

# Agaricus blazei with BioPerine®

**Doctor's  
BEST**

Science-Based Nutrition™



Agaricus extracts have demonstrated an ability to help maintain cellular health through the actions of ergosterol and newly discovered substances that are only beginning to be studied in determining how they contribute to supporting healthy cell growth. Ergosterol, a precursor to vitamin D, becomes ergocalciferol; researchers believe both may contribute to the healthy formation of blood vessels.<sup>6,7</sup>

## Supports Immune Function.\*

Agaricus blazei has been the subject of research most often in Japan, where investigations have focused on the role of mushroom polysaccharides as “biological response modifiers” that can stimulate immune function. Studies have shown that beta-glucans extracted from Agaricus are active polysaccharides, having the ability to stimulate the release of cytokines from macrophages (white blood cells), thereby supporting a healthy immune response.<sup>8</sup> Additional experiments have shown that Agaricus blazei activates the alternative complement pathway, which is an important part of the body’s immune defense.<sup>9</sup>

A study conducted in mice illustrated the multi-faceted actions of Agaricus on the immune system in mammals.<sup>10</sup> In this study, the mice fed Agaricus had significantly more serum IgG antibodies after 8 weeks, greater T-cell production, and greater phagocytic activity (the ability of defense cells to engulf foreign material). In an even more recent study using mice and Agaricus, the mice were immunized with model allergen ovalbumin (OVA).<sup>11</sup> The results were surprising in that compared to the mice who were not given Agaricus extract, those that were given the extract had a stronger immune reaction to the OVA when the extract was given before, with, or even weeks after the allergen immunization. Together, these results point to an overall capacity of Agaricus to support immune function in mammals.

## INGREDIENTS

Agaricus blazei is a prized mushroom traditionally used for such purposes as liver support and promoting a balanced response to physical and emotional stress. The mushroom contains a special class of polysaccharides known as “beta-glucans.” Studies show that beta-glucans and other polysaccharides in Agaricus stimulate activity of natural killer (NK) cells, T-lymphocytes, and other important parts of the immune system.<sup>1-4</sup>

The Agaricus blazei in this product is extracted with the preferred hot water/alcohol method to increase its digestibility and enhance bioavailability of the polysaccharides. Additionally, it contains BioPerine®, a natural absorption enhancer derived from black pepper, to further stimulate absorption of the Agaricus blazei.

Originally from the small village of Piedade in the highlands of coastal Brazil, Agaricus blazei is now widely consumed in many countries, where it is used in tea and also regarded as a functional food due to its health-enhancing properties. Since 1965, strains of Agaricus blazei have been imported to Japan, where it is now widely cultivated and researched.<sup>4,5</sup>

## BENEFITS

- Supports Immune Function.\*
- Enhances liver health and promotes normal detoxification.\*
- Helps maintain healthy, normal blood sugar levels when used as a part of the diet.\*

## EXTENDED BENEFITS

The folk use of this mushroom encompasses a broad profile of reported effects, including on blood sugar and some blood lipids, bone health, support for the liver and for the immune and digestive systems, and for fighting physical and emotional stress.<sup>5,6</sup> Among these properties attributed to Agaricus, immune support is the major focus of scientific research to date. Like other “medicinal mushrooms,” Agaricus contains complex polysaccharides that stimulate the immune system. In 2001, it was reported that Agaricus is utilized for this purpose by 300,000 to 500,000 people in Japan annually.<sup>6</sup>

## Supplement Facts

Serving Size 1 veggie capsule  
Servings per container 90 servings

	Amount per serving	% Daily Value
Agaricus blazei extract (fruiting body)	400 mg	†
Supplies polysaccharides	160 mg	
Black pepper extract (fruit) (BioPerine®)	5 mg	†

† Daily Value not established.

**Other Ingredients:** modified cellulose (vegetarian capsule), microcrystalline cellulose, magnesium stearate (vegetable source).

**Suggested Adult Use:** Take 1 capsule daily, with or without food, or as recommended by a nutritionally-informed physician.

**Non-GMO / Gluten Free / Soy Free / Vegan**  
Store in a cool dry place.

\* 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.

## Enhances liver health and promotes normal detoxification.\*

In mice given Agaricus extract prepared by the hot water/alcohol method, a decline in the activity of the cytochrome P450 liver enzyme was reported; in effect, this slowed down the rate of chemical reactions in the liver producing harmful byproducts.<sup>12</sup> In another study, a water extract of Agaricus blazei was tested on rat liver cells exposed to the toxic chemical diethylnitrosamine (DEN). Rats were administered the mushroom extract for two weeks and then injected with the toxin. Compared to control rats that did not receive the extract, the rats given Agaricus showed an enhanced liver reaction to the toxin and a better outcome. No adverse effects were seen.<sup>13</sup> Similar to the liver of the mammals in these studies, the human liver functions as the key organ to rid the body of everyday toxins.

## Helps maintain healthy, normal blood sugar levels when used as a part of the diet.\*

In an animal model it was found that oligosaccharides derived from the beta-glucans in Agaricus blazei were even more efficient at regulating healthy blood sugar levels than extract of Agaricus blazei alone.<sup>14</sup> This study found that rats fed either the beta-glucans prepared from Agaricus or the oligosaccharides isolated from these beta-glucans both were able to maintain healthier blood lipid and blood sugar levels than rats fed neither. In a randomized, double-blind, placebo-controlled study, Agaricus blazei extract was more effective than placebo in promoting biomarkers that describe the maintenance of healthy blood sugar levels in the human subjects. A hypothesis behind the results is that the beneficial effects seen were due to adiponectin levels being elevated in the group receiving Agaricus. Adiponectin is a hormone secreted by fat cells that is involved in the metabolism of blood sugar and fats.<sup>15</sup>

While the health-promoting actions of Agaricus remain only partially understood, the research is mounting in its favor, proving the validity of some of the traditional uses of this immune-supportive mushroom.

## SCIENTIFIC REFERENCES



1. Kaneno, R., et al., Effects of extracts from Brazilian sun-mushroom (Agaricus blazei) on the NK activity and lymphoproliferative responsiveness of Ehrlich tumor-bearing mice. *Food and Chemical Toxicology*, 2004. **42**(6): p. 909-916.
2. Ahn, W.S., et al., Natural killer cell activity and quality of life were improved by consumption of a mushroom extract, Agaricus blazei Murill Kyowa, in gynecological cancer patients undergoing chemotherapy. *International Journal of Gynecological Cancer*, 2004. **14**(4): p. 589-594.
3. Mizuno, M., et al., Polysaccharides from Agaricus blazei stimulate lymphocyte T-cell subsets in mice. *Bioscience, Biotechnology & Biochemistry*, 1998. **62**(3): p. 434-437.
4. Firenzuoli, F., L. Gori, and G. Lombardo, The Medicinal Mushroom Agaricus blazei Murill: Review of Literature and Pharmacotoxicological Problems. *Evid Based Complement Alternat Med*, 2008. **5**(1): p. 3-15.
5. Menoli, R.C., et al., Antimutagenic effects of the mushroom Agaricus blazei Murrill extracts on V79 cells. *Mutat Res*, 2001. **496**(1-2): p. 5-13.
6. Takaku, T., Y. Kimura, and H. Okuda, Isolation of an antitumor compound from Agaricus blazei Murill and its mechanism of action. *Journal of Nutrition*, 2001. **131**(5): p. 1409-1413.
7. Martins de Oliveira, J., et al., Anti-genotoxic effect of aqueous extracts of sun mushroom (Agaricus blazei Murill lineage 99/26) in mammalian cells in vitro. *Food Chem Toxicol*, 2002. **40**(12): p. 1775-80.
8. Olson, E.J., et al., Fungal beta-glucan interacts with vitronectin and stimulates tumor necrosis factor alpha release from macrophages. *Infect Immun*, 1996. **64**(9): p. 3548-54.
9. Shimizu, S., et al., Activation of the alternative complement pathway by Agaricus blazei Murill. *Phytomedicine*, 2002. **9**(6): p. 45.
10. Chan, Y., et al., Immunomodulatory effects of Agaricus blazei Murill in Balb/cByJ mice. *J Microbiol Immunol Infect*, 2007. **40**(3): 201-8.
11. Ellertsen, L.K. and G. Hetland, An extract of the medicinal mushroom Agaricus blazei Murill can protect against allergy. *Clin Mol Allergy*, 2009. **7**: p. 6.
12. Hashimoto, T., et al., Suppressive effect of polysaccharides from the edible and medicinal mushrooms, Lentinus edodes and Agaricus blazei, on the expression of cytochrome P450s in mice. *Bioscience, Biotechnology & Biochemistry*, 2002. **66**(7): p. 1610-1614.
13. Barbisan, L.F., et al., Influence of aqueous extract of Agaricus blazei on rat liver toxicity induced by different doses of diethylnitrosamine. *J Ethnopharmacol*, 2002. **83**(1-2): p. 25-32.
14. Kim, Y.W., et al., Anti-diabetic activity of beta-glucans and their enzymatically hydrolyzed oligosaccharides from Agaricus blazei. *Biotechnology Letters*, 2005. **27**(7): p. 483-487.
15. Hsu, C.H., et al., The mushroom Agaricus Blazei Murill in combination with metformin and gliclazide improves insulin resistance in type 2 diabetes: a randomized, double-blinded, and placebo-controlled clinical trial. *J Altern Complement Med*, 2007. **13**(1): p. 97-102.

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