



## LICEO DE CAGAYAN UNIVERSITY

Rodolfo N. Pelaez Boulevard, Kauswagan, Cagayan de Oro City

### COLLEGE OF PHARMACY

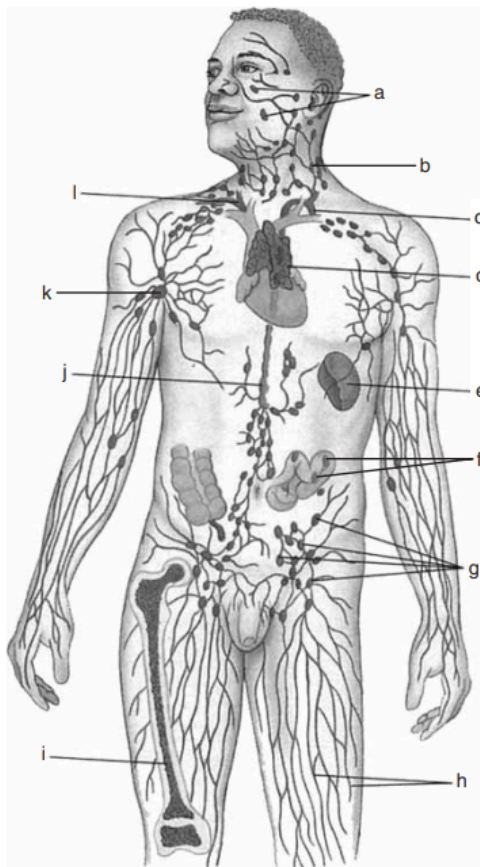
## LYMPHATIC AND IMMUNE SYSTEM WORKSHEET

**COURSE : ANATOMY AND PHYSIOLOGY WITH PATHOPHYSIOLOGY**  
**MODULE : THE CELLULAR LEVEL OF ORGANIZATION**  
**ROOM : PDR Ana-Lec**

**NAME: HANI V. BLANCO**  
**SECTION: PHARMACY 1D**

### The Lymphatic System

1. Match the terms below with the correct letters on the diagram.



- \_\_\_\_\_ L \_\_\_\_\_ 1. axillary lymph nodes
- \_\_\_\_\_ I \_\_\_\_\_ 2. bone marrow
- \_\_\_\_\_ B \_\_\_\_\_ 3. cervical lymph nodes
- \_\_\_\_\_ J \_\_\_\_\_ 4. cisterna chyli
- \_\_\_\_\_ G \_\_\_\_\_ 5. inguinal lymph nodes
- \_\_\_\_\_ H \_\_\_\_\_ 6. lymphatic vessels
- \_\_\_\_\_ E \_\_\_\_\_ 7. Peyer's patches (in intestine)
- \_\_\_\_\_ K \_\_\_\_\_ 8. right lymphatic duct
- \_\_\_\_\_ E \_\_\_\_\_ 9. spleen
- \_\_\_\_\_ D \_\_\_\_\_ 10. thoracic duct
- \_\_\_\_\_ C \_\_\_\_\_ 11. thymus
- \_\_\_\_\_ A \_\_\_\_\_ 12. Tonsils



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## **2. Explain why the lymphatic system is a one-way system, whereas the blood vascular system is a two-way system.**

The lymphatic system is considered a one-way system because it only transports lymph fluid in one direction: from the tissues towards the heart. Lymphatic vessels collect excess fluid from the tissues, which then moves through the lymph nodes and ultimately returns to the bloodstream near the heart. In contrast, the blood vascular system is a two-way system as it circulates blood from the heart to the rest of the body and back to the heart, delivering nutrients and oxygen to tissues and removing carbon dioxide and waste products.

## **3. How do lymphatic vessels resemble veins?**

Lymphatic vessels resemble veins in several ways: both have valves to prevent backflow, both are part of a network that returns fluid to the heart, and the structure of their walls is similar, with a thin layer of smooth muscle and a lining of endothelial cells.

## **4. How do lymphatic capillaries differ from blood capillaries?**

Lymphatic capillaries differ from blood capillaries in that they have a unique structure that allows them to absorb large molecules and particles from the interstitial fluid. They have overlapping endothelial cells that act like one-way valves, permitting interstitial fluid to enter the capillaries but preventing its return to the interstitial space.

## **5. What is the function of the lymphatic vessels?**

The function of lymphatic vessels is to transport lymph, a fluid containing white blood cells and waste products, back to the bloodstream. This helps maintain fluid balance in the body, facilitates immune responses, and aids in the absorption of dietary fats.

## **6. What is lymph?**

Lymph is a clear to yellowish fluid that circulates through the lymphatic system. It is composed of water, dissolved solutes, and a variable concentration of white blood cells, primarily lymphocytes. Lymph serves to transport nutrients, waste products, and immune cells throughout the body.

## **7. What name is given to the terminal duct draining most of the body?**

The thoracic duct is the terminal duct draining most of the body. It collects lymph from the left side of the head, neck, chest, abdomen, left arm, and both legs, and empties into the venous system at the junction of the left internal jugular and left subclavian veins.

## **8. What are the two major functions of the lymph nodes?**

The two major functions of the lymph nodes are filtration and immune system activation. They filter lymph to remove pathogens, damaged cells, and cancer cells. They also serve as sites for the activation of lymphocytes, cells that play a crucial role in the immune system.

## **The Immune System**



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#### **9. What is the function of B cells in the immune response?**

B cells function in the immune system response by producing antibodies that specifically target pathogens.

#### **10. What is the role of T cells?**

T cells play a role in directly killing infected cells, aiding other immune cells, and regulating the immune system.

#### **11. Define the following terms related to the operation of the immune system.**

**Immunological memory:** The immune system's ability to recognize and respond to pathogens it has previously encountered, leading to a faster and more efficient response.

**Specificity:** The ability of the immune system to target specific pathogens with precision, thanks to the unique receptors on immune cells.

**Recognition of self from nonself:** The immune system's ability to distinguish between the body's own cells and foreign cells, preventing attacks on itself.

**Autoimmune disease:** A condition where the immune system mistakenly targets and attacks the body's own tissues, mistaking them for foreign invaders.