

The Professional Educator™

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Practitioners' Choices for Immune System Support

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It is widely accepted that an optimally functioning immune system is fundamental to maintaining optimal health, and that diet and nutritional intervention are the major exogenous factors modulating individual immunocompetence.

At the core of immunity, there is a process of recognition of compounds representing genetic information foreign to the host. It is primarily carried out by phagocytic cells that, upon recognizing the invasion, are capable of engulfing foreign cells or

particles, breaking them down and then presenting the portions suitable for developing a "custom" response to the next adaptive tier of the immune system. This initial non-specific portion of the immune system is the most basic and biologically ancient mechanism for getting rid of genetically foreign material.

An example of nutrients capable of supporting phagocytic function are polysaccharides found in mushrooms (Immune-Renew™) and yeast cell walls, particularly the ones comprised of branched beta-glucans. The current understanding of their mechanism of action is that they signal to the non-specific immune cells the presence of a fungal skeleton structure. This molecular configuration is well recognized by macrophages via their beta-glucan receptors and "alerts" them to be more vigilant and functionally active. The interesting part of this process is that even when the presentation of beta-glucan is made via gastrointestinal macrophages, the level of activity of phagocytes residing in the remote tissues is also upgraded. This is made possible due to the network of cytokines, -specialized signaling molecules that allow the immune system to coordinate its own function.

The optimal performance and longevity of macrophages is a critical part of the non-specific immune function. Among other factors, it depends on the ability of macrophages to withstand the effect of the caustic enzymes and free radicals they produce to destroy engulfed cells and particles. Thus, an activated macrophage is extremely reliant on the level of intracellular antioxidants, particularly vitamin C. "Too little and too late" is how immunologists typically describe the effect of ascorbate supplementation in situations where the outcome depends on the adequate function of macrophages. Since humans are among the species that lost the ability to synthesize their own ascorbic acid, food and supplements are the only sources of this essential antioxidant. Among vitamin C based supplements, ProtoSorb C™ deserves a special mention. Research is under way to demonstrate its unique role in supporting re-uptake and re-cycling of vitamin C. These functions are particularly important to the immune cells since their optimal performance depends heavily on their antioxidant status.

Another important player in non-specific, or innate immunity is a group of cells called Natural Killer (NK) cells. They are a special class of lymphocytes that earned this interesting name due to the discovery that they do not require the presence of MHC (Major Histocompatibility Complex) in order to be activated and become cytotoxic. NK cells are the "elite forces" of the non-specific immune system. NK cells are capable of destroying mutations such as neoplastically transformed cells on contact. They are also responsible for eliminating cells infected with a variety of viral pathogens by recognizing subtle changes in the chemical makeup while the infected cells are still functional but already harvest viral particles inside. A significant activation of NK cells accompanied by an increase in circulating phagocytic cells has been demonstrated for a supplement called Activated Hexose Correlated Compound, or AHCC®. This standardized extract of *Lentinula edodes* mycelia of the *Basidiomycete* family has an α -1,4-linkage structure which is different from polysaccharides found in Immune Renew™ that predominantly contain α -1,3-glucan configuration.

Unlike innate immunity, the adaptive portion of the immune system produces highly specialized factors such as antibodies that target specific antigens. In most cases, these antibodies do not cross-react with other antigens. However, there are exceptions. Sometimes an antibody produced to fight a specific invading microorganism would react with the body's own structures. The resulting auto-immune inflammation can be devastating for the target tissue or organ. More and more disorders are being uncovered to have an underlying auto-immune mechanism. The list now includes cardiovascular disease, diabetes and many of the neurological disorders. Unfortunately, no reliable nutritional interventions have been yet offered to fight the auto-immune component of these conditions.

Lately, particular attention has been paid to the imbalanced specific immune response that predominantly follows either a Th1 or Th2 pattern (thymus dependent helper lymphocytes). Th1-dominated responses include cellular-type immune processes accompanied by extensive lymphatic infiltration of the affected tissue. A Th2-type immune reaction follows a humoral, fast-acting pattern mostly typical for allergic reactions such as hay fever. Hopefully, we are approaching the time when physicians will have safe and effective tools to modulate immune response toward one or another type when a particular disbalance is diagnosed.

In anticipation of these promising interventions, a practitioner can still tremendously help his or her patient by helping to create a beneficial internal environment free from deficiencies in nutrients, vitamins, antioxidants and essential building blocks used by the immune system. Digestive competence and probiotic balance are essential components of immune health. Foundational elements of particular importance include vitamins A, D, E, C, minerals Zn, Fe, Cu, Se and also macronutrients (found in our Ortho Multi™ softgel) - essential fatty acids and proteins. Last but not least, the significance of sufficient physical activity and adequate sleep cannot be underestimated.

Immune Renew™ Organic Mushroom Formula

Protocol For Life Balance™ Immune Renew™ is a potent immune system supporting formulation containing standardized Astragalus Extract and a High Beta-Glucans Proprietary Mushroom Formula. Astragalus has been shown in non-clinical studies to support a number of aspects of healthy immune function, including the enhancement of T-Cell and Natural Killer Cell activity. Natural Killer cells are so named because they destroy unhealthy cells in the body virtually on contact. Our proprietary formula of eight organic mushrooms provides additional immune support due to its high 1,3 Beta Glucan content. 1,3 Beta Glucans are especially valuable to immune system response. They are increasingly lacking in today's typical diet. Scientific studies have demonstrated that the 1,3 form of Beta Glucans found in mushrooms possesses remarkable abilities to support both innate and adaptive immunity. A strong, responsive immune system is the foundation of good health. Use Immune Renew™ to help support healthy immune function seasonally and throughout the year.*

Maintaining a strong, vital immune system is considered by many to be the foundation of good health. The human immune system is a network of cells and tissues, which work together to defend the body against attacks.

Protocol for Life Balance™ Immune Renew™ contains standardized Astragalus Extract, an important herb used for centuries in the traditional Chinese system. Numerous modern scientific studies on Astragalus have documented its beneficial immune supporting properties. These studies indicate that Astragalus exerts its effect on the immune system by supporting healthy T-Cell and Natural Killer Cell activity.*

For increased immune support we've included a proprietary blend of eight highly potent organic mushrooms, which provide a very significant 1, 3 Beta Glucan content. Beta Glucans have also been recognized for their positive effects on immune function.*

Supplement Facts

Serving Size 1 Vcap®

	Amount Per Serving
Organic Mushroom Formula (Optimized Mycelial BioMass)	200 mg*
[Proprietary Formula of Trametes versicolor (Turkey Tails),	
Agaricus blazei (Sun Mushroom), Grifola frondosa (Maitake), Cordyceps	
sinensis (Cordyceps), Phellinus linteus, Hericium erinaceus (Lion's	
Mane), Ganoderma lucidum (Reishi) and Lentinula edodes (Shiitake)]	
Astragalus Root Extract (Astragalus membranaceus)	200 mg*
(min. 70% Polysaccharides)	
* Daily Value not established.	

Other ingredients: Cellulose (capsule), Cellulose, Silica and Magnesium Stearate (vegetable source).

Vcaps® is a registered trademark of Capsugel.

Vegetarian/Vegan Formula.

Contains no sugar, salt, wheat, gluten, corn, soy, milk, egg or preservatives.

🍁 Available for purchase in Canada.

AHCC® 500mg

AHCC® (Active Hexose Correlated Compound) is a patented formulation produced from several types of *Basidiomycetes* family mushrooms, including Shiitake. These mushrooms are uniquely grown in rice bran extract.

AHCC® was developed in Japan in 1989, and most of the studies with AHCC® supplements have been conducted in Japan where it is considered a super food. Many beneficial qualities of mushrooms can be traced to the special polysaccharides they contain. Polysaccharides are large, chain-like molecules built from many smaller sugar molecules. Certain polysaccharides in mushrooms have been widely used for their immune-supporting properties.

As a result of extensive research in humans and numerous non-clinical studies, AHCC® has been shown to support immune system functions through its effects on macrophages and NK (Natural Killer) Cells.* NK cells are critical for the maintenance of healthy cell cycle function. AHCC® has also been shown to possess outstanding antioxidant properties, and can help to support healthy liver functions.*

This Protocol For Life Balance™ formula is suitable for vegetarians and is offered in Vcaps®.

SUGGESTED USAGE: As a dietary supplement, take 1 Vcap® daily. For intensive use, take 2 Vcaps® 3 times daily under the supervision of a health care practitioner.

BENEFITS: AHCC® is a proprietary extract produced from specially cultivated and hybridized mushrooms. According to extensive research in humans, as well as numerous non-clinical studies, AHCC® supports immune system function through its effects on macrophages and NK (Natural Killer) Cells.* NK cells and the intercellular mediators they produce are critical for the maintenance of healthy cell cycle function. AHCC® has also been shown to possess antioxidant properties, and supports healthy liver function.*

Supplement Facts

Serving Size 2 Vcaps®

Servings Per Container 30

	Amount Per Serving
Calories	5
Total Fat	< 0.5 g
Trans Fat	0 g
Total Carbohydrate	< 1 g
AHCC®	1.0 g (1,000 mg)
[Proprietary Formula of Mushroom Mycelia Extract,	
Candelilla Wax, Cyclodextrin and Cellulose]	

Other ingredients: Cellulose (capsule), Cellulose, Silica and Magnesium Stearate (vegetable source).

Contains no sugar, salt, starch, yeast, wheat, gluten, corn, soy, milk, egg or preservatives.

Vegetarian/Vegan Formula.

AHCC® is a registered trademark of Amino Up Chemical Company, Ltd. of Sapporo, Japan.

Vcaps® is a registered trademark of Capsugel

🍁 Available for purchase in Canada.

L-Tryptophan 500 mg Vcaps®

L-Tryptophan is an amino acid that is critical for neurotransmitter synthesis. It is necessary for the production of serotonin (a neurotransmitter), melatonin (a neurohormone), and niacin (vitamin B3). For humans, tryptophan is an essential amino acid, meaning it cannot be made by the organism and therefore must be part of the diet. These important amino acids are building blocks in protein biosynthesis.

Many people find L-Tryptophan to be a safe and reasonably effective sleep aid, probably due to its ability to increase brain levels of serotonin (a calming neurotransmitter) and/or melatonin (a sleep-inducing hormone secreted by the pineal gland in response to darkness or low light levels).*

SUGGESTED USAGE: As a dietary supplement, take 1-2 Vcaps® daily, preferably at bedtime. For intensive use, take up to 6 Vcaps® daily, in divided doses, as directed by a health care practitioner.

BENEFITS: L-Tryptophan is an essential amino acid important in human nutrition for the synthesis of melatonin and serotonin, hormones regulating mood and stress response. L-Tryptophan helps support relaxation, sleep, disposition and immune function.* As an essential amino acid, it is not synthesized by the body and must be obtained from the diet. Our L-Tryptophan is pharmaceutically pure — every lot is screened against Peak E and microbial contamination.



*These statements have not been evaluated by the FDA. These products are not intended to diagnose, treat, cure or prevent any disease.

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