

## Shortens the duration of colds while balancing the immune system

RxBalance™ ModuCold™ is a highly effective formula that shortens the duration of colds and supports and balances the immune system. This synergistic combination of Aged Garlic Extract™, Moducare®, cold-fighting botanicals, zinc, and vitamin C helps to relieve the symptoms and shorten the duration of upper respiratory tract infections such as the common cold.

### Ingredients: Medicinal

Each capsule contains:	
Aged Garlic Extract™ powder ( <i>Allium sativum</i> *) bulb (3:1) (660 mg dried equivalent)	220 mg
Moducare® providing: Beta-sitosterol (from pine tall oil pitch) Beta-sitosterolin	113 mg 10 mg 0.1 mg
Vitamin C (calcium ascorbate)	59.2 mg
Mushroom Blend	75 mg
shiitake ( <i>Lentinula edodes</i> ) body, mycelia	27.0 mg
maitake ( <i>Grifola frondosa</i> ) body	13.5 mg
poria ( <i>Poria cocos</i> ) body	13.5 mg
reishi ( <i>Ganoderma lucidum</i> ) mycelia	13.5 mg
agaricus ( <i>Agaricus blazei</i> ) body	7.5 mg
Astragalus ( <i>Astragalus membranaceus</i> ) root 5:1 extract (250 mg dried equivalent)	50 mg
Echinacea ( <i>Echinacea purpurea</i> ) root extract 4:1 (336 mg dried equivalent)	84 mg
Zinc (hydrolyzed vegetable protein chelate)	0.7 mg

\* from certified organic garlic

### Ingredients: Non-medicinal

Cellulose, magnesium stearate, gelatin.

This product does not contain dairy, egg, gluten, shellfish, soy, sulphites, or artificial flavours, colours, or preservatives.

### Recommended Use

Helps to relieve the symptoms and shorten the duration of upper respiratory tract infections such as the common cold. Helps to maintain immune function and supports a healthy immune system balance.

### Recommended Dose

Take two capsules twice daily at the first sign of infection. Consult a health care practitioner for use beyond eight weeks.

### Risk Information

Do not use if you are allergic to plants of the Asteraceae/Compositae/Daisy family. Consult a health practitioner prior to use if you are pregnant or breastfeeding, have a progressive systemic disease such as tuberculosis, leukosis, collagenosis or multiple sclerosis, have an auto-immune disorder, diabetes, or if symptoms persist or worsen. Hypersensitivity (e.g. allergy) has been known to occur; in which case, discontinue use.

### Interactions with Drugs/Supplements

Consult a health practitioner prior to use if you are taking immunosuppressants, blood thinners or protease inhibitors.

### Dosage Form Description

Hard clear gelatin capsule containing a beige powder fill.

### Packaging

Available in bottles of 60 capsules.

### Stability

A shelf life of 3 years when stored in a cool, dry place.

### Ingredient Description

**Aged Garlic Extract™ (AGE)** has antioxidant and immune-supporting properties that are proven to be greater than other garlic supplements. The beneficial effects of garlic are due mostly to its high content of sulphur-containing compounds and antioxidants. AGE is made by extracting and aging organic fresh garlic at room temperature for 20 months. This unique process eliminates the odour of raw garlic and makes it gentle on the stomach, and at the same time increases the levels of beneficial antioxidants and converts unstable and harsh compounds, such as allicin, to stable, health-promoting substances. Two of these compounds, S-allyl-cysteine (SAC), which is highly bioavailable, and S-allyl-mercaptocysteine (SAMC), are powerful antioxidants that are mainly responsible for AGE's health benefits.

**Astragalus** root is a herb that has demonstrated immune-modulating activity by helping to increase the production of mononuclear white blood cells.

#### Five-Mushroom Complex:

**Maitake** mushroom has been shown to enhance the immune system. Maitake activates natural killer (NK) cells, cytotoxic T cells, interleukin-1, and superoxide anions.

**Poria** mushroom has been shown to act as a mild anti-inflammatory and there is evidence that it may have antitumour effects.

**Reishi** mushroom has a long history of use in folk medicine, and researchers are beginning to identify medicinal substances in this mushroom that have antitumour and immune-modulating effects. Protease inhibitors and other anti-HIV substances have been found in reishi mushrooms.

**Shiitake** mushroom contains important compounds that have immune-modulating properties that activate macrophages, T lymphocytes, and the immune-effector cells that modulate the release of cytokines.

**Agaricus** mushroom has been shown in human clinical trials to raise the activity of NK cells, increase the number of circulating white blood cells, and increase the production of tumour necrosis factor-alpha (TNF- $\alpha$ ). The primary role of TNF- $\alpha$  is the regulation of immune cells.

**Zinc** is a mineral that helps boost the immune system and prevent colds and sore throats.

**Vitamin C**, known for its use for treating the common cold, is a powerful antioxidant that is essential for proper immune function.

**Echinacea** is a herb that boosts the immune system.

Moducare® is a proprietary mix of plant sterols and sterolins derived from a natural pine source in a clinically proven ratio of 100:1. Moducare® is the only clinically tested plant sterol/sterolin product proven to be effective in immune modulation. Research has shown that Moducare® specifically targets CD4 cells of the TH1 phenotype. There is a partial explanation for this: Genes coding for IL-12 (the cytokine that directly targets TH1 cells) are up-regulated in preference to genes that code for other cytokines.

### Reason for Combination

Many studies show that Aged Garlic Extract™ (AGE) has a significant benefit for the immune system.<sup>1</sup> The synergistic combination of AGE, vitamin C, zinc, carefully chosen botanicals, and a powerful five-mushroom complex provides antioxidants and immune-supporting nutrients for powerful protection against colds. The inclusion of Moducare® provides additional safe and effective support for the immune system. Moducare® has been shown, *in vitro* as well as *in vivo*, to have the following immunological activities:

- Enhances the cellular division of peripheral blood lymphocytes when these are activated by stimuli.<sup>2</sup>
- Enhances the killing ability/cytotoxicity of specialized cells responsible for immune surveillance, namely the natural killer (NK) cells.<sup>2</sup>
- Enhances the ability of T lymphocytes to release the factors that ultimately regulate cellular functions in the body. These T cells (TH1 helper cells) are antagonists to the activity of other helper cells (TH2) that promote the functions of B lymphocytes.<sup>3</sup>
- The mixture of sterols and sterolins has anti-inflammatory properties by switching off the release of proinflammatory factors such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF- $\alpha$ ) from activated monocytes.<sup>4</sup>
- Increases the secretion of IL-12, the cytokine released from antigen-presenting cells that promotes the differentiation of precursor T helper cells into the more polarized TH1 cells.
- The mixture has adreno-cortical effects by decreasing the cortisol/DHEA ratio, suggesting that it enhances the synthesis of DHEA, which ultimately decreases the release of cortisol.<sup>5</sup>

### Research Synopsis

1. Several studies prove the effectiveness of Aged Garlic Extract™ (AGE) in preventing the common cold and significantly decreasing the number of days with cold symptoms. In a study with HIV+ patients, AGE was shown to raise natural killer (NK) cells to their normal, healthy levels in all subjects after only 12 weeks.<sup>1</sup>
2. A double-blind, placebo-controlled 6-month pilot study of the clinical effects of a mixture of beta-sitosterol and beta-sitosterol glucoside in active rheumatoid arthritis with 18 subjects concluded that, based on mean tender joint count, patient's assessment of pain, patient's global assessment of disease activity, physician's global assessment of pain, and MHAQ, there were statistically significant changes in the active group.<sup>6</sup>
3. A plant sterol/sterolin supplement was used in a cohort of South African HIV-infected patients in an open-label, 39-month study of 123 subjects to evaluate the effects of Moducare® on immunological and virological surrogate markers. HIV+ patients (CD4 > 500/ul) had a significant reduction in plasma viral load at 30 months (undetectable for 15% of patients at 12 months), but exhibited no changes in the CD4 immune markers. HIV+ patients with CD4 < 200/ul and those with CD4 between 200 and 500/ul showed no significant change in plasma viral load.<sup>7</sup>

4. The effects of a beta-sitosterol ( $\beta$ -SS) and beta-sitosterol glucoside ( $\beta$ -SSG) mixture on selected immune parameters of marathon runners was studied in a double-blind, placebo-controlled, 31-day study. Runners using Moducare® had significantly decreased cortisol to DHEA ratios. Interleukin-6 significantly decreased in runners using active capsules. Lymphocyte subsets CD3+ and CD4+ cells significantly increased in runners using active capsules. White blood cell and neutrophils significantly increased in the placebo group. There was significantly less neutrophilia, lymphopenia, and leukocytosis in runners using the active capsules.<sup>8</sup>

### References

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