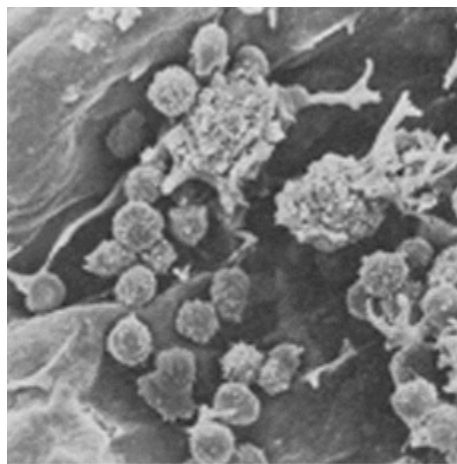




Diseases of the Immune System



Scanning electron micrograph of a lymph node. The large cells with multiple protrusions are macrophages; the smaller round cells are lymphocytes. A biconcave red blood cell can be seen on the left. (Micrograph by Willem van Ewijk, Dept Immunology, Erasmus University of Rotterdam, The Netherlands.)

The immune system is a complex and highly developed system, yet its mission is simple: to seek and kill invaders. If a person is born with a severely defective immune system, death from infection by a virus, bacterium, fungus or parasite will occur. In severe combined immunodeficiency, lack of an enzyme means that toxic waste builds up inside immune system cells, killing them and thus devastating the immune system. A lack of immune system cells is also the basis for DiGeorge syndrome: improper development of the thymus gland means that T cell production is diminished.

Most other immune disorders result from either an excessive immune response or an 'autoimmune attack'. Asthma, familial Mediterranean fever and Crohn's disease (inflammatory bowel disease) all result from an over-reaction of the immune system, while autoimmune polyglandular syndrome and some facets of diabetes are due to the immune system attacking 'self' cells and molecules. A key part of the immune system's role is to differentiate between invaders and the body's own cells - when it fails to make this distinction, a reaction against 'self' cells and molecules causes autoimmune disease.

Diseases

Asthma

Ataxia telangiectasia

Autoimmune polyglandular syndrome

Burkitt lymphoma

Diabetes, type 1

DiGeorge syndrome

Familial Mediterranean fever

Immunodeficiency with hyper-IgM

Leukemia, chronic myeloid

Severe combined immunodeficiency