



**Ganogen®** is a rich blend of naturally occurring 1,3-1,6 Beta-glucans (high molecular weight polysaccharides) and Ganoderic Acids derived from the *Ganoderma lucidum* mushroom.

### ***Ganoderma lucidum***

The *Ganoderma lucidum* mushroom, also known as "Reishi" or "Ling Zhi" has long been an important species, particularly in the countries of the far east, like China, Japan and Korea, dating back more than 2000 years. Today this mushroom is cultivated on a commercial scale and consumed worldwide for its abundant health-enriching properties (Wasser, 2005). However, while modern science has indentified 100 distinct polysaccharides and 119 triterpenoids as natural components of the *Ganoderma lucidum*, the bioavailability of these constituents to humans has remained limited (Zhou and Gao 2002). Many techniques have been developed over time to extract the richness that this natural wonder has to offer but have fallen short, leaving us with a large percentage of "fiber" that our system just cannot process - until now.

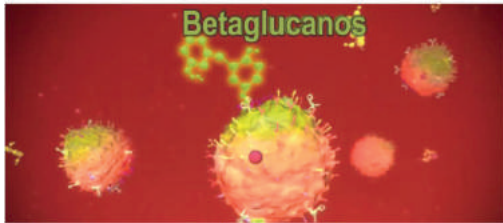
The scientists here at Progal BT have developed a biotechnologically advanced method of isolating these natural riches from the mushroom's stubborn cell wall structure. As a result, nearly 100% of these polysaccharides, namely Beta-glucans, as well as many other vital *G. lucidum* derivatives are now readily bioavailable, allowing our bodies to more fully optimize the wealth of health benefits this "miracle mushroom" has to offer. The product is **Ganogen®**

**Ganogen®** employs these natural constituent compounds of the *Ganoderma lucidum* to help strengthen the body's immune system, our fundamental support mechanism for wellness and longevity. A sustained regimen of concentrated Beta-glucans and ganoderic acids may potentiate the body's capacity to combat many serious health threats while at the same time offering anti-oxidant and anti-aging properties, and potentially enhancing stamina, respiration and the body's response to inflammation.

### **BETA-GLUCANS**

Polysaccharides and polysaccharide-protein complexes, like the Beta-glucans harvested from our immersion culture, are known to enhance cell-mediated immune responses and are considered biological response modifiers. Research has shown that these compounds may stimulate the immune system on various levels by activating macrophages, T-lymphocytes, NK (Natural Killer) cells and alpha-TNF's as well as help to induce the production of cytokines, immunoglobulins, interleukins, and interferons, all of which aid the body in defending against unwanted biological intruders that threaten healthy cell function.

The Beta-glucans comprising **Ganogen®** are predominately glucose polysaccharides (>90%), specifically mannose, xylose, galactose and rhamnose, as determined by The University of Georgia's Complex Carbohydrate Research Center.



Macrophage activating beta-glucans - First line of defense



Agent aggressor - Virus, bacterium, cancer cells



Macrophage vs Aggressor agent - Phagocytosis



Cytokines - Communication between immune cells

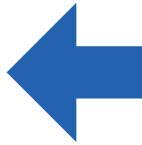


Cytokines - Lymphocyte activation



Ganogen

System not strengthened



## HOW IT WORKS

### CONDITIONS OF USE

**Ganogen®** is intended for use as a functional ingredient in foods, beverages and dietary supplements. It is an excellent way to improve the health benefits of your existing product and/or expand your product line. Our science staff is available to assist with any questions regarding molecular compatibility with your product. Our product is a soluble, thermostable powder, making it a simple addition to your product formulation.

### Clinical trials

**Ganogen®** has been successfully tested in five separate clinical studies, conducted in children and the elderly, and has repeatedly proven to generate high levels of immune system modulation, yielding results that significantly enhance important immune system mechanisms and so contributing to overall health and wellness. These exceptional results are due to the combination of an industry high concentration of readily bioavailable mushroom Beta-glucans ( $\geq 70\%$ ) and naturally occurring Ganoderic acids.

Progal BT is a FDA registered facility and mushroom Beta-glucans derived from *Ganoderma lucidum* have been "Generally Recognized As Safe" for the use in foods, beverages and dietary supplements by the FDA, as well as by INVIMA Act 5 of 2014 SEABA.

### RECOMMENDED DOSAGE

The recommended daily dosage is 500mg

### PACKAGING

**Ganogen®** is available in packages of 25 kg.

### TOXICITY

**Sharp toxicity** (in accordance with standard 423 of the Organization for the Cooperation and Economic Development, OECD): None.

**Subchronic toxicity** (evaluation realized under standard 408 of the Organization for the Cooperation and Economic Development, OECD): None.

**Conclusion:** No toxicity or any level of adverse effects (NOAEL), were observed.

\*Study performed by the University of Antioquia, Ofidismo/ Escorpionismo department.

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.



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