PROFESSIONAL FORMULAS

Immustim Complex

Clinical Benefits

- Provides comprehensive support for healthy immune function
- Supports healthy respiratory function
- Supports normal inflammatory balance

> **Immustim Complex contains a comprehensive blend of nutrients, botanicals, and glandulars formulated to support a healthy immune system.** Because the immune system can be particularly sensitive to nutrient deficiencies, Immustim Complex is formulated with vitamins A, C, E, and zinc to boost the body's immune nutrient reserves. Botanical ingredients such as Echinacea purpurea and bee pollen support immune defenses. And the assortment of glandular tissues, which include thymus, lymph, spleen, placenta, bone marrow, parotid, and adrenal tissues, fortify overall immune health. Together, these ingredients have long been traditionally used for their clinically effective immune-supportive properties.

The immune system is a complex and dynamic defense system designed to recognize self from nonself and to eliminate potentially harmful compounds, or antigens, such as molecules, cells, or foreign microorganisms from the body.[1] To be successful in this endeavor, it requires activation, regulation, and resolution of the immune response.[1]

The epithelial tissues of the eyes, skin, respiratory, gastrointestinal, and genitourinary tracts form a physical barrier that serves as the body's first line of defense. But breaching these barrier tissues can trigger one of two immune defense mechanisms: innate or acquired immunity.

Supplement Facts

Serving Size: One Capsule

Amount Per Serving		% DV
Vitamin A (as retinyl palmitate)	2250 mcg RAE (7500 IU)	250%
Vitamin C (as L-ascorbic acid)	100 mg	111%
Vitamin E (as succinate) (from soy)	33.5 mg α-tocopherol (50 IU)	223%
Zinc (as aspartate)	10 mg	91%
Echinacea (Echinacea purpurea) Root	50 mg	†
Lymph tissue (bovine)	40 mg	†
Spleen tissue (bovine)	40 mg	†
Thymus tissue (ovine)	40 mg	†
Bee pollen	25 mg	†
Placenta tissue (bovine)	25 mg	†
Bone marrow tissue (bovine)	20 mg	†
Parotid tissue (bovine)	20 mg	†
Adrenal tissue (bovine)	10 mg	†

† The % Daily Value (DV) is not established.

Other Ingredients: Vegetarian capsule (hypromellose and water), organic brown rice, and vegetable medium chain triglycerides.

Size: 60 Capsules

Product Code: GIMC

GF Gluten Free

G Glandular

H Hypoallergenic

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Innate, or natural, immunity does not require prior antigenic exposure to be fully effective, meaning it can respond immediately to an outside invader.[1] Innate immunity more broadly recognizes molecular patterns more than it does antigens.[1] The cells of the innate immune system include phagocytic cells such as neutrophils, monocytes, macrophages, polymorphonuclear leukocytes, and innate lymphoid cells such as natural killer (NK) cells.[1] Phagocytic cells ingest identified antigens, which can be facilitated by the formation of antibody-antigen or complement-microorganism complexes.[1] Polymorphonuclear leukocytes release inflammatory mediators.[1] And NK cells induce apoptosis, or programmed cell death, in compromised host cells.[1]

Acquired, or adaptive, immunity requires prior antigenic exposure to be fully effective and takes time to develop after the initial encounter with a novel invader.[1] However, subsequent exposures produce a quicker response because the acquired immune system remembers its past antigenic exposures. The cells of the acquired immune system include B-cells and T-cells. B-cells develop into plasma cells, which secrete soluble antigen-specific antibodies, creating what is called humoral immunity. While tissue-based antigen-presenting cells are needed to present antigens to most types of T-cells, creating what is called cell-mediated immunity.

The immune system is activated when a foreign antigen is recognized by cell surface receptors. These cell surface receptors may be broadly specific, triggering innate immunity, or highly specific, triggering acquired immunity.

The immune response is regulated by regulatory T-cells, which help support normal inflammatory balance via the secretion of cytokines, such as IL-10 and transforming growth factor-beta (TGF-beta), or via other cell contact-dependent mechanisms.[1]

The immune response naturally resolves once the antigen is sequestered or removed by the body. In this process, immune cells stop secreting cytokines, and activated cytotoxic T-cells undergo apoptosis.

Supporting a healthy immune system means supporting all factors that affect our overall health and wellbeing. In addition to nutrient status, the immune system is also sensitive to stress, which is capable of independently triggering an immune response all by itself. Therefore, diet and lifestyle together play a critical role in supporting a healthy immune system.

Vitamin A

Vitamin A is a key immune supporting nutrient that plays several essential roles in maintaining a healthy immune system.[2] One primary role is in maintaining the integrity of barrier tissues, such as healthy epithelial and mucosal surfaces.[2,3,4] Barrier tissues function as a non-specific host defense mechanism, making them our first layer of defense. The other primary role vitamin A plays is in enhancing numerous immune system processes, such as supporting white blood cell number and function and antibody response.[2, 3, 4]

Vitamin C

Vitamin C is a potent water-soluble antioxidant and well-known immune-supportive nutrient, contributing to both innate and adaptive immune system functions.[5] Vitamin C protects against environmental oxidative stressors and immune challenges by promoting oxidant scavenging activity in epithelial barriers.[5] Vitamin C is concentrated by phagocytic cells, such as neutrophils, and used to enhance chemotaxis, phagocytosis, and the generation of reactive oxygen species, which are produced during normal inflammatory responses.[5] Vitamin C supports the everyday activity of macrophage clearing of normally spent immune cells, aiding the resolution phase of healthy immune activity.[5] And it also plays a role in the normal development of B And T-cells.[5] But, vitamin C levels are sensitive to the daily effects of stress, and adequate levels are needed to meet metabolic demand, especially when the immune system is challenged. Because our bodies can't synthesize vitamin C intrinsically, it is considered by many to be an essential micronutrient to supplement.

Vitamin E

Vitamin E is a potent lipid-soluble antioxidant. It is found in high concentration in the immune cells; and, as such, is one of the most effective nutrients known to support normal immune function and inflammatory balance.[6, 7] Vitamin E supports healthy T-cell function by contributing to normal membrane integrity, signal transduction, and cell division.[6, 7] Supplementation has been shown to support healthy normal respiratory function, inflammatory balance, and overall function of the immune system, especially in older individuals.[6, 7]

Zinc

Zinc is an essential trace element that helps maintain healthy immune system function by supporting the normal development and activity of white blood cells, including antibody production.[4, 8, 9, 10, 11] It works synergistically with ***vitamin A*** as a necessary cofactor to activate thymic factor, a thymus hormone considered to have vital immune-supportive properties.[4, 12] And it also helps to maintain healthy barrier tissue integrity and normal inflammatory balance.[8, 9, 10, 13] While zinc has long been documented as an antioxidant, there is a growing body of evidence that zinc also supports normal intracellular signaling pathways in the immune system, including a variety of signaling cascades that are part of the normal response to extracellular stimuli.[8, 9, 10]

Echinacea purpurea (root)

Echinacea purpurea, also called purple coneflower, is among the most widely used botanicals, making it a staple of traditional herbal medicine for centuries.[14, 15] Research shows Echinacea purpurea to support B and T-cell development and the activity of macrophages, neutrophils, NK cells, and antibodies.[4, 14] *Echinacea* also diminishes hyaluronidase, an enzyme known to weaken barrier tissue integrity.[4]

Bee Pollen

Bee pollen grains contain considerable concentrations of various phytochemicals and nutrients. In addition to numerous vitamins and minerals (β-carotene, ***vitamin E***, niacin, thiamine, biotin, folic acid, Ca, Mg, Zn, Fe, Cu, Na, and K), bee pollen contains a wide range of secondary plant metabolites such as phytosterols (β-sitosterol, P-sitosterol, and terpenes), flavonoids (catechins, kaempferol, quercetin, and isorhamnetin), carotenoid pigments (lycopene and zeaxanthin) and enzymes.[16, 17, 18] Flavonoids are some of the most well-known polyphenols. And the primary flavonoids in bee pollen, quercetin and kaempferol, are noted for their antioxidant properties and their ability to support normal inflammatory balance.[17, 19, 20, 21, 22, 23] Further research notes that the wide variety of constituents in bee pollen help support normal immune system function.[16]

Glandular Nutrition and Immune Health

Immustim Complex contains a comprehensive blend of glandular tissues (***thymus***, ***lymph***, ***spleen***, ***placenta***, ***bone marrow***, ***parotid***, ***adrenal***) that have been used traditionally to support normal organ function. And emerging evidence validates their role in helping to maintain a healthy immune system.

For example, studies show that supplementation with thymic and splenic proteins help support the normal function of these tissues, both of which make important contributions to maintaining normal immune function.[24] The thymus is essential for T-cell development and maturation, and the spleen plays a vital role in B-lymphocyte maturation, antigen presentation, and macrophage activity.[24, 25] In particular, proper functioning of the thymus is critical for healthy immune system function, and thymic atrophy can lead to lower T-cell output and limited T-cell receptor diversity.[24, 25, 26] And, while thymic and splenic atrophy are often associated with aging, they can be precipitated by nutritional deficiencies, including low immune nutrient reserves.[24, 25, 26, 27]

Recommended Dosage
As a nutritional supplement, take 1-6 capsules daily, or as directed by your healthcare professional.

Cautions
Consult your healthcare practitioner if pregnant or nursing. Keep out of the reach of children. Vitamin A is fat-soluble and can accumulate to potentially harmful levels over time.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Citations

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