Dear consumer,

Your inquiry regarding the use of high quality bovine colostrum in association with sickle cell anemia has been forwarded to me. I am a business and technology consultant with extensive knowledge regarding the formation and composition of bovine colostrum and its health-related applications in humans and animals.

Sickle cell anemia is an inherited condition in which the structural configuration of hemoglobin, an oxygen-carrying protein in the blood, is altered leading to a change in its shape. The red blood cells in which the hemoglobin is contained also correspondingly change their shape from round to crescent (sickle-shaped). Sickle cell anemia occurs when a child inherits a sickle cell gene from each parent. In the US, the condition is found predominantly in the black population, where it affects 1 in 400 individuals. It is also found in the Middle East and in the Mediterranean area.

Symptoms of the condition usually appear at about six months of age and may include enlargement of the abdomen and the heart and painful swelling of the hands and feet. This occurs because the sickle-shaped red blood cells interfere with normal blood flow by plugging up small blood vessels. The disturbances in blood flow also make affected persons more susceptible to infections and leg ulcers.

Routine utilization of a high quality colostrum product as a dietary supplement should prove very beneficial to an individual with sickle cell anemia. The condition results in a substantially accelerated degradation rate of tissue in comparison to non-afflicted persons. In addition, the associated anemia places a huge energy demand on normal metabolism and there is usually a large overall energy drain on the body.

Colostrum is an amazing resource of substances necessary to support the development and repair of cells and tissues, to assure the effective and efficient metabolism of nutrients and maintain a healthy immune system. This is not completely surprising when we consider that it is intended for consumption by a newborn calf that has received none of the substances in utero that will be required for its proper development outside of the uterus and that its growth will occur at a very rapid rate, creating a huge demand for energy. In addition, it is ideally suited for consumption by humans since most of its biologically active components have essentially the same chemical structure as the same components found in humans and there are no known negative side effects to its routine consumption other than those that might be experienced by individuals who are sensitive to the lactose (milk sugar) normally found in dairy products.

There are very small quantities of growth hormone in complete first milking colostrum, but growth hormone is an extremely potent hormone and, thus, not much is required. It directly affects almost every cell in the body and significantly influences the development of new,
healthy cells, causing them to generate at a more rapid rate when a sufficient quantity of the hormone is present. Scientific studies have shown that one of the benefits of ingesting even small amounts of growth hormone is accelerated development and repair of damaged tissue. It is believed that this occurs through the growth hormone/insulin-like growth factor axis.

Insulin-like growth factor-1 (IGF-1) and its closely related counterpart insulin-like growth factor-2 (IGF-2) are potent hormones that are found in association with almost every cell in the body. IGF-1 is the most potent and best described of this pair. These molecules are present in all mammals and, in every case, have a very similar chemical structure regardless of the species. IGF-1 is absolutely necessary for normal cell growth and for the development of the fetus in the uterus. Both IGF-1 and growth hormone are also required for normal development outside of the uterus and that is why they are both present in colostrum. It is now known that there are specific sites, called receptors, on almost all cells in the body capable of interacting with IGF-1. These sites have a structure that fits perfectly with part of the IGF molecule and this interaction triggers a series of chemical events within the cell. There are also 6 different proteins present inside the cell and on the surface of the cell that react to the attachment of IGF-1 to its receptor. These are called insulin-like growth factor binding proteins (IGFBPs) and they control the actions of IGF-1 on the cell. In addition, inside the cell there are at least 87 other related proteins either capable of binding to IGF-1, altering its actions, or influencing the effects of the IGFBPs. These are called insulin-like growth factor binding protein-related proteins (IGFBP-rPs). The entire collection of these proteins is referred to as the Insulin-like Growth Factor Binding Protein (IGFBP) Superfamily.

The multitude of available IGF-1 binding proteins and related proteins available in the cell is indicative of the many potential effects that the binding of IGF-1 to its specific cell-surface receptor can have on cells. To keep these many effects under control, some of the binding proteins act as checks and balances, allowing the secondary chemical switches in a cell to be turned on and then turning them off when it is appropriate. Therefore, IGF-1 is like the captain of a ship. When it binds to its specific receptor, the ship can move forward, but there are all kinds of systems in place to keep it moving at the right speed and in the right direction.

The main triggered events include activation of the process by which the cell grows and reproduces itself and maintenance of the metabolic pathways by which the cell converts glucose into glycogen and uses amino acids to create proteins. The actual pathway by which the cell uses glucose and converts it to glycogen is first switched on by the binding of insulin to its specific cell surface receptors. Glycogen is stored in the liver and muscles and is the reserve source of readily available energy when the muscles are exercised. The IGFBP Superfamily also has a direct role in how the cell uses amino acids to build proteins. Thus, by eating a well-balanced diet and maintaining a constant supply of IGF-1 in our body, we can keep the ship moving at the right speed and in the right direction.

It is also very, very important to recognize that all colostrum products are not the same and, despite the claims made by their manufacturers, they do not all contain every beneficial component at an optimum concentration and, in many cases, they have been manipulated and may be missing some of the essential components. When choosing a colostrum product, you should be certain that it is made from only first milking bovine colostrum collected within 6-8 hours after birth of the calf and that the colostrum is "complete" and that none of the components
have been removed, including the fat. I have personally been responsible for testing of several different brands of colostrum for human use and can attest that the results prove that the products distributed by Immune-Tree, contain the highest quality complete bovine colostrum available today.

I hope that this information is beneficial and answers your question.

To your good health - always,

Sincerely,

Alfred E. Fox, Ph.D.

Dr. Alfred E. Fox holds a Ph.D. from Rutgers University in Microbiology (Imunochemistry) and has more than 25 years of senior management experience at Carter-Wallace, Baxter Dade Division and Warner-Lambert, where he was responsible for research and development and regulatory affairs. He was also the founder and president of two biotechnology companies focused on agribusiness and environmental monitoring, respectively. For the past 15 years, Dr. Fox has been the President of Fox Associates, a business and technology consulting firm serving small- to mid-size companies in the human and animal healthcare fields. He focuses primarily on marketing and regulatory issues and for the past 10 years has continuously consulted to bovine colostrum manufacturers, where he has gained regulatory approval for their products, been a technical advisor, helped design and develop marketing strategies and served as an expert witness in legal matters.