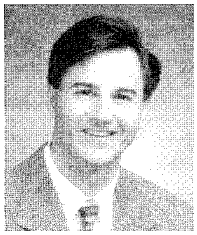
Shaffer HEALTH CENTER
1825 Chew Street - Fairgrounds Market
Allentown, PA 18104
610-439-1013

Store hours:
Thurs. 9AM – 8PM
Fri. 8AM – 8PM
Sat. 8AM – 6PM

Beta-1,3-D-glucan



Jade Butler, R.R.T., R.C.R

Jade Beutler is a licensed healthcare practitioner with over 13 years of hospital and clinical experience in adult and neonatal intensive care, pediatric and emergency medicine. He has devoted the last eight years to an intensive independent study of health and nutrition. He has published the results of his work in two newly released books, Understanding Fats and Oils: Your Guide to Healing with Essential Fatty Acids and Flax For Life. Jade currently serves as Executive Vice President to the health and nutrition consultancy firm Progressive Health Concepts.

A breakthrough immune-enhancing supplement!

A dietary supplement of purified yeast cell wall derived Beta-1,3-D-glucan is the latest immune-enhancing nutritional supplement to enter the health food market. While relatively new to the natural foods and alternative medicine industry, Beta-1,3-D-glucan has been extensively researched for its immune-enhancing ability. The profound healing, protective and preventive attributes of Beta-1,3-D-glucan are as remarkable as its genesis as a nutritional supplement.

Immune support in a toxic world Infectious disease has risen through the ranks to now be considered the third leading cause of death in America. Antibiotic resistant bacteria creating a resurgence in tuberculosis and pneumonia as well as a plethora of other opportunistic infections—are much to blame. Outbreaks of the African Ebola virus as well as cryptosporidium-contaminated tap water has raised national awareness of the fatal microscopic wars waged within.

New flu strains are emerging faster than the Centers for Disease Control can track and document them. AIDS continues to be a national health concern.

Science, medicine and technology simply cannot keep up with ever emerging and transforming infectious organisms. Antibiotics are a case in point—ultimately creating more virulent and resistant strains of bacteria. Particularly deadly strains of bacteria such as pseudomonas owe their very genesis and existence to the confines of hospital walls. Nosocomial infections (infections acquired in hospitals) are a leading cause of death in hospitalized patients. Cancers, as well as other diseases, are ultimately the result of a depressed immune system. In our modern world we are faced with more immuno-suppressing agents than in any other time in history. The escalating rise in deadly infections, cancer and other immune-related disorders, has made it apparent that immune support is necessary as we approach the 21st century.

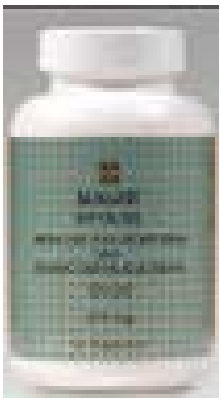
Is it possible that a newly emerging natural supplement could enhance the immune system against any and all invading organism or cancerous assault?

A pivotal discovery

Dr. Nicholas DiLuzio of Tulane Medical School was a prominent and published immunologist. Dr. DiLuzio investigated a potent immune-enhancing, although crude, pharmaceutical preparation called Zymosan. Literally thousands of studies, dating as far back as 1940, have been performed on Zymosan, reporting its remarkable immune-enhancing ability, with the challenge in some instances of inducing allergic and inflammatory reactions. Dr. DiLuzio wondered if there was a constituent in the crude preparation of Zymosan that resulted in immune -enhancement, and perhaps an en-

tirely different constituent that caused the negative side effects. His hunch proved correct, as purified yeast cell wall derived Beta-1,3-D-glucan was proven unquestionably to be the sole immune-enhancing constituent of Zymosan, while other impurities were totally responsible for the side effects. Although Dr. DiLuzio died an untimely accidental death, he is considered a true pioneer of Beta-1,3-D-glucan.

Although in some forms, such as Zymosan, Beta-1,3-D-glucan is considered a powerful immune-enhancing drug, it originates from common baker's yeast (Saccharomyces cerevisia). Unfortunately, the amount of Beta-1,3-D-glucan in baker's yeast is so small, supplemental intake of baker's yeast is not therapeutically effective in enhancing immune function. Ultimately, patented methods were devised to yield highly purified Beta-1,3-D-glucan from common baker's yeast, completely free of any contaminant including the conta-minants common to Zymosan. The result was a concentrated and potent form of Beta-1,3-D-glucan designed specifically for oral nutritional supplementation.



While glucans exist in other foods such as barley, oats and some medicinal mushrooms, these glucans do not share the same structural and physical characteristics (which are necessary to activate the immune system) as Beta-1,3-D-glucan derived specifically from yeast. Crude yeast cell wall preparations of Beta-1,4 and Beta-1,6 glucans are marginally effective, and only in very large and imprac-tical dosages. Extraction technologies have been developed that yield highly purified Beta-1,3-D-glucan as a polysaccharide; no yeast proteins or endotoxins exist that might cause a reaction to those allergic to yeast. The result is what may be one of the most powerful immune-enhancing substances on earth, without any known side effects.

While "drug status" for Beta-1,3-D-glucan could be sought, this would entail an extensive FDA review keeping it from the public for approximately ten to 13 years. Instead, Beta-1,3-D-glucan is now available as an oral nutritional supplement available over-the-counter at health food stores and through qualified alternative healthcare practitioners. Beta-1,3-D-glucan, as an extract of baker's yeast, falls under the FDA status of "GRAS" (generally recognized as safe), putting it in a category with most common food additives.

Scientific validation

Since the breakthrough in yielding pure Beta-1,3-D-glucan, nearly 100 studies have been performed on this yeast isolate with remarkable results. As suspected, it possesses an unmatched ability to protect the body against all forms of radiation, be it from cancer treatment, X-ray, computer screens, airline travel or nuclear fallout. It works by protecting the immune system, leaving it intact, enabling the bone marrow to continue producing blood cells, the clearing of dead tissue, and the healing and regeneration of damaged tissue. When end-stage AIDS patients were treated with Beta-1,3-D-glucan, it was found that the surviving "T" immune cells were able to communicate with the rest of the immune system, alerting it of the presence of the HIV virus. HIV is thought to infect the T-cells, rendering them ineffective at alerting the immune system of attack. In consideration of these facts, the results of this research were both remarkable and promising. When studied in trauma patients, a 29 percent reduction in mortality was achieved as well as a 51 percent reduction in sepsis (infection of the blood stream) when compared to the control group of patients. Excessive trauma to the body overwhelms the immune system making us more susceptible to opportunistic infections.

An arsenal of immune defense

Beta-1,3-D-glucan powerfully activates the immune system in the event of infection or assault, be it from bacteria, virus, fungus, parasite or radiation. Beta-1,3-D-glucan initiates immunity where it starts, at specialized immune cells called macrophages. Macrophages are huge cells when compared to pathogens or other immune or body cells. The very definition of macrophage is intimidating: macro-meaning large, and -phage, meaning to devour, engulf or ingest.

Activated macrophages resemble an angry octopus, extending tentacle like arms, physically pulling in infectious invaders, ingesting and destroying them with caustic enzymes. The macrophage does not stop there. It alerts the rest of the immune system of attack by inter-facing with immune T-cells, ultimately creating a chain reaction that results in the activation, multiplication and mobilization of the entire immune system. Gathering momentum with each exchange between macrophages and T-cells, a cascade of immune system messengers amplifies the immune response until the enemy is overwhelmed by sheer strength of numbers. If the organism was a new invader to the body, immunity is established, resulting in rapid deployment of the immune system in the event of re-infection.

A special receptor site specific to Beta-1,3 -D-glucan, and common to all living beings, exists on the macrophage. Much like your automobile key is specific to your car's ignition, and once turned starts the vehicle, Beta-1,3-D-glucan binds to the one of a kind receptor site, fully activating the macrophage. As poignantly summarized by one researching immunologist, the activation of the macrophage with Beta-1,3 -D-glucan can be envisioned to result in an "arsenal of immune defense." Another researcher described the activated macrophage as "a veritable powerhouse." Macrophages are found in every living organism, being the sole means of immune support in single-celled organisms such as hydra. Therefore, Beta-1,3-D-glucan crosses kingdom lines, enhancing immunity in all known species, be they human or animal.

The ability of Beta-1,3-D-glucan to activate macrophages so significantly is unique to this isolate, especially when compared to other nutritional supple-ments or pharmaceutical drugs. Beta-1,3-D-glucan was pitted against three of Japan's most potent immuno-modulating drugs (Krestin, Lentinan, and Picinbanil) all currently in use as prophylactic agents against cancer, or in cancer chemotherapy. Although administered in larger doses than commercially available, once again, Beta-1,3 -D-glucan prevailed, proving more

effective than the Japanese drugs in activating the immune system, without the toxicity attributed to pharmacological agents.

When compared to mannan, a constituent of aloe vera, and thought to also initiate macrophage activity, Beta-1,3-D-glucan was found to be at least 100 times more effective. Maitake mushroom, another popular immune-enhancing sup-plement, is thought to have a similar activity at a 50 times greater dosage, making this and other products less effective and cost prohibitive alternatives to supplemental Beta-1,3-D-glucan.

Cholesterol and triglyceride lowering attributes

The activated macrophage perpetually roams our system looking to devour anything not identified as a tissue or organ of the human body. Excess cholesterol or triglycerides are identified by the macrophage as foreign debris, and are therefore literally engulfed and destroyed. This action is so powerful in the Beta-1,3-D-glucan activated macrophage, that it has been directly tested against potent cholesterol and triglyceride lowering pharmaceuticals such as Lopid®, outperforming the drugs. When combined with either cholesterol lowering drugs or nutrients like niacin, the results of lowering lipid values are even more dramatic. A United States patent exists on the cholesterol lowering ability of Beta-1,3-D-glucan combined with niacin.

Antioxidant attributes

The antioxidant properties of Beta-1,3-D-glucan were discovered during experiments at the United States Armed Forces Radio-Biology Institute. Rats were first given a lethal dose of gamma radiation. A single, oral dose of Beta-1,3-D-glucan was administered daily for a 20-day period after the radiation exposure (normally given before lethal dosing, not after, when testing radioprotective substances). The results were remarkable. Ninety percent of the irradiated rats were completely protected. This finding stunned the researchers conducting the study, and subsequent studies were set up to determine the mechanisms of this remarkable degree of protection. The mechanisms of protection were described as follows:

1. Beta-1,3-D-glucan protected the macrophage cells from the radiation-induced free radical damage.
2. The intact macrophages were able to help scavenge the excess cellular breakdown and debris caused by high dose radiation damage.
3. The activated macrophages continued to vigilantly defend the host against potential opportunistic infections.
4. Macrophage cells release factors important to the restoration of bone marrow production, pivotal to surviving excessive radioactive insult.

Cosmetic applications

Through the activation of macrophages, Beta-1,3-D-glucan has many significant health and beauty applications.

The dermis of the skin is particularly dense in Langerhans cells, a form of scavenging macrophage. As we age, or the skin is exposed to excess ultraviolet radiation, environmental toxins, poor nutrition, internal contamination or infection, the protective ability of Langerhans cells to maintain healthy and radiant skin is severely compromised. In healthy tissues, Langerhans cells constantly clear the skin of debris, maintaining clear, line-free and resilient skin. Furthermore, active Langerhans cells identify cross-linked tissue (the cause of fine lines and wrinkles), and premature pigmentation as debris, and readily correct these defects, ultimately resulting in clear, blemish-free skin.

A clinical study of 150 women with topical application of Beta-1,3-D-glucan in various cosmetic preparations resulted in a 27 percent improvement in hydration of skin, 56 percent improvement in facial wrinkles, a 29 percent improvement in skin dryness and a 74 percent improvement in skin elasticity/firmness within the eight-week treatment period. When combined in a regimen with alpha hydroxy -acid, the typical irritation caused by this agent was reduced significantly. Beta-1,3-D glucan also serves to prophylactically protect the skin from harmful UV radiation, and provides even greater protection when combined with sun-screens. Healing difficult-to-treat decubitis ulcers (bed sores) common in the elderly, is rapidly accelerated with topical application of Beta-1,3-D-glucan. Given these considerations, Beta-1,3-D-glucan may be considered as both an internal and external cosmetic.

Practical considerations

The applications for Beta-1,3-D-glucan are broad. Anyone faced with AIDS or cancer, as well as viral syndromes, bacterial, fungal, and parasitic infections and other immunodeficiency diseases are definite candidates. Other practical applications include protection from radiation of any source, a general immune-enhancer, as a preventative or treatment for the common cold, or in beautifying and protecting the skin. The recommended oral dosage is a single capsule daily, although persons with active disease may want to consider larger dosages. Beta-1,3-D-glucan products, standardized for purity and potency, are now available as oral nutritional supplements in health food stores nationwide.

Causes and Conditions of Immune Compromise

Diabetes

Herpes simplex

HIV

Epstein-Barr virus

Allergy

Parasitic infection

Emphysema

Environmental illness

Trauma

Common cold

Chronic Infection

AIDS

CMV virus

Candidiasis

Bronchitis

Poor nutrition

Periodontal disease

Sleep depravation

Strenuous athletic training

Chronic fatigue syndrome

Old age

Surgery

Cancer

Pneumonia

Radiation exposure