

Topic: Gut Accessory Organs: Liver, Gall Bladder, Pancreas

Reading assignment: Junquiera 12th ed Chapter 16 pp 285-297

Reference material:

1) Liver

Text Figures: 15-1, 16-11, 16-13, 16-14, 16-15, 16-17

Lab Slides:

human 69 liver

human 210 liver, vasculature injected

CVH 73 elasmobranch liver

CVH 146 teleost liver

CVH 166 toad liver

CVH 171 alligator liver

2) Gall Bladder

Text Figure: 16-20

Lab Slides:

human 211 gall bladder cross-section

CVH 154 codfish gall bladder

3) Pancreas

Text Figures:

16-7, 15-9

Lab Slides:

human 144 pancreas

CVH 69 elasmobranch pancreas

CVH 170 alligator pancreas

## ACCESSORY ORGANS FOR DIGESTION

LIVER

GALL BLADDER

PANCREAS (EXOCRINE, ENDOCRINE)

### VERTEBRATE LIVER

- liver is largest internal organ
- hepatocytes function similarly in all vertebrates
- lobulated in birds, mammals,  
no lobules in fish, amphibians or reptiles

# LIVER

functions:

- process nutrients from intestine - CHO, AA
- break down toxins, wastes in blood → bile (exocrine)
- synthesize plasma proteins (endocrine)

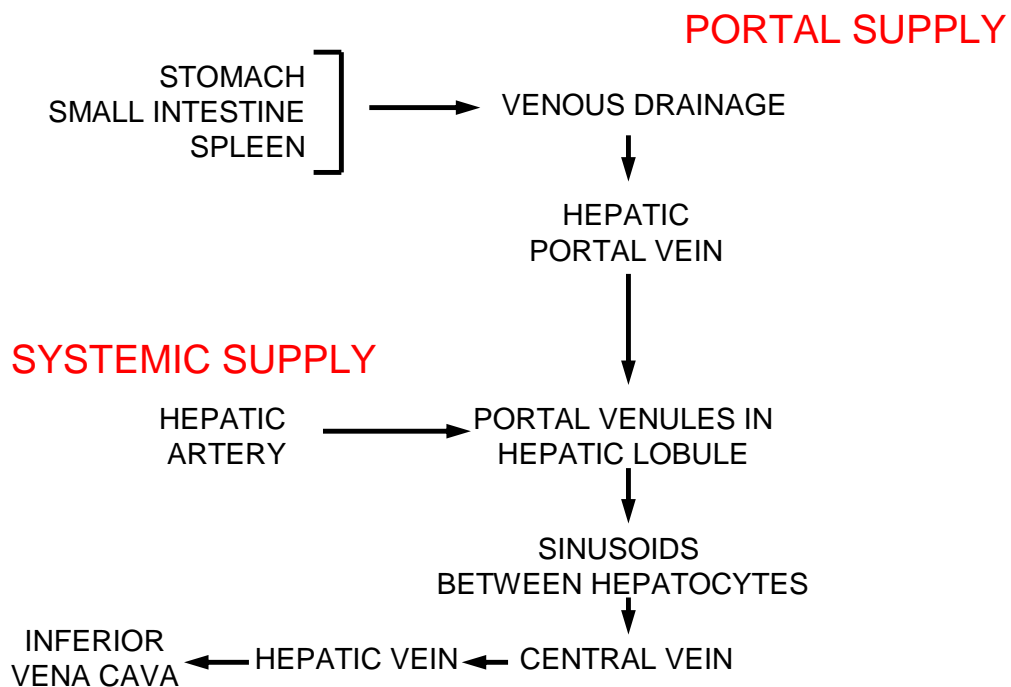
blood supply

lobule structure

hepatocytes

bile production

LIVER: two blood circulations



BILE: made in liver, stored in gall bladder

aqueous salt solution containing:

bile acids, bile salts:

- help emulsify fats in small intestine
- promote lipase action and lipid absorption

bilirubin:

- spleen macrophages phagocytose old erythrocytes, produce bilirubin → plasma → hepatocytes absorb, secrete into bile

## PANCREAS: MIXED EXOCRINE AND ENDOCRINE

-acinar glands: exocrine

- pancreatic juice - digestive enzymes  
via pancreatic duct → duodenum

-pancreatic islets (islets of Langerhans): endocrine

-hormones

insulin -  $\beta$  cells

glucagon -  $\alpha$  cells

peptide hormones