LAB PART 3- THE FETAL PIG – CIRCULATORY SYSTEM

MAKE SURE YOU JOT DOWN THE ANSWERS TO THE OBSERVATIONS SO YOU WILL HAVE THIS INFORMATION WHEN YOU WRITE UP THE LAB

Directions: Answer observations 16-26 and Questions 19-30

Procedure 26 You will now need to open up the chest cavity to examine the heart. Just above the diaphragm will be located the thoracic or chest cavity. Show the diaphragm to your teacher and once it has been identified, snip (cut) it free so that it will lie loose on top of the abdominal wall. Once the diaphragm has been loosened from its surrounding tissue you should be able to see the heart in the chest cavity.

Procedure 27 **BEFORE YOU GO TO PROCEDURE 28**, MAKE SURE THAT THE MEMBRANE SURROUNDING THE HEART IS PULLED FREE FROM THE CHEST CAVITY. If you are not sure of what to do, get some help from your teacher before you proceed onto the next step.

Procedure 28 If you have not already exposed the heart, continue your dissection by making an incision with a razor blade from the first pair of nipples down to the location of the diaphragm. Open up the chest cavity so the heart can be easily studied. You may need to remove the side flaps of tissue so the heart can be easily observed.

Procedure 29 In examining the heart, if you have followed your directions correctly, you should be able to find a tough, thin, transparent membrane enclosing the heart. This membrane is called the pericardium. If you can not find this membrane then it was removed because you did not free up the membrane in procedure 27 before making the dissection in proceodure 28.

Observation 16. Describe what the pericardium looks like.

Procedure 30 You also should notice a relatively large mass of tissue overlying the upper portion of the heart lying directly on top of the pericardium - this is the thymus gland. If you can not find this gland, check with your teacher.

Observation 17. Describe what this mass of tissue look like.

Procedure 31 In order to examine the heart more closely, you will now need to remove the thymus gland and the pericardium to the best of your ability so the heart and blood vessels can be viewed without obstruction.

Procedure 32 Remember that the terms right and left must be reversed from your vantage point. Thus the right side of the pig would correspond to your left side. Locate the right and left atria - the top chambers of the heart. The atria are usually a dark, flaplike structure SITTING ON TOP OF THE HEART. Show the atria to your teacher.

Observation 18. Describe what the atria looks like.

Procedure 33 Now locate the right and left ventricles found below the atria. You should also be able to locate a large coronary artery that externally divides the right and left ventricles.

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Procedure 34 Now carefully push the heart to your right and pick away the membraneous tissue on your left. You should be to find a large vein from the upper part of the body entering the heart - this is the superior vena cava. Cut into the superior vena cava to determine what color latex is found within this blood vessel.

Observation 19. What color latex did you find in the superior vena cava?

Observation 20. Is the superior vena cava an artery or a vein and HOW DO YOU KNOW THIS??

Procedure 35 On the same side of the heart you should be able to locate a vein coming from the lower part of the body that also enters the heart - the inferior vena cava. Cut into this blood vessel to again determine what color latex is found within this blood vessel.

Observation 21. What color latex is found in the inferior vena cava?

Procedure 36 Located on each side of the heart are several large masses of tissue - these are the lungs. Blood vessels connecting the heart and the lungs are hard to find, but by pushing tissue aside, locate the pulmonary blood vessels connecting the heart with the lungs. Cut into these tiny blood vessels to determine what color latex is found within these pulmonary blood vessels.

Observation 22. What color latex is found in the pulmonary blood vessels?

Procedure 37 In order to locate the last blood vessel, you will need to remove the pig's left lung (located on your right). BE SURE TO REMOVE THE CORRECT LUNG ONLY FOR YOU WILL NEED THE OTHER LUNG IN PART 4 OF THE LAB.

Procedure 38 The last great blood vessel to be located is the aorta - this carries blood from the heart to the body. Push the heart and any remaining lung tissue to your left and on your right lying on the body wall you should see a thick blood vessel - this is the aorta.

Procedure 39 Remove a complete section of the aorta and peel away the tissue to determine what color latex is found deep within this blood vessel.

Observation 23. What color latex is found in the aorta?

Procedure 40 At this point you may actually remove the heart from the fetal pig. Using a razor blade carefully remove the heart SO IT IS IN ONE PIECE.

Procedure 41 Locate the cut ends for both the pulmonary artery and aorta. With forceps carefully pull out the latex that is found in the stumps of these two arteries. Examine the piece(s) that you pulled out to see if the latex was pressed against the semi-lunar valves.

Observation 24. Describe what the impression of these semilunar valves look like.

Procedure 42 WITH DIRECTIONS from your teacher cut the heart right in half. IF YOU DO NOT FOLLOW DIRECTIONS and you cut the heart improperly, you will not be able to examine and compare the heart chambers.

Procedure 43 Wash out the heart to remove any coagulated blood

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Procedure 44 Closely examine the heart. Compare the thickness of the atria with that of the ventricles.

Observation 25. Is the muscular make up of the atria the same as that of the ventricles. **Explain your answer**

Procedure 45 Examine the ventricles. Does the thickness of the right and left ventricles appear to be the same.

Observation 26. Is the muscular make up of each ventricle the same? **Explain your answer**

Answer the following questions in your lab write up under Questions
(Consult your Lab Partner(s), the readings, and/or with Mr. C to check your answers)
Questions:

19. What is the function of the atria?
20. What is the function of the ventricles?
21. Relate the structure of the atria to the function performed by the atria (See teacher)
22. Relate the structure of the ventricles to the function performed by the ventricles (See teacher)
23. State the function of the coronary artery.
24. What kind of blood (not color) is found in the superior and inferior vena cava in a living specimen?
25. What is the exact function of the pulmonary artery
26. What is the exact function of the pulmonary vein?
27. What kind of blood (not color) is found in the aorta
28. Explain why the aorta is so thick (THINK)
29. What is the function of the valves in the heart?
30. Explain the difference between an artery, a vein, and a capillary.