

Immunity: Entry of Antigens Making the Immune System More Defensive

Sindhuja Yadav I*

Department of Pharmacy(Alumnus), Vignan Institute of Pharmaceutical Technology, Visakhapatnam, India

*Corresponding author: Sindhuja Yadav I, Bachelor of Pharmacy, Vignan Institute of Pharmaceutical Technology, Visakhapatnam, India, E-mail: sindhujaidadasa@gmail.com

Citation: Yadav SI (2020) Immunity: Entry of Antigens making the Immune System more Defensive. 4(2): 125

Received date: July 09, 2020; Accepted date: July 21, 2020; Published date: July 28, 2020

Copyright: © 2020 Yadav SI. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Description

The process by which body provides protection by producing antibodies to fight with antigens is considered to be immunity. Antibody is developed either from organic compound or pathogenic substances and non-pathogenic substances. Mucous membrane forms an external lining of the conjunctive digestive tract, alimentary canal, respiratory canal, and urogenital tract. This consists of epithelial layer and the inner connective tissue layer. The mucus secretion along with saliva and tears contain antibacterial or antiviral substances that wash away microbes that invade the outer layer. Due to its viscous nature the mucus secreted by the outer epithelial layer entraps the invading microbes. The mucous membrane in the lower respiratory tract is normally covered with cilia which are hair like projections that can propel mucous entrapped microbes. The pathogenic micro organisms outside will have to compete with the non pathogenic microbial flora already colonizing the mucous cilia niches which prevent them from entering the body through the membrane. These mucous membrane barriers are sometimes evaded by certain microbes.

Identification of Antigens

The main immunological cells are unable to recognize large sized protein antigens. The recognition pattern will be different for the antigens entered. Some cells recognize epitopes of small size and some cells recognize epitopes.

Processing of Antigens

It is a procedure by which complex antigens are broken or degraded into small pieces or fragments. Presentation is a display of the fragments on the surface of antigens presenting cells. External antigens are those foreign antigens are essential so that it can be displayed in the form of a complex with class II major histocompatibility complex molecules and can thus be recognized by cells. The whole procedure is known as processing and presentation of complex antigens on the surface of antigen presenting cells. These antigen presenting cells are macrophages that degrade external or exogenous protein antigens into smaller peptide fragments through phagocytosis or endocytosis. These fragments of peptides form a complex with class II major histocompatibility complex molecules inside the endolysosome of

antigen presenting cells and the complex is then exported to the surface. These complexes are recognized by CD4 displaying cells.

Mature stem cells will produce antibodies when common antigens like plant pollen grains, food substances such as nuts like almonds, cashews, hair, dandruffs of animals enter into the body. These toxins increase sensitivity reactions. Sometimes due to malfunction in immunity, the immune system is unable to differentiate self and non self cells. This causes damages to cells, tissues and organs leading to number of chronic diseases like multiple sclerosis caused due to attack of immune cells on tissues of the brain and central nervous system, crohns disease caused due to attack of immune cells on gut tissues, rheumatoid arthritis caused due to attack of immune cells on the joints of legs and arms. The causes of autoimmune diseases are mostly triggered by environmental factors.

Immunity is classified into 2 types first is innate immunity and second is adaptive immunity. Innate immunity is initially nonspecific but later on becomes partially specific to infection. It constitutes a first time of defense by various barriers such as anatomic, physiological, phagocytosis and inflammations.

Innate and adaptive immunity work in cooperation with each other independently. The innate immune system produces and passes signals to activate the adaptive immune system to control infections. The adaptive immune system follows specificity, diversity, memory, differentiation of self with non self. The cells that process and present the antigens are known as antigen presenting cells.