



Pulmonary Factors

Serving Size 3 Capsules
Servings Per Container 30

Amount Per Serving

Magnesium (magnesium glycinate)	80 mg
Boswellia gum resin extract (<i>Boswellia serrata</i>)(providing 45 mg AKBBA)	450 mg
NAC (N-acetyl-L-cysteine)	200 mg
Bromelain (2400 GDU/g)	100 mg
Meriva® (proprietary blend of turmeric rhizome extract and phosphatidylcholine from soy)	100 mg
Quercetin dihydrate	100 mg
<i>Coleus forskohlii</i> root extract (providing 8 mg forskolin)	80 mg
<i>Picrorhiza kurroa</i> root extract	50 mg
Long pepper fruit extract (<i>Piper longum</i>)	50 mg
<i>Tylophora asthmatica</i> leaf extract	30 mg

OTHER INGREDIENTS: Hypromellose, rice flour, medium chain triglycerides, calcium silicate, silica. Contains soy (no soy protein).

SUGGESTED USE: As a dietary supplement, take 2-3 capsules up to two times a day or as directed by your healthcare professional.

REFERENCES:

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3. Cuomo J, et al. Comparative absorption of a standardized curcuminoid mixture and its lecithin formulation. *J Nat Prod*. 2011.
4. Dorsch W, Stuppner H, Wagner H, et al. Antiasthmatic effects of *Picrorhiza kurroa*: androsin prevents allergen- and PAF-induced bronchial obstruction in guinea pigs. *Int Arch Allergy Appl Immunol*. 1991;95(2-3):128-33.
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PULMONARY FACTORS

A COMPREHENSIVE BLEND OF BOTANICAL EXTRACTS, ANTIOXIDANTS, MUCOLYTIC AGENTS, AND PROTEOLYTIC ENZYMES TO HELP SUPPORT HEALTHY LUNG FUNCTION*

- Contains boswellia gum resin extract with 45 mg of acetyl-keto-beta-boswellic acid (AKBBA) to help support healthy leukotriene levels
- N-acetyl L-cysteine and bromelain to help break down mucus and inflammatory products

BOSWELLIA GUM RESIN EXTRACT (*BOSWELLIA SERRATA*) is a gum resin extract from the *Boswellia serrata* tree, also known as frankincense. Its main biologic effects are thought to be derived from tetracyclic and pentacyclic triterpenes, more commonly known as boswellic acids. AKBBA (or acetyl-keto-beta boswellic acid) is one of the most active boswellic acids and is a standardized extract in this formula. Recent research has shown that it inhibits NF-kappaB and 5-lipoxygenase production of leukotrienes. Inhibition of these enzymes may help support anti-inflammatory effects in the bronchial passages.*

NAC (N-ACETYL L-CYSTEINE) is a sulfur-containing amino acid that is both a powerful antioxidant and a mucolytic agent. It is a precursor to glutathione, the body's endogenous antioxidant that helps protect cellular components against damage by free radicals and peroxides. NAC is thought to have its mucolytic effects due to its ability to reduce disulfide bonds in proteins, therefore altering their structures and disrupting their bonding. NAC has been used in respiratory conditions that produce excess or thick mucus.*

MERIVA® (proprietary blend of turmeric rhizome extract and phosphatidylcholine from soy) is a phytosomal form of turmeric with increased absorption and bioavailability. Research shows that when turmeric is bonded to phosphatidylcholine, it improves the levels of curcuminoids in the blood and the liver at least twenty fold. Studies show that turmeric modulates leukotriene synthesis and neutrophil inflammatory response. Along with boswellia, it was shown to decrease levels of leukotrienes in comparison to a placebo. Elevated levels of leukotrienes can lead to bronchospasm and vasoconstriction. Turmeric may potentiate endogenous corticosteroids, thus having indirect anti-inflammatory actions as well.*

PULMONARY FACTORS

REFERENCES:

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8. Kazaks AG, Uriu-Adams JY, Albertson TE, et al. Effect of oral magnesium supplementation on measures of airway resistance and subjective assessment of asthma control and quality of life in men and women with mild to moderate asthma: a randomized placebo controlled trial. *Asthma*. 2010 Feb;47(1):83-92.
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TYLOPHORA ASTHMATICA LEAF EXTRACT is a plant that has been used extensively in Ayurvedic medicine. In large doses, it can have an irritant effect on the gastrointestinal system, but in small doses has been found to modulate upper respiratory tract inflammatory responses. Based on animal studies, it is thought that it has a direct effect on the adrenal cortex and may increase endogenous steroid production to have an anti-inflammatory effect. In a double-blind, placebo-controlled crossover study of 195 individuals with bronchial dysfunction, participants showed significant improvement when given 40 mg of a *Tylophora asthmatica* alcohol extract daily for 6 days as compared to placebo.*

COLEUS FORSKOHLII ROOT EXTRACT contains a diterpene molecule known as forskolin, which has been shown to be a potent free radical scavenger of nitric oxide *in vitro* and may have protective effects against bronchial inflammation. Also, forskolin was found to act as a powerful activator of adenylate cyclase, which leads to elevation of cAMP. In the smooth muscle of the lungs, this leads to a relaxing effect even in the presence of leukotrienes.*

PICRORHIZA KURROA ROOT EXTRACT is another Ayurvedic herb traditionally used to treat liver and lung diseases and is known for its antioxidant and anti-inflammatory properties. In one study with guinea pigs, *Picrorhiza kurroa* was found to prevent bronchial obstruction induced by platelet activating factor and allergens. *In vitro*, it was also found to modulate histamine release from polymorphonuclear leukocytes.*

BROMELAIN is a proteolytic enzyme that has been shown to decrease bronchial inflammation when given orally in a mouse model. This includes a decrease in total inflammatory cells (including leukocytes and eosinophils) as well as proinflammatory cytokines. *In vitro* studies have further elucidated bromelain's anti-inflammatory mechanism as causing a shift in Th1 and Th2 circadian cytokine profiles.*

LONG PEPPER FRUIT EXTRACT (PIPER LONGUM) is traditionally used in Ayurvedic medicine to help expel mucus from the lungs. This fruit is a vasodilator that enhances circulation to the lungs and also help to improve bioavailability of the other ingredients in the formula.*

MAGNESIUM GLYCINATE is a well-absorbed and highly bioavailable smooth muscle relaxant. It has been shown to promote bronchodilation in the lungs and to help with asthma symptoms, including peak expiratory flow rate, in adults with asthma. *In vitro* experiments have shown that it helps modulate Th2 cytokine release in the blood of asthmatic patients.*

*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.