

Innate And Adaptive Immune System

Adaptive immune system Like the innate system, the adaptive immune system includes both humoral immunity components and cell-mediated immunity components. The adaptive immune system (AIS), also known as the acquired immune system or specific immune system, is a subsystem of the immune system that is composed of specialized cells, organs, and processes that eliminate pathogens specifically. (the innate immune system). The acquired immune system is one of the two main immunity strategies found in vertebrates (the other being the innate immune system). 14383b2edc

activate the adaptive immune system through antigen presentation 14383b2edc

Intrinsic immunity Intrinsic immunity is conferred by restriction factors preexisting in certain cell types, although these factors can be further induced by virus infection. Specifically, target eukaryotic retroviruses. Intrinsic viral restriction factors recognize specific viral components, but unlike other pattern recognition receptors that inhibit viral infection indirectly by inducing interferons and other antiviral molecules, intrinsic antiviral factors block viral replication immediately and directly. Intrinsic antiviral immunity refers to a form of innate immunity that directly restricts viral replication and assembly, thereby rendering a cell non-permissive to a specific class or species of viruses. Unlike adaptive and innate immunity effectors, intrinsic immune proteins are usually expressed at a constant level. Intrinsic immunity refers to a set of cellular-based anti-viral defense mechanisms, notably genetically encoded proteins which specifically target eukaryotic retroviruses. Unlike

adaptive and innate immunity effectors, intrinsic immune proteins are usually expressed at a constant level, allowing a viral infection to be halted quickly
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The innate branch—the body's first reaction to an invader—is... 14383b2edc

Cell-mediated immunity Some cell-mediated Cellular immunity, also known as cell-mediated immunity, is an immune response that does not rely on the production of antibodies. a. Rather, cell-mediated immunity is the activation of phagocytes, antigen-specific cytotoxic T cells (a. another schema, the innate immune system and the adaptive immune system each contain components of humoral immunity and cell-mediated immunity. k. cytotoxic T lymphocytes), and the release of various cytokines in response to an antigen
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There are two categories to which parts of the immune system are assigned: the non-specific, or innate immune system and the adaptive immune system. The non-specific response is a generalized response to pathogen infections involving the use of several white blood cells and plasma proteins. Non-specific immunity, or innate immunity, is the immune system with which you were born, made up of phagocytes and barriers. Phagocytosis, derived from the Greek words phagein, meaning to eat, kytos or cell, and “osis” meaning process, was first described by Élie Metchnikoff, who won the Nobel Prize 100 years ago. Phagocytosis involves... 14383b2edc act as a physical and chemical barrier to infectious agents; via physical measures such as skin and mucus, and chemical measures such as clotting factors and host defence peptides. 14383b2edc

Immunity (medicine) Immunity may occur naturally or be produced by prior exposure or immunization. The immune system has innate and adaptive components. Innate immunity is present in all metazoans, immune responses: inflammatory responses and phagocytosis In

biology, immunity is the state of being insusceptible or resistant to a noxious agent or process, especially a pathogen or infectious disease 14383b2edc

identify and remove foreign substances present in organs, tissues, blood and lymph, by specialized white blood cells 14383b2edc

Humoral immunity The immune system is divided into a more primitive innate immune system and an acquired or adaptive immune system in vertebrates, both Humoral immunity is the aspect of immunity that is mediated by macromolecules—including secreted antibodies, complement proteins, and certain antimicrobial peptides—located in extracellular fluids. It contrasts with cell-mediated immunity. Humoral immunity is named so because it involves substances found in the humors, or body fluids. of immunology. Humoral immunity is also referred to as antibody-mediated immunity 14383b2edc

Nonspecific immune cell The innate immune system is always present at the site of infection and ready to fight the bacteria; it can also be referred to as the "natural" immune system. The non-specific response is a generalized response A non-specific immune cell is an immune cell (such as a macrophage, neutrophil, or dendritic cell) that responds to many antigens, not just one antigen. Non-specific immune cells function in the first line of defense against infection or injury. immune system are assigned: the non-specific, or innate immune system and the adaptive immune system. The cells of the innate immune system do not have specific responses and respond to each foreign invader using the same mechanism 14383b2edc

Adaptive immunity creates immunological memory after an initial response to a specific pathogen, and leads to an enhanced response to future encounters with that pathogen. Antibodies are a critical part of the adaptive immune system. Adaptive immunity can provide long-lasting protection, sometimes for the

person's entire lifetime. For example, someone who recovers from measles is now protected against measles for their lifetime; in other cases it does not... 14383b2edc recruit immune cells to infection sites by producing chemical factors, including chemical mediators called cytokines 14383b2edc Nearly all organisms have some kind of immune system. Bacteria have a rudimentary immune system in the form of enzymes that protect against viral infections. Other basic immune mechanisms evolved in ancient plants and animals (eukaryotes) and remain in their modern descendants. These mechanisms include phagocytosis, antimicrobial peptides called defensins, RNA interference, and the complement system. Jawed vertebrates, including humans, have a more sophisticated defense mechanism. For example, adaptive immunity... 14383b2edc

Immune response These include a wide variety of different toxins, viruses, intra- and extracellular bacteria, protozoa, helminths, and fungi which could cause serious problems to the health of the host organism if not cleared from the body. In general, there are two branches of the immune response, created by the innate immune system and the adaptive An immune response is a physiological reaction which occurs within an organism in the context of inflammation for the purpose of defending against exogenous factors. form of immune response is antitumor immunity 14383b2edc

A transplanted tissue (for example, blood) or organ can cause graft-versus-host disease. A type of immune reactivity known as Rh disease can be observed in pregnant women. These special forms of immune response are classified as hypersensitivity. Another special form of immune response is antitumor immunity. 14383b2edc

Immune system The innate immune system provides a preconfigured response to broad groups of situations

and stimuli. the immune system. The innate immune system provides a preconfigured response to broad groups of situations and stimuli. Many species have two major subsystems of the immune system. The adaptive immune system provides The immune system is a network of biological systems that protects an organism from diseases. It detects and responds to a wide variety of pathogens, such as viruses, bacteria, and parasites, as well as cancer cells and foreign objects, such as wood splinters—distinguishing them from the organism's own healthy tissue. Both use specialised molecules and cells to perform their functions. The adaptive immune system provides a tailored response to each stimulus by learning to recognize molecules it has previously encountered 14383b2edc

Humoral immunity refers to antibody production and the coinciding processes that accompany it, including: Th2 activation and cytokine production, germinal center formation and isotype switching, and affinity maturation and memory cell generation. It also refers to the effector functions of antibodies, which include pathogen and toxin neutralization, classical complement activation, and opsonin promotion of phagocytosis and pathogen elimination... 14383b2edc In the late-19th-century Hippocratic tradition of medicine, the immune system was imagined having two branches: humoral immunity, for which the protective function of immunization could be found in the humor (cell-free bodily fluid or blood plasma) and cellular immunity, for which the protective function of immunization was associated with cells. CD4 cells or T helper cells (also known as helper T cells) provide protection against distinct pathogens. Naive T cells, which are immature T cells that have yet to encounter an antigen, are converted into activated effector T cells after encountering antigen-presenting cells (APCs). These APCs, such as macrophages, dendritic cells, and B cells, in some circumstances, load antigenic peptides onto the major histocompatibility complex (MHC) of the cell, in turn presenting the peptide to receptors on T cells...

The major functions of the innate immune system are to:

== Types ==

Innate immune defect These defects may occur in monocytes, neutrophils, natural killer cells, basophils, mast cells or complement proteins. enlarged liver and spleen. The main An innate immune defect is a defect in the innate immune response that blunts the response to infection. Patients with innate immune defects have generally intact adaptive immune systems with normal antibodies and T-cells

== History ==

The innate immune system

In addition, there are other forms of immune response. For example, harmless exogenous factors (such as pollen and food components) can trigger allergy; latex and metals are also known allergens. initiate and regulate inflammatory responses by releasing inflammatory mediators (such as cytokines and chemokines), thereby promoting immune cell recruitment, increasing vascular permeability,...

The study of the molecular and cellular components that form the immune system, including their function and interaction, is the central science of immunology. The immune system is divided into a more primitive innate immune system and an acquired or adaptive immune system in vertebrates, both of which contain both humoral and cellular immune elements. Like the innate system, the adaptive immune system includes both humoral immunity components and cell-mediated immunity components and destroys invading pathogens. Unlike the innate immune system, which is pre-programmed to react to common broad categories of pathogen, the adaptive immune system is highly specific to each particular pathogen the body has encountered.

== Innate and adaptive ==

In general, there are two branches of the immune response, created by the innate immune system and the adaptive immune system respectively, which work together to protect against pathogens. Both branches

engage humoral and cellular components. 14383b2edc
Eukaryotic organisms have been exposed to viral infections for millions of years. The development of the innate and adaptive immune system reflects the evolutionary importance of fighting infection...
14383b2edc == Background == 14383b2edc

Innate immune system The innate immune system or nonspecific immune system is one of the two main immunity strategies in vertebrates (the other being the adaptive immune system) The innate immune system or nonspecific immune system is one of the two main immunity strategies in vertebrates (the other being the adaptive immune system). The innate immune system is an alternate defense strategy and is the dominant immune system response found in plants, fungi, prokaryotes, and invertebrates (see § Beyond vertebrates) 14383b2edc

activate the complement cascade to identify bacteria, activate cells, and promote clearance of antibody complexes or dead cells 14383b2edc

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