

## Lab 4: Circulation

### GOALS:

You should be able to.....

- \* Describe the flow of blood through the systemic and pulmonary circuits (adult & fetus).
- \* Locate the major veins and arteries of the thoracic cavity; know their function.
- \* Locate the major veins and arteries of the abdominal cavity; know their function.
- \* Explain the function of the hepatic portal system and how blood flows through it.
- \* Identify the differences in appearance and function of erythrocytes, leukocytes, and platelets.
- \* Understand how blood flows from artery → arteriole → capillary → venule → vein

### I. Path of Blood Flow

- p. 173 - 175 Read, answer questions, fill out Table 14.1.
- REVIEW p. 176-178. If you need to, also review blood flow in the fetal heart.

### II. Thoracic Cavity: Major Veins & Arteries

- VEINS: p. 178-181 Become familiar with the veins in Figures 14.4 & 14.6. Then, use these to help you locate the major veins of the thoracic cavity (listed below).

*Be able to state where blood is coming from and where it is going!!*

#### LOCATE MAJOR VEINS:

- Anterior Vena Cava
- Right/Left Brachiocephalic Veins
- Right/Left Subclavian Veins
- Right/Left Internal Jugular
- Right/Left External Jugular

- ARTERIES: p. 178-181 Become familiar with the arteries in Figures 14.4 & 14.5. Then, use these to help you locate the major arteries of the thoracic cavity (listed below).

*Be able to state where blood is coming from and where it is going!!*

#### LOCATE MAJOR ARTERIES:

- Aorta
- Brachiocephalic trunk
- Right/Left Subclavian Arteries
- Right/Left Carotid Arteries

### III. Abdominal Cavity: Major Veins & Arteries

- p. 182-top of 184 Become familiar with diagrams and then use the procedures listed to find the major veins and arteries of the abdominal cavity. *Be able to state where blood is coming from and where it is going!! DO NOT REMOVE ORGANS!*

#### LOCATE MAJOR VEINS:

- Posterior Vena Cava
- Hepatic Portal Vein
- Right/Left Renal Vein
- Right/Left Common Iliac
- Umbilical Vein

#### LOCATE MAJOR ARTERIES:

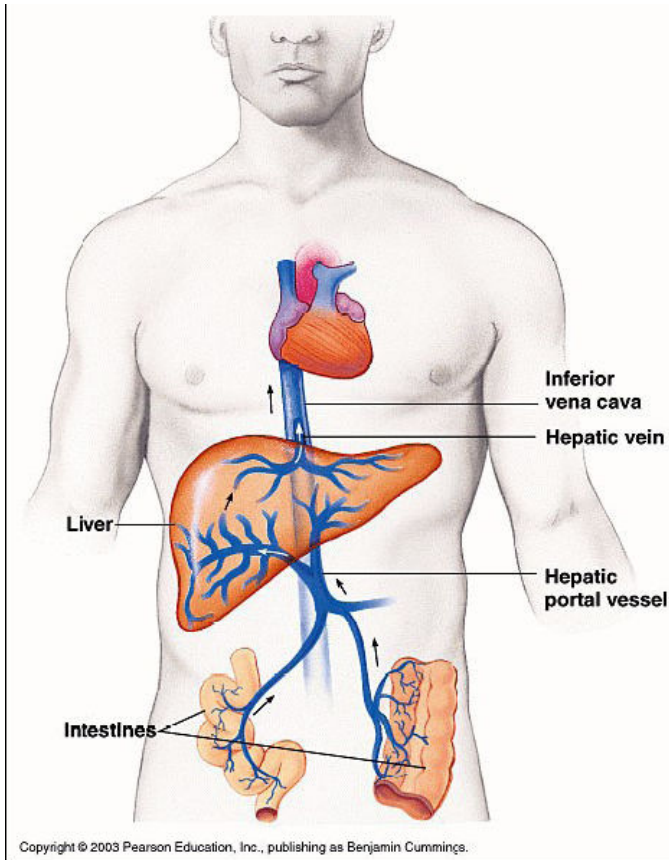
- Dorsal Aorta
- Celiac Artery
- Right/Left Renal Arteries
- Mesenteric Artery
- Right/Left Iliac
- Umbilical Artery

**NOTE: Use p. C-57 & C-59 if you need a simpler diagram to locate major vessels of both thoracic and abdominal cavities.**

#### IV. Hepatic Portal System

□ p. 213 Read section about hepatic portal system and associated vessels and use figure 16.13 to help you locate this in your pig.

- The liver performs several important functions that are important to the maintenance of blood. Two important functions include helping the kidneys remove toxins (like drugs or alcohol) from the blood and regulating the amount of glucose in the blood by converting it to glycogen.
  - So, after blood travels through the lower digestive tract and its associated organs, it must make its way through the liver to be processed.
  - The vein that connects all of these organs to the liver is the **hepatic portal vessel**.
- After passing through the liver, blood travels out the liver via the **hepatic vein**, then into the inferior vena cava to the heart.



#### V. The Blood

□ p. 187-189 Read, follow procedures (USE DEMO SCOPES), and fill out Table 15.1

##### IDENTIFY:

- erythrocytes (red blood cells)
- leukocytes (white blood cells) – see how many different types you can find
- platelets (these are not cells ; they clot blood)

#### VI. Review

**p. 186: Answer questions 1-12, 15 & 16**

**p. 198: Answer questions 1-5, 16**