

The Great Immunomodulator Scam

Recent advances in technology have created a class of dietary supplements called immunomodulators. The results immunomodulators have been accomplishing at prestigious medical laboratories and universities have been astounding. Medical academia has taken note. From biological weapons, to colds, to the plethora diseases that constantly plague humanity they are proving themselves a valuable ally in this war. Immunomodulators are substances that have been shown to modify the immune systems response to a threat upon it. They modulate and potentiate the weapons of your immune system keeping them in a highly prepared state for any threat it may encounter. With this balancing effect, all subsequent immune responses improve. When your immune system is in this highly prepared state, the invading organisms do not have the time to build up force and strength before the immune system attacks, destroys and/or weakens the invader. Many products claim to be "immunomodulators" however upon closer inspection one concludes that many are outright garbage. This report looks at how to identify an effective one from ones that are not.

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Our Immune System is Under Attack

Our immune systems are under constant bombardment, whether it is from the food we eat, the air we breathe or the water we drink, not to mention whatever man can throw at it. You need to maintain a healthy immune system.

It is important to recognize the fact that our immune system is under attack at all times from countless varieties of viruses, bacteria and fungi, not to mention whatever man can throw at it. Without the ability to combat these contaminants our lives would be turned upside down by the 'explosion' of disease that would inevitably destroy us. The Immune System is one of our most complex biological systems in the body

“The Immune System” Discover how the immune system identifies and attacks invaders. To review and download; <http://www.beta-glucan-info.com/pdf/theimmunesystem.pdf>

Immunomodulators

Immunomodulators are substances that have been shown to modify the immune systems response to a threat upon it. They modulate and potentiate the weapons of your immune system keeping them in a highly prepared state for any threat it may encounter. With this balancing effect, all subsequent immune responses improve. When your immune system is in this highly prepared state, the invading organisms do not have the time to build up force and strength before the immune system attacks, destroys and/or weakens the invader.

For years, various immunomodulating substances, often derived from microorganisms, have been used to enhance general resistance to infectious agents. Some of the β -1,3 glucans from *Saccharomyces cerevisiae* have a broad spectrum activity against infectious diseases¹. This substance can modulate host defense by selectively priming neutrophil and monocyte/macrophage microbicidal activities without directly inducing leukocyte activation or stimulating the production of pro-inflammatory cytokines.

Patchen and co-authors² showed that, in mice, 1.5 mg of glucan given one hour after radiation exposure enhances not only hematopoietic recovery but

¹ Song, M. and N.R. Diluzio: Yeast glucan and immunotherapy of infectious diseases. In: Lysosomes in Applied Biology. (J.T. Dingle, P.J. Jaques and I.H. Shaw eds.), pp.533-547. Elsevier North Holland, Amsterdam (1979).

² Patchen, M.L., M.M. D'Alesandro and I. Brook: Glucan: Mechanisms involved in its "radioprotective" effect. J. Leuk. Biol. 42 (1987) 95-105.

also host resistance to opportunistic infections that occur before significant hemopoietic regeneration takes place. This early enhanced resistance to microbial invasion in glucan-treated irradiated mice could be correlated with enhanced macrophage function.

Opportunistic Microorganisms are defined as Microorganisms which only can cause disease if host resistance is (sufficiently) decreased. Only opportunistic microbes which can reach high concentrations in the digestive tract because of decreased colonization resistance³ and then pass through the epithelial barrier of the gut translocate; e.g. migrate through the gut mucosa in such numbers (high enough) that they can be isolated/cultured from the mesenteric lymph nodes (spleen and liver).

Beta 1, 3-D glucan is unknown to a majority of the general public. Many health researchers consider it to be one of the most effective immune enhancing substances ever discovered.

\$40,000.00 to \$70,000.00 That's what it would have cost you less than 5 years ago for a 30-day supply of what many highly respected world leading scientists and researchers consider the "*safest, most effective immune enhancing substance ever discovered*" Now there is a less expensive alternative.

There are many products that claim to contain Beta-1, 3-D glucan and espouse the many benefits that have been shown to go along with it. However, once you research the subject, you come to the conclusion that not all products that claim to contain Beta-1, 3-D glucan are the same. Many products may contain trace amounts of the substance, or are produced using an inferior extraction processes that renders the product practically useless. This in turn may cause adverse reactions such as yeast infections and/or make the product useless.

The only product(s) that appear to be close in purity to this companies material is produced by Sigma-Aldrich, a large chemical/medical conglomerate. However their material is not available to purchase "over the counter." However, if they were, review of the cost is appropriate.

Sigma product number G5011, a bakers yeast derived Beta glucan product, sells for \$235 for a 100 mg capsule. That's one capsule, not sixty or thirty. So,

³ The colonization resistance (CR) of the digestive tract is defined as the resistance to colonization of the alimentary canal by newly ingested microorganisms

if you purchased one bottle of the available over-the-counter high quality material, you would have a total of around 30,000 mg's of actual product available for intake. If you could purchase the same total milligram amount of the Sigma product your cost would be \$70,500.00, a difference/savings of around \$70,430.05. I don't know of anybody who would be willing to pay that amount, especially when they can purchase a product that has been shown to be higher, or comparable, in purity and quality, for around \$70.

You can visit Sigma-Aldrich's website at www.sigma-aldrich.com to help confirm this information for yourself. However you will have to register with the website to acquire the price. You can search the site by the product number or the name "Beta glucan." Please note their site is constantly changing so you may have to follow other procedures to confirm the price.

Beta glucan, properly extracted, has been shown to be completely safe and non-toxic. This substance is extracted from many sources, however the cell walls of bakers yeast (*Saccharomyces cerevisiae*), a food source, appears to be the most effective. Bakers yeast, and their extracts, have been given a GRAS rating. This is one of the highest, if not the highest safety rating a substance can achieve. The specifications for this rating can be found in 21CFR184.1983 -- Sec. 184.1983.

Beta glucan has over 1,000+ general research papers ranging across 40 years. A majority of this health related research has been completed at some of the most prestigious institutions in the world, including Harvard Medical School, Tulane University, National Cancer Institute, Department of Defense and the Department of Agriculture, just to name a few. These studies have been performed on literally every health condition/disease known to humanity, and time and time again it has proven itself to be second to none. It has also been shown to provide beneficial effects in the sports/athletic health fitness field.

The results listed below are not related to any product. They are results from testing Beta 1, 3-D Glucan material that met the standards set in peer review articles/studies.

- **CANCER, LUNG AND BREAST - NATIONAL CANCER INST (USA);** "The initial 9 patients studied had malignant melanoma, adenosquamous carcinoma of the lung, or carcinoma of the breast. Control and experimental lesions were injected: subsequently biopsies were performed at varying intervals for histologic evaluation. Always when glucan or glucan and RF fraction were administered intralesionally, the size of the lesion was strikingly reduced in as short a period as 5 days. This reduction was associated with necrosis of the tumor and a monocytic infiltrate. In small lesions, resolution was complete, whereas in large lesions, resolution was partial.

- **BACTERIAL INFECTIONS - BAYLOR COLLEGE OF MEDICINE;** Wyde, P., "Beta-1,3-glucan activity in mice: intraperitoneal and oral applications." "Beta glucan, through the stimulation of host defense systems, creates a more supportive environment within the body to assist the primary killing action of the conventional agent."
- **CHOLESTEROL (LDL) - OTTAWA CIVIC HOSPITAL (Canada);** "CONCLUSIONS: The main component of the soluble fiber of oats, beta-glucan, significantly reduced the total and LDL cholesterol levels of hypercholesterolemic adults without changing HDL cholesterol."
- **DIABETES - OTTAWA CIVIC HOSPITAL (Canada);** "A diet rich in beta-glucan may therefore be of benefit in the regulation of plasma glucose levels in subjects with Type 2 diabetes."
- **HIGH RISK SURGICAL PATIENTS - HARVARD MEDICAL SCHOOL (USA);** "Patients who received PGG-glucan had significantly fewer infectious complications (3.4 infections per infected patient vs. 1.4 infections per infected patient, $p = 0.05$), decreased intravenous antibiotic requirement (10.3 days vs. 0.4 days, $p = 0.04$) and shorter intensive care unit length of stay (3.3 days vs. 0.1 days, $p = 0.03$). CONCLUSIONS: PGG-glucan is safe and appears to be effective in the further reduction of the morbidity and cost of major surgery."
- **INFECTION PREVENTION - GYNECOLOGY & OBSTETRICS, 177:383-388. (1993);** "The incidence of hospital pneumonia of 55% and sepsis of 35% confirms results of previous studies of patients with multitrauma. Glucan decreased pneumonia and sepsis to a significantly lower level of 9.5%.... The mortality rate related to infection decreased from 30.0 to 4.8%. The lower number of instances of pneumonia and sepsis....decreased the period of time in the intensive care and the hospital, with a global reduction of 40% on hospital cost."
- **PARASITES - TULANE UNIVERSITY (USA);** "Trypanosoma cruzi, the causative agent of Chagas' disease, infects humans and animals..... Glucan significantly (P less than 0.05) increased survival rate as denoted by 60%...."
- **RADIATION SURVIVABILITY;** Abstract: "Glucan, a beta-1, 3 polyglucose, was administered to mice either 1h before or 1h after a 650 rad exposure to cobalt-60 radiation. Compared to radiation controls, glucan-treated mice consistently exhibited a more rapid recovery of pluripotent stem cells and committed granulocyte, macrophage and erythroid progenitor cells. This may partially explain the mechanism by which glucan also enhances survival in otherwise lethally irradiated mice."
- **TRAUMA PATIENTS - TULANE UNIVERSITY (USA);** "total mortality rate was significantly less in the glucan group (0% versus 29%) (p less than 0.05), the mortality rate from sepsis was not statistically different (0% versus 17.6%). Glucan therapy significantly decreased septic morbidity (9.5% versus 49%; p less than 0.05). Serum IL-1 had a greater increase in glucan patients on day 3 after trauma (143.4 +/- 19.3% versus 78.6 +/- 11.7%; p less than 0.05),..."

“Medical Summary on Beta Glucan.” Reviews the applications for Beta Glucan. To review and download: <http://www.beta-glucan-info.com/pdf/medicalsummaryonbeta.pdf>

Why Was it so Expensive?

Originally, the cost to extract this material in its proper form was astronomical. Beta 1,3-D Glucan resides in a layered area of *Saccharomyces cerevisiae*, a yeast. Most manufactures attempt to “rip” this layer from the rest of the organism thereby destroying its effective benefits. In order for it to be effective the material must maintain the molecular linkage and purity level and removed for the host material without destroying the delicate molecular structure.

Today, many manufacturers have attempted to produce it at the proper purity level and linkage requirements as found in peer reviewed literature (textbook perfect) but have failed to meet or exceed the “textbook perfect” standard.

Recent advances in patented technology have allowed this manufacture to greatly reduce the cost of this historically high priced material.

The serious researcher will discover that many manufactures hide or do not apply these generally accepted “textbook perfect” standards to their manufacturing process. Further, proof of quality/content of their products by independent verification is seldom made available to consumers or researchers, if available at all, except upon specific request or demand. Request of this nature have required in some instances court orders. A manufacture who does not adhere to these quality principals creates a low quality product.

In some cases products alleged to be Beta Glucan products are no more then bottles of bakers yeast. Their retail cost reflect it, you will pay more for a high quality product, but it is well worth it With the recent advances in extraction high quality Beta Gucan products can be purchased for well under \$100.

The problem is locating and identifying a high quality product. Read *“Wheat vs Chaff, Sifting Through the Field of Dietary Supplements.”* A review of the procedures educated researchers use to locate and identify effective, high quality supplements. Also reviews the marketing ploy’s used by supplement manufactures/retailers to increase or acquire sales. To review and download; <http://www.beta-glucan-info.com/pdf/wheatvschaff.pdf>

But How Can I Purchase a High Quality Product at a Greatly Reduced Cost?

There are many products available over the counter that claim to contain this material, however review of independent testing on Beta Glucan products insures what is claimed on the label is actually contained in the bottle. Independently conducted tests at an ISO 17025 and ISO 9002 certified laboratory using FDA and USDA approved testing methods to verify the purity and molecular linkage as meeting or exceeding the “textbook perfect” standard is one of the safest methods to locate and identify a high quality product.

Before you purchase any Beta glucan product, educate yourself on the elements necessary to insure that the product you intend to purchase is high quality, "text book" perfect. Discover what these little known elements are.

Many Beta glucan products have high amounts of fats and proteins which renders them practically worthless. Studies have shown the higher the fat and protein content the less absorption through the intestinal walls. Does the manufacture of the product you are taking disclose the amounts of fats and proteins in it? This report contains information on the latest products available to you that are claimed to contain Beta-1, 3-D glucan.

What to Look For in Products Claiming to Contain Beta-1, 3-D Glucan and What is the Difference Between Them.

There are many unscrupulous companies out there offering substandard Beta glucan products. An independent 3rd party purity test verification by a well recognized lab is a safe way of determining the quality of the products. Do other manufactures post they results online for you to review?

No one can debate that a Beta glucan derived from bakers yeast is safe, if, sufficient fats and proteins have been removed. In fact the FDA has issued a GRAS rating for baker's yeast and its extracts. This removal process must be done without disturbing the precise molecules that provides the cellular activity described in so many medical articles (You may have a key that starts your car, but if you bend or break it, it will not be able to start the car).

- One company does not purify the baker's yeast they label as Beta glucan. Countless thousands have been duped over the "micro-sized" particle scam, on the pretense that the smaller they grind the particle size, the better it will pass through the system. Go to MEDLINE, (www.ncbi.nlm.nih.gov/PubMed/) search the effective, human, oral dose. You will find that human studies show grams, not trace amounts used, to be effective.
- Most products that claim to contain Beta-1, 3-D Glucan have a purity level of only 2% to 7.5% of actual Beta 1, 3-D Glucan. Purity level is one of the most important aspects of highly effective Beta-1, 3-D glucan products. Effectiveness of Beta glucan products appear to greatly decrease if the purity level falls below 90%.
- Does the manufacture adhere to strict manufacturing and quality control guidelines. These guidelines are a rarity for many "over the counter" supplements/products.
- Does the manufacture have their material tested major universities? These tests reflect the following:

- The carbohydrate (glucan is a polyglucose) content is at least 94%.
- The 1, 3 linkage portion of the glucan is at least 85%. (textbook perfect)
- The 1, 6 linkage is within the textbook limits to confirm a proper molecule.
- The other glucan linkages are appropriate according to textbook limits.
- There are no signs of excess mannose or glucose. (Spiking to create false data)
- A combination of at least 3 independent labs to confirm that the Beta Glucan product has virtually non-detectable levels of fats (making the material indigestible as an immune modulator) and proteins (causing possible complications with persons with allergies).
- Combinations of at least 3 independent labs have confirmed that the average particulate size of the Beta 1, 3-D Glucan material is from 0-5 microns. (Czop's work at Harvard showed a 5 micron average) Of the material over 1 micron, the average size is from 3-5 microns. The sub-micron material shown by all labs is quite substantial (One lab indicates some 99%).
- Does microphotography and expert analysis using standard scientific methods at the major universities show that the Beta glucan product material possesses the same characteristics as those microphotographs published in respected peer-reviewed articles.
- Does their analysis also show that the Beta 1, 3-D Glucan material was free from bacteria, coliforms, and other undesirable components. ImmuSource has the only products on the market that meet the standards of safety and efficacy in a therapeutic dose according to scientific data.

Recently independent testing at an ISO 17025 and ISO 9002 certified laboratory using FDA and USDA approved testing methods to verify the purity and molecular linkage as meeting or exceeding the “textbook perfect” standard was conducted on the top 5 Beta Glucan products.

The Microparticulate/Micronization Scam.

Many manufacturers claim that their Beta Glucan product is somehow absorbed, or better absorbed because it is “*Microparticulated/Micronized*” (particles that are very small) as opposed to submicronized that is below the 1 micron in diameter level. Only one company’s products contain micronized and submicronized whole glucan particulate. This has been demonstrated using fluorescently tagged Whole Glucan Particulate Beta 1, 3-D Glucan particles.

This study conducted and the University of Louisville showed that not only are the whole glucan particles consumed by the macrophages but are also ingested by the phagocytes (A PolyMorphoNuclear Leukocyte that consumes

cellular debris and invading MicroOrganisms. Neutrophils, Dendrites, and Macrophages are Phagocytes or eating cells (**phago** = "eating", **cyte** = "cell"). and distributed throughout the entire immune system including the bone marrow. All the cells of the immune system are initially derived from the bone marrow. They form through a process called hematopoiesis. The average size of bakers yeast is 2 to 3 microns. Therefore most whole glucan particulate material will be of that size or smaller depending upon whether it is fractured during processing. The whole "*Microparticulated/Micronized*" claim is nothing more than a "*magician's slight of hand*" to focus a customers attention away from a real issues, like how effective is it.

Only one company has demonstrated that their product produces uptake and assimilation throughout the entire immune system. Additionally the particles ingested by the after a period of 10 to 12 days are digested to the point that soluble glucans are secreted. This explains total systematic activation of the entire immune system that this company's Beta 1, 3-D Glucan Whole Glucan Particulate products provide. These products are protected by over 200 US and International patents.

The "*Microparticulated/Micronized*" term is used to take your mind off the fact that it does not matter, every bakers yeast cell is "*Microparticulated/Micronized*" without processing.

There is no research on the planet that suggests "*Microparticulated/Micronized*" dosages are effective.

"The Top 5" Product Review. Independently Conducted Test Results on the Top 5 Beta Glucan Products. Conducted at Johns Hopkins University & R-Tech Laboratories. R-Tech is ISO 17025 and ISO 9002 certified using methods approved by the FDA and the USDA. To review and download:

<http://www.beta-glucan-info.com/pdf/Top5Sheet.pdf>

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