Innate and adaptive immunity

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Immunity is the capability of multicellular organisms to resist harmful microorganisms from entering it. Immunity involves both specific and nonspecific components. The nonspecific components act as barriers or eliminators of a wide range of pathogens irrespective of their antigenic make-up. Other components of the immune system adapt themselves to each new disease encountered and can generate pathogen-specific immunity. An immune system may contain innate and adaptive components. The innate system in mammalians, for example, is composed of primitive marrow cells that are programmed to recognise foreign substances and react. The adaptive system is composed of more advanced lymphatic cells that are programmed to recognise self-substances and don't react. The reaction to foreign substances is etymologically described as inflammation, meaning to set on fire. The non-reaction to self-substances is described as immunity, meaning to exempt or as immunotolerance.

These two components of the immune system create a dynamic biological environment where "health" can be seen as a physical state where the self is immunologically spared, and what is foreign is inflammatorily and immunologically eliminated. "Disease" can arise when what is foreign cannot be eliminated or what is self is not spared.

- Innate immunity, also called native immunity, exists by virtue of an organism's constitution, that is its genetic make-up, without an external stimulation or a previous infection. It is divided into two types: (a) Non-Specific innate immunity, a degree of resistance to all infections in general. (b) Specific innate immunity, a resistance to a particular kind of microorganism only. As a result, some races, particular individuals or breeds in agriculture do not suffer from certain infectious diseases.
- Adaptive immunity can be sub-divided depending on how the immunity was introduced in 'naturally acquired' through chance contact with a disease-causing agent, whereas 'artificially acquired immunity' develops through deliberate actions such as vaccination. Both naturally and artificially acquired immunity can be further subdivided depending on whether the host built up immunity itself by antigen as 'active immunity' and lasts long-term, sometimes lifelong. 'Passive immunity' is acquired through transfer (injection or infusion) of antibodies or activated T-cells from an immune host; it is short lived—usually lasting only a few months.
- Adaptive immunity can also be divided by the type of immune mediators involved; humoral immunity is the aspect of immunity that is mediated by secreted antibodies, whereas cell mediated immunity involves T-lymphocytes alone. Humoral immunity is called active when the organism generates its antibodies, and passive when antibodies are transferred between individuals or species. Similarly, cell-mediated immunity is active when the organisms' T-cells are stimulated, and passive when T cells come from another organism.

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