

IMMUNITY (CONTD.) Natural Immunity and Acquired Immunity

DII (S/G)

Natural Immunity:— Natural Immunity of an animal is also known as innate immunity, native

immunity or inherited immunity. This refers to a general or non-specific type of resistance, which prevents infection by different kinds of pathogens. The extent of this natural immunity differs in different organisms. For example, man can easily get mumps while cats and dogs are immune to this disease. This level of natural immunity may vary not only between species but also between races or strains, and sexes. This may also be controlled by nutrition, hormones and many other factors.

Acquired Immunity:- Acquired Immunity develops during the life time of an individual and refers to the immunity, which a specific individual displays against a specific pathogen. This is frequently related to the presence of antibodies or interferon in the blood. Acquired immunity based on antibodies is the most efficient type

of acquired immunity and it may be either (i) actively acquired or (ii) passively acquired.

Actively acquired immunity: Actively acquired immunity may be either natural or artificial.

Actively acquired natural immunity results from any infection from which a person recovers. During the infection, antibody production against specific pathogen is stimulated so that when there is a subsequent infection by either the same or antigenically related pathogen, the antibodies assist in the body's defence.

Actively acquired artificial immunity is the most common method of immunization or vaccination. The immunogens are injected in the body in controlled quantity to stimulate the production of immunoglobins. Killed and attenuated strains of bacteria and viruses are now used widely for immunization against many diseases (e.g. typhoid, small pox, yellow fever, measles etc). Attenuated organisms produce mild infection and induce natural immunity. Vaccines are also being developed now by a variety of other methods involving recombinant DNA technology.



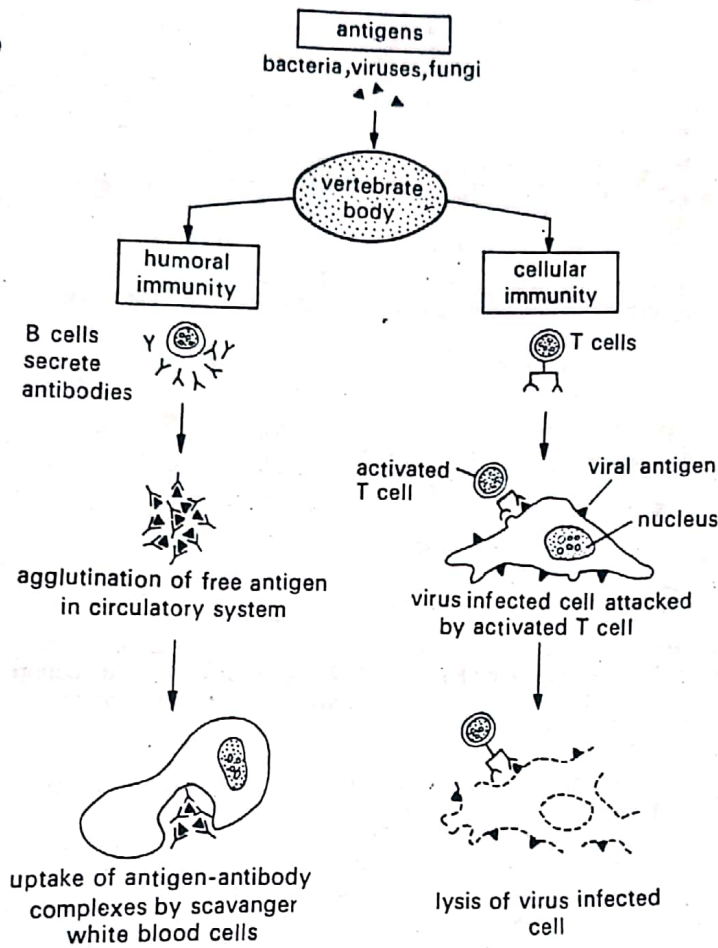


Fig. 52.2. Immune response to an antigen, involving humoral immunity through B cells and cellular immunity through T cells.

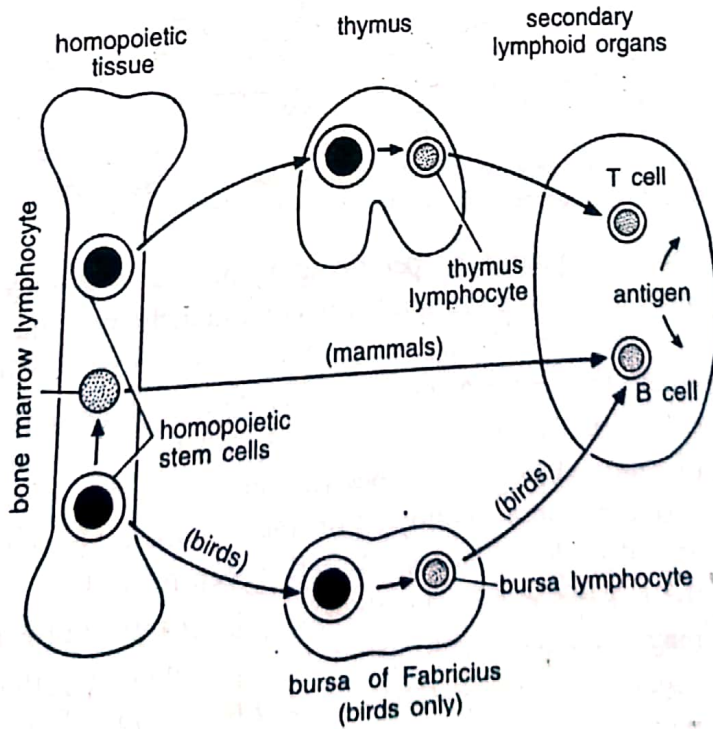


Fig. 52.3. The development of B-cells and T-cells in bone marrow and thymus respectively (redrawn from Alberts et al., 'Molecular Biology of the Cell', 1994)