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DEPARTMENT : ( MICROBIOLOGY 4th)

SUBJECT : immunology
Introduction : Sir zahir mian

**Q1: Fill in the Blanks.**

1. Ability of pathogen to enter host and stimulate an immune response is called \_\_\_\_*infection*\_\_\_.
2. *\_immunity*\_\_ is resistance of a host to pathogens and their toxiceffects.
3. A failure of tolerance, the immune system reacts to self is known as *autoimmunity*\_\_.
4. \_\_*Chemokinase*\_\_\_\_ are molecules released by pathogens to attract cells of the immune system.
5. \_\_\_*Cytokines*\_\_\_ are signaling molecules released by one cell to cause a response in another.
6. Primary lymphatic organs are \_\_*Bone marrow* \_\_\_ and \_\_\_\_*Thymu*s\_\_\_\_\_.
7. The site of B cells maturation in birds is called \_*Busra of Fabrius\_\_\_\_*which is absentinhumans.
8. The largest lymphoid organ in human is \_\_*Spleen*\_\_\_\_\_\_.
9. Monocytes are known as \_\_\_*Macrophages\_\_\_\_*when enter tissues and become fully mature.

**Q2: Write short notes on the following**

1. Neutrophils
2. Basophils
3. Eosinophils
4. Monocytes
5. Lymphocytes

Answer; **Neutrophils** are a type of white blood cell that helps heal damaged tissues and resolve infections. **Neutrophil** blood levels increase naturally in response to infections, injuries, and other types of stress. They may decrease in response to severe or chronic infections, drug treatments, and genetic condition

**Basophils** are a type of white blood cell. ... Normally, **basophils** make up less than 1 percent of your circulating white blood cells. A healthy range is 0 to 3 **basophils** in each microliter of blood. A low **basophil** level is called basopenia. It can be caused by infections, severe allergies, or an overactive thyroid gland.

**Eosinophils** are a type of disease-fighting white blood cell. This condition most often indicates a parasitic infection, an allergic reaction or cancer. You can have high levels of **eosinophils** in your blood (blood **eosinophilia**) or in tissues at the site of an infection or inflammation (tissue **eosinophilia**).

**Monocytes** are a type of leukocyte, or white blood cell. They are the largest type of leukocyte and can differentiate into macrophages and myeloid lineage dendritic cells. As a part of the vertebrate innate immune system **monocytes** also influence the process of adaptive immunity.

**Lymphocytes** are white blood cells that are also one of the body's main types of immune cells. They are made in the bone marrow and found in the blood and lymph tissue. ... These cells work together to defend the body against foreign substances, such as bacteria, viruses, and cancer cells that can threaten its functioning

Q3 : What is Immunity ? discuss in detail Native & Adaptive immunity ?
Answer :

* Immunity is referred to the resistance exhibited by the host towards injury caused by microorganisms and their products.
* Its classified as
* **Innate immunity (Native)**
* **Acquired Immunity (Adaptive)**

The **innate immunity** (natural, native, non specific immunity)

* is **the first line** of defense present in healthy individuals. a- It is non- specific,

b- The resistance is static (it does not improve with repeated exposure), c- There is no memory on subsequent exposures.

* Innate (natural) immunity includes soluble chemicals

- e.g. complement, fibronectin, interferons and cells (NK cells, PMN, Monocytes, Macrophages and Eosinophils ).

**The adaptive system (specific, acquired immunity)**

* Is the **second line** of defense.

1-It is activated once the innate system has been overwhelmed. 2-It is specific to the **infective** or **non-self antigens**.

1. It can store the information about the invader as memory to show an

enhanced response to subsequent challenge (it has memory).

1. It develops more slowly and mediates, more effective, defense against infection.