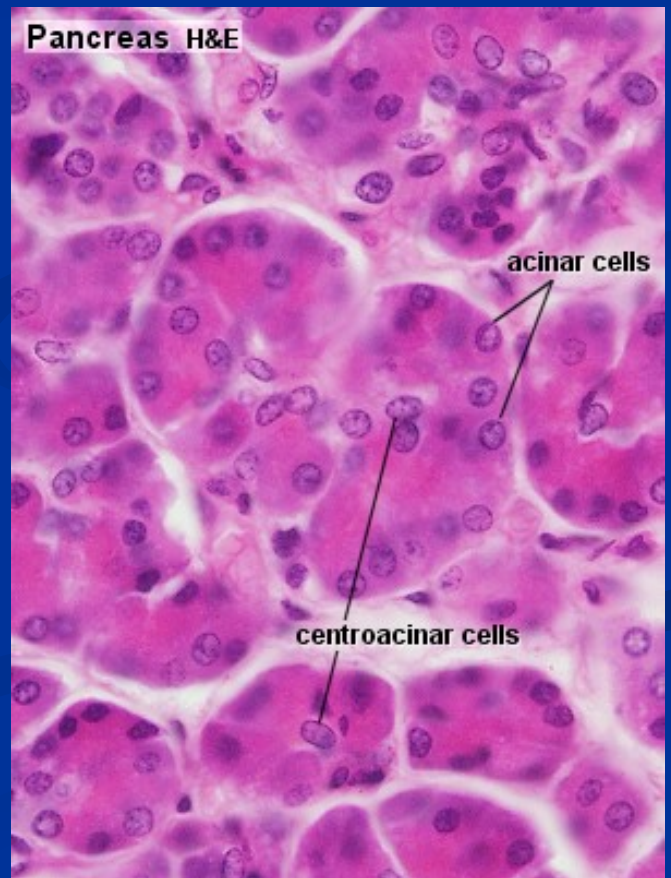
LM: **EM:**

Function:

centroacinar cells







ducts:

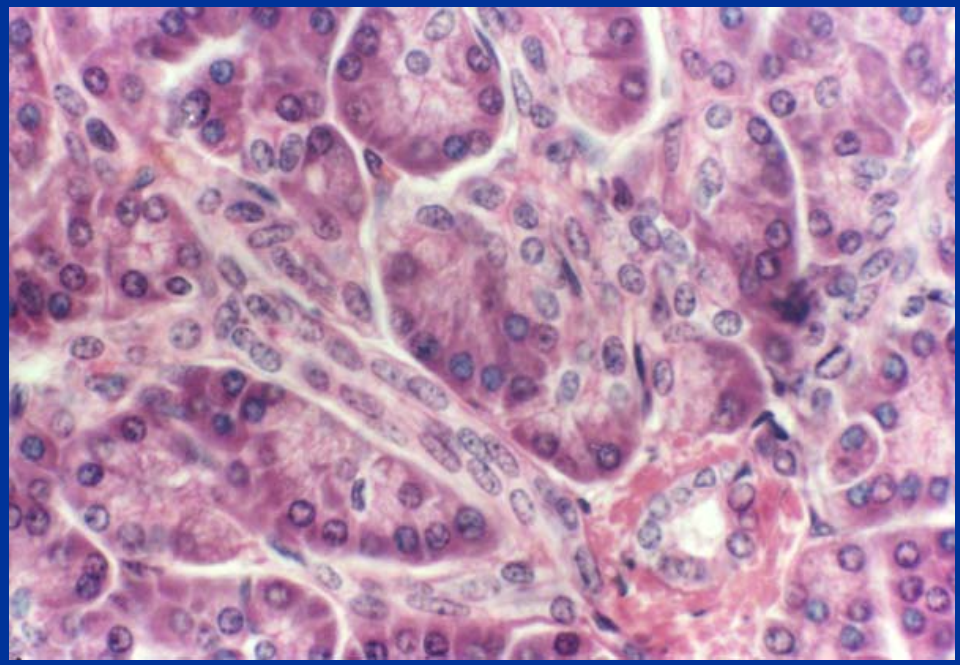
intercalated ducts

intralobular ducts

interlobular ducts

main duct

function:



2. Endocrine Portion

2.1 Pancreas Islets

arranged cell groups, abundant fenestrated capillaries between the cell groups

A cells： glucagon

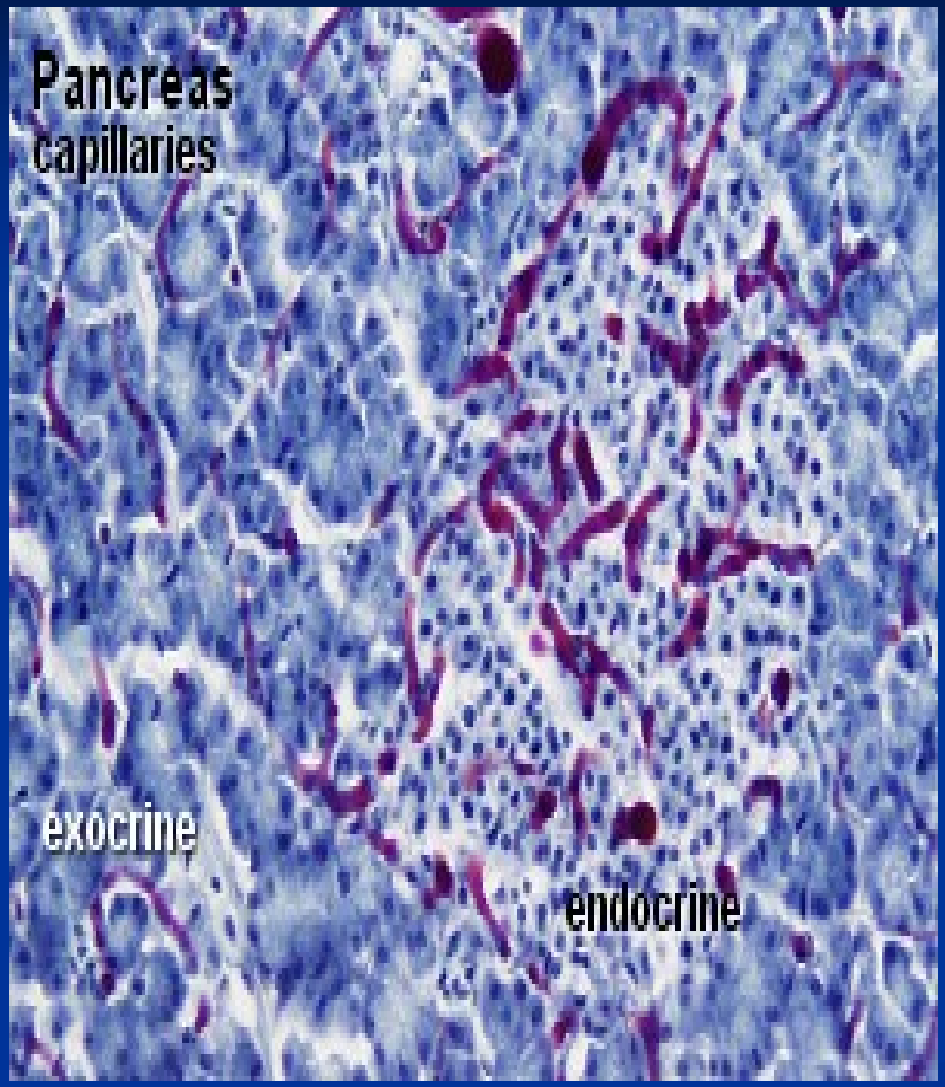
B cells： insulin

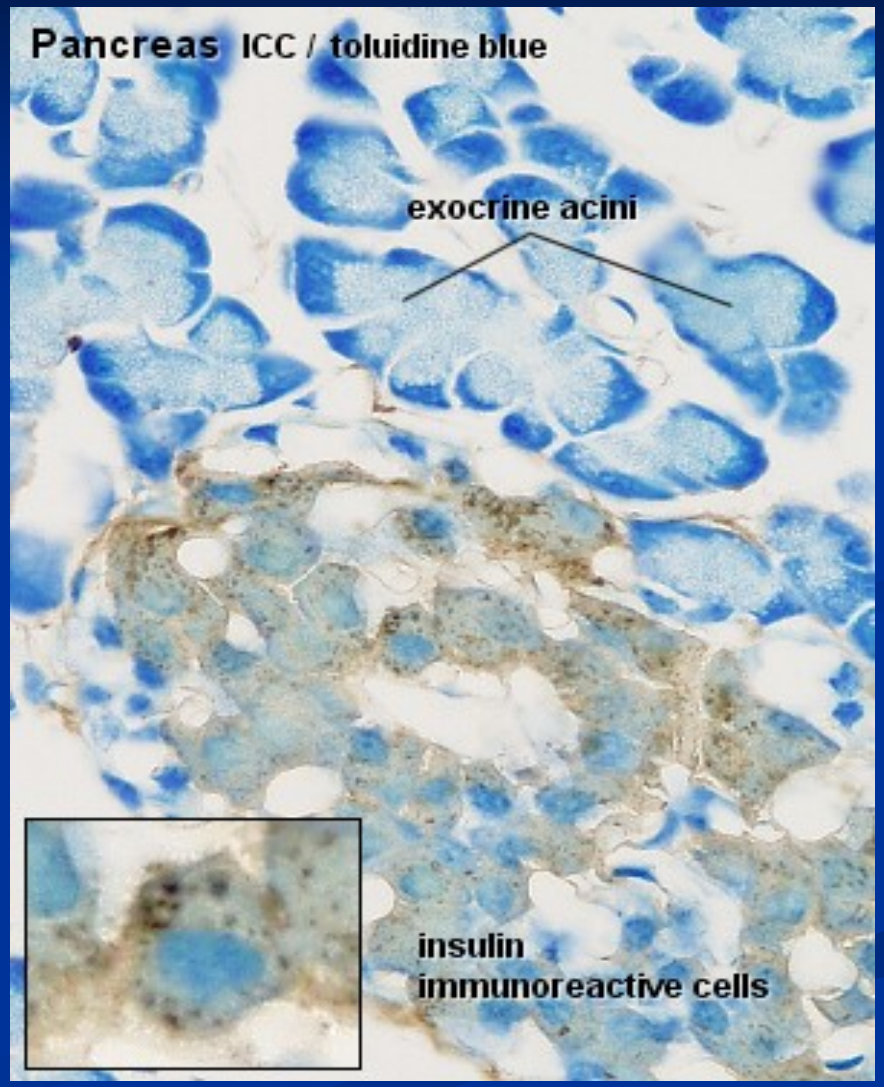
D cells： somatostatin

PP cells： pancreatic polypeptide

D_1 cells: VIP

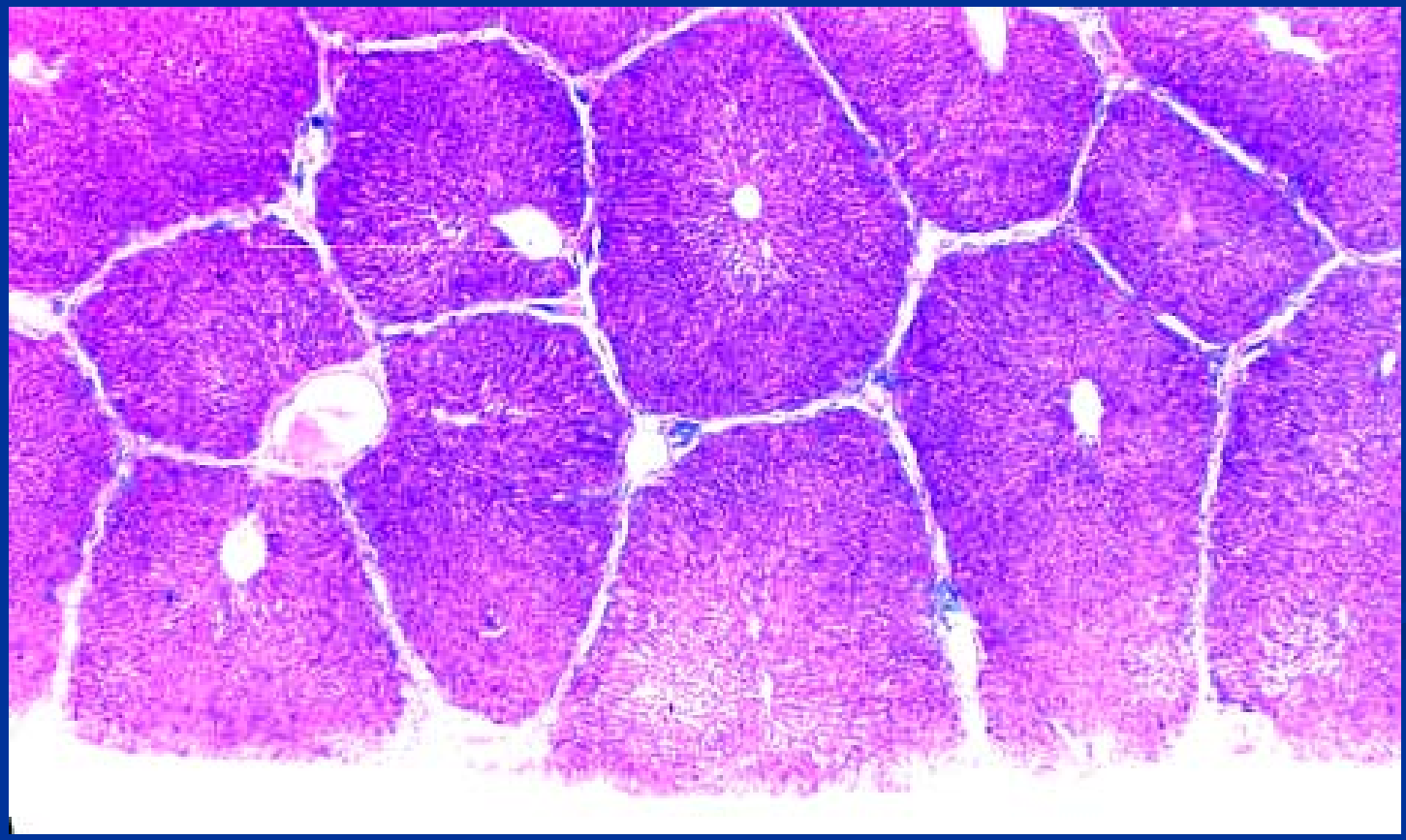
C cells: undiferentiation cells


Pancreas
capillaries
exocrine
endocrine


Pancreas ICC / toluidine blue
exocrine acini
insulin
immunoreactive cells

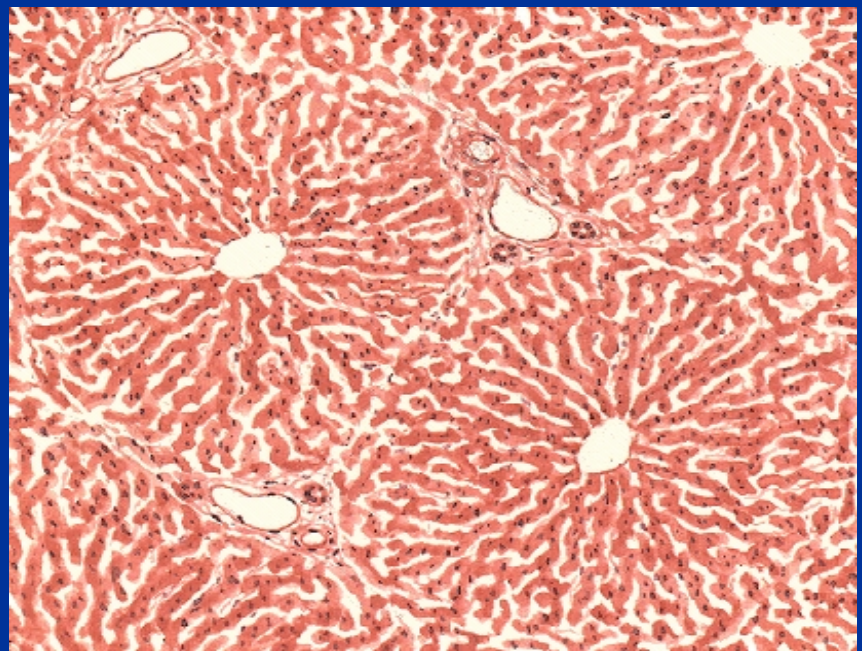
Liver

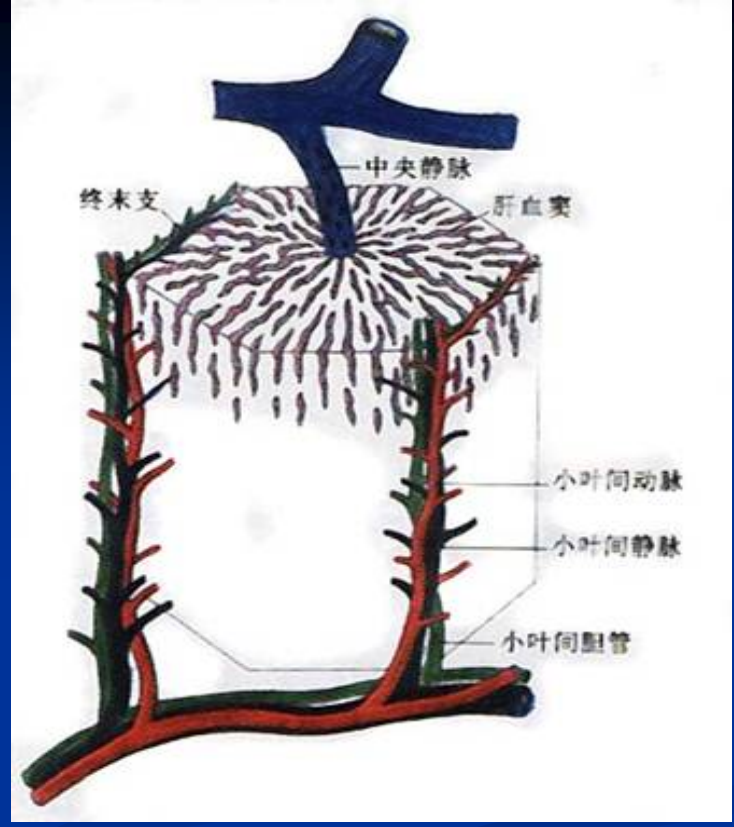
CT of capsule
hepatic lobules portal area

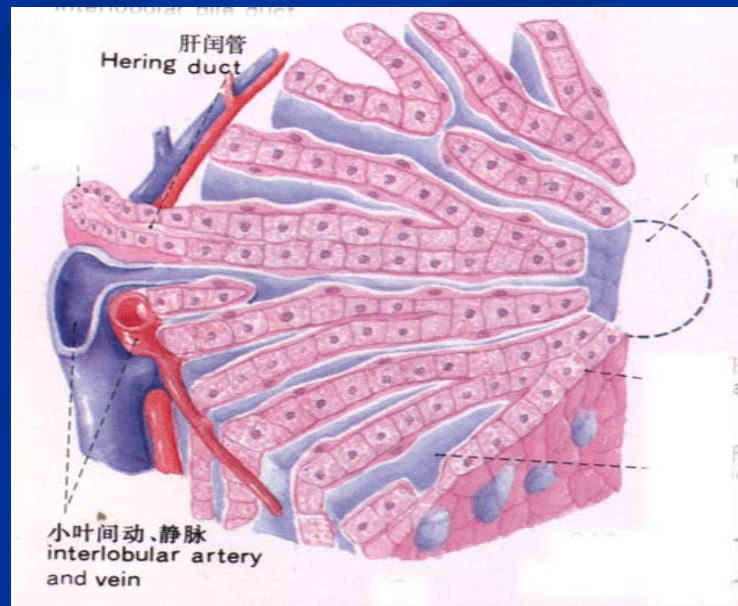


Hepatic Lobules

central vein
hepatic plates (hepatic cord)
hepatic sinusoid
perisinusoidual space
bile canaliculi



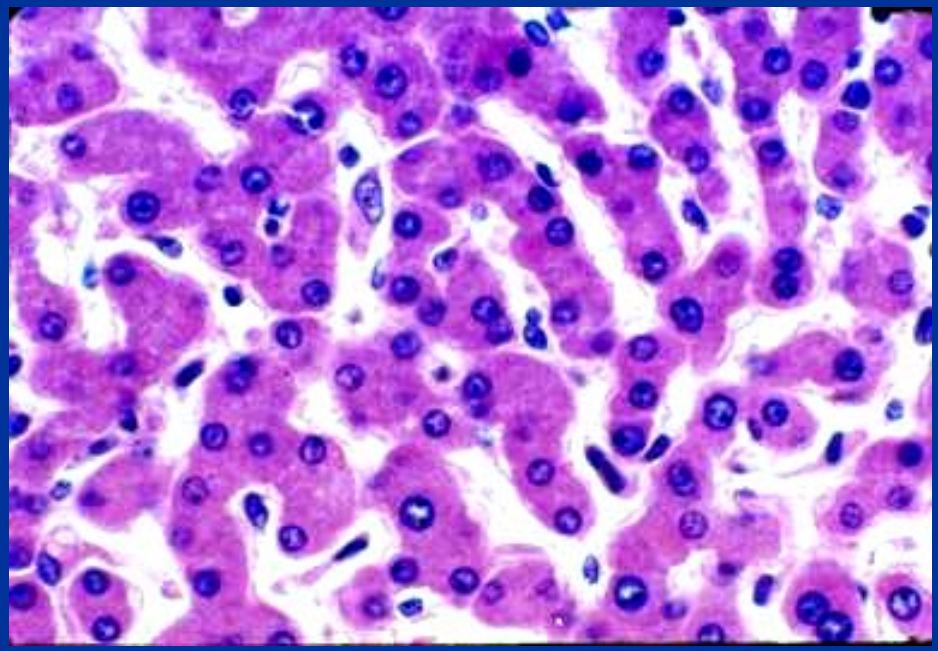


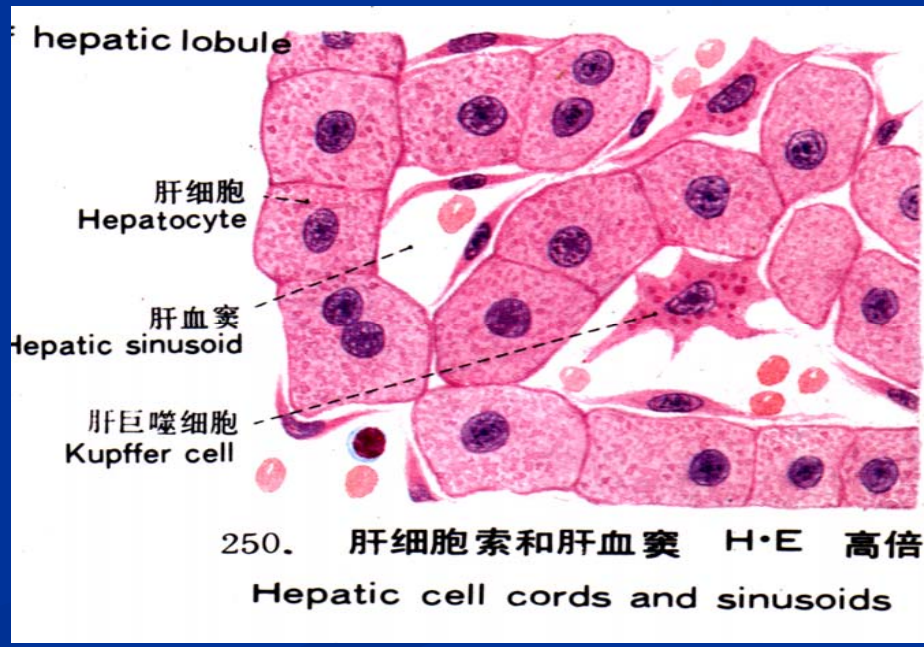


1. hepatocytes

LM: polyhedral cells, eosinophilic cytoplasm nuclear or double nucleus

EM: mitochondria, SER, RER, Golgi complex, lysosome, microbody, inclusion





250. 肝细胞索和肝血窦 H·E 高倍

Hepatic cell cords and sinusoids

Mitochondria: supply energy to cells

RER: blood albumin, fibrinogen lipoprotein and transferrin

SER: synthesizing and secreting bile, metabolism of lipids and hormones and detoxifcation

Golgi complex:

Lysosome:

Microbody: oxidation enzymes in it,

$$H_2O_2 \rightarrow H_2O + O_2$$

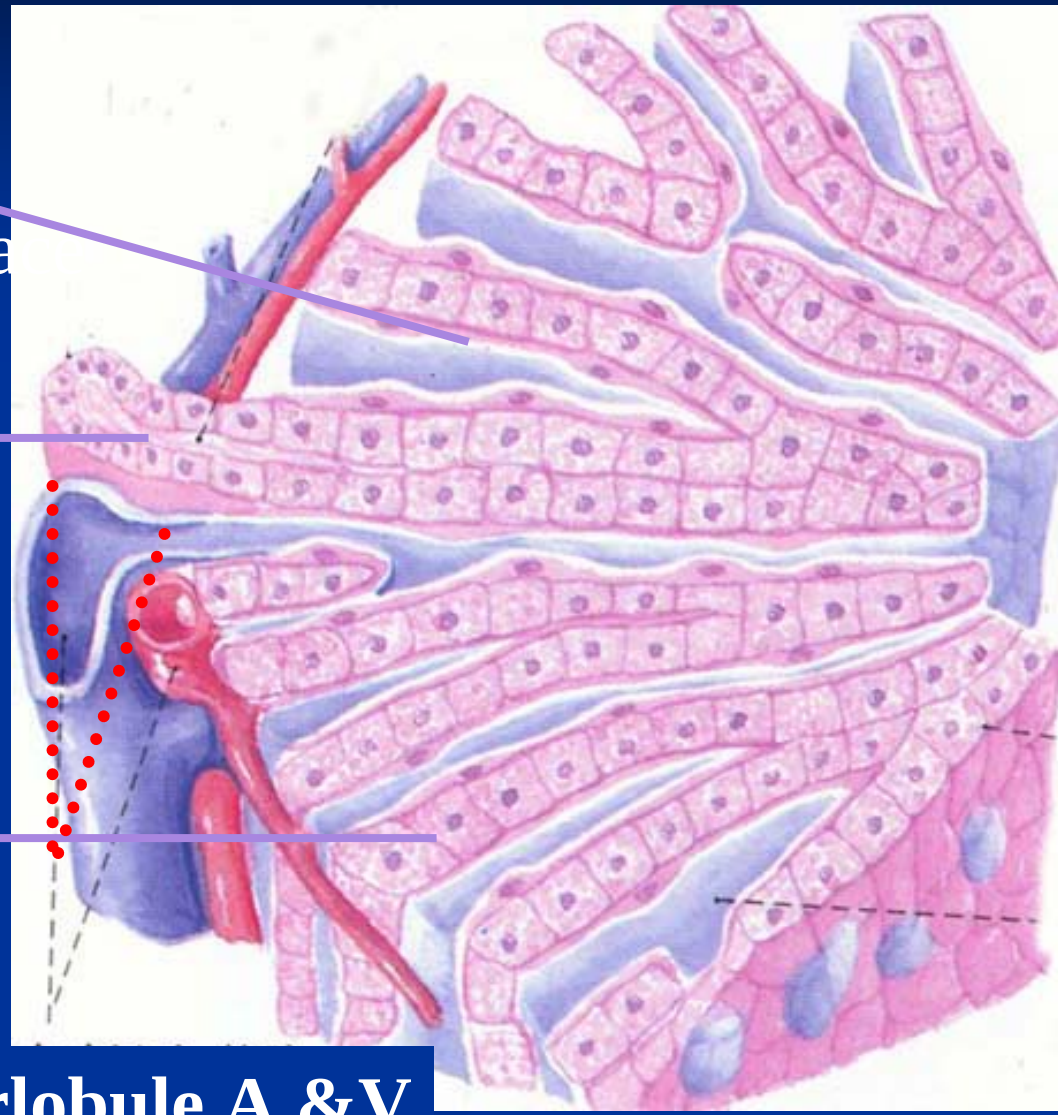
Inclusion: glycogen, lipids and pigment

Three types of functional surface in hepatocyte

* Perisinusoidal surface: face to perisinusoidal spa

* bile canalicular surface: face into the *bile canaliculus*

*cell junction surface



Interlobule A.&V.

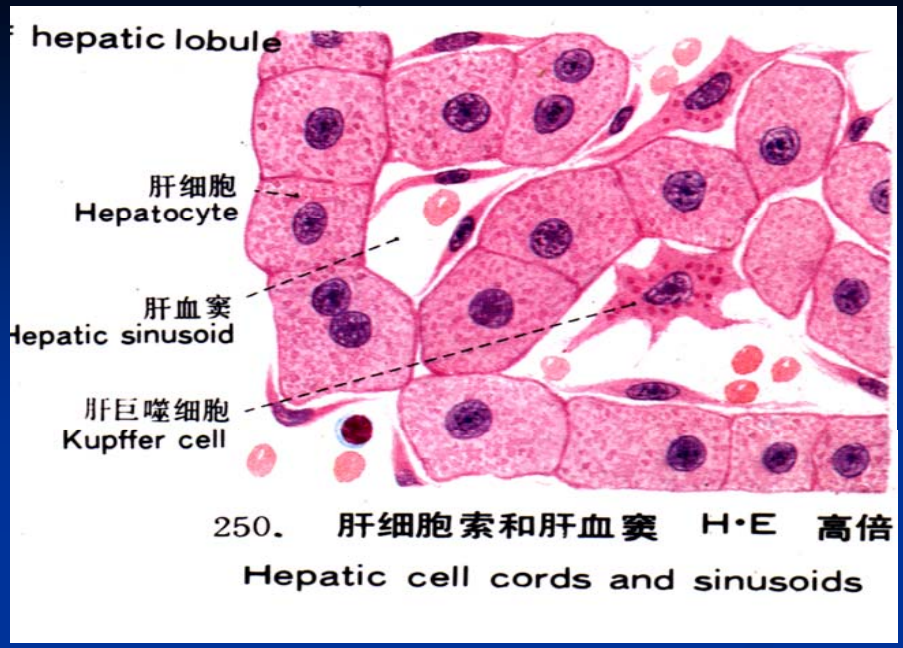
2. Hepatic Sinusoid

between hepatic plates

fenestrated endothelium

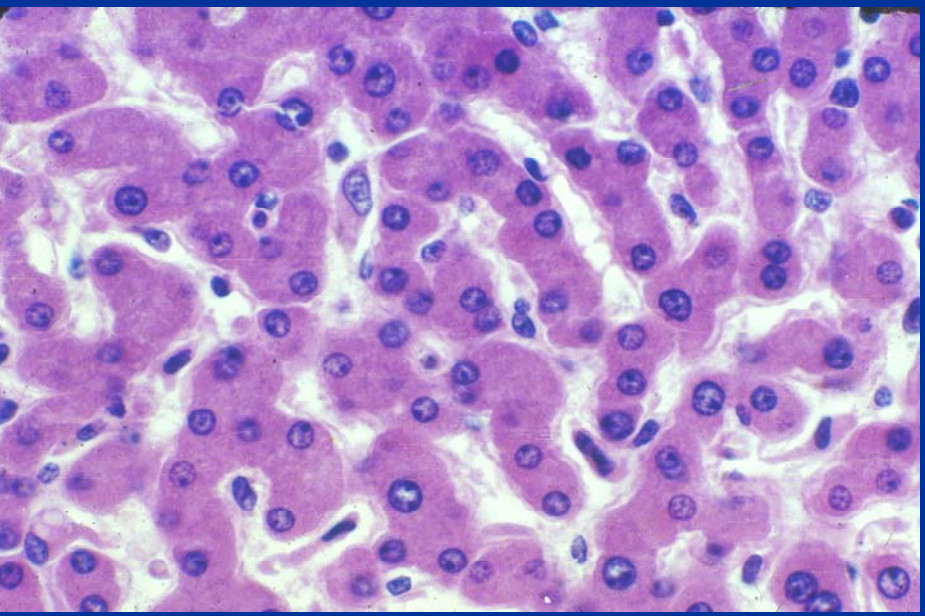
macrophages

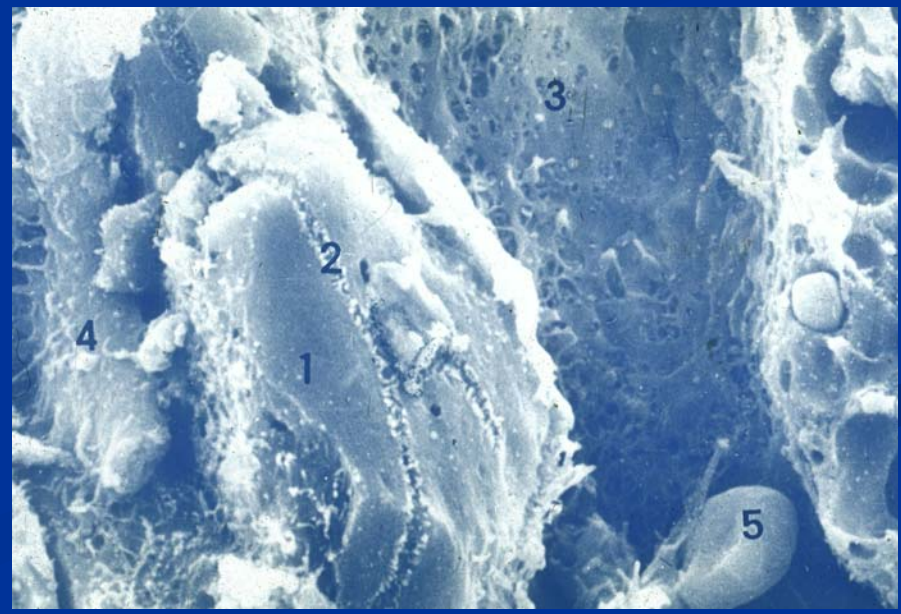
large granules cells



250. 肝细胞索和肝血窦 H·E 高倍

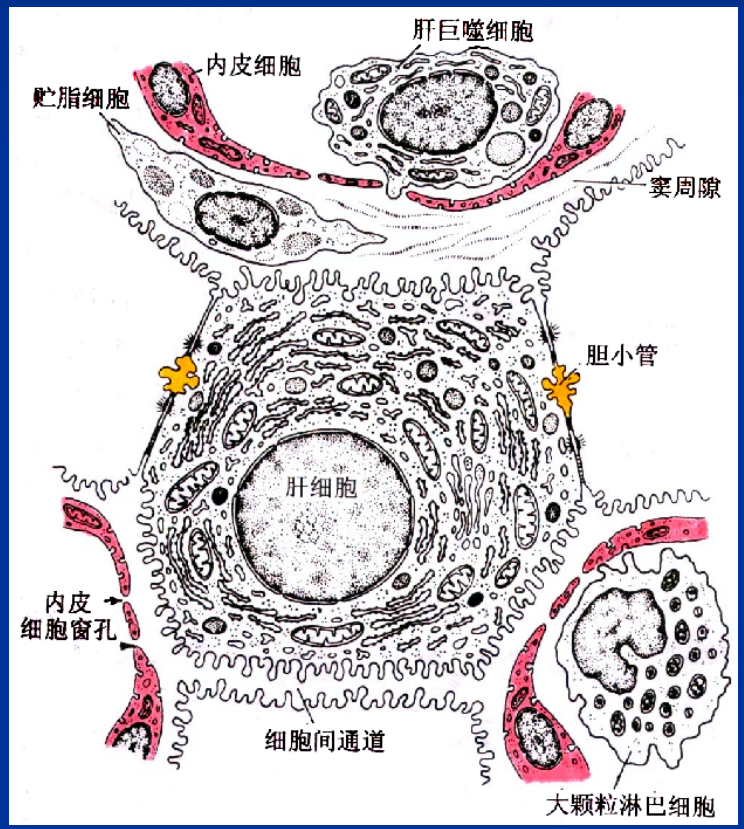
Hepatic cell cords and sinusoids

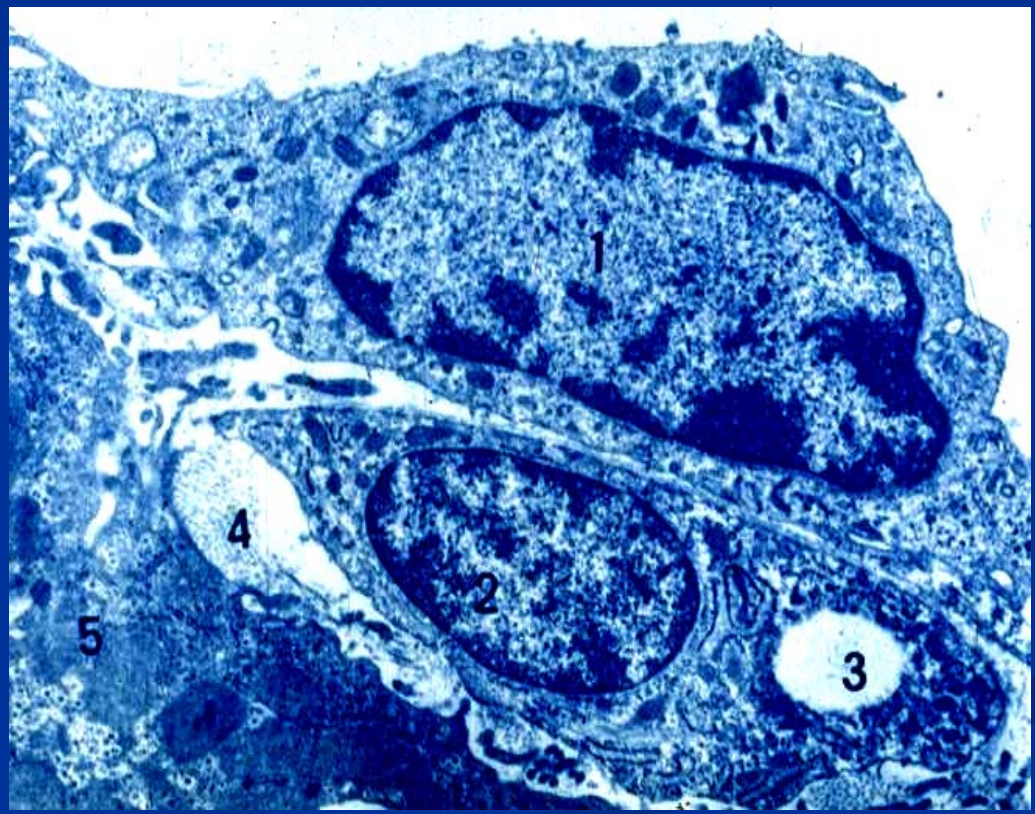




3.perisinusoidal space

the fat-storing cells :



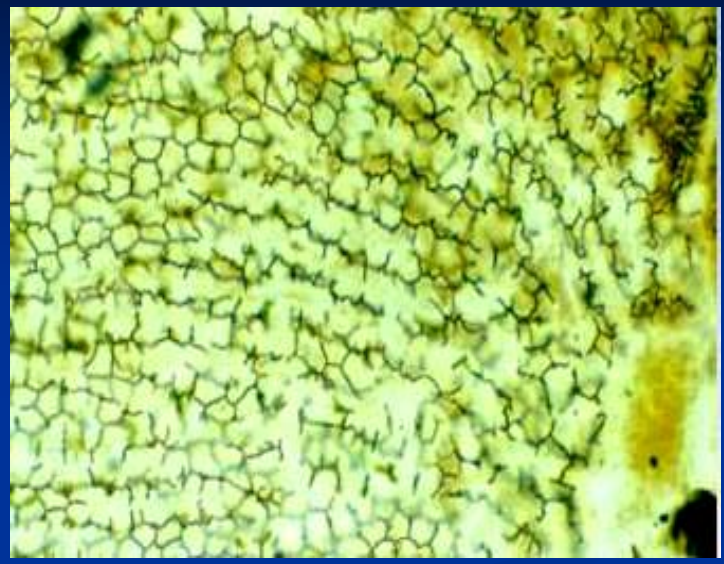


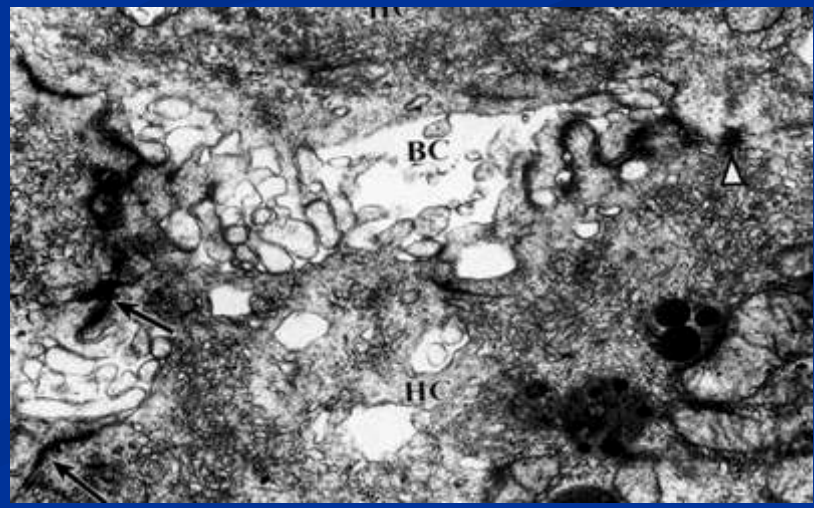
4. Bile Canaliculus

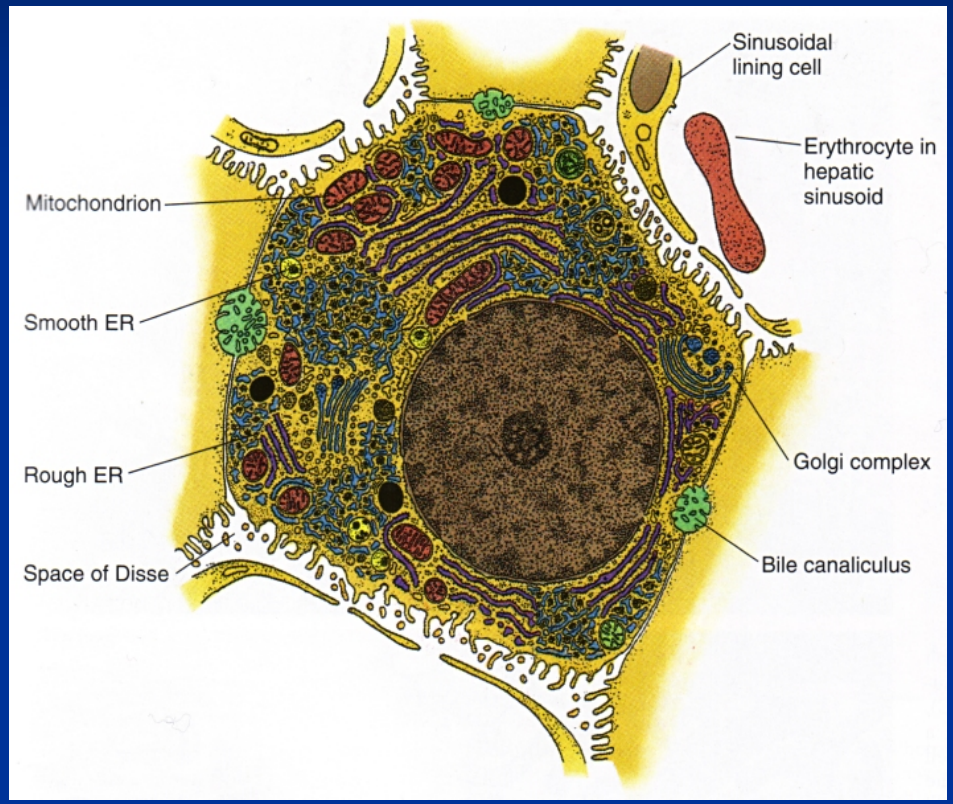
2 hepatocytes abut, they delimit a tubular space between them known as bile canaliculus in which

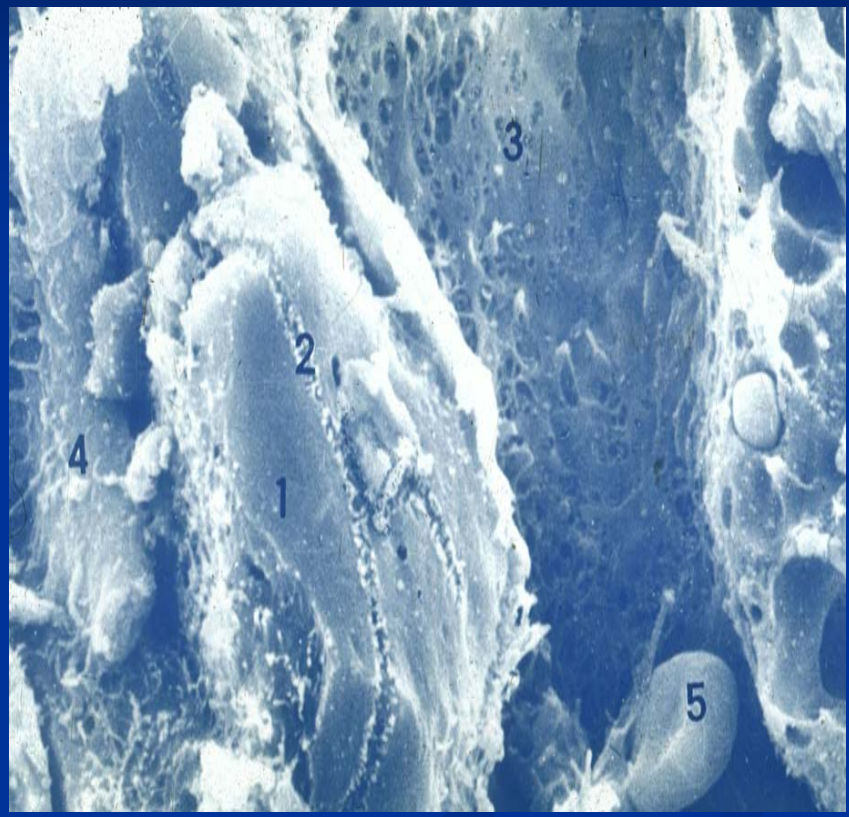
have a small number of microvilli.

The cell membranes near these canaliculi are firmly bound by tight junction, mesodesomes and gap junction.






Sinusoidal lining cell
Erythrocyte in hepatic sinusoid
Mitochondrion
Smooth ER
Rough ER
Golgi complex
Space of Disse
Bile canaliculus

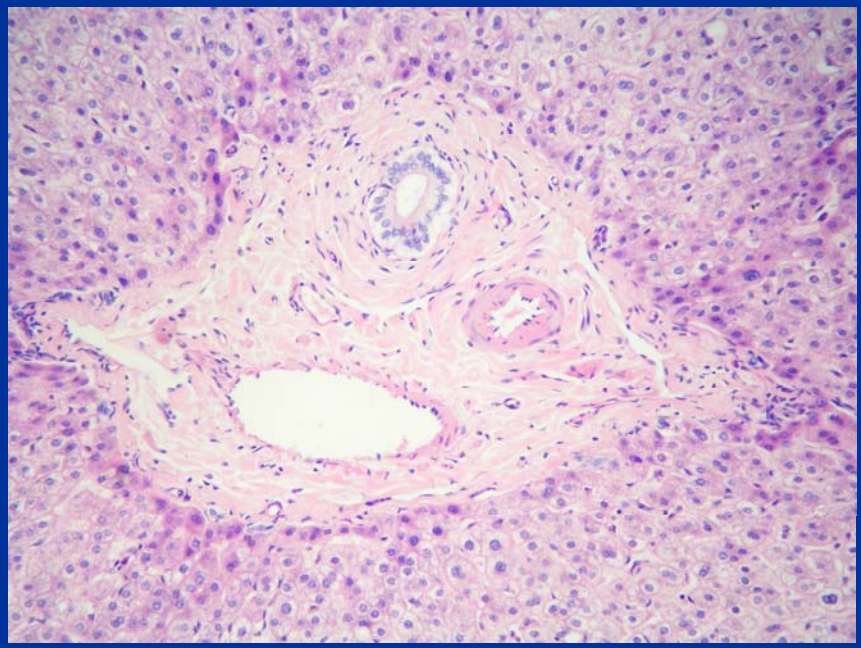

1
2
3
4
5

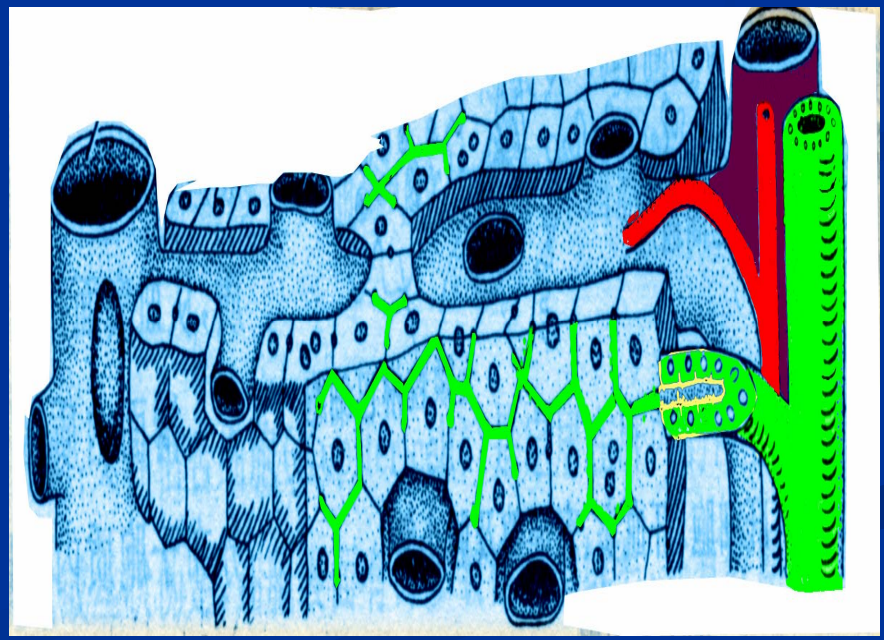
Portal Area

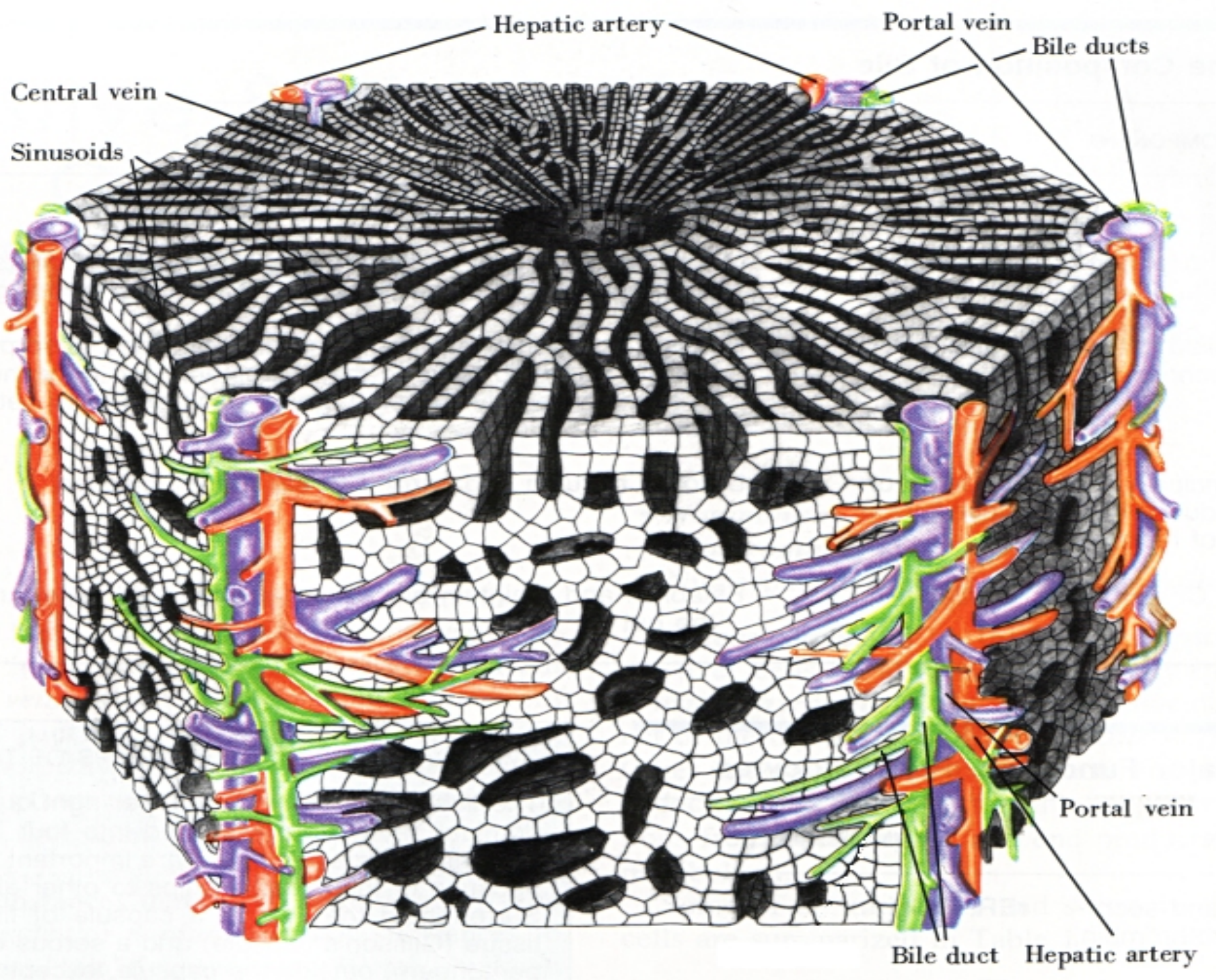
interlobular vein：

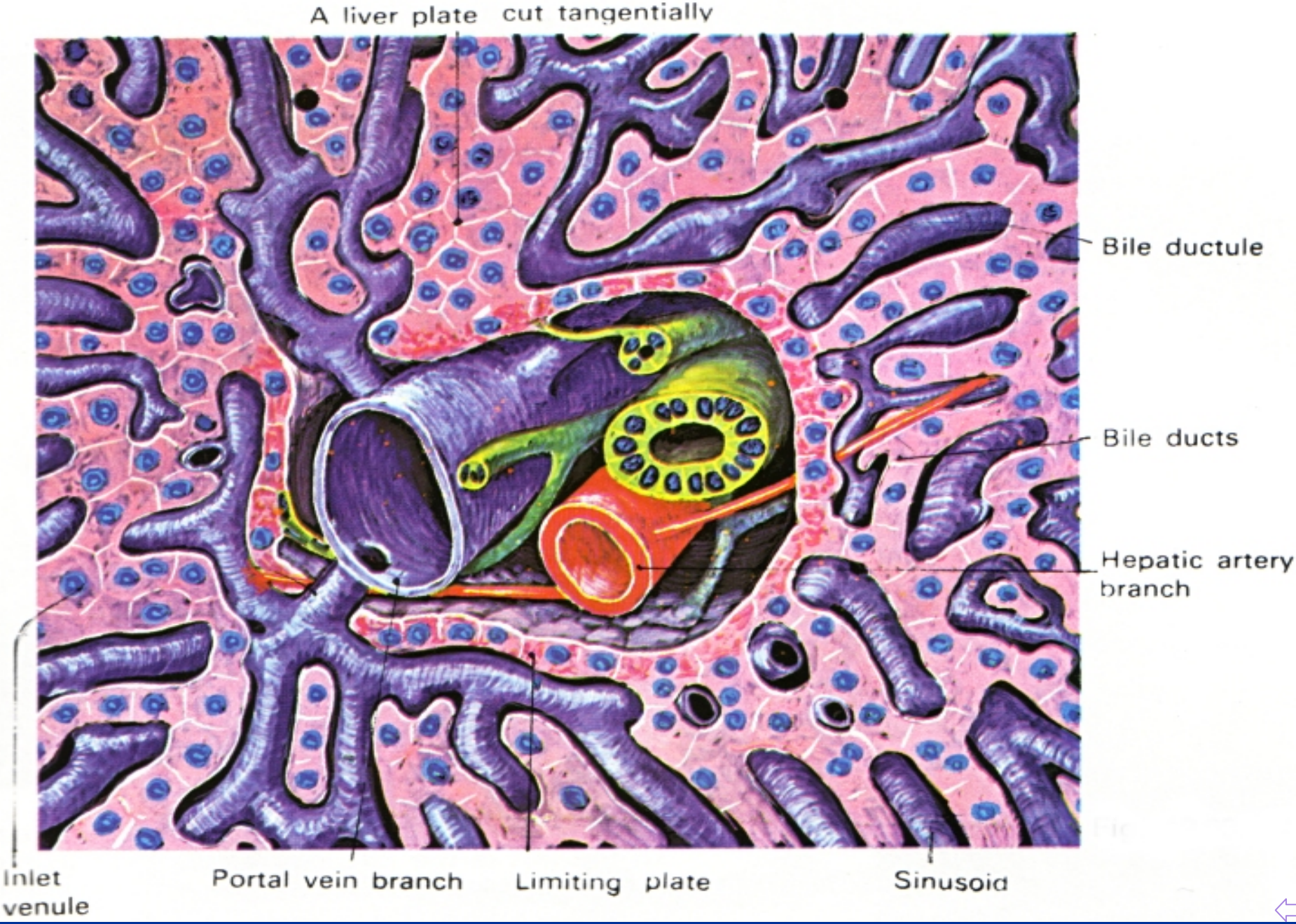
interlobular artery:

interlobular bile duct：

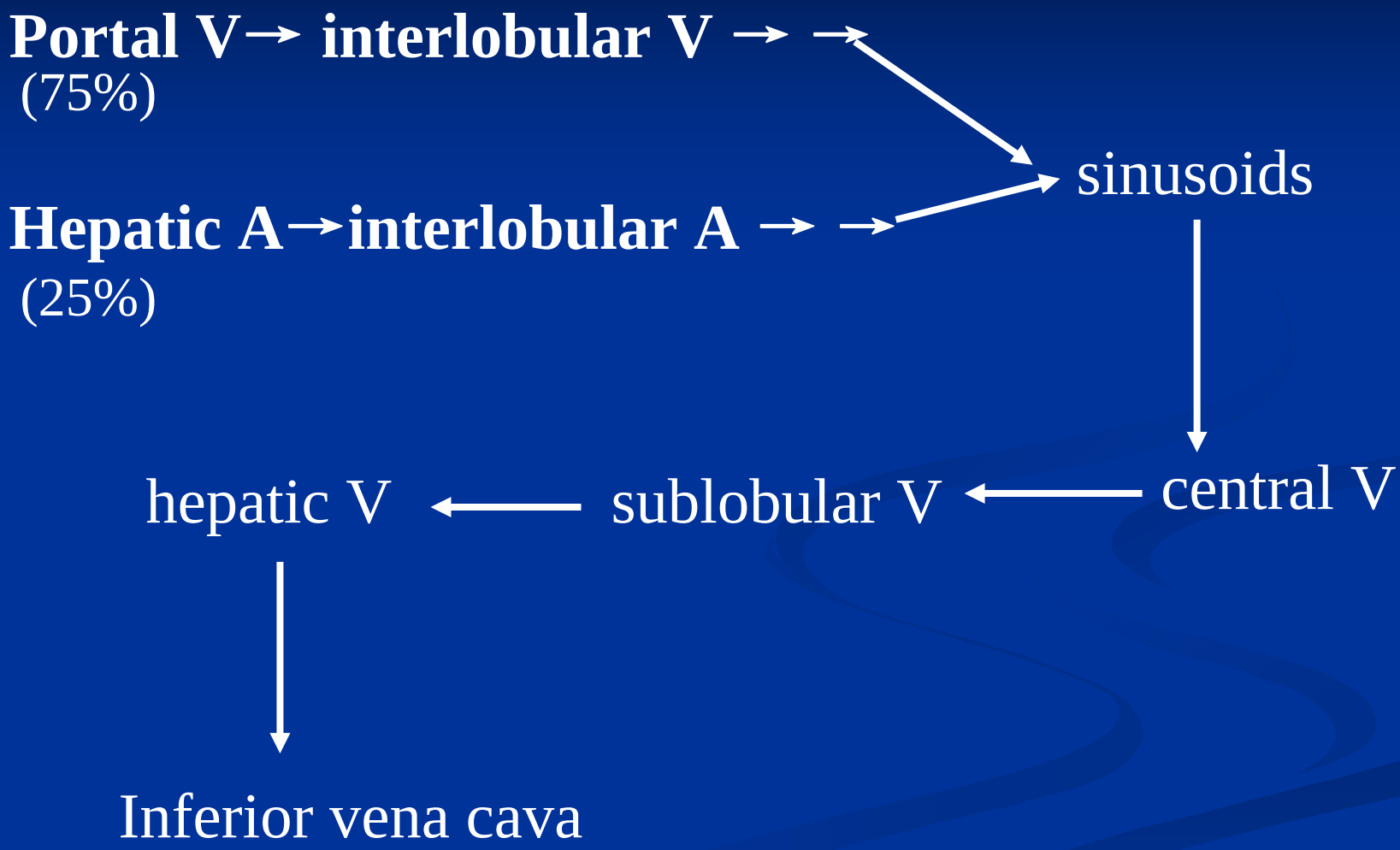





Hepatic artery
Portal vein
Bile ducts
Central vein
Sinusoids
Portal vein
Bile duct
Hepatic artery


A liver plate cut tangentially
Bile ductule
Bile ducts
Hepatic artery branch
Inlet venule
Portal vein branch
Limiting plate
Sinusoid

Hepatic Blood Supply



Biliary Passages

Bile canaliculi → periperal bile ductules (*Hering's*)

↓

interlobular bile duct

↓

Left & right hepatic ducts

↓

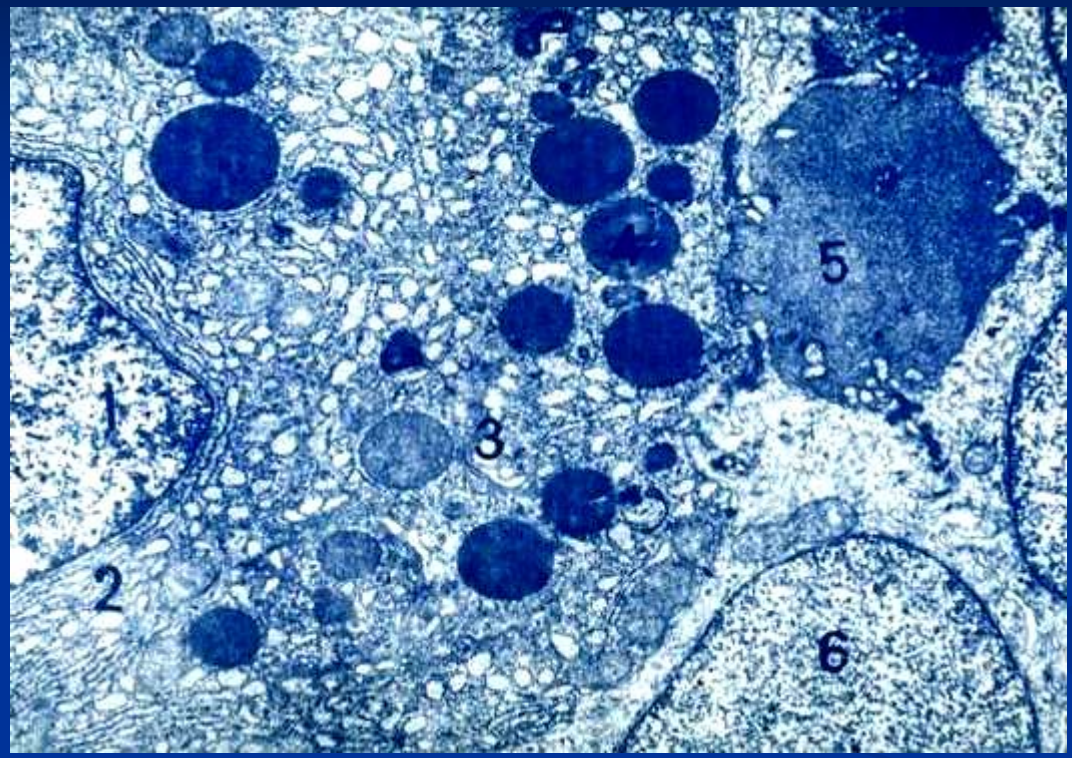
Common hepatic duct

↓

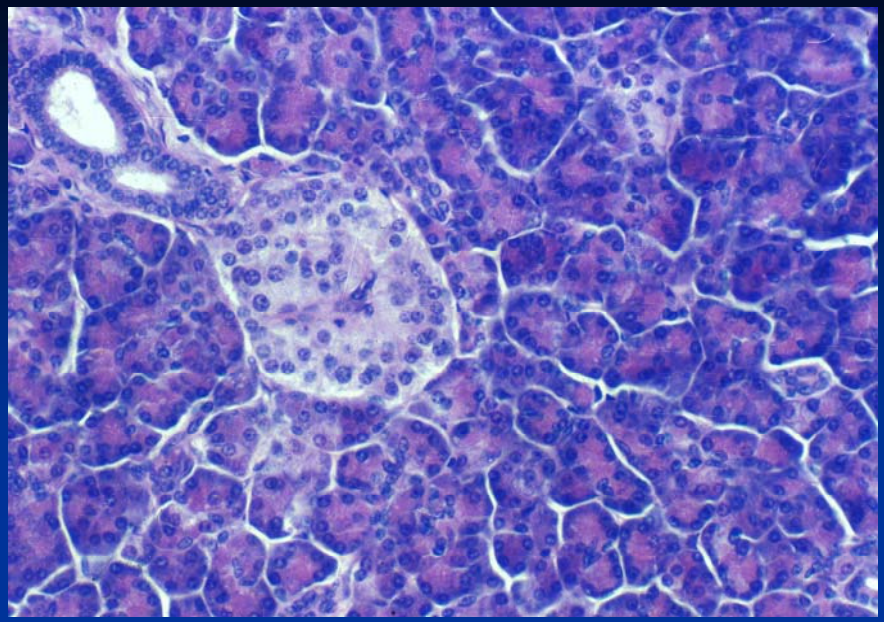
Common bile duct

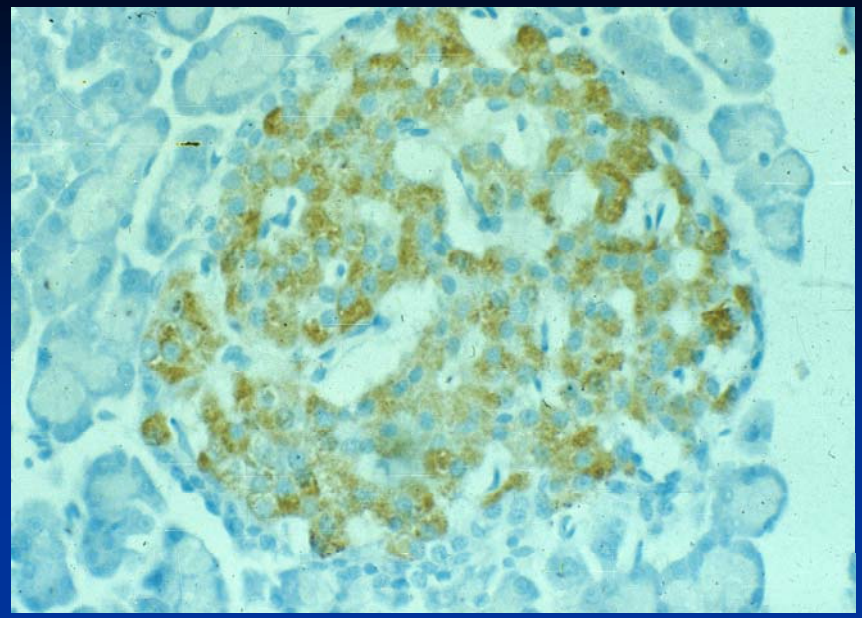
↓ ⇄ **Cystic duct** ⇄ **Gall bladder**

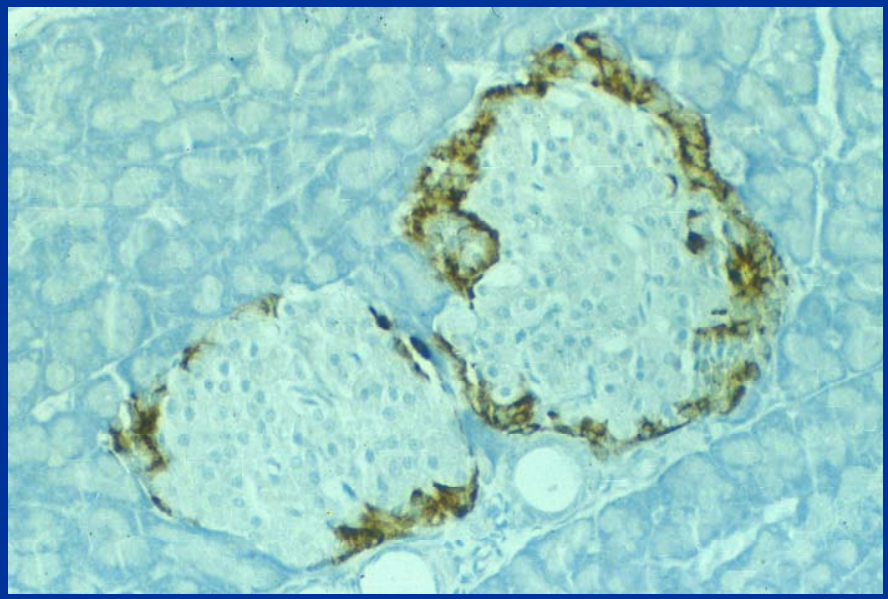
Duodenum papilla

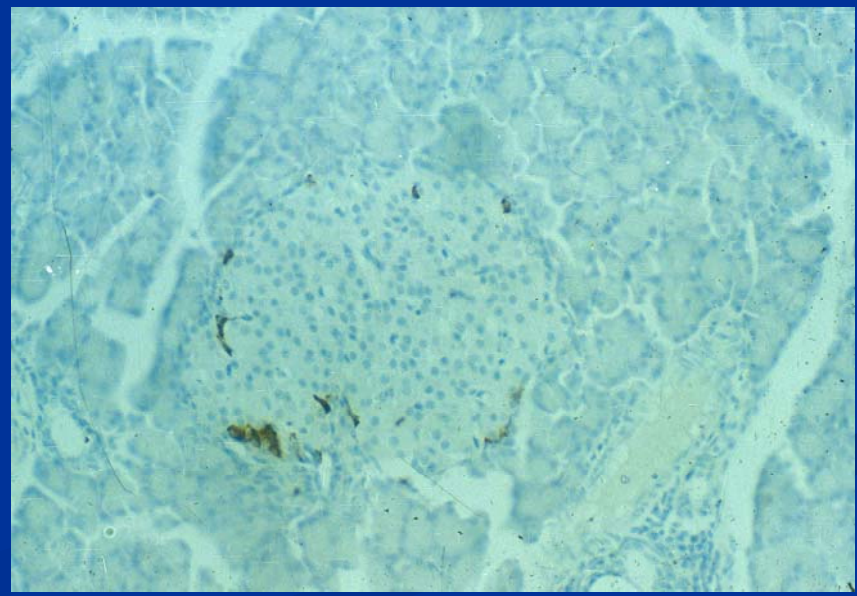


serous acinar cells in EM

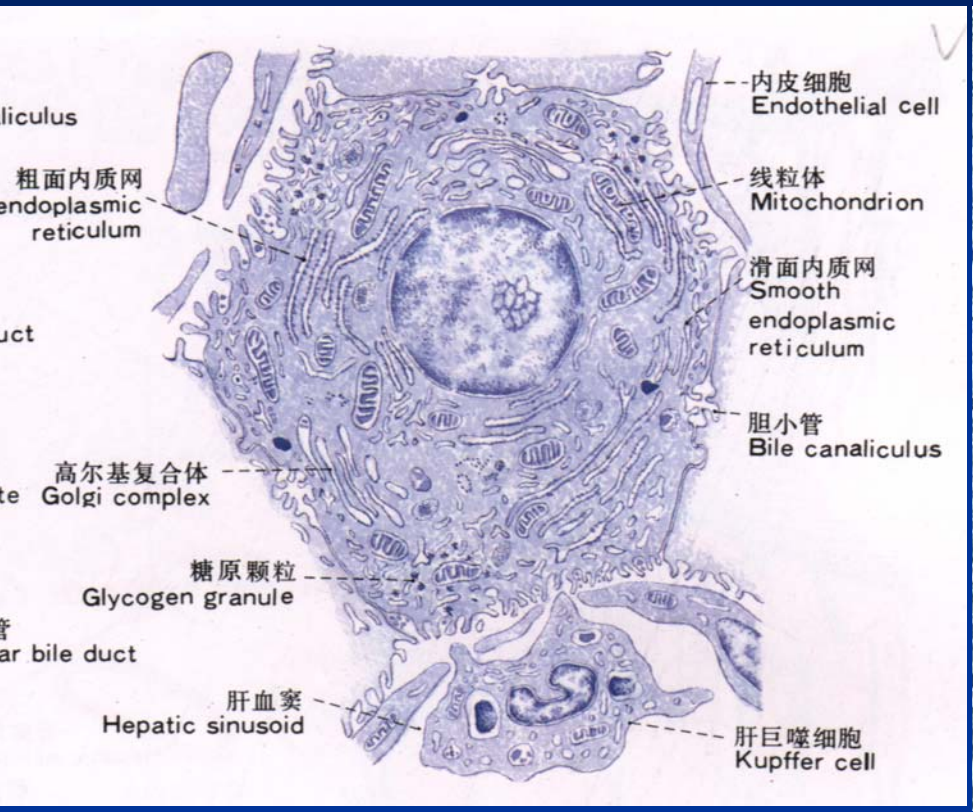


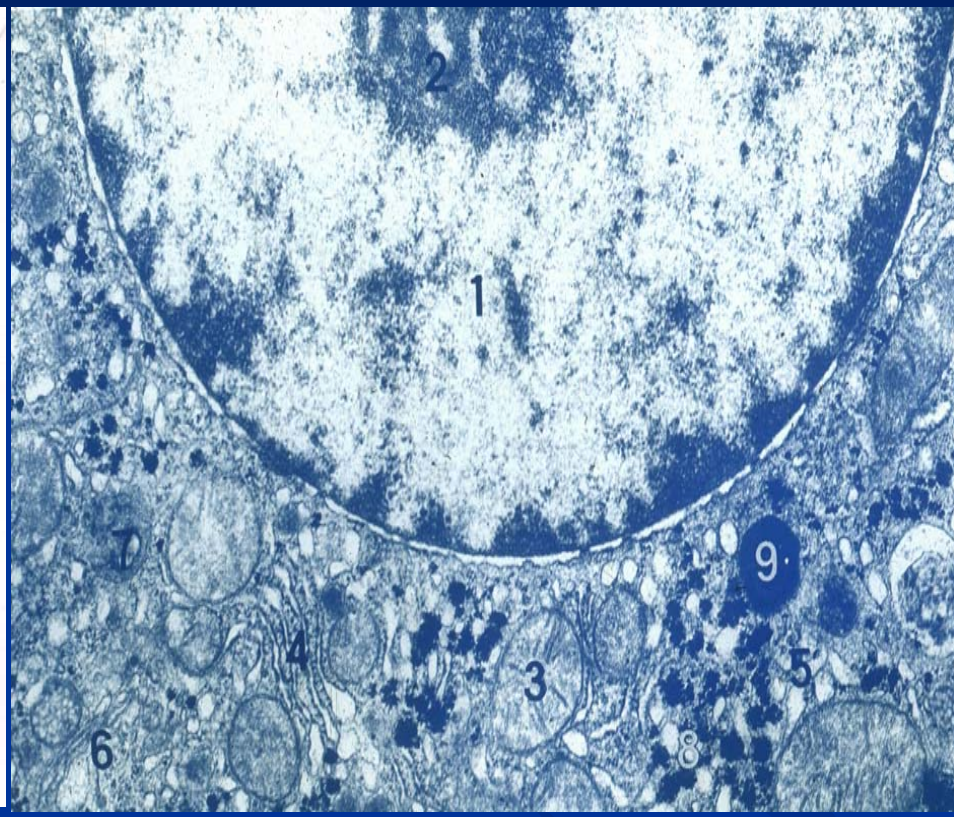


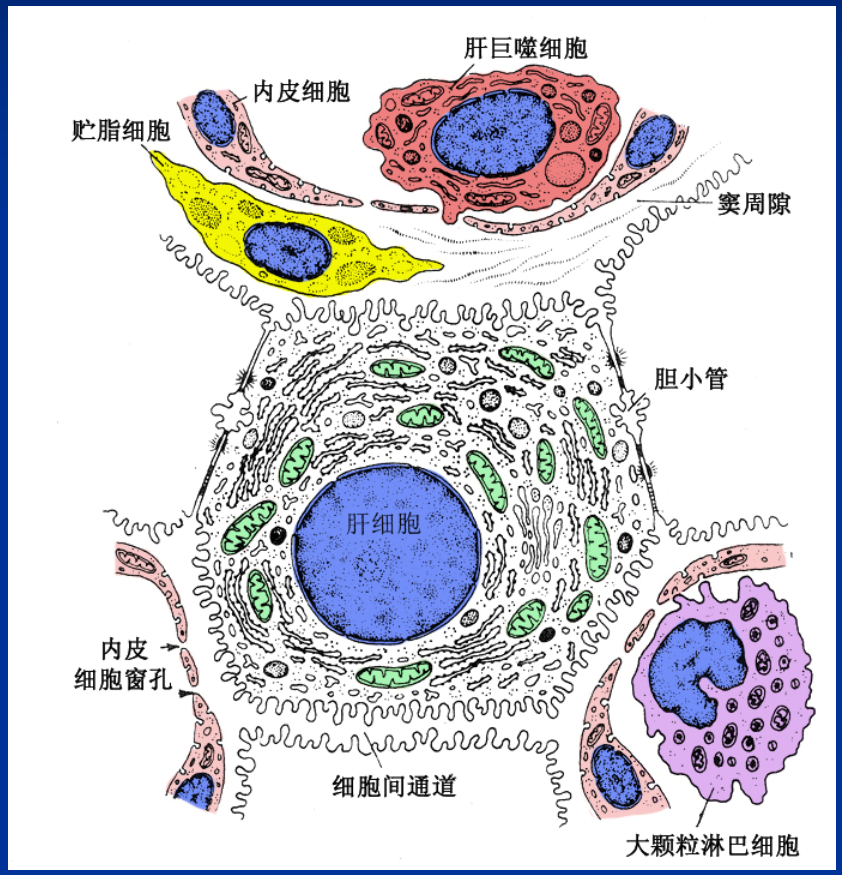


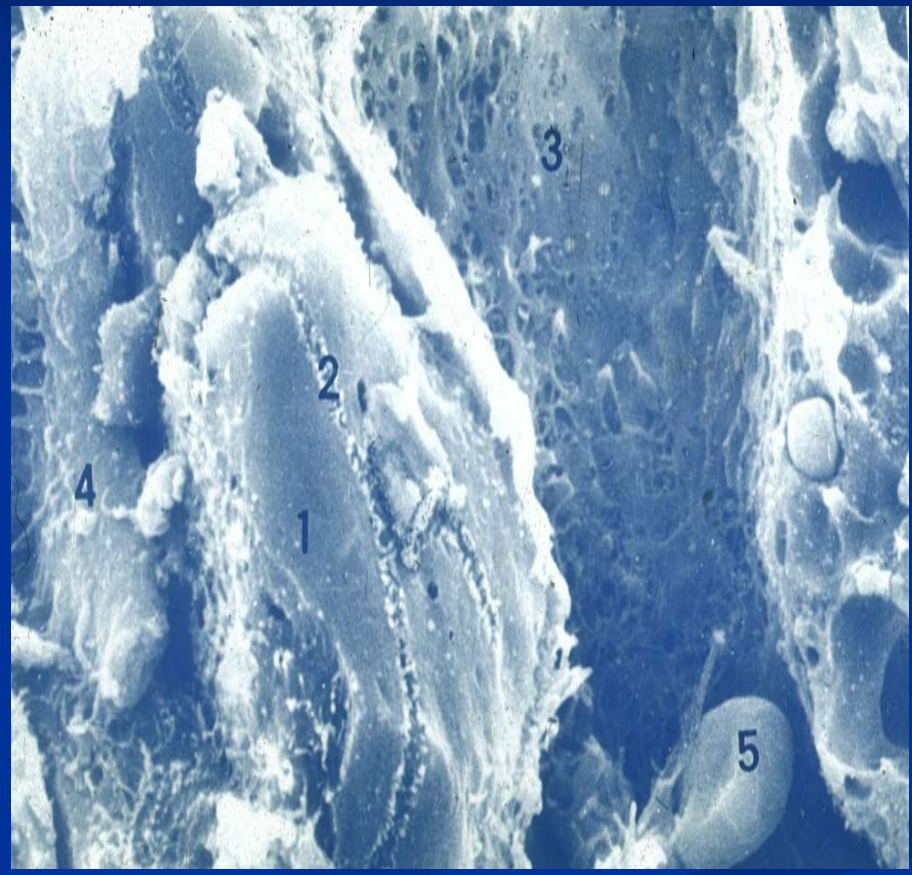


Pancreas Islets


liculus
粗面内质网
endoplasmic
reticulum
uct
高尔基复合体
te Golgi complex
糖原颗粒
Glycogen granule
管
ar bile duct
肝血窦
Hepatic sinusoid
内皮细胞
Endothelial cell
线粒体
Mitochondrion
滑面内质网
Smooth
endoplasmic
reticulum
胆小管
Bile canaliculus
肝巨噬细胞
Kupffer cell


1
2
3
4
5
6
7
8
9


肝巨噬细胞
内皮细胞
贮脂细胞
窦周隙
胆小管
肝细胞
内皮
细胞窗孔
细胞间通道
大颗粒淋巴细胞


1
2
3
4
5

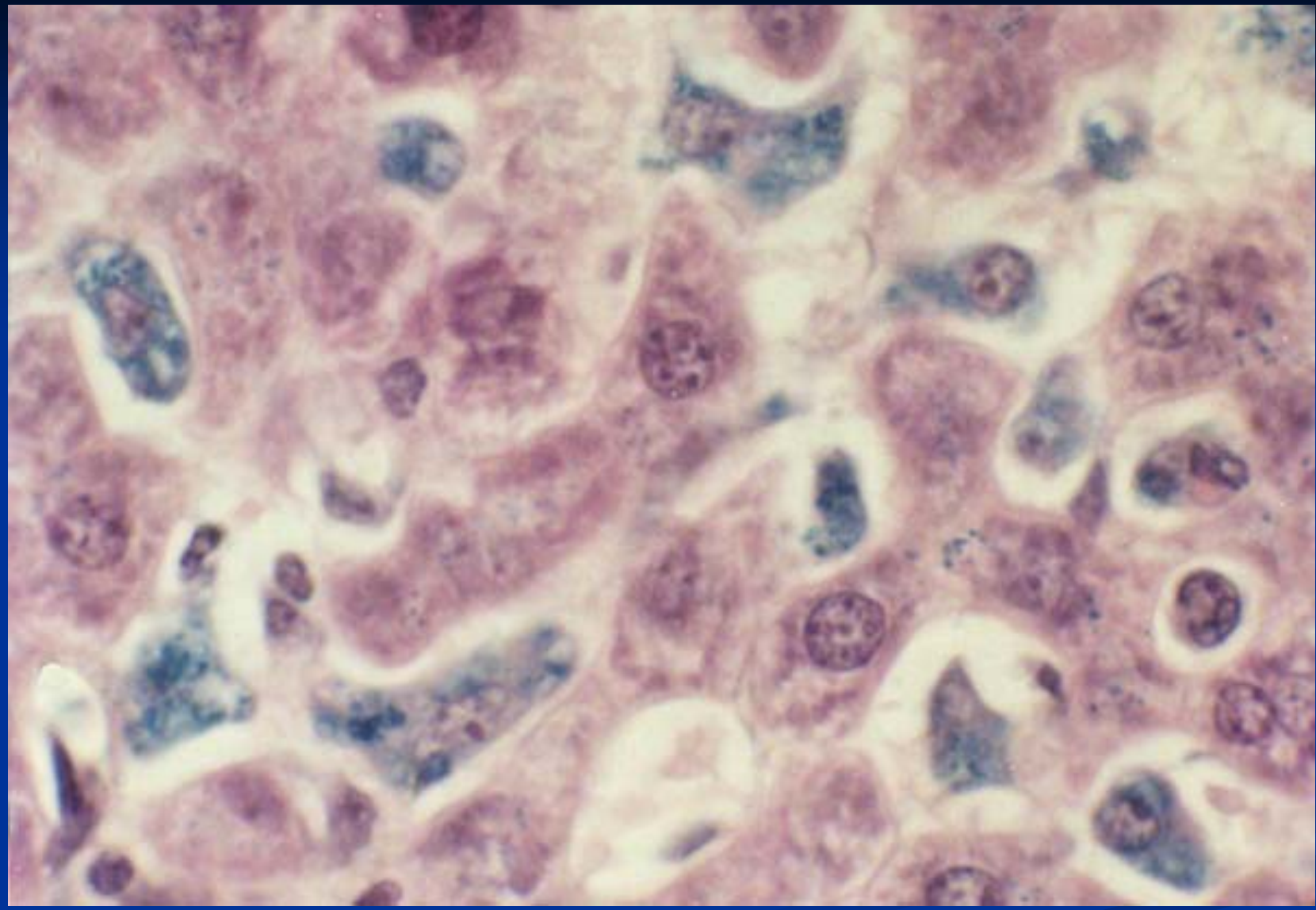


图15　小鼠肝细胞与肝巨噬细胞（台盼蓝注射）