Laboratory 11: Heart and Blood

Part 1: Blood Cell Types

A. Red blood cells.

The most numerous blood cells are the erythrocytes, or red blood cells. Red blood cells contain hemoglobin which a protein that binds oxygen. Red blood cells are biconcave cells that lack a nucleus.

B. White blood cells

1. Neutrophils are the most abundant white blood cells. They have a multi-lobed nucleus and the cytoplasm stains clear.

2. Eosinophils are large white blood cells, with bi-lobed nuclei and with pink staining granules in the cytoplasm

3. Basophils are large white blood cells, with bi-lobed nuclei and with purple staining granules in the cytoplasm

4. Monocytes have a U shaped nucleus and blue cytoplasm with no granules

5. Lymphocytes have a round nucleus that fills almost the entire cell.

C. Platelets

Platelets are fragments of megakaryocytes. They are small, purple cell fragments in the blood smear.

Procedure 1: Identifying blood cells types

Use your book (page 200) and blood cell handouts.
Part 2.

Sheep’s Heart Dissection

Each group will be given a sheep’s heart to dissect. Sheep’s hearts are very similar in size to human hearts. There are some differences in the architecture due to the fact that sheep are four-legged animals. The most notable difference is the presence and orientation of the anterior and posterior vena cava. Humans in contrast have superior and inferior vena cava.

Procedure 3: Sheep’s Heart Dissection

Follow the instructor’s directions. There are gloves available to use while dissecting the heart. When you are finished, place your heart in the plastic bag near the sink. Wash your dissecting tray and equipment with soap and water only. Scrub the dissecting tools with a brush. Place the tools on the paper towel lined tray to dry and place the tray upside down next to the sink. Wash your hands.

Part 3: The path of the blood through the heart and the parts of the heart

Using the cardio lab handout given in this manual, be able to describe the path of the blood through the heart, to the lungs, back to the heart then out to the body.

On a heart model, be able to identify the following structures and know if the blood passing through that structure would be oxygen rich or oxygen poor.

Superior and Inferior vena cava
Right Atrium.
Tricuspid AV valve
Right Ventricle.
Pulmonary SL valve
Pulmonary Arteries
Pulmonary veins
Left Atrium.
Mitral AV valve
L Ventricle
Aortic SL valve
Aorta
Coronary arteries and veins
Septum
Chordae tendineae
Papillary muscles