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## Bio-6-Plus™

The pancreas possesses two major secretory glands, and consequently possesses dual functions, that of an exocrine and an endocrine gland. As an exocrine gland it serves to secrete the major digestive enzymes amylase, protease and lipase, which function to digest starches, proteins, and fats, respectively. In addition to these, the pancreas also secretes trypsin, chymotrypsin and carboxypeptidase.

Exocrine insufficiency is characterised by deficiency or absence of these three major pancreatic digestive enzymes. Deficiencies in one or all three of these enzymes prevent the normal break down and absorption of food, leading to maldigestion and nutrient malabsorption. The classic clinical manifestations of exocrine insufficiency are malnutrition, abdominal cramps, and steatorrhea. Additionally, pancreatic enzyme deficiency has been associated with an increased risk of intestinal infection. Adults with pancreatitis or other pancreatic deficiencies may present with weight loss, anorexia, greasy, bulky or foul-smelling stools (due to steatorrhea), abdominal distention, and flatus (gas). Supplementation in individuals with pancreatic exocrine deficiency or insufficiency may serve to relieve these maldigestion-related issues, and also to achieve a normal nutritional status. Because of its digestive nature, **Bio-6-Plus™** may also act as a beneficial aide in the thinning of mucous. In a published randomised, double-blind, placebo-controlled trial with patients diagnosed with chronic pancreatitis, significant efficacy was demonstrated with enzyme preparations in reducing fat excretion, decreasing stool frequency and improving stool consistency.

**Bio-6-Plus™** supplies porcine derived raw pancreas concentrate, which provides 50,000 NF units of amylase, 9,300 NF units of lipase and 50,000 NF units of protease. It also supplies Superoxide Dismutase and Catalase from Biotics Research's own proprietary tableting base.



## Research Pertaining to Other Topics of Interest

Omega-3 Fatty Acids are Associated with Improved Telomeric Aging in Patients with Coronary Artery Disease (CAD) and Mild Cognitive Impairment (MCI) – Researchers, including Ramin Farzaneh-Far, MD and Nobel Laurite Elizabeth Blackburn, PhD conducted a prospective cohort study of ambulatory outpatients with stable CAD to investigate the association of Omega-3 FA blood levels with changes in telomere length (1). Telomere length was measured at baseline and after 5 years follow-up. Individuals in the lowest quartile of DHA and EPA showed the fastest rate of telomere shortening as compared to those in the highest quartile, who had the slowest rate of shortening, demonstrating a clear inverse relationship between baseline blood marine Omega-3 FA and the rate of telomere shortening over 5 years. These findings are supported by a recent intervention study led by Dr. Nathan O'Callaghan, investigating the effects of Omega-3 supplementation on telemetric shortening in elderly people with MCI (2). In this randomized study, 33 adults (> 65 yrs) with MCI took either Omega-3 supplements or Omega-6 linoleic acid (LA) for 6 months. Telomere shortening was greatest in the LA group vs. the EPA and DHA groups.

(1) Farzaneh-Far R, et al. Association of Marine Omega-3 Fatty Acid Levels With Telomeric Aging in Patients with Coronary Heart Disease. *JAMA*, 2010 Jan 20; 303(3): 250.

(2) O'Callaghan N, et al. Telomere shortening in elderly people with mild cognitive impairment may be attenuated with omega-3 fatty acid supplementation: A randomized controlled pilot study. *J. Nutrition*. Published online ahead of print, doi: 10.1016/j.nut.2013.09.013