## Structure and Function of Blood Vessels

## **Readiness Assessment Questions**

- 1. Identify the type of the indicated vessel.
  - A. Small muscular artery
  - B. Arteriole
  - C. Venule
  - D. Lymphatic vessel



- 2. Identify from which type of vessel this section came.
  - A. Muscular artery
  - B. Elastic artery
  - C. Vein
  - D. Arteriole



- 3. What is the primary function of the cells in the indicated region?
  - A. Restrict passage of solutes
  - B. Control diameter of lumen
  - C. Structural support
  - D. Allow vessel to stretch and recoil



- 4. Identify the vessel.
  - A. Continuous capillary
  - B. Fenestrated capillary
  - C. Discontinuous capillary
  - D. Lymphatic vessel



- 5. Identify the primary function of the indicated vessel.
  - A. Gas exchange within a tissue
  - B. Increase vascular resistance in a tissue
  - C. Control distribution of blood throughout the body
  - D. Mediate an immune response



- 6. Identify the indicated vessel
  - A. Vein
  - B. Capillary
  - C. Arteriole
  - D. Lymphatic Vessel



- 7. Beta-cells in the pancreas secrete insulin which enters the blood. Insulin stimulates skeletal muscle and adipose cells to take up glucose. The cells in which tissue or organ below are exposed to the most insulin?
  - A. Adipose
  - B. Skeletal muscle
  - C. Liver
  - D. Kidney

- 8. Where would you find this type of capillary?
  - A. Kidney
  - B. Liver
  - C. Skeletal Muscle
  - D. Brain



- 9. Identify the type of blood vessel indicated by the arrow.
  - A. Continuous capillary
  - B. Fenestrated capillary
  - C. Discontinuous capillary
  - D. Lymphatic vessel



**Application Questions** 

1. A patient complains of chest pain and shortness of breath. An EKG and MRI confirm coronary heart disease. Bypass surgery is performed and a section of the patient's coronary artery is processed for histological analysis (image below). The pathologist asks you to identify the intimal region of the artery. Which label do you choose?



2. A 32 year old patient presents with shortness of breath and fatigue that has worsened over the past several months. Recent bouts of chest pain brought him to the ER. A lung biopsy reveals the following image of an artery. Describe any changes your observe in the artery. How would these changes affect blood flow and lead to the patient's symptoms? How might these changes affect heart?



3. A patient presents with fatigue and muscle pain in their legs. The skin in their legs is covered by small, hyperpigmented patches. A biopsy reveals the image below . Concerned by the appearance of the blood vessel in the lower right, you examine it at higher magnification. Describe the structural changes your observe. What is causing the structural changes?



