

## Two Novel Supplements with Immune-Boosting Properties

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### Reishi Mushroom Extract

The Reishi mushroom (*ling zhi* or *ganoderma lucidum*) has been used for thousands of years by herbal practitioners in China and Japan. It is listed as a super herb in China's pharmacopoeia, primarily for its ability to modulate immune function and for its anti-cancer and hepato-protective properties. Reishi mushrooms contain unique polysaccharides, which have been shown to exert positive effects on the immune system. Other active constituents include the ganoderminic acids, classified as triterpenoids, which are compounds with a structure similar to steroid hormones. When used as a prophylactic agent to support immune function or as a therapeutic agent for patients with immune compromised states, liver disease, scleroderma, or as a means to reduce the side effects of chemotherapy and/or radiation treatment, practitioners should be sure to use a standardized grade which yields at least 10 percent polysaccharide and four percent triterpene content from reishi mushroom powdered extract.

Studies demonstrate that reishi mushroom extract potentiates the tumoricidal capacity of macrophage cells and T-cells. It increases the phagocytotic activity of immune cells and significantly enhances the release of cytokines that act as signaling agents to boost immune system efficiency. Specifically, reishi mushroom extract has been shown to increase cytokine synthesis and release of interferon, interleukin-1, beta, tumor necrosis factor-alpha and interleukin-6, from human monocytes-macrophages and T lymphocytes. Moreover, the release of tumor necrosis factor-alpha and interferon acted synergistically to inhibit the growth of human leukemic cells in one such study involving reishi mushroom extract. Other investigations have revealed that reishi mushroom extract can help to re-establish normal levels of white blood cells following gamma-ray irradiation. These findings have led to its use as a cancer treatment support supplement by many practitioners in Asia.

Reishi mushroom extract can be taken daily on its own or as part of a combination product (30-60mg) for immune support. The notion of ingesting exogenous immune system modulators takes on even greater importance when we consider that the immune system becomes weaker and less efficient as we age. Supplementation with reishi mushrooms, astragalus and antioxidants have been shown to reverse many of these age-related changes to the immune system, making them a strong consideration as natural agents that may help to reduce cancer risk and susceptibility to more virulent infections, which are known to accompany the aging process.

### Astragalus

The root of *Astragalus membranaceus* has been used for many hundreds of years in traditional Chinese medicine. Like reishi mushroom extract, it can be taken over long periods to support immune system activity. Its key active ingredients include the astragalosides (saponins), flavonoids and polysaccharides. Research reveals that astragalus can modulate immune function in many ways, including:

- enhanced cytotoxicity of natural killer cells;
- increased phagocytosis of macrophage cells;
- increased proliferation of splenocytes; and
- direct antiviral properties.

In human studies, astragalus supplementation has been shown to increase serum IgM, IgE, and cyclic AMP, and nasal secretions of antibodies IgA and IgG, all of which enhance immune function at various levels. In this regard, astragalus has been shown to reduce the incidence of the common cold when used as a daily preventive measure. Astragalus has also been used to improve the responsiveness of lymphocytes in normal subjects and cancer patients. It can also enhance natural killer cell activity in normal subjects and patients with SLE. It has been shown to up-regulate the immune system in patients with AIDS and in cancer patients.

Taken as a solid powdered extract, astragalus should be standardized to 0.5-percent 4-hydroxy-3-methoxy isoflavone content. Typically 100-150mg is taken daily for general immune support.

There are a number of natural agents and commercial products that claim to enhance immune function. Some of these have better substantiation than others. Among these, reishi mushroom extract and astragalus are well supported by experimental research and human trials. Both of these natural agents are also affordable in comparison to many other immune-booster products present in the marketplace, and this is an important consideration when advising patients about cost-effective natural interventions aimed at the prevention and management of various conditions.

#### What About Echinacea?

As most practitioners know, *echinacea augustifolia* and *echinacea purpurea* contain unique polysaccharide agents that also stimulate immune system activity, primarily by increasing cytokines that enhance the phagocytosis activity of macrophages and increase production of T-cells. Supplementation with echinacea has been shown to be effective at aborting or minimizing the symptoms and/or duration of upper-respiratory-tract infections if taken in large doses in the early stages. However, the German Commission E warns against taking echinacea on a daily basis as a preventive measure and suggests that it not be used by patients with autoimmune conditions; collagen disorders; HIV or AIDS; MS; tuberculosis; leukemia; or for long durations in patients susceptible to the recurrence of herpes-1 or herpes-2 outbreaks. This is related to the fact that echinacea may overstimulate the immune system if taken for too long a period, and may in fact trigger or exacerbate the above conditions.

Thus, for the daily maintenance of immune function, astragalus and reishi mushroom extract appear to be better choices.

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