

Immunology: is defined as the study of the molecules, cells, organs, and systems responsible for the recognition and disposal of foreign material. Immunology began as a branch of microbiology. The study of infectious disease and the body's response to them has a major role for the development of immunology.

INTRODUCTION *

IMMUNOLOGY

The term immunity is derived from the Latin word “*immunis*”(exempt), which was originally referred to the protection from legal prosecution offered to the Roman senators during their tenures in office. This term was adopted subsequently to designate the naturally acquired protection against diseases, such as measles or smallpox. It can be indicated that it develops lifelong immunity to a certain disease after having contracted it only once. The cells and molecules responsible for immunity constitute the ***immune system***, and their collective and coordinated response to foreign substances is called the ***immune response***.

IMMUNITY

Definition:

Immunity: The ability of body to resist pathogens.

Antigen: A substance that causes the formation of antibodies. It is also called immunogen

Antibody: A protein produced in the body in response to an antigen.

Hapten: A substance of low molecular weight that is not antigenic itself except when combined with a protein in the body. e.g, Penicillin drug, detergent.

Phagocytosis: The process of
A of digesting and engulfment
antigen by a phagocytic cell.

Opsonization: The coating or tagging of an antigen by complement proteins to enhance phagocytosis.

Resistance: The ability to fight off a pathogen through specific and non specific defenses.

Specific Immunity: The body's defensive response is specific against a specific pathogen.

Non specific Immunity: Body's defense that provides protection against any kind of pathogen.

Types of Immunity:

The main function of the immune system is to limit or prevent infections by pathogenic microorganisms, such as bacteria, viruses, parasites, and fungi. The recognition of microorganisms and foreign substances is the first event in immune responses of a host.

The body's defense mechanisms can be divided into:

)a) innate immunity **)natural)**
)b(
acquired (adaptive)
immunity. Historical

Background of

immunology:

Edward Jenner who first studied the response of the body to foreign substances. He observed that dairy maids who had naturally contracted a mild infection called cowpox seemed to be protected against smallpox, a horribly disfiguring disease and a major killer.

, Jenner inoculated an eight 1796In
year-old boy with fluid from cowpox
blisters on the hand of a dairymaid.
The boy contracted cowpox. Then
two month later Jenner inoculated
him with fluid from a small pox
blister, the boy only developed a
small sore at the site of inoculation.
His exposure to the mild disease
cowpox had made him immune to the
small pox infection. These were
some of the vital events occurred in
the history of immunology following
. Jenner's achievement

, the first human pathogen, 1879 In gonococcus, was isolated by Neisser. , Klebs and Loeffler isolated 1883 In diphtheria bacilli which led to the production of the first defined antigen, diphtheria toxin, by Roux . In the same year 1888 and Yersin in the first antibodies, serum bactericidins, were reported by .Nuttal and Pasteur

, von Behring and Kitasato 1890 In
discovered antitoxins that led to the
development of toxoids for
.diphtheria and tetanus
, Land Steiner discovered the 1900 In
blood group antigens and their
corresponding antibodies. This led to
the ability to give blood transfusion
with out provoking reactions. It was
that 1916 in of journal first the
immunology in publication began
many which findings few
.published on it

In general, immunology has always depended on and stimulated the application of technology, such as the use of microscopy, electrophoresis, immunoelectrofluorescence, etc. Thus immunology has not become an inborn discipline but has maintained close associations with many other fields of medical sciences.