

**Lab 4: Heart & Basic Vessels**

1. Use the heart models and the figures in Exercise 30 to become familiar with the anatomy of the heart (Activity 1).
2. Become familiar with the flow of blood through the heart and be able to trace its flow through the chambers (Activity 2).
3. Examine the slide of cardiac muscle. Refresh your memory about its defining features compared to skeletal and smooth muscle (Activity 4).
4. Examine the available animal hearts and find all the structures you identified on the models. The calf/pig hearts may have already been opened up for you. Identify the great vessels entering and exiting the heart by passing through each with either your finger or a blunt probe. You can figure out which vessel is which by the chamber of the heart it connects to (you absolutely have to know the blood flow pattern to do this!!)
5. Review a human cadaver heart with your instructor if it is available.
- 6.

Terms to know and structures to identify:

pericardium - **fibrous pericardium**

- **serous pericardium**

- **parietal pericardium**

- **epicardium or visceral pericardium**

layers of the heart - **epicardium or visceral pericardium**

- **myocardium**

- **endocardium**

misc. parts of the heart - **auricles, atria, ventricles, aortic semilunar valve, pulmonary semilunar valve, bicuspid (Mitral) valve, tricuspid valve, chordae tendineae, interventricular septum**

musculature - **papillary muscles**

- **trabeculae carnae**

- **pectinate muscles**

basic vessels - **Aortic artery, Brachiocephalic Trunk artery, L Common Carotid artery, L Subclavian artery, Pulmonary Trunk artery, Superior and Inferior Vena Cavae, Pulmonary veins**

circulation changes before birth/after birth (p.477)

- **Ductus arteriosus/Ligamentum arteriosum**

- **Foramen ovale/Fossa ovalis**

- **Ductus venosus/Ligamentum venosum**

- **Umbilical vein/Ligamentum teres**

- **Umbilical arteries/Medial umbilical ligaments**

Name the serosa covering the heart. \_\_\_\_\_

What is the scientific name of the muscle tissue of the heart? \_\_\_\_\_

Name the vessels connecting to the right atrium. \_\_\_\_\_

Do they return blood to the heart or convey blood away from the heart? \_\_\_\_\_

Do the pulmonary arteries contain high O<sub>2</sub> blood or low O<sub>2</sub> blood? \_\_\_\_\_

Name the valve between the right atrium and right ventricle. \_\_\_\_\_

Which ventricle has the thicker myocardium? \_\_\_\_\_

Name three distinguishing characteristics of cardiac muscle tissue? \_\_\_\_\_

\_\_\_\_\_

Which vessel connects to the left ventricle? \_\_\_\_\_

Which vessel connects to the right ventricle? \_\_\_\_\_

The inside of the heart is lined by a thin endothelium called \_\_\_\_\_.

### **Slide Assignment: Heart & Basic Vessels**

(Exercise 30 in Lab Text, Chapter 8 in Histology Text)

Draw the following slides using the figures in the lab and histology texts as a reference. Use whichever magnification works best to show all given structures. Please note that not every slide will show everything; you will need to look at multiple slides and/or sources. Your drawings should artistically combine views to include all structures.

- **Cardiac Muscle**– label and understand function of the following:
  - Muscle fibers
  - Nucleus
  - Sarcomeres
  - Intercalated discs

