



Blood and Lymphatic System

Blood is one of the most important tissues in our body. It consists of red blood cells (carrying gases and giving it the red color), white blood cells (leukocytes that fight disease) and platelets (clotting agents), which are all suspended in fluid called plasma. Blood has many functions: carrying of oxygen to tissues, supplying nutrients to cells, waste removal, immunological functions, coagulation, messenger functions, pH regulation, body temperature regulation, and hydraulic functions. Blood is pumped through the body by the heart, gravity, and muscles. Problems with the composition or circulation of the blood can lead to tissue dysfunction and death, as well as a host of other problems in every cell and tissue throughout the body.

The lymphatic system is a complex network of lymph nodes, ducts, and vessels that produce and transport lymph fluid from the tissues to the circulatory system. It has three major functions: removal of excess tissue fluid, absorption and transport of fat to the circulatory system, and production of immune cells. Lymph originates as blood plasma from the capillaries and becomes the fluid that fills the spaces between cells and tissues. The thymus, spleen, lymph nodes, tonsils, appendix and bone marrow are part of the system and their proper function depends on the lymphatic system.

Anemia

Anemia is characterized by a lower than normal red blood cell (erythrocyte) count in the blood. This is usually measured by a decrease in the amount of hemoglobin present, the red oxygen-transporting pigment in blood cells. There are many different types of anemia, each with unique causes and symptoms. Hemolytic anemia, megaloblastic anemia, and pernicious anemia are examples of various types. Some potential causes are blood loss, nutritional deficiencies, diseases, reactions to medication, and problems with the bone marrow. Women with heavy menstrual periods typically experience iron deficiency anemia; other risk factors include pregnancy, older age, and certain diseases.

	COMPANY	PRODUCT	PHASE
Anemia	Affymax Inc.	Hematide	II
	FibroGen, Inc.	YM311 / FG2216	II
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	Nektar Therapeutics	CERA	PA

Blood Coagulation Disorders

After damage to a tissue, bleeding occurs. This bleeding is supposed to stop due to the formation of solid blood clots through a coagulation process. Disorders in this blood coagulation mechanism can lead to hemorrhaging (unstoppable flow of blood), thrombosis (the formation of clots inside blood vessels) and embolism (blockage of a blood vessel by a blood clot). This can lead to either tissue death or the death of an individual. Treatments focus on ensuring that blood clots normally.

	COMPANY	PRODUCT	PHASE
Hemorrhage	Renovis, Inc.	Cerovive / NXY-059 (disufenton sodium)	II
Blood Coagulation Disorders	Nuvelo Inc	Alfimeprase	III
	Genentech, Inc.	Cathflo Activase (alteplase)	M

Dyslipidemia

Dyslipidemia refers to a disruption of the amount of lipids (fats) in the blood due to a disorder of lipoprotein metabolism. In Western societies, this is usually due to an increased concentration of lipids, hyperlipidemia, due to diet and lifestyle. Dyslipidemias are detected by elevated levels of cholesterol and lipoproteins in the blood. Diabetes is often associated with this disease.

	COMPANY	PRODUCT	PHASE
Dyslipidemia	Quark Biotech, Inc.	QC-BT16	II

Hemophilia

Hemophilia is a bleeding illness in which it takes a long time for blood to clot, causing abnormal bleeding. Hemophilia A is due to a deficiency (lack) of the blood clotting factor VIII. This disorder is caused by an inherited X-chromosome linked recessive trait, so males are primarily affected (though women can be carriers). Symptoms include excessive bleeding and are often diagnosed during infant circumcision. Hemophilia B is a hereditary blood coagulation disorder caused by a deficiency of the blood plasma protein called factor IX that affects the clotting property of blood. It also primarily affects males.

COMPANY	PRODUCT	PHASE	
Genteric, Inc.	HepaFIX	II	Hemophilia
Bayer	Kogenate	M	

Hypovolemia

Hypovolemia is a condition in which there is a significant decrease in the volume of blood plasma in the body. Dehydration, bleeding, and severe burns can cause this, as well as drugs such as diuretics or others used to treat hypertensive individuals. Sometimes, hypovolemia occurs due to blood donation. If severe, low blood volume can lead to multiple organ failure, damage of the kidneys or brain, and eventually, death.

COMPANY	PRODUCT	PHASE	
BioTime, Inc.	PentaLyte	II	Hypovolemia
BioTime, Inc.	Hextend	M	



Bayer HealthCare
Pharmaceuticals

Bayer HealthCare Pharmaceuticals has a rich history in the Bay Area and a strong legacy of excellence in innovation that has led to the development of several market-leading products that improve and save lives around the world.

Bayer HealthCare is one of the premiere healthcare companies in the world, and Berkeley is the nerve center of its biotechnology operations. The company employs more than 1,500 employees who focus on biopharmaceutical solutions to major health issues. The existing manufacturing capacity is focused on the Kogenate® line of products, a recombinant FVIII therapy for treating people living with hemophilia A. However, the company is actively looking to diversify its portfolio of biotechnology products by leveraging its well-established biotechnology operation with over two decades of experience in the development, manufacturing, and global commercialization of biopharmaceuticals.

The Research and Development team at Bayer-Berkeley is focused on applying innovative drug delivery and molecular engineering technologies to develop new and improved products to treat hemophilia and other coagulation disorders. To support its strategic R&D goals, the company is also actively pursuing additional partnerships and in-licensing opportunities in hematology, specialty cardiology and oncology.

Bayer also remains focused on being an excellent corporate citizen. Globally and locally, we support initiatives that assist the patient communities we serve, promote sustainable development and advance the state of health and education in the communities we operate.

Bayer: Science For A Better Life
For more information visit www.bayerhealthcare.com

Myelodysplastic Syndrome

Myelodysplastic syndromes (MDS), formerly known as “preleukemia,” are a collection of blood conditions united by the abnormal and ineffective production of blood cells and the risk of transformation to acute myelogenous leukemia. Anemia is frequently associated with this disease, often requiring frequent blood transfusions. Though MDS is not a true malignant neoplasm, it is classified as a hematological neoplasm. Symptoms include anemia, neutropenia (low white blood cell count), and thrombocytopenia (low platelet count).

	COMPANY	PRODUCT	PHASE
Myelodysplastic Syndrome	Telik, Inc.	Telintra	II
Thrombocytopenia	Impax Laboratories, Inc.	Anagrelide Hydrochloride Capsules	M
Myelodysplastic Syndrome	SuperGen, Inc.	Dacogen (decitabine)	M
Neutropenia	Nektar Therapeutics	Neulasta (pegfilgrastim)	M
Thrombocytopenia	Berlex	Refludan Injection [lepirudin rDNA]	M

Sickle Cell Anemia

Sickle cell anemia is a genetic blood disorder in which the body makes abnormally shaped red blood cells. These deformed blood cells are shaped like a crescent and do not move easily through the blood stream, often getting stuck and blocking the flow of blood to organs and limbs. This leads to low blood count, organ damage, and pain. Individuals are born with the disease. Sickle cell anemia is more common in African Americans, with 1 in 500 estimated to be affected. Current treatments seek to improve blood flow.

	COMPANY	PRODUCT	PHASE
Sickle Cell Anemia	Angiogenix, Inc.	Angx3227	II
	SuperGen, Inc.	Dacogen (decitabine)	II

