

ImmunoLin®

THE DAIRY-FREE ALTERNATIVE TO COLOSTRUM

ImmunoLin® is a protein-based (>90%) dietary supplement containing over 50.5% immunoglobulins that helps support gut health, digestive function, and a healthy mucosal immune system. Similarly, breast milk and colostrum (milk produced immediately after birth) also contain high levels of immunoglobulins (IgG) and other nutritive factors designed to benefit the newborn.

ImmunoLin is serum-derived bovine immunoglobulin/protein isolate (SBI) and is manufactured in a closed-loop, tightly controlled and highly reproducible process at both FDA and MPI-inspected facilities. 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⁾. This paper compares multiple products across both brand and type (colostrum or Immunolin) for providing gut 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 offers another source of concentrated immunoglobulins for the support of gut health, healthy digestion, and immune support. 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). Because Immunolin contains higher levels of immunoglobulins per dose, and is free of contaminants inherent with milk-based products like colostrum, it's an ideal source of IgG for manufacturers to develop new and innovative gut health, digestive health, and immune support products.

WHY IMMUNOLIN IS THE SUPERIOR IGG SOURCE

- 1 Immunolin provides a higher concentration of immunoglobulins than colostrum. Laboratory test results show that Immunolin provides the highest protein content and the highest percentage of immunoglobulins, specifically immunoglobulin-G (IgG), available when compared to other commercially available colostrum supplements (Table 1 and Table 2).
- 2 Immunolin contains levels of endotoxin that are below detection limits versus 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 and Table 2).

Table 1: Comparison of SBI and Representative Colostrum Products

| | SBI | Colostrum Product #1 | Colostrum Product #2 |
|--------------------------|---|---|-----------------------------------|
| Description | Serum-Derived Immunoglobulin/ Protein Isolate (SBI) | Immunoglobulin Concentrate from Colostral Whey Peptides | Highly Concentrated Colostrum IgG |
| % 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 ^A | 8.1 ± 1.9 | 8.3 ± 0.7 |
| Endotoxin (EU/mg) | 0.3 ± 0.1 | 2.4 ± 0.5 | 1.8 ± 0.7 |

^A 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.

- 3 Immunolin is dairy-free. Colostrum is a milk-based compound, meaning products using colostrum 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). Because Immunolin is derived from serum and not milk or colostrum, it is dairy-free and lactose-free.
- 4 The product composition of Immunolin is more stable and predictable than colostrum. For more than 20 years, thousands of 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 bovine colostrum utilized in dietary supplements can vary based upon the following variables:
 - the cow's disease and breeding history⁽⁶⁾
 - the collection time post-calving⁽⁷⁾
 - the volume and method of collection utilized to avoid bacterial contamination⁽⁸⁾
 - 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⁾. 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 gut health and immune support dietary supplement applications.

ONGOING TESTING

The past few years have seen an increased focus in the gut and immune health space, and the conversation has increasingly been focused on the incredible benefits that IgG can provide. From day one, the focus for Immunolin has always been on helping improve lives in the area of gut health and immune support.

The growth that the category has seen has been incredible as consumers have grown to better understand and recognize all that immunoglobulins can do for overall health and wellbeing. With colostrum providing the most accessible path to IgG in supplements, there started to be a trend developing amongst colostrum-only products, with claimed IgG percentages climbing from 40% to 60% in less than one year.

To learn more, we decided to purchase four of the top performing colostrum-only products and two Immunolin products from Amazon and order third-party testing (Eurofins and SGS) on a few key elements, including IgG percentage, endotoxin levels, and total protein percentage.

Of the four colostrum products, two were the top colostrum-only products on Amazon, both selling more than 10,000 units per month based on Amazon's calculations. It should be noted that both of these products do not have label claims currently attached to them but did previously feature IgG percentage claims. Additionally, we also tested two colostrum products based on the IgG label claims, one that claimed 50% IgG and one that claimed 60% IgG. Both of those products are selling more than 1,000 units each month based on their Amazon pages.

The third-party testing revealed that the claims made by the colostrum products fell short, as you can see in the raw data below. This data allows us to see that compared to the latest colostrum products, Immunolin provides a higher concentration of immunoglobulins and overall protein versus colostrum. Additionally, the two Immunolin products did not register levels of endotoxin when tested versus the endotoxin levels you see below for the four colostrum products.

Table 2: Comparison of Immunolin and Top Selling Colostrum Products

| | % Protein Claimed | % Protein (w/w) | % IgG Claimed | % IgG (w/w) | Endotoxin (EU/mg) |
|----------------------|-------------------|-----------------|---------------|-------------|-------------------|
| Immunolin Product #1 | 100 | 91.44 | 50.5 | 60.2 | <0.125*** |
| Immunolin Product #2 | 100 | 93.23 | 50.5 | 58.4 | <0.125*** |
| Colostrum Product #1 | N/A | 72.70 | 50.0 | 38.0 | 1.1-1.2 |
| Colostrum Product #2 | 50 | 51.12 | 40.0* | 17.3 | 1.1-1.2 |
| Colostrum Product #3 | 33.3 | 19.34 | 60.0 | 0.6 | 3.7-3.8 |
| Colostrum Product #4 | <100% | 61.47 | >35.0** | 30.5 | 0.240 |

* Claimed as recently as February 2024

** Claimed as recently as July 2024

*** Below Limit of Quantification (LOQ)

CONCLUSION

It's widely accepted that bovine colostrum is one of the most well-researched and proven ingredients across multiple commercial product formulations. However, there is now evidence from composition studies, both from when this paper was originally published in 2018, and updated in 2024, that indicate that in a head-to-head comparison of composition, claim, and performance, Immunolin outperforms the competition as the superior source of immunoglobulins for digestive health and immune support dietary supplement applications.

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