



COMMENTARY



Commentary on Immune System-The “Body Guard”

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Description

Immune system is the 24 hour/7 day bodyguard system. The human body defends itself offering a “three line” defence. The pattern of defence is either, innate (present by birth/congenital) or acquired (after birth). The most external ‘First Line of Defence’ of the body is provided by the skin, the largest organ in the body. It acts as a Physical barrier for the invading germs. In addition, it can mount an attack on the germs with the lysozyme present in the sweat. The sebum with its low pH also helps in the process of defence. The mucus secreted by the wall of the gut, saliva and tears containing lysozyme to offer the first line of defence. Epithelial layers in different parts of the body through inhaled air are caught in the mucus of the bronchioles and bronchi and the mucus along with the killed microbes is ‘swept’ out by the ciliate of the lining epithelium. The phagocytes (both tissue fixed and the wandering types), NK cells, high temperature, inflammatory response etc., provide the Second Line of Defence. High temperature (fever) is body’s natural defence to inhibit rapid multiplication of the microbes. Phagocytes such as the macrophages Phagocytes microbes and digest them. The most, powerful defence is the one provided by the T-cells, B-cells and the antibodies. They constitute the Third Line of Defence. Thus the immune system is the GUARDIAN ANGEL acting as the BODY GUARD SYSTEM.

Every day we are exposed to a large number of infectious agents. However, only a few of them result in diseases. Why? It is due to the fact that the body is able to defend itself from most of them. This overall ability of an individual to fight against the diseases causing organisms is called immunity. The network of organs, cells and proteins that protect the body from harmful, infectious agents such as bacteria, viruses, animal parasites, fun-

gi etc., is called immune system. The basic requirement of the immune system is differentiate between self and non-self and to protect the body from harmful foreign substances, microorganisms, toxins and malignant cells etc. The branch of biology that deals with immunity or the study of immune system is called Immunology.

Organs, cells and chemicals make up the immune system, which works collectively to fight illness (microbes). The immune system is made up of white blood cells, antibodies, the complement system, the lymphatic system, the spleen, the thymus, and the bone marrow. These are the components of the immune system that actively fight infection. There are three different types of immunity.

Innate immunity is a type of protection that is given to you from birth. It is the first line of defence for your body. The skin and mucous membranes are forms of barriers. They keep chemicals that could be harmful out of the body. It also has cells and chemicals that can fight off invading pathogens. When you are infected with or vaccinated against a foreign material, you acquire active immunity, also known as adaptive immunity. Active immunity normally lasts a long time. It can last your entire life for many diseases. When you receive antibodies to a disease rather than generating them through your own immune system, you are said to have passive immunity. For example, new born babies have antibodies from their mothers. Passive immunity can also be obtained by the use of blood products containing antibodies. This type of immunity provides immediate protection. However, it is only for a few weeks or months.

The immune system activates specific and nonspecific immune responses in response to invading infections and cancer cells. Immunotherapy tries to increase these responses in order to prevent cancer cells from spreading further. The impact of stress on immunological and cytokine responses is still being researched.