Colostrum and Pancreatitis

September 30, 2009; By Dr. Anthony Kleinsmith

Dear consumer,

Your inquiry regarding the benefits of routine dietary supplementation with bovine colostrum for pancreatitis has been forwarded to me. I am a business and technology consultant with extensive knowledge regarding the formation of bovine colostrum and its applications in humans and animals.

The pancreas is a gland in the abdomen that produces the hormone insulin and various digestive enzymes that the body uses to metabolize carbohydrates and fats. Pancreatitis is an inflammation of the pancreas. There are two types of pancreatitis, acute and chronic. The symptoms of acute pancreatitis are usually severe and require medical treatment. If the condition remains untreated for any significant period of time, pancreatic cysts, abscesses and leakage of pancreatic fluid into the abdomen can occur, which can lead to other long-term medical problems.

Acute pancreatitis is due to a number of factors, including bacterial and viral infection, blockage of the pancreatic duct, trauma or surgery to the abdomen, elevated blood calcium levels or extremely high triglyceride levels. However, the most common cause is associated with excess consumption of alcohol. These factors appear to encourage digestive enzymes to act on the pancreas itself, causing swelling, hemorrhage and damage to the blood vessels in the pancreas.

Chronic pancreatitis develops over a number of years, usually after a history of recurrent attacks of acute pancreatitis. It may result in the loss of the ability to secrete the enzymes the body needs to digest foods. The resulting condition is known as pancreatic insufficiency and is usually associated with weight loss and foul-smelling stools and diarrhea. It can lead to diabetes and pancreatic calcification, in which small, hard deposits of calcium develop in the pancreas.

There are very small quantities of growth hormone in high quality complete first milking bovine colostrum, like that used in NQI's products, 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 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 limitation of the deterioration of cells and accelerated repair of damaged tissues.

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. They are present in significant quantities in high quality first milking bovine colostrum. 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.

Scientific knowledge about the IGFs, what they do and how they act on cells in the body, has developed very quickly during the past few years. 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 key event that triggers the effects of any of these proteins appears to be the interaction of IGF-1 with its specific cell-surface receptor, an event that some of these proteins regulate.

The multitude of available IGF-1binding 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 andreproduces 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. As we age, the ability of our body to create an adequate supply of

IGF-1 is diminished. 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. Even more importantly, as we age the cells in our body do not reproduce themselves as well and, since IGF-1 is a primary factor, along with growth hormone, in the ability of cells to grow and reproduce. This is amplified when conditions that interfere with normal metabolism, like pancreatitis, are present.

Thus, it is highly desirable to have appropriate levels of growth hormone and IGF-1 in the circulation through dietary supplementation to control the metabolism of carbohydrates and proteins, induce repair of damaged tissues and limit the ever-increasing rate of cell death.

Colostrum is an amazing resource of substances necessary to support the development and repair of cells and tissues and to assure the effective and efficient metabolism of nutrients. However, it is 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 the testing of several different brands of colostrum for human use and can attest that the results prove that the products distributed by NQI contain the highest quality complete bovine colostrum available today.

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I hope that the above answers your questions. If you need additional information or have other questions, please do not hesitate to contact me.

To your good health - always.

Sincerely, Alfred E. Fox, Ph.D.

Dr. Alfred E. Fox holds a Ph.D. from Rutgers University in Microbiology (Immunochemistry) 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.