

# LAB 1

## Blood and Blood Vessels

### Assignments:

#### **Due before lab:**

*Complete the charts and definitions on pages 2 and 3 before coming to lab and be prepared for a quiz.*

*Label the figures on pages 9 and 11 - before coming to lab. Use both your textbook and lab website.*

*Do the case study on page 12.*

#### **Due next lab:**

*Quiz over heart anatomy (pgs. 14-15) and ECG waves (pg. 21)*

#### **Objectives:**

*Identify the following blood cells: **erythrocytes, neutrophils, eosinophils, basophils, lymphocytes, monocytes**. Describe their function and know normal blood values.*

*Determine unknown blood types. Know what **antigens** and **antibodies** are present for a particular blood type.*

*Define **leukocytosis, leukopenia, polycythemia, anemia***

*Identify **cervical** and **thoracic thymus**, and **spleen** on the fetal pig.*

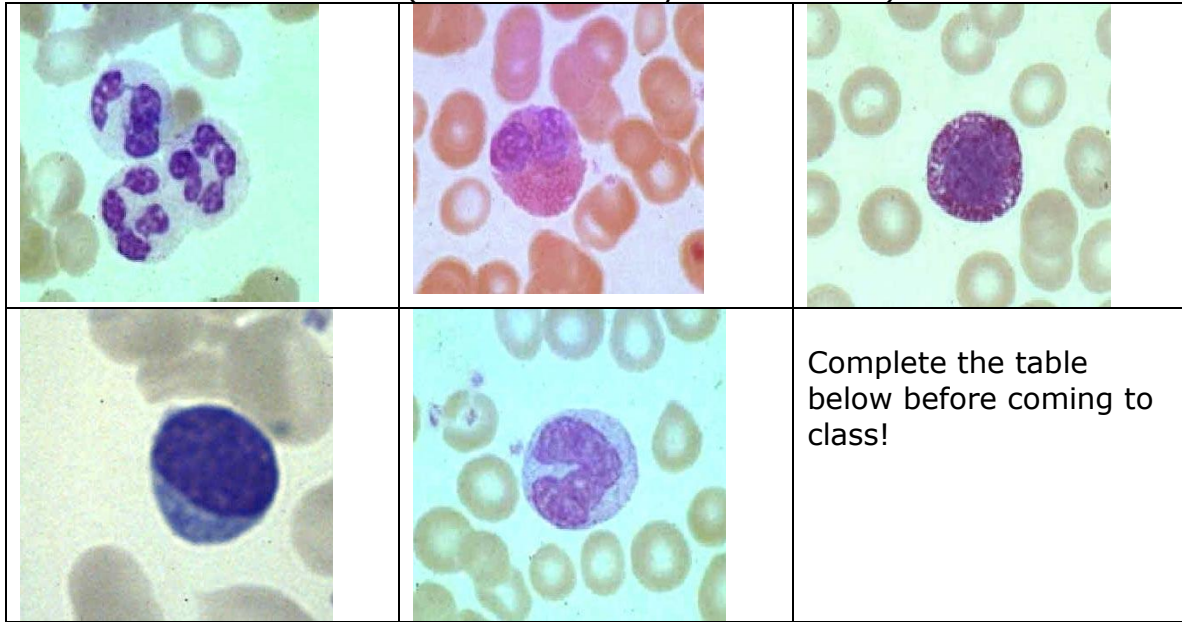
*Identify the **arteries and veins on the fetal pig** that are listed in your lab manual.*

*Identify the **arteries and veins on the human model** that are listed in the lab manual.*

Our BIO 139 Lab website is:

[http://www.bluegrass.kctcs.edu/natural\\_sciences/biology/bio\\_139\\_virtual\\_lab/](http://www.bluegrass.kctcs.edu/natural_sciences/biology/bio_139_virtual_lab/)

**Slides - Demo** Know type, function and frequency  
(Never let monkeys eat bananas)



<b>Blood cell</b>	<b>Identification (Characteristics)</b>	<b>Function</b>
<b>Erythrocyte</b>		
<b>Neutrophil</b>		
<b>Basophil</b>		
<b>Eosinophil</b>		
<b>Lymphocyte</b>		
<b>Monocyte</b>		

## B. Blood Typing

Be able to determine blood type from sample and be familiar with terms:  
**antigens, antibodies, agglutinogens, agglutinins**

Blood Type	Antigen	Antibody
A		
B		
AB		
O		
XXXXXXXX	XXXXXXXXXX	XXXXXXX
Rh +		
Rh -		** Anti-Rh

\*\*\* only when stimulated to produce them under certain conditions.

## C. Red and White Blood Cell Counts

Know normal values and define terms listed below:

Normal values- Human

WBC 4-11,000/mm<sup>3</sup>

RBC 4-6 million/mm<sup>3</sup>

### Define terms:

leukocytosis

leukopenia

polycythemia

anemia

## SIMULATED ABO AND RH BLOOD TYPING KIT

### Materials:

Unknown simulated blood samples for:

Mr. Smith  
Ms. Jones  
Mr. Green  
Ms. Brown

Simulated typing serum:

Anti-A  
Anti-B  
Anti-Rh

### Procedure:

Each group of two students will determine the blood type of one of the four unknown blood samples.

1. Place 3-4 drops of your unknown simulated blood sample in the A, B and Rh wells.
2. Place 3-4 drops of the simulated anti-serums in the appropriate well (i.e. 3-4 drops of simulated anti-A serum in the A well).
3. Use separate tooth picks to stir each sample of serum and blood. A positive test is indicated by a strong agglutination reaction. Record your observations and the observations of the class in the chart below.

### Data Table:

Reactions	Anti-A Serum	Anti-B Serum	Anti-Rh Serum	Blood Type	Antigens present	Antibodies present
Mr. Smith						
Ms. Jones						
Mr. Green						
Ms. Brown						

**D. Fetal Pig Anatomy - lymphatic system and blood vessels**

Identify: Spleen

Blood Vessels:

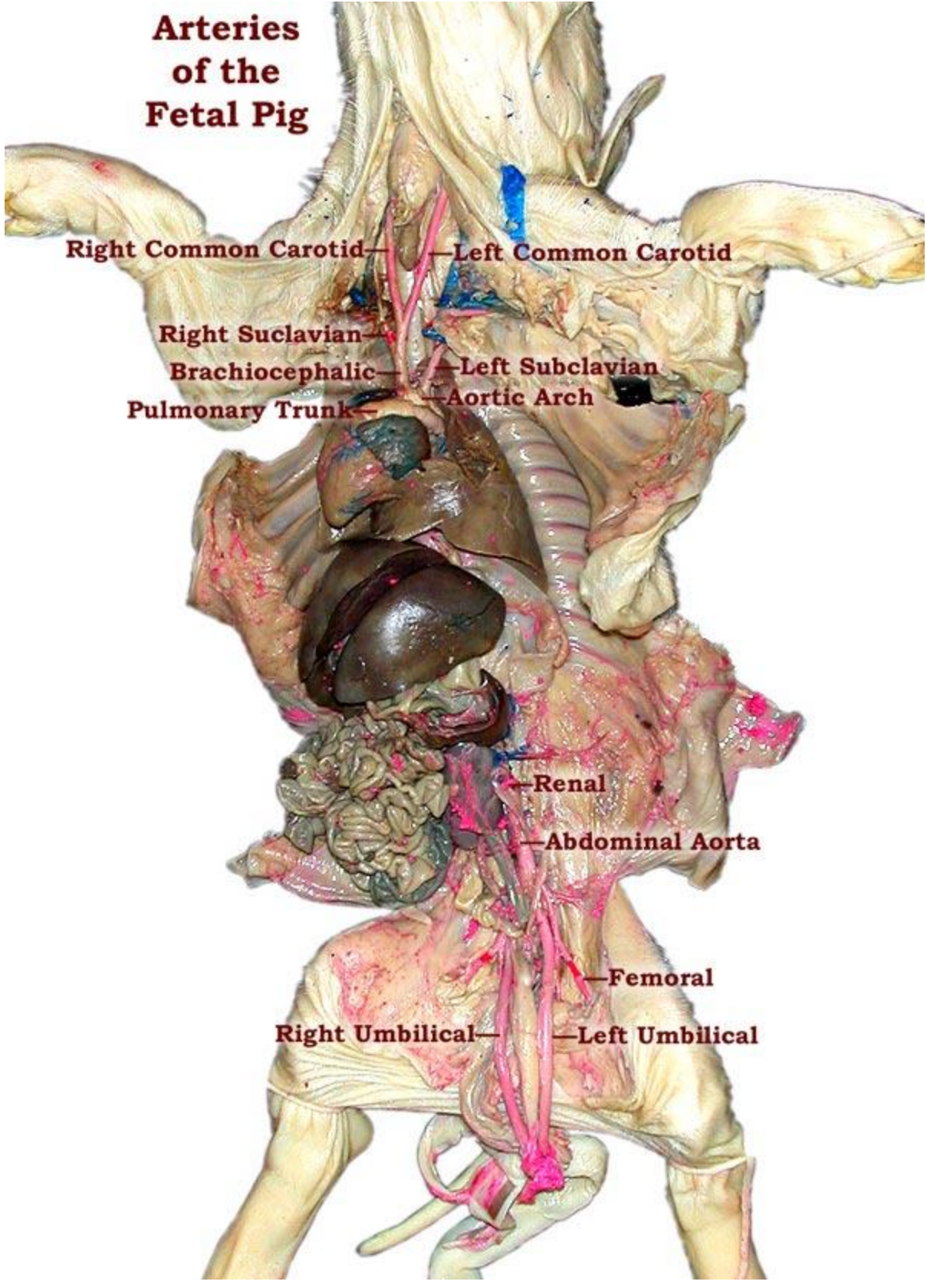
Arteries

left subclavian  
right subclavian  
right common carotid  
left common carotid  
brachiocephalic  
aorta or aortic arch  
abdominal aorta  
right renal  
left renal  
\*right umbilical  
\*left umbilical  
pulmonary trunk  
femoral

Veins

right external jugular  
left external jugular  
right internal jugular  
left internal jugular  
brachiocephalic  
superior (anterior) vena cava  
inferior (posterior) vena cava  
right renal  
left renal  
  
\*umbilical vein (not visible on page 7)

# Arteries of the Fetal Pig

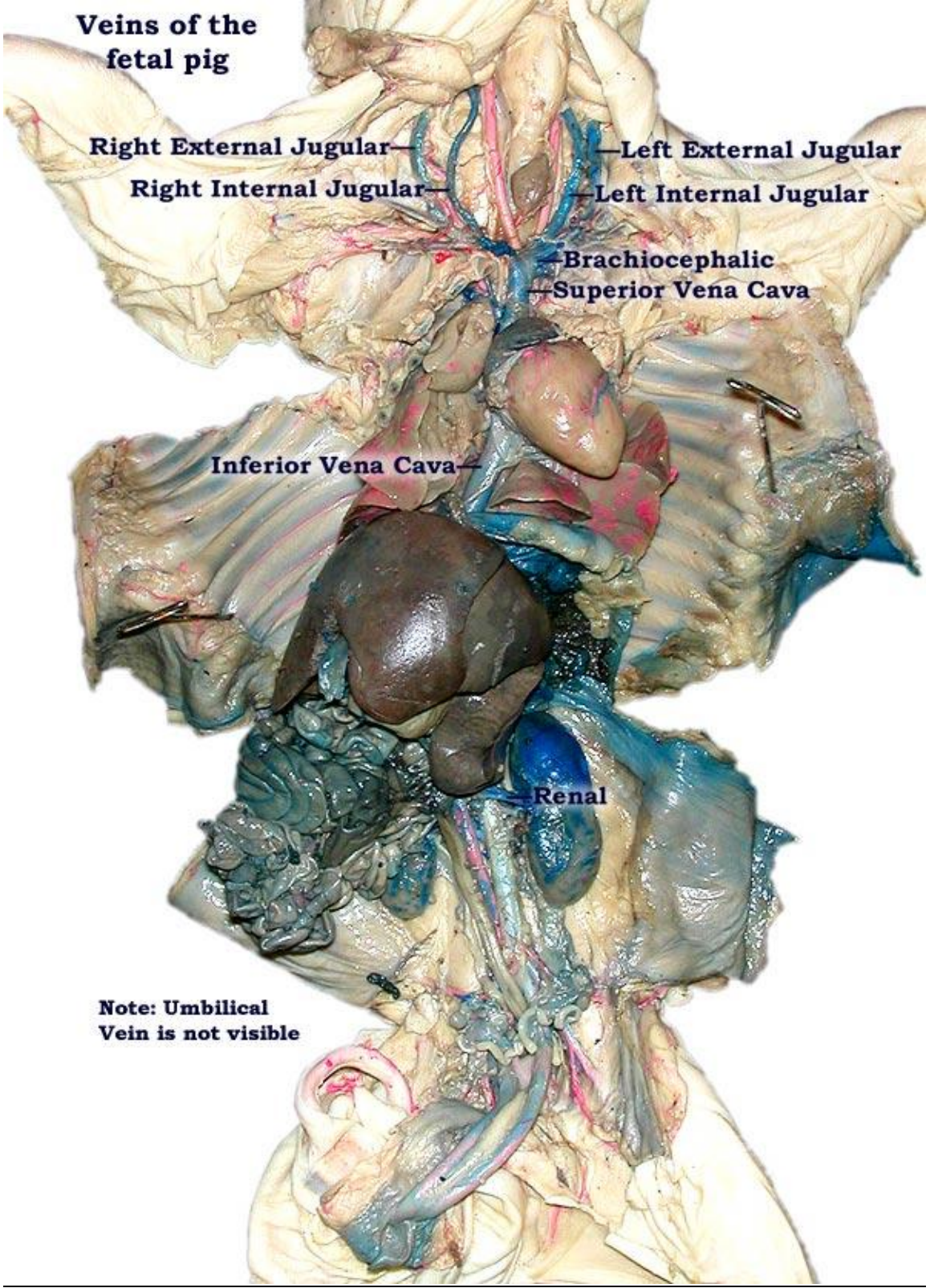


Right Common Carotid — Left Common Carotid

Right Subclavian — Left Subclavian  
Brachiocephalic — Aortic Arch  
Pulmonary Trunk

Renal  
Abdominal Aorta

Femoral  
Right Umbilical — Left Umbilical



- E. Blood Vessel Models** See pictures in text and website. Be able to identify arteries and veins on models.

**ARTERIES - BLOOD VESSEL MODEL**

- 12. Vertebral
- 18. Common carotid
- 18a. Internal carotid
- 19. Arch of aorta
- 20. Aorta
- 16. Subclavian
- 21. Axillary
- 24. Brachial
- 29. Ulnar
- 32. Radial
- 44. Dorsal metacarpal arteries
- 48. Pulmonary Trunk
- 68. Abdominal aorta
- 6\_. Renal artery (red vessel below renal vein – 64)
- 72. Common iliac
- 73. External iliac
- 75. Internal iliac
- 78. Femoral
- 80. Popliteal
- 82. Anterior tibial
- 81. Posterior tibial
- 83. Dorsalis pedis

## Labeling Exercise



Using your textbook and the lab website, label all the arteries listed on pg. 8

**VEINS - BLOOD VESSEL MODEL**

- 10. Jugular
- 17. Superior vena cava
  - 1. Brachiocephalic
- 16. Subclavian
  
- 21. Axillary
- 22. Cephalic
- 24. Brachial
- 27. Basilic
  
- 35. Superficial palmar arch
- 63. Inferior vena cava
- 64. Renal vein
- 72. Common iliac
  
- 73. External iliac
- 75. Internal iliac
- 91. Small saphenous
- 99. Great saphenous

## ALTAY NECK MODEL (new)

- 12 Trachea
- 13 Thyroid Gland
  
- 14 Lt. Common Carotid Artery
  
- 15 Lt. Internal Jugular Vein
- 16 Rt. External Jugular Vein
  
- 17 Lt. Subclavian Artery
- 21 Superior Vena Cava

## Labeling Exercise



Using your textbook and the lab website, label all the veins listed on pg 10.

**F. During open lab hours, view the CD Rom on Blood and Immune system.**

This is a good review for lecture.

**G. Case Study** (not to turn in)

A 23-year BCTC student was in a one-car accident and was badly cut on the arms and neck. A passing state trooper stopped to investigate the accident and pulled the victim from his overturned car. He noted pulsatile bleeding from a wound on the victims left arm and a steady flow of blood from a wound in the neck.

Of the two major bleeding sites, which one was more serious and why?

The damaged vessel in the left arm was:

The damaged vessel in the neck was:

In the patient's vascular system where would velocity of blood flow be slowest? Fastest?

In what part of the vascular system is most of the blood located?