DOWNLOAD PDF ISO-ANTIGENIC SYSTEMS OF HUMAN BLOOD PLATELETS;

Chapter 1 : Components of blood (article) | Khan Academy

Full text Full text is available as a scanned copy of the original print version. Get a printable copy (PDF file) of the complete article (K), or click on a page image below to browse page by page.

Bring fact-checked results to the top of your browser search. The importance of antigens and antibodies The red cells of an individual contain antigens on their surfaces that correspond to their blood group and antibodies in the serum that identify and combine with the antigen sites on the surfaces of red cells of another type. The reaction between red cells and corresponding antibodies usually results in clumpingâ€" agglutination â€"of the red cells; therefore, antigens on the surfaces of these red cells are often referred to as agglutinogens. Antibodies are part of the circulating plasma proteins known as immunoglobulins, which are classified by molecular size and weight and by several other biochemical properties. Most blood group antibodies are found either on immunoglobulin G IgG or immunoglobulin M IgM molecules, but occasionally the immunoglobulin A IgA class may exhibit blood group specificity. Naturally occurring antibodies are the result of immunization by substances in nature that have structures similar to human blood groups. These antibodies are present in an individual despite the fact that there has been no previous exposure to the corresponding red cell antigensâ€"for example, anti-A in the plasma of people of blood group B and anti-B in the plasma of people of blood group A. Immune antibodies are evoked by exposure to the corresponding red cell antigen. The combination of pregnancy and transfusion is a particularly potent stimulus. Individual blood group antigens vary in their antigenic potential; for example, some of the antigens belonging to the Rh and ABO systems are strongly immunogenic i. The blood group antigens are not restricted solely to red cells or even to hematopoietic tissues. The antigens of the ABO system are widely distributed throughout the tissues and have been unequivocally identified on platelets and white cells both lymphocytes and polymorphonuclear leukocytes and in skin, the epithelial lining cells of the gastrointestinal tract , the kidney, the urinary tract, and the lining of the blood vessels. Evidence for the presence of the antigens of other blood group systems on cells other than red cells is less well substantiated. Among the red cell antigens, only those of the ABO system are regarded as tissue antigens and therefore need to be considered in organ transplantation. Chemistry of the blood group substances The exact chemical structure of some blood groups has been identified, as have the gene products i. Blood group antigens are present on glycolipid and glycoprotein molecules of the red cell membrane. The carbohydrate chains of the membrane glycolipids are oriented toward the external surface of the red cell membrane and carry antigens of the ABO , Hh, Ii, and P systems. Glycoproteins , which traverse the red cell membrane, have a polypeptide backbone to which carbohydrates are attached. Another integral membrane glycoprotein, glycophorin A , contains large numbers of sialic acid molecules and MN blood group structures; another, glycophorin B , contains Ss and U antigens. The genes responsible for inheritance of ABH and Lewis antigens are glycosyltransferases a group of enzymes that catalyze the addition of specific sugar residues to the core precursor substance. For example, the H gene codes for the production of a specific glycosyltransferase that adds l-fucose to a core precursor substance, resulting in the H antigen; the Le gene codes for the production of a specific glycosyltransferase that adds l-fucose to the same core precursor substance, but in a different place, forming the Lewis antigen; the A gene adds N-acetyl-d-galactosamine H must be present , forming the A antigen; and the B gene adds d-galactose H must be present , forming the B antigen. The P system is analogous to the ABH and Lewis blood groups in the sense that the P antigens are built by the addition of sugars to precursor globoside and paragloboside glycolipids, and the genes responsible for these antigens must produce glycosyltransferase enzymes. The genes that code for MNSs glycoproteins change two amino acids in the sequence of the glycoprotein to account for different antigen specificities. Additional analysis of red cell membrane glycoproteins has shown that in some cases the absence of blood group antigens is associated with an absence of minor membrane glycoproteins that are present normally in antigen-positive persons. Methods of blood grouping Identification of blood groups The basic technique in identification of the antigens and antibodies of blood groups is the agglutination test. Agglutination of red cells results from antibody cross-linkages established when different specific combining sites of one antibody react with antigen on two different red cells. By mixing red cells antigen and serum antibody , either the type of antigen or the type of antibody can be determined depending on whether a cell of known antigen composition or a serum with known antibody specificity is used. In its simplest form, a volume of serum containing antibody is added to a thin suspension 2â€”5 percent of red cells suspended in physiological saline solution in a small tube with a narrow diameter. After incubation at the appropriate temperature, the red cells will have settled to the bottom of the tube. These sedimented red cells are examined macroscopically with the naked eye for agglutination, or they may be spread on a slide and viewed through a low-power microscope. An antibody that agglutinates red cells when they are suspended in saline solution is called a complete antibody. With powerful complete antibodies, such as anti-A and anti-B, agglutination reactions visible to the naked eye take place when a drop of antibody is placed on a slide together with a drop containing red cells in suspension. After stirring, the slide is rocked, and agglutination is visible in a few minutes. It is always necessary in blood grouping to include a positive and a negative control for each test. An antibody that does not clump red cells when they are suspended in saline solution is called incomplete. Such antibodies block the antigenic sites of the red cells so that subsequent addition of complete antibody of the same antigenic specificity does not result in agglutination. Incomplete antibodies will agglutinate red cells carrying the appropriate antigen, however, when the cells are suspended in media containing protein. Serum albumin from the blood of cattle is a substance that is frequently used for this purpose. Red cells may also be rendered specifically agglutinable by incomplete antibodies after treatment with such protease enzymes as trypsin, papain, ficin, or bromelain. After such infections as pneumonia , red cells may become agglutinable by almost all normal sera because of exposure of a hidden antigenic site T as a result of the action of bacterial enzymes. When the patient recovers, the blood also returns to normal with respect to agglutination. The presence of an acquired B antigen on the red cells has been described occasionally in diseases of the colon, thus allowing the red cell to express an antigenicity other than that genetically determined. In other diseases a defect in antibody synthesis may cause the absence of anti-A and anti-B antibody.

DOWNLOAD PDF ISO-ANTIGENIC SYSTEMS OF HUMAN BLOOD PLATELETS;

Chapter 2 : How Blood Works | HowStuffWorks

Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.

Morphology change[edit] Mitochondria hyperpolarization is a key event in initiating changes in morphology. The continuous changes in shape from the unactivated to the fully activated platelet is best seen on scanning electron microscopy. Three steps along this path are named early dendritic, early spread and spread. The surface of the unactivated platelet looks very similar to the surface of the brain, with a wrinkled appearance from numerous shallow folds to increase the surface area; early dendritic, an octopus with multiple arms and legs; early spread, an uncooked frying egg in a pan, the "yolk" being the central body; and the spread, a cooked fried egg with a denser central body. This complex runs just beneath these membranes, and is the chemical motor which literally pulls the invaginated OCS out of the interior of the platelet like turning pants pockets inside out, creating the dendrites. This dramatic increase in surface area comes about with neither stretching nor adding phospholipids to the platelet membrane. One of the signaling pathways turns on scramblase , which moves negatively charged phospholipids from the inner to the outer platelet membrane surface. These phospholipids then bind the tenase and prothrombinase complexes, two of the sites of interplay between platelets and the coagulation cascade. Calcium ions are essential for the binding of these coagulation factors. Classically it was thought that this was the only mechanism involved in aggregation, but three new mechanisms have been identified which can initiate aggregation, depending on the velocity of blood flow i. Wound repair The blood clot is only a temporary solution to stop bleeding; tissue repair is needed. Small interruptions in the endothelium are handled by physiological mechanisms; large interruptions by the trauma surgeon. This support clinical data which show that a significant amount of patients with serious bacterial or viral infections suffer from thrombocytopenia, thus reducing their contribution to inflammation. Also platelet-leukocyte aggregates PLAs found in circulation are typical in sepsis or inflammatory bowel disease , showing the connection between thrombocytes and immune cells sensu stricto. Thus, hemostasis and host defense were intertwined in evolution. For example, in the Atlantic horseshoe crab living fossil estimated to be over million years old , the only blood cell type, the amebocyte , facilitates both the hemostatic function and the encapsulation and phagocytosis of pathogens by means of exocytosis of intracellular granules containing bactericidal defense molecules. Blood clotting supports the immune function by trapping the pathogenic bacteria within. The thrombosis is directed in concordance of platelets, neutrophils and monocytes. The process is initiated either by immune cells sensu stricto by activating their pattern recognition receptors PRRs , or by platelet-bacterial binding. Platelets can bind to bacteria either directly through thrombocytic PRRs [29] and bacterial surface proteins, or via plasma proteins that bind both to platelets and bacteria. Neutrophils facilitate the blood coagulation by NETosis. NETs bind tissue factor, binding the coagulation centres to the location of infection. They also activate the intrinsic coagulation pathway by providing its negatively charged surface to the factor XII. Other neutrophil secretions, such as proteolytic enzymes, which cleave coagulation inhibitors, also bolster the process. Regulatory defects in immunothrombosis are suspected to be major factor in causing pathological thrombosis in many forms, such as disseminated intravascular coagulation DIC or deep vein thrombosis. DIC in sepsis is a prime example of both dysregulated coagulation process as well as undue systemic inflammatory response resulting in multitude of microthrombi of similar composition to that in physiological immunothrombosis - fibrin, platelets, neutrophils and NETs. Platelets modulate neutrophils by forming platelet-leukocyte aggregates PLAs. Interaction with PLAs also induce degranulation and increased phagocytosis in neutrophils. They are able to recognize and adhere to many surfaces, including bacteria. They are even able to fully envelop them in their open canalicular system OCP , leading to proposed name of the process being "covercytosis", rather than phagocytosis, as OCS is merely an invagination of outer plasma membrane. These platelet-bacteria bundles are then used as an interation platform for neutrophilsm which destroy the bacteria using the NETosis and phagocytosis. Platelets also participate in chronic inflammatory diseases, such as synovitis or rheumatoid arthritis. Proinflammatory platelet microvesicles trigger constant cytokine secretion from neighboring fibroblast-like synoviocytes , most prominently Il-6 and Il Inflammatory damage to surrounding extracellular matrix continually reveals more collagen, maintaining the microvesicle production. Adaptive immunity[edit] Activated platelets are able to participate in adaptive immunity, interacting with antibodies. When activated and bound to IgG opsonised bacteria, the platelets subsequently release reactive oxygen species ROS , antimicrobial peptides, defensins, kinocidins and proteases, killing the bacteria directly. This bleeding can be caused by deficient numbers of platelets, dysfunctional platelets, or very excessive numbers of platelets: The excessive numbers create a relative von Willebrand factor deficiency due to sequestration. The symptoms depend on the site of thrombosis. Tests of platelet function[edit] Bleeding time[edit] Developed by Duke in and bearing his name, it measured the time for bleeding to stop from a standardized wound in the ear lobe which is blotted each 30 seconds. Normal was less than 3 minutes. A normal bleeding time reflects sufficient platelet numbers and function plus normal microvascular. Multiplate multiple electrode aggregometry[edit] In the Multiplate analyzer, anticoagulated whole blood is mixed with saline and a platelet agonist in a single use cuvette with two pairs of electrodes. The increase in impedance between the electrodes as platelets aggregate onto them, is measured and visualized as a curve. These agonists induce platelet adhesion, activation and aggregation leading to rapid occlusion of the aperture and cessation of blood flow termed the closure time CT. An elevated CT with EPI and collagen can indicate intrinsic defects such as von Willebrand disease, uremia, or circulating platelet inhibitors. The follow up test involving collagen and ADP is used to indicate if the abnormal CT with collagen and EPI was caused by the effects of acetyl sulfosalicylic acid aspirin or medications containing inhibitors.

Chapter 3 : Low platelet count (thrombocytopenia): Causes, symptoms, and treatment

URL of this page: Platelets are parts of the blood that helps the blood clot. They are smaller than red or white blood cells. How the Test is Performed How to Prepare for the Test Most of the time you do not need to take special steps before this test. How the Test will Feel When the needle is inserted to draw blood, some people feel moderate pain. Others feel only a prick or stinging. Afterward, there may be some throbbing or slight bruising. This soon goes away. Why the Test is Performed The number of platelets in your blood can be affected by many diseases. Platelets may be counted to monitor or diagnose diseases, or to look for the cause of too much bleeding or clotting. Normal value ranges may vary slightly. Some lab use different measurements or may test different specimens. Talk to your doctor about your test results. Even every day activities can cause bleeding. A lower-than-normal platelet count is called thrombocytopenia. Low platelet count can be divided into 3 main causes: Not enough platelets are being made in the bone marrow Platelets are being destroyed in the bloodstream Platelets are being destroyed in the spleen or liver Three of the more common causes of this problem are: Cancer treatments, such as chemotherapy or radiation Drugs and medicines Autoimmune disorders , in which the immune system mistakenly attacks and destroys healthy body tissue, such as platelets If your platelets are low, talk to your health care provider about how to prevent bleeding and what to do if you are bleeding. It means your body is making too many platelets. A type of anemia in which red blood cells in the blood are destroyed earlier than normal hemolytic anemia After certain infections, major surgery or trauma Cancer Bone marrow disease called polycythemia vera Bone marrow making too many platelets without a known cause primary thrombocythemia Recent spleen removal Some people with high platelet counts may be at risk of forming blood clots. Blood clots can lead to serious medical problems Risks Veins and arteries vary in size so it may be harder to take a blood sample from one person than another. Other slight risks from having blood drawn may include: Excessive bleeding Hematoma blood accumulating under the skin Infection a slight risk any time the skin is broken Alternative Names.

DOWNLOAD PDF ISO-ANTIGENIC SYSTEMS OF HUMAN BLOOD PLATELETS;

Chapter 4 : Platelet - Wikipedia

Like the red and white blood cells, platelets are produced in bone marrow from stem cells. Plasma. Plasma is the relatively clear, yellow tinted water (92+%), sugar, fat, protein and salt solution which carries the red cells, white cells, and platelets. Normally, 55% of our blood's volume is made up of plasma.

It has four main components: Blood has many different functions, including: About 7 to 8 percent of your total body weight is blood. An average-sized man has about 12 pints of blood in his body, and an average-sized woman has about nine pints. Doctors who specialize in hematology hematologists are leading the many advances being made in the treatment and prevention of blood diseases. If you or someone you care about is diagnosed with a blood disorder, your primary care physician may refer you to a hematologist for further testing and treatment. The shape of a red blood cell is a biconcave disk with a flattened center - in other words, both faces of the disc have shallow bowl-like indentations a red blood cell looks like a donut. Production of red blood cells is controlled by erythropoietin, a hormone produced primarily by the kidneys. Red blood cells start as immature cells in the bone marrow and after approximately seven days of maturation are released into the bloodstream. Unlike many other cells, red blood cells have no nucleus and can easily change shape, helping them fit through the various blood vessels in your body. The red blood cell survives on average only days. Red cells contain a special protein called hemoglobin, which helps carry oxygen from the lungs to the rest of the body and then returns carbon dioxide from the body to the lungs so it can be exhaled. Blood appears red because of the large number of red blood cells, which get their color from the hemoglobin. The percentage of whole blood volume that is made up of red blood cells is called the hematocrit and is a common measure of red blood cell levels. They are much fewer in number than red blood cells, accounting for about 1 percent of your blood. The most common type of white blood cell is the neutrophil, which is the "immediate response" cell and accounts for 55 to 70 percent of the total white blood cell count. Each neutrophil lives less than a day, so your bone marrow must constantly make new neutrophils to maintain protection against infection. Transfusion of neutrophils is generally not effective since they do not remain in the body for very long. The other major type of white blood cell is a lymphocyte. There are two main populations of these cells. T lymphocytes help regulate the function of other immune cells and directly attack various infected cells and tumors. B lymphocytes make antibodies, which are proteins that specifically target bacteria, viruses, and other foreign materials. Platelets help the blood clotting process or coagulation by gathering at the site of an injury, sticking to the lining of the injured blood vessel, and forming a platform on which blood coagulation can occur. This results in the formation of a fibrin clot, which covers the wound and prevents blood from leaking out. Fibrin also forms the initial scaffolding upon which new tissue forms, thus promoting healing. Conversely, lower than normal counts can lead to extensive bleeding.

DOWNLOAD PDF ISO-ANTIGENIC SYSTEMS OF HUMAN BLOOD PLATELETS;

Chapter 5 : Blood group - The importance of antigens and antibodies | calendrierdelascience.com

Platelets, also called thrombocytes (from Greek Î¸ÏŒÎ¼Î²Î¿Ï‚, "clot" and ÎºÏ•Ï„Î¿Ï‚, "cell"), are a component of blood whose function (along with the coagulation factors) is to react to bleeding from blood vessel injury by clumping, thereby initiating a blood clot.

Symptoms People with a low platelet count may bruise more easily. Symptoms of a low platelet count only occur at severely low levels. A slightly lower-than-normal count may not produce symptoms. If the count is low enough to cause spontaneous bleeding, an individual may notice small bleeds that create small, round, dark red spots on the skin called petechiae. Several petechiae can merge to form bruise-like rashes called purpura. ITP can also cause the gums or nose to bleed without reason and the presence of blood in the urine or stools. Platelets form a crucial part of the composition of blood. They are responsible for repairing tissue damage and play a vital role in the blood-clotting system, which helps to stop bleeding and heal wounds. Blood clotting is also known as hemostasis. Platelets are not invisible to the naked eye. The bone marrow produces them, and they travel in the blood for an average of 10 days before being destroyed. How do platelets stop bleeding? Platelets plug a leak in a blood vessel wall if it becomes broken or injured. When a blood vessel wall is damaged, it exposes a substance that activates platelets. Activated platelets trigger further events that bring in more platelets, and a blood clot starts to form. This serves to plug any leak. Activated platelets also release sticky proteins to help form the clot. A protein known as fibrin forms a mesh of threads that holds the plug together. What is a platelet count? A platelet count measures the concentration of platelets in the blood. A technician would carry this test out in a laboratory. When the number of platelets is low, this concentration reduces. Women normally experience a platelet count that varies slightly during the menstrual cycle and can fall near the end of pregnancy. The following platelet counts carry the risk of serious bleeding: There is more risk of bleeding when injured. Bleeding happens even without injury. Spontaneous bleeding can be severe and a risk to life. Diagnosis Blood tests can help identify a low platelet count. A doctor will ask some questions and perform a physical examination. The questions might cover symptoms, family history, and medications. The examination will assess for skin rashes and bruising. A laboratory platelet count will confirm the diagnosis, showing the exact concentration of platelets in the blood. The doctor is likely to perform other blood tests at the same time.

Chapter 6 : - NLM Catalog Result

Thomas J. Kunicki, Diane J. Nugent, in Blood Banking and Transfusion Medicine (Second Edition), Immunochemistry of Platelet Alloantigens. By convention, the designation human platelet antigen has been assigned to alloantigen systems in which the precise polymorphism that accounts for the serologic difference between alleles has been identified.

But blood is the most commonly tested part of the body, and it is truly the river of life. Every cell in the body gets its nutrients from blood. Understanding blood will help you as your doctor explains the results of your blood tests. In addition, you will learn amazing things about this incredible fluid and the cells in it. Blood is a mixture of two components: The heart pumps blood through the arteries, capillaries and veins to provide oxygen and nutrients to every cell of the body. The blood also carries away waste products. The adult human body contains approximately 5 liters 5. Plasma is the liquid portion of the blood. Blood cells like red blood cells float in the plasma. Also dissolved in plasma are electrolytes , nutrients and vitamins absorbed from the intestines or produced by the body , hormones, clotting factors, and proteins such as albumin and immunoglobulins antibodies to fight infection. Plasma distributes the substances it contains as it circulates throughout the body. The RBCs carry oxygen from the lungs ; the WBCs help to fight infection; and platelets are parts of cells that the body uses for clotting. All blood cells are produced in the bone marrow. As children, most of our bones produce blood. As we age this gradually diminishes to just the bones of the spine vertebrae , breastbone sternum , ribs, pelvis and small parts of the upper arm and leg. Bone marrow that actively produces blood cells is called red marrow, and bone marrow that no longer produces blood cells is called yellow marrow. The process by which the body produces blood is called hematopoiesis. All blood cells RBCs, WBCs and platelets come from the same type of cell, called the pluripotential hematopoietic stem cell. This group of cells has the potential to form any of the different types of blood cells and also to reproduce itself. This cell then forms committed stem cells that will form specific types of blood cells.

Chapter 7 : Iso-Antigenic Systems of Human Blood Platelets: A Survey - CORE

As a consequence of the polymorphism of different antigenic systems on blood cells, blood transfusions may lead to alloimmunization of the recipient. This depends on factors involving both the blood-recipient and the transfused blood. Strong antigens such as Rhesus, Kell and HLA often lead to.

How is a low platelet count diagnosed? During the exam, your doctor will check your body for any unusual bruising or evidence of petechiae, which is a sign of capillary bleeding that often accompanies a low platelet count. Your doctor may also feel your abdomen to check for an enlarged spleen, which can cause a low platelet count. You may also be asked if you have any family history of bleeding disorders since these types of disorders can run in families. Blood tests To diagnose this condition, your doctor needs to do a complete blood count test. This test looks at the amount of blood cells in your blood. A typical platelet count will range between , and , platelets per mL blood. Your doctor may also wish to have your blood tested for platelet antibodies. These are proteins that destroy platelets. Platelet antibodies can be produced as a side effect to certain drugs, such as heparin, or for unknown reasons. Your doctor may also order blood-clotting tests, which includes partial thromboplastin time and prothrombin time. These tests simply require a sample of your blood. Certain chemicals will be added to the sample to determine how long it takes your blood to clot. Ultrasound If your doctor suspects that your spleen is enlarged, they may order an ultrasound. This test will use sound waves to make a picture of your spleen. It can help your doctor determine if your spleen is the proper size. During an aspiration, your doctor will use a needle to remove a small amount of bone marrow from one of your bones. A bone marrow biopsy may also be ordered. Your doctor will use a needle to take a sample of your core bone marrow, usually from the hipbone. It may be performed at the same time as a bone marrow aspiration. The treatment for a low platelet count depends on the cause and severity of your condition. If your condition is mild, your doctor may wish to hold off on treatment and simply monitor you. Your doctor may recommend that you take measures to prevent your condition from worsening. Not everyone with a low platelet count needs treatment. Some conditions that cause a low platelet count will eventually clear up. The platelet count will return to healthy levels in those cases. However, people with severe cases may need treatment. Sometimes, a low platelet count can be fixed by treating the underlying cause. Your doctor will work with you to come up with a treatment plan that helps you manage your symptoms.

DOWNLOAD PDF ISO-ANTIGENIC SYSTEMS OF HUMAN BLOOD PLATELETS;

Chapter 8 : Blood Count Tests: MedlinePlus

What is a healthy platelet count? A normal platelet count ranges from , to , platelets per microliter of blood. Having more than , platelets is a condition called thrombocytosis; having less than , is known as thrombocytopenia. You get your platelet number from a routine blood test called a complete blood count (CBC).

What are Platelets and Why are They Important? Platelets, the smallest of our blood cells, can only be seen under a microscope. A blood vessel will send out a signal when it becomes damaged. To make contact with the broken blood vessel, platelets grow long tentacles and then resemble a spider or an octopus. What is a healthy platelet count? A normal platelet count ranges from , to , platelets per microliter of blood. Having more than , platelets is a condition called thrombocytosis; having less than , is known as thrombocytopenia. You get your platelet number from a routine blood test called a complete blood count CBC. What it means to have too many platelets thrombocytosis The medical term for having too many platelets is thrombocytosis, and there are two types: Primary or essential thrombocytosis â€" Abnormal cells in the bone marrow cause an increase in platelets, but the reason is unknown Secondary thrombocytosis â€" The same condition as primary thrombocytosis, but may be caused by an ongoing condition or disease such as anemia, cancer, inflammation, or infection When there are symptoms, they include spontaneous blood clots in the arms and legs, which if untreated can lead to heart attack and stroke. In severe cases, the patient might have to undergo a procedure called a platelet pheresis. This lowers the platelet count by removing the blood, separating out the platelets, and returning the red blood cells back to the body. With secondary thrombocytosis, the symptoms are usually related to the associated condition. For example, if you have an infection or anemia, you treat those conditions and the platelet count comes down. Symptoms include easy bruising, and frequent bleeding from the gums, nose, or GI tract. Your platelet count drops when something is preventing your body from producing platelets. There are a wide range of causes, including: Medications Certain types of cancer, such as leukemia or lymphoma Chemotherapy treatment for cancer Too much alcohol How platelets relate to cardiovascular disease If you have too many platelets, it can increase your risk for clotting. But often your cardiovascular risk has more to do with platelet function than platelet number. Keeping track of your platelets Too many platelets, too few platelets, abnormally functioning platelets, and related conditions such as blood clots, strokes, and heart attacks can be inherited. There is no concrete answer to that yet.

Chapter 9 : What are Platelets and Why They are Important: Johns Hopkins Womenâ€™s Cardiovascular

Individual blood group antigens vary in their antigenic potential; for example, some of the antigens belonging to the Rh and ABO systems are strongly immunogenic (i.e., capable of inducing antibody formation), whereas the antigens of the Kidd and Duffy blood group systems are much weaker immunogens.