



An Overview of the Characteristics and Disorders of White Blood Cells

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DESCRIPTION

Leukocytes, commonly called as white blood cells. They are in charge of defending our body against infection. White blood cells circulate in the circulation as a component of immune system and react to injury or illness. Our body is protected from infection by white blood cells. White blood cells detect the infection site as they move through the bloodstream and tissues, acting like an army general to alert other white blood cells of the infection's location to aid in defending the body against an attack by an unknown creature. White blood cell army fights the intruder after it has arrived by creating antibody proteins that adhere to the organism and kill it.

White blood cell characteristics

60 to 70 percent of adult white cells are produced by the bone marrow. The thymus, spleen, and lymph nodes are particularly important lymphatic organs for generating lymphocytes. The spleen, liver, lymph nodes, and other organs' reticuloendothelial tissues create monocytes (4 to 8 percent of the white cells). White blood cells range from 4,500 to 11,000 per cubic millimeter of blood in a healthy adult. As living cells, white blood cells must continually produce energy in order to survive. Protein can be produced by white cells that have a nucleus and can create Ribonucleic Acid (RNA).

White cells are present in the bloodstream, but the majority of them are situated in tissues where they fight infections. The few white cells that are present in the bloodstream are just moving from one place to another. The used chemical pathways are both similar to and more sophisticated than those of red blood cells and other tissue cells. Protein can be produced by white cells that have a nucleus and can create Ribonucleic Acid (RNA).

White blood cells are highly differentiated for their particular functions, so they do not divide into new cells in the bloodstream (mitosis), yet some still have this ability. White cells can be divided into three main classes based on how they appear under a light microscope: lymphocytes, granulocytes, and monocytes. Each class has a variety of roles.

Major classes

Lymphocytes-further separated into B cells and T cells-perform the specific recognition of foreign substances and their subsequent evacuation from the host. Antibodies are proteins that B lymphocytes secrete that bind to invading bacteria in body tissues and facilitate their eradication. Natural killer (NK) cells, so named for their innate capacity to kill a range of target cells, are also a part of this group. In a healthy individual, lymphocytes make up 25 to 33 percent of white blood cells.

The most numerous white cells, called granulocytes, are important mediators of allergies and other types of inflammation in addition to helping the body get rid of big harmful organisms like protozoans and helminths.

Monocytes, which make up 4-8% of all white blood cells in blood, go from the blood to infection sites where they undergo additional differentiation to become macrophages. These scavenger cells can directly destroy pathogens and remove cellular debris from infection sites because they phagocytose intact or dead microorganisms.

White blood cell disorders

Different diseases are linked to particular cell types, which is a reflection of that cell type's unique role in the body's defense. White blood cell counts are typically high in neonates and gradually decrease to adult levels during development. The lymphocyte count is an exception; it is low at birth, peaks in the first four years of life, and then progressively declines to a stable adult level.

Intense physical activity, convulsions, severe emotional reactions, pain, pregnancy, labor, and some illness conditions, such as infections and intoxications, can all cause an increase in white blood cells. Leukopenia is a condition in which the quantity of white blood cells falls abnormally. The count may drop in response to specific illnesses or medications, as well as when other diseases such chronic anemia, malnutrition, or anaphylaxis are present.

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