

ImmunoLin[®] for Digestive Health and Immune Support

An Alternative to Colostrum?

ImmunoLin[®] is a protein-based (>90%) dietary supplement containing over 50% immunoglobulins that helps support digestive function and a healthy mucosal immune system. Similarly, breast milk and colostrum (milk produced immediately after birth) also contain high levels of immunoglobulins and other nutritive factors designed to benefit the newborn. ImmunoLin[®] is serum-derived bovine immunoglobulin/protein isolate (SBI) and is manufactured using a tightly-controlled and highly reproducible process at an FDA-inspected facility. Research studies provide evidence that the diversity of immunoglobulins and growth factors found in ImmunoLin[®] are safe and may help improve digestive health and nutritional status by decreasing immune activation through mechanisms that involve antigen binding and strengthening gut barrier function.



INTRODUCTION

A healthy digestive system breaks down foods and liquids into carbohydrates, fats, and proteins so the body can absorb them as nutrients for growth and energy. It also contains much of the body's immune system, protecting against pathogens or other toxic substances consumed in food or water. As with all complicated systems, the human digestive tract doesn't always run smoothly. Problems caused by normal daily dietary challenges that may cause gastrointestinal (GI) distress, resulting in symptoms such as bloating, abdominal pain or gas.

A way to support healthy GI function is to consume active immune factors from another immunologically 'mature' individual, and is best documented through the ingestion of breast milk containing high levels of immunoglobulins by a newborn infant⁽¹⁾. What follows in this paper is a comparison of two product options (containing high levels of immunoglobulins) for providing digestive health and immune support in healthy populations.

COMPARING DIGESTIVE HEALTH AND IMMUNE SUPPORT OPTIONS

Bovine Colostrum

Dietary supplements that utilize bovine colostrum (early milk produced immediately after birth) are available because of the variety of nutritional factors known to exist in colostrum and its purported role in supporting the immune system and intestinal homeostasis⁽²⁾. Both breast milk and colostrum contain high levels of immunoglobulins (also known as antibodies, which are found naturally in both serum and colostrum) and other factors designed to protect a newborn from potentially harmful bacteria and viruses. This oral transfer of protective factors from a mother's colostrum and breast milk to her newborn may also play a role in aiding the maturation of the infants' mucosal immune system⁽³⁾.

Colostrum differs from mature milk in both composition and function^(2,4). Colostrum is nutritionally more complex and contains higher levels of immunoglobulins than milk, along with lactoferrin, growth factors and other bioactive peptides important for nutrition, immunity, and growth and development. A substantial body of research highlights the preeminent role of *immunoglobulins* in supporting healthy immune function over the other factors found in breast milk or colostrum⁽¹⁾. These findings support several commercially available dietary supplements containing bovine colostrum for digestive health and immune support.

ImmunoLin®

ImmunoLin® is an alternative source of concentrated immunoglobulins for the support of healthy digestion and immune function. The mixture of serum proteins contained in ImmunoLin® includes high levels of immunoglobulins and other important bioactive peptides found naturally in serum and are widely known to support digestive health.

As previously stated, immunoglobulins (or antibodies) play a critical role in protecting against invading pathogens, promoting a healthy immune environment, and contributing to the establishment of the intestinal microbiota^(1,3). Since ImmunoLin® contains higher levels of immunoglobulins per dose, and is free of contaminants inherent with milk-based products like colostrum it is a potentially superior alternative ingredient for manufacturers to develop new and innovative digestive health and immune support products.

Four Reasons Why ImmunoLin® is a Superior Alternative to Bovine Colostrum

ImmunoLin® is a superior alternative to bovine colostrum for use in digestive health and immune support dietary supplements for the following reasons:

- 1. ImmunoLin® is lactose-free.** Colostrum is a milk-based compound, thus products containing it include elevated levels of lactose (a sugar present in milk that is known to be poorly tolerated, often resulting in GI distress for certain portions of the general population). ImmunoLin®, on the other hand, contains no lactose since it is derived from serum and not milk or colostrum.
- 2. ImmunoLin® provides a higher concentration of immunoglobulins vs colostrum.** Laboratory test results show that ImmunoLin® provides the highest protein content and the highest percentage of immunoglobulins [specifically immunoglobulin-G (IgG)] available compared to other commercially available colostrum supplements (Table 1). The higher IgG concentration makes ImmunoLin® a more potent source of immunoglobulins.
- 3. ImmunoLin® contains extremely low levels of endotoxin contamination vs colostrum.** Due to the nature of the product and its collection method, bovine colostrum is often contaminated with elevated levels of endotoxin. Once ingested, these endotoxins are exposed to the intestinal mucosa, potentially initiating a harmful inflammatory response that is often associated with increased gut permeability⁽⁵⁾ and GI distress. Laboratory test results show that ImmunoLin® contains lower levels of endotoxin compared to other commercially available colostrum supplements (Table 1). Lower endotoxin contaminants in ImmunoLin® makes it a purer alternative to colostrum.
- 4. The product composition of ImmunoLin® is more stable and predictable than colostrum.** For 15 years, over 2000 production lots of SBI have been manufactured utilizing the same rigorous isolation, purification and filtration methods. These methods are deployed in a cGMP facility that employs extensive precautions and procedures to ensure the safety, cleanliness, stability and consistency of each batch of SBI. In contrast, the quality and consistency of the preparations of bovine colostrum utilized in dietary supplements can vary based upon the following variables:
 - o the cow's disease and breeding history⁽⁶⁾
 - o the collection time post-calving⁽⁷⁾
 - o the volume and method of collection utilized to avoid bacterial contamination⁽⁸⁾
 - o the length of time collected material remains in storage prior to processing.

The factors outlined above may partly explain the inconsistencies observed in the results from clinical studies conducted with colostrum supplements⁽⁹⁾.

In summary, while bovine colostrum is well-researched and proven in multiple commercial product formulations, evidence from composition studies indicates that in a head-to-head comparison, ImmunoLin® is the superior alternative for digestive health and immune support dietary supplement applications.

Table 1. Comparison of SBI and Representative Colostrum Products

	SBI	Colostrum Product #1 ^A	Colostrum Product #2 ^A
Product Description	Serum-Derived immunoglobulin/Protein Isolate (SBI)	Immunoglobulin Concentrate from Colostral Whey Peptides	Highly Concentrated Colostrum IgG
No. lots tested	3	3	2
% Protein (w/w)	90.6 ± 1.1	72.4 ± 3.7	74.1 ± 0.9
% IgG (w/w)	52.4 ± 0.7	31.5 ± 2.9	35.3 ± 3.5
Lactose %	Below LD^B	8.1 ± 1.9	8.3 ± 0.7
Endotoxin (EU/mg)	0.3 ± 0.1	2.4 ± 0.5	1.8 ± 0.7

^A Names of products tested are available upon request.

^B LD, limit of detection. The lactose content of SBI is typically below the limit of assay detection (0.15%) since SBI is purified from plasma which does not contain lactose.

CONCLUSION

While bovine colostrum is well-researched and proven in multiple commercial product formulations, evidence from composition studies indicates that in a head-to-head comparison of composition, ImmunoLin® is the superior alternative for digestive health and immune support dietary supplement applications.

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