Name _____

Bone Marrow: The Hidden Factory of Blood Cells

Short Answer Key

1. White blood cells play a crucial role in the body's immune system. They defend the body against infections by identifying and attacking foreign invaders like bacteria, viruses, and fungi. White blood cells are essential for overall health as they help the body fight and overcome various diseases.
2. Red bone marrow is primarily responsible for blood cell production. It is found in the spongy parts of large bones and contains a high concentration of blood-forming stem cells. Yellow bone marrow, on the other hand, contains more fat and fewer blood-forming cells. It can transform into red bone marrow when the body needs more blood cells.
3. Platelets are responsible for initiating the blood clotting process. When there is an injury or wound, platelets rush to the site and stick together, forming a clot. This clot prevents excessive bleeding and allows the body to heal. Platelets play a crucial role in maintaining hemostasis, which is the body's ability to stop bleeding.
4. Stem cells in the bone marrow have the unique ability to transform into different types of blood cells. They can differentiate into red blood cells, white blood cells, or platelets, depending on the body's needs. Through the process of hematopoiesis, these stem cells multiply and mature into specialized blood cells, ensuring a continuous supply of oxygen-carrying RBCs, infection-fighting WBCs, and clot-forming platelets.
5. Bone marrow transplants are essential medical procedures used to treat various conditions, including leukemia, lymphoma, and certain genetic disorders. During a bone marrow transplant, unhealthy or damaged bone marrow is replaced with healthy donor marrow. This procedure can help patients recover from diseases that affect the production of blood cells or the immune system.