

# IMU-MAX



## CLINICAL APPLICATIONS

- Pleasant-Tasting Liquid Immune Support Formula for Children (Alcohol-Free)
- Boosts Immune Function in Children
- Provides Immediate Support for Immune Challenges
- Supports Protective Antioxidant Reserves
- Promotes Healthy Inflammatory Balance

## IMMUNE HEALTH

Imu-Max is a children's formula containing two key botanicals that strengthen antioxidant reserves and support the immune system in fending off challenges. Used in Israel as an over-the-counter medicine,<sup>[1]</sup> Imu-Max contains echinacea, one of the best-known botanical supplements used to boost the immune system, and propolis, a product of bee resin, which helps balance microbial activity and supports healthy inflammatory balance. This convenient liquid supplement contains a 300 mg standardized *Echinacea angustifolia* and *purpurea* blend plus 150 mg propolis and vitamin C in a delicious berry flavor.

### Overview

The human immune system is a complex network of millions of immune cells, which act together to protect the body from constant exposure to threats from our environment. In most cases, the immune system does a great job of keeping people healthy, but during certain times of the year or times of stress, the immune system may require additional support. Abundant studies have shown the active ingredients in Imu-Max to be especially supportive to the immune system. Active polysaccharides and polyphenols provide immediate support for immune challenges, promote healthy inflammatory balance and provide extra antioxidant protection.

Research has demonstrated the ability of Imu-Max to protect the immunity of children in the winter months. A double-blind, placebo-controlled study was carried out on the efficacy of Imu-Max in a large group of children during a 12-week winter season. In a group of 430 children ages one to five, 215 children were given Imu-Max and 215 were given a placebo. Of the 328 children who completed the study, those in the Imu-Max group experienced a decrease in upper respiratory challenges,

as well as a decrease in the duration. Children in the Imu-Max group also had fewer days absent from day care, fewer unscheduled physician visits and a significant improvement in throat irritations and general immune response.<sup>[1]</sup>

### Propolis<sup>†</sup>

Propolis is a resinous substance collected by bees to seal their hives and has traditionally been used in folk medicine since ancient times.<sup>[2]</sup> Propolis extract has been found to have microbial balancing activity.<sup>[2,3]</sup> A recent review found the key active ingredients in propolis include caffeic acid phenethyl ester (CAPE) and artemillin C, which modulate the immune system by suppressing T lymphocytes and activating macrophage function.<sup>[4]</sup> In a study examining the effect of propolis on 50 people, the duration of upper respiratory symptoms was 2.5 times shorter in the control versus the placebo group.<sup>[5]</sup> Propolis has also been shown to support immune response in mice exposed to a considerable amount of stress.<sup>[6]</sup> Propolis contains over 300 natural compounds such as polyphenols, antioxidants and amino acids, which exhibit a broad spectrum of biological support including microbial-balancing, liver-heart- and brain-protective qualities, along with promoting healthy inflammatory balance.<sup>[7]</sup>

### Echinacea<sup>†</sup>

Echinacea species are perennial plants native to Midwestern North America. In Native American medicine, echinacea was used more than any other plant for its wide range of applications, including promoting immune strength and supporting healthy inflammatory balance. Echinacea is a botanical that has been extensively studied, and validated in its health-promoting properties. An analysis of data from a randomized, double-blind, placebo-controlled trial of *Echinacea purpurea* in

† 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.

524 children, ages 2 to 11, found that those given echinacea demonstrated improved immune response and reduction in upper respiratory challenges, compared to those receiving placebo.<sup>[8]</sup> A meta-analysis of three studies examining the efficacy of echinacea extracts in preventing the development of seasonal immune challenges found that those given echinacea showed a significant improvement in markers of immunity, versus children given a placebo.<sup>[9]</sup> An additional randomized, double-blind study found that treatment with echinacea at onset of upper respiratory challenge supported immune response in a much faster period of time versus placebo.<sup>[10]</sup> The botanical has also been found to promote microbial balance when supplemented prophylactically.<sup>[11]</sup>

## Directions

Children six years of age and younger take 1/2-1 teaspoon twice per day; children over six take 1-2 teaspoons twice per day or as recommended by your health care professional. Adults take 1 tablespoon twice per day or as recommended by your health care professional. Take with water, milk or the beverage of your choice.

## Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

## Cautions

If you are pregnant or nursing, consult your physician before taking this product.

<b>Supplement Facts</b>			
Serving Size: 1 Teaspoon (~ 5 ml)			
Servings Per Container: ~ 50			
	Amount Per Serving	% Daily Value Children Under 4	% Daily Value Children Over 4 & Adults
1 teaspoon contains			
Vitamin C	30 mg	75%	50%
<b>Proprietary Blend</b>	450 mg		
Echinacea angustifolia and purpurea		*	*
Standardized Extract 1:1 (from Asteracea Family)			
Propolis Standardized Extract 1:5		*	*
* % Daily Value not established			

ID# 852250 250 ml

## References

1. Cohen HA, Varsano I, Kahan E, Sarrell M, Uziel Y. Effectiveness of an Herbal Preparation Containing Echinacea, Propolis, and Vitamin C in Preventing Respiratory Tract Infections in Children. *Arch Pediatr Adolesc Med.* 2004;158(3):217-221.
2. PDR Health. www.pdrhealth.com Propolis.
3. Grange JM, Davey RW. Antibacterial properties of propolis (bee glue). *J Royal Soc Med.* 1990;83:159-160.
4. Chan GC, Cheung KW, Sze DM. The immunomodulatory and anticancer properties of propolis. *Clin Rev Allergy Immunol.* 2013 Jun;44(3):262-73.
5. Szymeja Z, Kulczynski B, Sosnowski Z, Konopacki K. Therapeutic value of flavonoids in Rhinovirus infections. *Otolaryngol Pol.* 1989; 43(3):180-184.
6. Orsatti CL, Sforcin JM. Propolis immunomodulatory activity on TLR-2 and TLR-4 expression by chronically stressed mice. *Nat Prod Res.* 2012;26(5):446-53.
7. Farooqui T, Farooqui AA. *Front Biosci (Elite Ed).* 2012 Jan 1;4:779-93.
8. Weber W, Taylor JA, Stoep AV, Weiss NS, Standish LJ, Calabrese C. Echinacea purpurea for prevention of upper respiratory tract infections in children. *J Altern Complement Med.* 2005;11(6):1021-6.
9. Schoop R, Klein P, Suter A, Johnston SL. Echinacea in the prevention of induced rhinovirus colds: a meta-analysis. *Clin Ther.* 2006;28(2):174-83.
10. Lindenmuth GF, Lindenmuth EB. The efficacy of echinacea compound herbal tea preparation on the severity and duration of upper respiratory and flu symptoms: a randomized, double-blind placebo-controlled study. *J Altern Complement Med.* 2000 Aug;6(4):327-34.
11. Ghaemi A, Soleimanjahi H, Gill P, Arefian E, Soudi S, Hassan Z. Echinacea purpurea polysaccharide reduces the latency rate in herpes simplex virus type-1 infections. *Intervirology.* 2009;52(1):29-34.