

# THE ORGAN AND CELLS OF IMMUNE

## SYSTEM AND THEIR FUNCTIONS.

The lymphoreticular system is a complex organisation of cells of diverse morphology distributed widely in different organs and tissues of the body. This system is responsible for specific acquired or adaptive immunity. Lymphoreticular cells consist of lymphoid and reticuloendothelial components, with clearly demarcated functions. The lymphoid cells, lymphocytes and plasma cells - are primarily concerned with the specific immune response. The phagocytic cells forming part of the reticuloendothelial system are primarily concerned with the scavenger function of eliminating effect cells and foreign particles. They contribute to non-specific immunity by removing microorganisms from blood and tissue, they also play a role of specific immunity, both in afferent and in the efferent limbs of immune response.

The functional anatomy of the lymphoid system can be appreciated only against the background of two components of concept of immunity. The immune response to an antigen whatever be its nature, can be of two broad types - the humoral or antibody mediated immunity (AMI) and the cellular or cell mediated immunity (CMI). Humoral immunity is mediated by antibodies produced by plasma cells, while, cellular immunity is mediated directly by sensitised lymphocytes, cells for each of these components develop through separate channels and remain independent, though they may also interact in some instances.

the lymphoid system consist of

the lymphoid cells ( lymphocytes and plasma cells ) and lymphoid organs. based on the different roles they performes , lymphoid organs can be classified in to the central (primary) and the peripheral lymphoid organs. the central lymphoid organs are lymphoepithelial structure in which the precursor lymphocytes proferate , develop and acquire immunological capability , the thymus and the bursa of fabricius in biord are primary lymphoid organ , being responsible for the cellular and humoral immune responses respectively, the equivqlent of the avian bursa in mammals is the bone marrow. after acquiring immunocompetence , the lymphocytes migrate along blood and lymph streams , effect the appropriate immune response , the spleen lymph nodes and mucosa associated lymphoid tissue ( MALT ) consitute the mejor peripheral lymphoid organ , lymphoid tissue in the gut, lungs , liver and bonemarrow and lymphoid collection in the adventitious tissue of all organs also from part of the peripheral lymphoid system.

## *CENTRAL LYMPHOID ORGANS*

THYMUS- The thymus anlage develops from the epithelium of the third and fourth pharyngeal pouches at about the sixth week of gestation and by the eighth week, grows into a compact epithelial structure. mesenchymal stem cells ( precursors of lymphocytes ) grom the yolk sac. Fetal liver and bone marrow reach the thymus and differentiate into the thymic lymphoid cells ( thymocytes ). the thymus acquires its characteristics lymphoid appearance by the third month of gestation.