

# Primary and Secondary Lymphoid Organs

## Primary Lymphoid Organs

- Also called “central lymphoid organs”
- It is where immature lymphocytes develop
- Organs where differentiation, proliferation and maturation of stem cells into immunocompetent cells take place.

Includes:

- Thymus
- Bone Marrow

## Secondary Lymphoid Organs

- It is where antigen is localized so that it can be effectively exposed to mature lymphocytes.
- initiate adaptive immune response.

Includes:

- Spleen
- Lymph Nodes
- Tonsils
- Appendix
- Peyer's patches

# Primary Lymphoid Organs

- **THYMUS**

- ❖ A bilateral organ located in the mediastinum
- ❖ Attains its peak development during youth
- ❖ Where T lymphocytes are formed

**Function:**

Generate and select T cells that will protect the body from infection.

# Primary Lymphoid Organs

- **BLOOD MARROW**

- ❖ The site of B cell maturation and hematopoiesis

## Function:

Responsible for the production of important immune system cells like B cells, granulocytes, natural killer cells and immature thymocytes. Also produces platelets and RBC.

# Secondary Lymphoid Organs

- **SPLEEN**

- ❖ Organ of the immune system composed of T-cells, B-cells, natural killer cells, macrophages, dendritic cells and red blood cell.
- ❖ It is a production site of antibodies and activated lymphocytes, which are delivered to the blood.

**Function:**

Filters the blood and entraps foreign materials (antigen).  
Provides defense against blood-borne antigens.

# Secondary Lymphoid Organs

- **LYMPH NODES**

- ❖ Bean-shaped, encapsulated structures distributed throughout the body along the course of lymphatic vessel.
- ❖ They are made up of mostly B-cells, T-cells, macrophages and dendritic cells.

## Function:

They act as immunologic filters and drain the lymph from most of the body tissues and filter out the antigens present in them, before allowing the lymph to return to circulation.

# Secondary Lymphoid Organs

- **TONSILS**

- ❖ Two masses of soft glandular tissue on either side or the back of the mouth.

**Function:**

**Traps bacteria and viruses from inhaled air.**

# Secondary Lymphoid Organs

- APPENDIX

- ❖ Thin, dead-end tube measuring about three-to-four inches in length and it hangs from the cecum.

## Functions:

Help tell the lymphocytes exactly where they have to head over to attack infection and it also enhances the massive intestine's defenses to a range of drugs and foods.

# Secondary Lymphoid Organs

- **PEYER'S PATCHES**

- ❖ The nodules of lymphatic cells that combine to make patches or bundles and appear generally only within the lowest part of intestine (ileum)

## Functions:

Detect antigens such as bacteria and toxins and mobilize highly specialized white blood cells termed B-cells to produce an antibody.