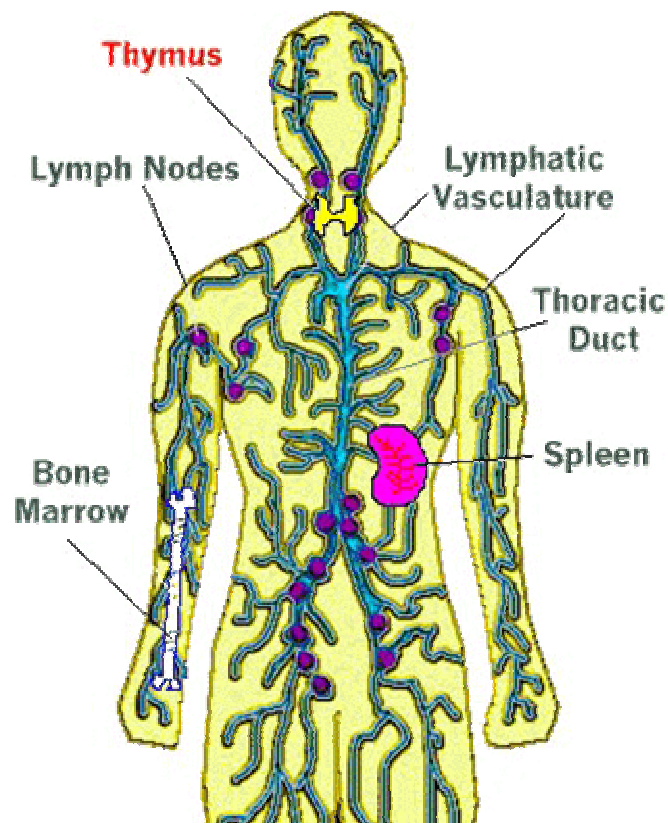


Lymphatic system



The thymus is a bi-lobed, greyish organ located in the thoracic cavity just below the neck. Curiously, when the thymus is removed from adult mammals, few effects are seen. However, when the thymus is removed at birth, dramatic effects are witnessed as will be explained later. The thymus develops from the endoderm. During its development many cells migrate towards it, most of which are lymphocytes. The thymus is divided into two distinct compartments, the outer cortex and the inner medulla. Both regions are densely populated with lymphocytes (or thymocytes while in the thymus). Most of the cortical lymphocytes are immature and unable to carry out immune functions. Mature immunocompetent cells are found in the medulla in greater numbers. The main function of the thymus is to develop immature T-cells into immunocompetent T-cells. This process begins with the production of pre-T cells in the bone marrow and their subsequent transport to the thymus via the blood. The pre-T cells are then taken into the cortex of

the thymus. Here, a series of molecular events take place allowing the cells to recognize certain antigens. Some of the cells recognize self-components, and these are eliminated by a process of negative selection. Those that fail the selection die and those that live proceed to the medulla and eventually into the blood stream where they act upon foreign agents in the body.