

# **Practical Immunology**

## **Lab : 3**

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**College of Medical Technology**

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**Practical Immunology 2023**

**LAB 3**

**Stage 3rd**

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The immune system is composed of organs\ tissues, cells and processes that work together to protect the human body from catching infections and killing any microbe that is considered as foreign. The immune system tissues\organs are which are primary (generative) and secondary parts divided into two (peripheral).

### **The primary lymphoid organs are:**

- 1- The bone marrow.
- 2- The thymus gland

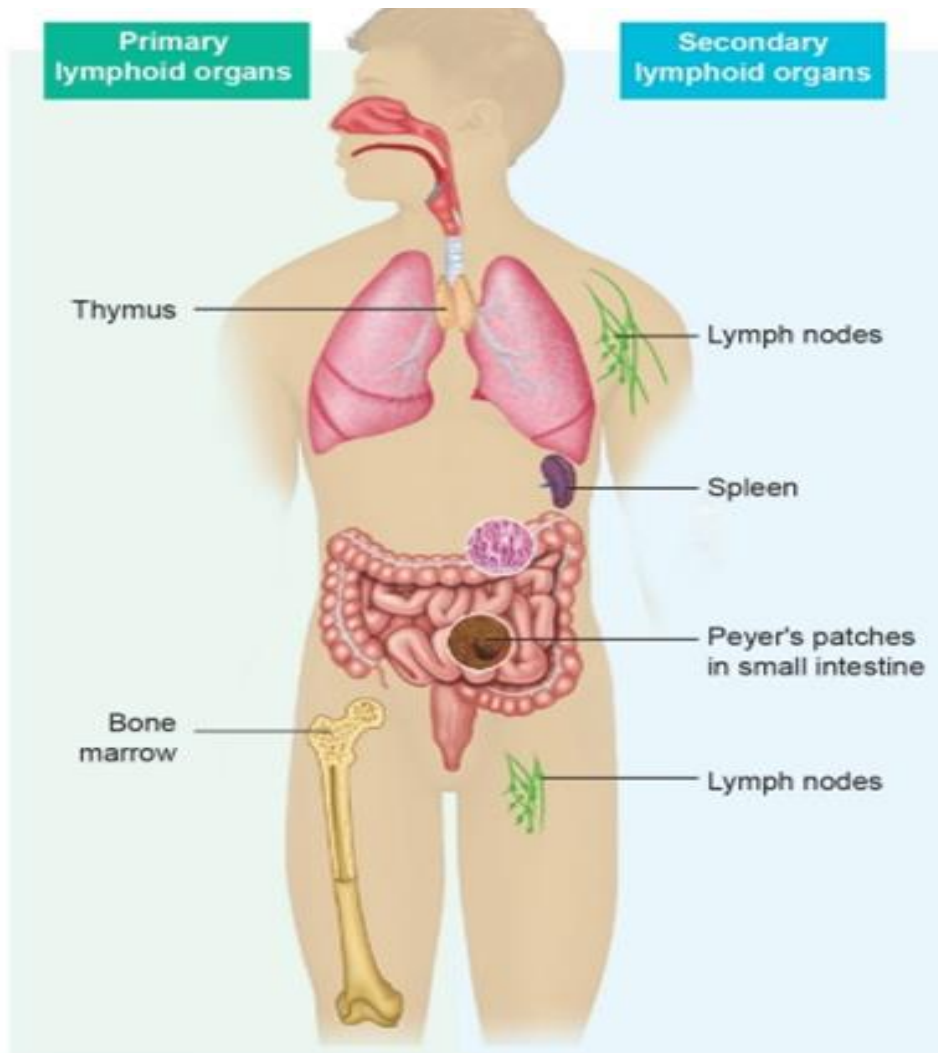
### **While the secondary are:**

- 1- Spleen.
- 2- Lymph vessels and nodes.
- 3- Epithelial and mucosa associated lymphoid tissues (e.g. Peyer patches in the small intestine). Thymus gland(located behind the breastbone above the heart), which plays a central role in the cellular immune system and bone marrow it is the site where blood cells are formed .

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**Fig. 8.3 Lymphoid organs in human body**

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Development of Tcell in Thymus In the thymus gland T-lymphoid cells undergo a process of maturation and education prior to release into the circulation. The thymus is bilobbed organ. Each lobe can be divided by septa of connective tissue into a series of lobular. These septa provide the major supporting framework for the thymic .The thymus can be distinguished; an outer region, more cellular rapidly dividing lymphocytes called the cortex and an inner, less cellular, medulla. Immature lymphoid cells ( prothymocytes) enter the cortex proliferate ( acquire TCR, as well as CD4 and CD8 surface molecules ), mature and pass on to the medulla. From the medulla mature T-lymphocytes enter the circulation.

Cells of the immune system (leukocytes):

### **1-Granulocytes:**

- a. Basophil: reacts with foreign substances and involved with inflammation by producing histamine and heparin.
- b. Eosinophil: anti-parasite.
- c. Neutrophil: innate immunity

### **2- A granulocytes:**

- a. Monocyte (turns into Macrophage in tissues).
- b. Lymphocyte (T&B cells).

### **T-cells:**

- a. Helper.
- b. Cytotoxic.
- c. Suppressor (regulatory).

### **B-cells:**

- a. Plasma cells (antibody producers).
- b. Memory cells.

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### Cells of the immune system

