

AHCC® Overview

Efficacious cultured mushroom mycelia extract for immune support

About AHCC®

AHCC® is the top-selling immune-support ingredient in Japan and is backed by over 30 human clinical studies. An extract of cultured mushroom mycelia rich in alpha-glucans, AHCC® is a flexible immune modulator, acting on both the innate and adaptive immune systems.*

What Makes AHCC® Unique

The active constituents of medicinal mushrooms are polysaccharides – carbohydrates that consist of multiple sugar molecules bonded together. One class of polysaccharide, alpha-glucans, is documented to increase the activity of natural killer (NK) cells, thereby holding great promise for a number of indications.* Unfortunately, mushroom polysaccharides have a high molecular weight – about 200,000 daltons – and are therefore difficult for the body to absorb and utilize efficiently.

AHCC® is unique in that the molecular weight of its polysaccharides is much lower than that of other medicinal mushroom extracts: about 5,000 daltons. The smaller particles are more easily absorbed by the body, increasing the clinical efficacy of AHCC®.*

Proprietary Manufacturing Process

AHCC® is made through a unique process of cell culturing rather than through spore formation. All AHCC® is cultured from the same original sample of mushroom mycelia, and each sample is grown in a nutrient-dense medium that provides the perfect conditions for new cells to grow. This process ensures all AHCC® is genetically identical.

Once they have grown, cultured cells are transferred to an incubation tank, where their own enzymes are used to reduce the molecular weight of the polysaccharides down to an unprecedented 5,000 daltons.

A Flexible Immune Modulator

There are two kinds of immunity: innate and adaptive. Innate immunity consists of the inborn human immune response everyone shares. It serves as the body's first line of defense, creating a rapid and nonspecific reaction to a threat.

Adaptive immunity is developed over a lifetime of exposure to specific immune challenges. If the body senses a threat it has encountered before and learned how to combat, it can produce a targeted, specific response through the adaptive immune system. Most immune supplements boost either innate or adaptive immunity. AHCC® has the unusual ability to enhance both:*

Immune Component	Function	AHCC® has been shown to increase:	Innate	Adaptive
NK cells	Launch a first response to immune system threats	Activity of NK cells by up to 300%*	X	
Macrophages	Envelop and digest foreign substances and cellular debris	Number of macrophages, in some cases doubling them*	X	X
Dendritic cells	Present foreign substances to B and T cells	Number of dendritic cells*		X
T cells	Recognize previous threats and respond to them	Amount and effectiveness of T cells*		X
Cytokines	Help immune cells communicate & coordinate an immune response	Number of cytokines*	X	X

AHCC® Benefits

AHCC® has wide-ranging immune benefits throughout the body:

1. Protects cellular health.* AHCC® protects cellular integrity, particularly in hormone-sensitive tissues such as the breasts, ovaries, and prostate, as well as in the gastrointestinal organs, such as the stomach and colon.* Several human clinical trials have found that AHCC® supports healthy levels of prostate-specific antigen, a marker of prostate health.* Depending on the study, these changes were notable in one to six months.*

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

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AHCC® has also been found to protect breast health, possibly because it increases NK cell activity.*^{1,2,3}

2. Promotes liver health.* Animal studies have suggested that AHCC® can defend the liver from chemically induced injury.*^{4,5} This research may help explain why human case studies and clinical research have shown it promotes liver health.*^{6,7} Two double-blind, placebo-controlled trials have found that taking AHCC® for 12 weeks keeps levels of the liver enzymes alanine aminotransferase, aspartate aminotransferase, and gamma-transferase in check – a positive sign for liver health.*^{8,9} It appears to work through several mechanisms of action, including: 1) increasing albumin, a protein found in blood, 2) boosting white blood cell counts, 3) increasing levels of interleukin-12 (a cytokine), and 4) increasing levels of neopterin (a marker of immune activity).^{*10}

3. Improves quality of life.* AHCC® can improve comfort and quality of life for hospital patients, as shown in two human clinical trials.*^{11,12} Administration of AHCC® improved patients' energy levels, possibly by increasing levels of neutrophils, a kind of white blood cell.*

4. Enhances immune response to specific threats.* Published research has shown that AHCC® enhances the innate and adaptive immune response to a variety of threats:*

- AHCC® decreased the severity of several immune challenges in mice.*^{13, 14, 15, 16, 17}
- AHCC® shortened recovery time from an immune challenge in mice.*¹⁸
- AHCC® induced an early activation of the innate immune response in mice pretreated with AHCC® before exposure to an immune challenge.*^{19,20}
- AHCC® increased the adaptive immune response in mice after exposure to an immune challenge.*²¹
- AHCC® diminished blood levels of foreign invaders compared with treated control mice.*²²
- AHCC® bolstered the body's immune response to vaccination in human subjects, increasing the production of T cells and NK cells better than the vaccine alone.*²³

Safety

AHCC® has an excellent safety record. Animal and human studies have confirmed very low toxic potential, whether it is taken for a short period or on an ongoing basis.²⁴ In observations of thousands of patients in hospitals and clinical trials, doctors have not noted any significant adverse effects associated with AHCC®.

References

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