

Introduction to IMMUNEL™

Immune is an original and scientifically derived fraction of colostrum. Sterling Technology has studied specific extracts of colostrum in vitro as well as in vivo research to develop a product that provides a quicker, and more targeted immune response. By concentrating specific immune modulating components and removing particular elements of colostrum, Immune was developed. Studies have shown Immune to:

- Promote more active immune response
- Cause faster phagocytosis
- Support NK cell activation
- Protect cells from apoptosis
- Have antioxidant properties that protect live cells from oxidative damage

In vitro testing suggests the innate immune system is prompted into action but also provides immune information for “smarter” immune response. Immune enhances the secondary response of educating acquired immunity antibody response.

Immune contains concentrated levels of important immune modulators that have been studied extensively. These components include Transfer Factor, PRP, IGF-1, n-acetyl neuraminic acid, GMP, nucleic acid and defensins. Whole colostrum is an exceptional immune product that provides overall health and maintenance. Studies of the immune components of colostrum showed that certain components when concentrated and separated are more directly effective as an immediate immune enhancer. Abstracts and papers are available by request.

Functions of Immune make it a valuable nutraceutical for the categories of; anti-aging, immune support, immune modulation, anti-inflammatory, antioxidant and skin health.

Key Features: Accelerated, Targeted Immune Response
Antioxidant Capable of Entering Live Cells
Unique product
Low Dosage (100 mg)
Available as powder and sterile fill liquid
Excellent water dispersal



What is unique about Targeted Immune Response?

The body's immune response is a complicated, precise, coordinated effort. It is a series of steps that sustain health. Immune supports these steps throughout the entire process – it's the focus on the foundation of a strong immune system.

It all begins with the innate immune system and more specifically with phagocytosis. This too is where Immunel begins – The first line of defense. Phagocytes chew up foreign intruders and educate the specific immune system. Immunel supports phagocytosis and makes cells more susceptible to the action of phagocytes, allowing for a quicker response.

Cytokines are then secreted to inform other cells to migrate to the foreign organism. Preliminary data found that Immunel was able to directly induce a number of cytokines that are known to support Th2 responses, which are involved in the humoral immune response.

T-Cell, B-Cell and NK Cell activation is the next important step in immune response. T Cells help coordinate the response and help kill identified invaders, B Cells seek out targets and send out defensins as well as produce antibody for future attacks. Immunel has been shown to activate both B and T lymphocytes, but what is most impressive is Immunel's support of NK Cell activation. NK Cells modulate immune cell responses, but they are also powerful killers of infected cells and are a key to keeping invaders at bay until other immune cells can react.

Immunel benefits the immune response as a whole. From fine tuning the day to day immune response to benefits such as antioxidant properties and protection from apoptosis, Immunel supports health and longevity from the inside out.

Components and Functions

IGF-1 Antiaging	Transfer Factor Antibacterial	PRP Activate Underactive Immune System
Lean Muscle Mass	Mycobacterial	Initiate action against foreign organisms
Enhanced Athletic Performance	Antifungal	Suppress Overactive Immune System
Joint Protection Neuroprotector	Antiparasitic Antiviral	Anti-Inflammatory Produce Helper/Suppressor T-Cells
Inhibitor of apoptosis Antidiabetic / antiatherosclerotic Immune Enhancer	Immune System Support Educate the Immune System Immune System Modulator Boost Immune Response	Produce functionally active T-Cells Immune Modulator
GMP Stimulation of cholecystokinin	Defensins Anti-bacterial	N-acetyl neuraminic acid Brain development / Learning Skills
Support beneficial intestinal bacteria	Anti-microbial	Production / Quality of Mucus
Inhibition of platelet aggregation	Adaptive Immunity	Anti-bacterial
Reduce dental caries	Attract T-Cells / Dendritic Cells in inflammatory response	
	Nucleic Acid Anti-Aging Memory Enhancement Improved Liver Functioning Increased Stamina Heart Health Promote Lean muscle Mass	



Immune PLUS Research Studies **Immune PLUS – Accelerated Immune Response**

Evaluation of IMMUNE PLUS in the mouse influenza host resistance model

Study No. BRT 20070526 SUMMARY – Immune PLUS reduces viral titers in the lung

Study no. BRT 20070526 was conducted to determine the efficacy of Immune PLUS for

prophylaxis of influenza viral disease using the Balb/c mouse influenza host resistance model. In this study, Immune PLUS was administered twice (24 and 1 hour) prior to infection, comparing high dose, mid dose, and low dose, and comparing oral treatment with intranasal administration. Treatment with Immune PLUS had no effect on body weight, spleen weight or lung weight. Immune PLUS reduced viral titers in the lung when compared to vehicle treatment. Intranasal administration of Immune PLUS caused 11%-38 % reduction in viral titer in the lung. Oral treatment with Immune PLUS was more effective and caused 50%-64% reduction in viral titer, when compared to vehicle control.

Evaluation of Three Colostrum Fractions in the Mouse Streptococcal Host Resistance Model

Study No. BRT 20061127 SUMMARY – Immune PLUS reduces bacterial load and enhances antimicrobial activity

Study no. BRT 20061127 was conducted to determine the antimicrobial activity of Immune PLUS in the mouse *Streptococcus pneumoniae* pulmonary host resistance model using female Balb/c mice. In the study Immune PLUS was administered, by oral gavage, prior to infection and 4 hours post-infection. Vehicle was administered on the same dosing schedule to another group of 20 mice. Treatment with Immune PLUS had no effect on body weight, spleen weight or lung weight. Bacterial load was reduced 20 hours post-infection in mice treated with Immune PLUS (reductions in CFU/Lung of 70.2%), when compared to vehicle animals. Thus, treatment with Immune PLUS showed enhanced bacterial clearance (antimicrobial activity) in the lung compared to the vehicle group.

Acknowledgement

This research was performed at Bureson Research Technologies, Inc., an independent contract research lab.

Colostrum and fractions thereof: Exploring the pro- and anti-inflammatory and immunomodulatory effect on human leukocyte subsets in vitro.

Colostrum fractions Immune, and Immune PLUS: Comparison of immuno-modulatory effect on human leukocyte subsets in vitro.

STUDY SUMMARY - Immune PLUS supports several specific aspects of innate immune response involved in combating bacterial infections:

Phagocytosis

- Immune PLUS very rapidly acts directly on the phagocytes
 - After a brief 3 minute exposure to Immune PLUS
 - phagocytes internalize more particles per cell
 - more monocytes were performing phagocytosis
 - monocytes had ingested more particles per cell
 - more efficient phagocytic uptake of microbe-sized particles

T cells and B cells

- Activates T cells and B cells
- Induces CD25

- The CD25 antigen is the IL-2 receptor
- induction of the activation marker CD86 on CD19+ B lymphocytes

NK cells

- Supports NK cell activation, involved in the anti-viral immune response
- Activates Natural Killer (NK) cells
- The activation marker CD69 was induced on NK cells
- May aid in anti-viral host defense mechanisms

Acknowledgement

This research was performed at NIS labs, an independent contract research lab.



Immune Research Studies

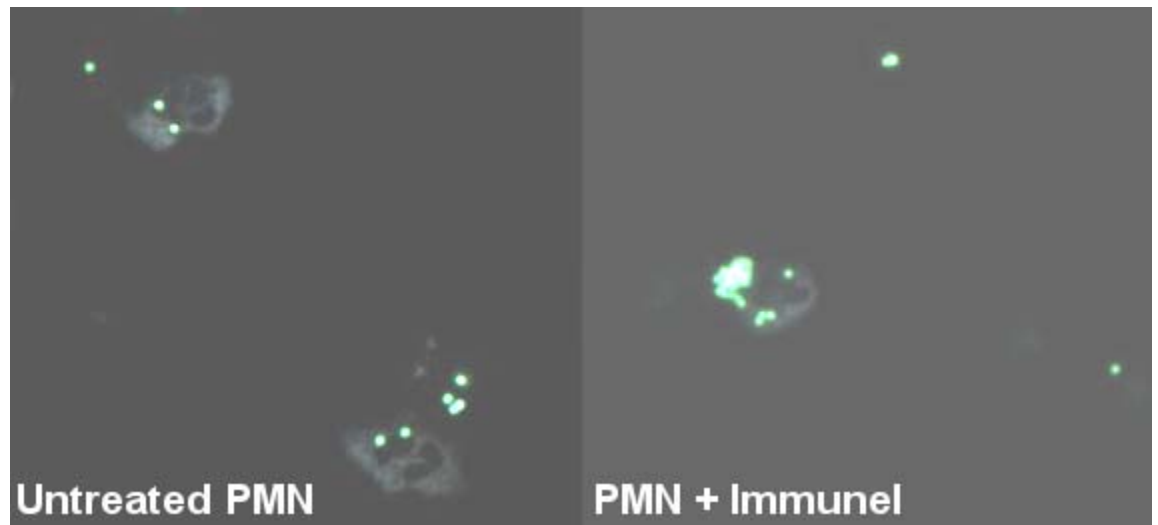
ImmuneTM - A scientifically Derived Colostrum Extract

Colostrum and fractions thereof: Exploring the pro- and anti-inflammatory and immunomodulatory effect on human leukocyte subsets in vitro.
Colostrum fractions Immune, and Immune PLUS: Comparison of immuno-modulatory effect on human leukocyte subsets in vitro.

STUDY SUMMARY - Immune supports several specific aspects of innate immune response involved in combating bacterial infections:

Phagocytosis and reactive oxidative burst

- Rapidly increases phagocytosis
 - After a brief 3 minute exposure to Immune (As seen in figure below):
 - phagocytes internalize more particles per cell
 - more monocytes were performing phagocytosis
 - monocytes had ingested more particles per cell



- Increases the reactive oxygen burst in polymorph nucleated (PMN) cells
 - The oxidative burst in PMN cells was increased by Immune

NK cell activation and anti-viral immune response.

- Activates Natural Killer (NK) cells
- The activation marker CD69 was induced on NK cells

Anti-inflammatory support and anti-oxidants

- Provided protection from oxidative damage in a cell-based antioxidant test.
- Induced the production of the Th2 cytokines IL-4, IL-6, and IL-10, considered anti-inflammatory cytokines, known to support the humoral immune response towards antibody production.
- Cell-based antioxidant protection
 - Protected live cells from oxidative damage, better than either whole colostrum or whey
 - Capable of entering live cells

Acknowledgement

This research was performed at NIS labs, an independent contract research lab.