

Colostrum and Congestive Heart Failure

October 7, 2009; By Dr. Anthony Kleinsmith

Dear consumer,

Your inquiry regarding the use of high quality bovine colostrum in association with congestive heart failure 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.

Congestive heart failure is a multiple etiology, high prevalence, poor prognosis disorder. Medical treatment of dilated cardiomyopathy is aimed at alleviating acute heart failure. Growth hormone (GH) and insulin-like growth factor-1 (IGF-1) are involved in many physiological aspects, including the control of muscle mass and function, body composition and regulation of metabolism. The roles of GH and IGF-1 as modulators of myocardial structure has been well established (see references listed below). Receptors for both GH and IGF-1 are expressed by cardiac tissues and, therefore, it is highly likely that GH may act directly on the heart, whereas IGF-1 may act by endocrine, paracrine or autocrine mechanisms. Animal models of pressure and volume overload have demonstrated reduction of cardiac IGF-1 production and expression of GH and IGF-1 receptors, implying that regulation of these factors is influenced by hemodynamic changes. Moreover, studies suggest that GH and IGF-1 have stimulatory effects on myocardial cells, possibly mediated by intracellular calcium handling. It has been shown that administration of GH can induce an improved hemodynamic and clinical status in some patients.

Complete first milking bovine colostrum, which is the basis of all products sold by Immune- Tree, is an excellent resource for both GH and IGF-1 providing that the colostrum used is properly processed to retain the bioactivity of its components. In humans, many of the substances necessary for development and survival of the fetus are transferred across the placental barrier. In sharp contrast, in bovines none of the substances necessary for development or to afford interim protection against pathogens are transferred across the placenta. In order to receive an adequate quantity of these substances, the calf must either nurse extensively during the first 8-10 hours after being born or be hand-fed at least 2 quarts of colostrum. As such, bovine colostrum is a rich resource of many biologically-active

substances that have been shown to be safe and effective for humans.

Studies recently completed at a major Endocrinology Diagnostic Laboratory clearly demonstrated that the colostrum products from Immune-Tree contain a significant quantity of IGF-1 and that the amount present is substantially greater than that found in competitor products. It is 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 8-10 hours after birth of the calf and that the colostrum is "complete" and that none of the components have been removed, including the fat.

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.

References:

Conti E, et al, Markedly reduced insulin-like growth factor-1 in acute phase myocardial infarction. J Am Coll Cardiol 38(1):26-32, 2001

Ueda H, et al, A potential cardioprotective role of hepatocyte growth factor in infarction in rats. *Cardiovasc Res* 51(1):4-6, 2001

Palmen M, et al, Cardiac remodeling after myocardial infarction is impaired in mice. *Cardiovasc Res* 50(3):516-24, 2001

Loennechen JP, et al, Regional expression of endothelin-1, ANP, IGF-1, and LV wall stress in infarcted rat heart. *Am J Physiol Heart Circ Physiol* 280(6):H2902-10, 2001

Vaessen N, et al, A polymorphism in the gene for IGF-1: functional properties and type 2 diabetes and myocardial infarction. *Diabetes* 50(3):637-42, 2001

Colao A, et al, Growth hormone and the heart. *Clin Endocrinol* 54(2):137-54, 2001

Yamamura T, et al, IGF-1 differentially regulates Bcl-xL and Bax and confers myocardial protection in the rat heart. *Am J Physiol Heart Circ Physiol* 280(3):H1191-H1200, 2001

Bocchi EA, et al, Growth hormone for optimization of refractory heart failure treatment. *Arq Bras Cardiol* 73(4):391-8, 1999

Volterrani M, et al, Role of growth hormone in chronic heart failure: therapeutic implications. *Ital Heart J* 1(11):732-8, 2000

Omerovic E, et al. Growth hormone improves bioenergetics and decrease catecholamines in postinfarct rat hearts. *Endocrinology* 141(12):4592-99, 2000

Broglio F, et al, Normal IGF-1 and enhanced IGFBP-3 response to very low rhGH doses in patients with dilated cardiomyopathy. *J Endocrinol Invest* 23(8):520-5, 2000

Schnabel P, et al, Hormone therapy in heart failure: growth hormone and insulin-like growth factor-1. *Z Kardiol* 88(1):1-9. 1999

Ross J, Ryoke T, Effects of growth hormone and insulin-like growth factor-1 in experimental heart failure. *Growth Horm IGF Res* 8(4):167-70, 1998

Osterziel KJ, et al, The somatotrophic system in patients with dilated

cardiomyopathy: insulin-like growth factor-1 and its alterations during growth hormone changes to cardiac function. Clin Endocrinol 53(1):61-8, 2000

Donath MY, Zapf J, Insulin-like growth factor-1: an attractive option for chronic heart failure. Drugs Aging 15(4):251-4, 1999

Houck WV, et al, Effects of growth hormone supplementation on left ventricular myocardial and myocyte function with the development of congestive heart failure. Circulation 100(19):2003-9, 1999

Lee WL, et al, Insulin-like growth factor-1 improves cardiovascular function and apoptosis of cardiomyocytes in dilated cardiomyopathy. Endocrinology 140(10):4831-40, 1999

Broglia F, et al, Activity of GH/IGF-1 axis in patients with dilated cardiomyopathy, Clin Endocrinol 50(4):417-30, 1999

Giustina A, et al, Endocrine predictors of acute hemodynamic effects of growth hormone in congestive heart failure. Am Heart J 137(6):1035-43, 1999

Isgaard J et al, The role of the GH/IGF-1 axis for cardiac function and structure. Horm Metab Res 30(2-3): 50-54, 1999