

ImmunoLin

“Changing How You View Proteins”

1. What is ImmunoLin?

ImmunoLin[®], immunoglobulin concentrate, is a revolutionary new protein source that is based on immunoglobulin derived from serum. It is also the first new protein source to come to the protein market in many years. Unlike traditional sources of protein such as casein or whey, ImmunoLin is rich in naturally occurring, bioactive proteins such as immunoglobulin and peptides. Proprietary separation and filtration technologies are used to concentrate the bioactive proteins (>85%), which are principally specialized glycoproteins called immunoglobulins (>50%), that are found in serum and serve to protect the body against infection amongst other roles in the body. The functionality and bioactivity of immunoglobulin is retained through the use of similar processes in use to manufacture protein-based reagents for cell and tissue culture. The powerful functionality and bioactivity of the proteins and peptides goes beyond the nutritional benefits of an excellent amino acid profile to provide direct immune support, stronger gut barrier function, and protection against overactivation of the immune system.

2. Is there science to support the use of ImmunoLin in humans?

If the processing technology would have existed, this product should have been launched many years ago because the basic science behind the product is recognized in every immunology textbook. ImmunoLin is derived from serum. Serum has two well known characteristics that make it an ideal raw material source for a revolutionary new protein source: 1) Serum contains the humoral immune system. The humoral factors of serum are one of the body's major defenses against infection; 2) Serum provides the critical factors and nutrients for protein synthesis. It is the gold-standard of all natural substances in supporting cell growth, proliferation, and wound healing. Cells thrive when the media is supplemented with bovine serum. But, the origin of the concept for ImmunoLin is founded on proven efficacy in food animals. More than 50 studies have been published in animal sciences demonstrating that oral or dietary plasma or serum protein supplementation promotes growth¹, particularly lean tissue growth, by both supporting gut barrier function² and modulating the immune response³.

3. What ensures that ImmunoLin is a safe product to use?

ImmunoLin consists of naturally occurring proteins that are concentrated using stringent quality control procedures. The raw material is collected in USDA-inspected facilities and approved for use in food products. The purification of ImmunoLin takes place in a closed system, which prevents against contamination. The facility itself is compliant with FDA Good Manufacturing Practices (GMP) for food products. To eliminate the risk of mad cow disease (BSE), only U.S. beef cattle are used in the production of ImmunoLin. It is also important to note that bovine growth hormone (rBST) is approved for use in dairy cattle, not beef. The final product must meet more stringent internal quality standards than the standards for ingredients used in infant formula. A long history of use in the food supply, the presence of low concentrations of the primary proteins in milk, and published clinical studies in both adults⁴ and children support the safety of product^{5,6}. (A complete set of references is available).

4. What is the mode of action?

ImmunoLin, due to the consistent, high concentration of immunoglobulins and other bioactive proteins and peptides in plasma or serum, has been shown to boost immunity and increase lean tissue accretion in animal studies^{1,7-13}. But, the most exciting aspect of the science is new studies that demonstrate a positive modulation of gut barrier function^{2,14,15} and inflammatory cytokine production and expression^{3,16,17}. The effects of ImmunoLin on inflammatory cytokine production provides a partial explanation of how bioactive proteins has positive effects on both intestinal permeability and amino acid utilization⁹. Recent studies of the biological roles of cytokines have opened up a new opportunity towards maximizing protein retention and lean body mass¹⁸⁻²⁵. In addition to promoting inflammation, cytokines also elicit potent catabolic effects on skeletal muscle²⁶ and growth²⁷⁻²⁹. The use of ImmunoLin or other means to manage cytokines has great potential to reduce the loss of protein through catabolism that is initiated by overstimulation of the immune system.

5. How does ImmunoLin compare to other proteins?

Like other high quality sources of animal proteins such as meat, milk, or eggs, ImmunoLin has an excellent amino acid profile. ImmunoLin also has a neutral taste, odor and excellent solubility. However, ImmunoLin stands alone as a source of proteins and peptides with biological activity and functionality^{14;30}. No other protein source has bioactive immunoglobulins and peptides as its predominant protein component. So, ImmunoLin differs completely in purpose of use to other protein sources. Proteins like egg albumin, casein and whey can be used as sole sources of dietary protein due to a highly available, balanced, essential amino acid profile but these proteins have negligible bioactivity. ImmunoLin, on the other hand, is rich in bioactive proteins, which helps promote amino acid utilization^{9;11;13}. Also, the proteins are relatively large and more complex in structure than whey or casein (see accompanying SDS-PAGE) with a slower rate of digestion, which allows them to retain biological activity and provide amino acids to the body for a longer period of time. ImmunoLin can be combined with whey or other high quality protein sources lower in molecular weight with a more rapid rate of digestion to optimize protein utilization. Retaining biological activity is critical to the dual-benefit of promoting lean tissue growth and amino acid utilization while also supporting immunity.

6. Is ImmunoLin broken down by digestion?

Immunoglobulin, unlike most proteins, is not completely broken down by digestive processes which helps it maintain its biological activity throughout the GI tract. IgG is stable in mildly acidic conditions (pH of 4) and is not easily hydrolyzed by digestive enzymes. A summary of studies in which the degradation of IgG was studied in various in vitro and in vivo conditions is available. Approximately 20-25% of the immunoglobulin administered survives digestion or degradation. The "survival" of immunoglobulin through the digestive process explains why mothers produce milk enriched with antibodies to protect the neonate, why adults produce and secrete large quantities of immunoglobulin into the digestive tract, and why supplementation has proven to be of benefit to humans and animals.

7. How should ImmunoLin be used?

For best results, ImmunoLin should be consumed in capsules, chewable tablets, protein powders, bars or beverages in a daily serving of 5-10 g of ImmunoLin per day for adults (or 150 mg ImmunoLin per kg BW in children) or a rate of 10% of the protein in the product. A level of 2.5 grams per day is recommended for daily immune support. IC is recommended for use in dietary supplements, protein supplements, medical foods and functional foods. The specific applications recommended are products designed for: immunity, gut health, anti-inflammatory products, pre- and post-workout supplements to support recovery; and, with its slow digestion characteristics, ImmunoLin is an ideal supplemental protein source for meal replacement products in weight loss. Isoleucine and methionine are the limiting amino acids in ImmunoLin. For best results, ImmunoLin should be a part of a complete, balanced nutritional program.

Reference List

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