

# I N N A T E

RESPONSE FORMULAS®

V i s m e d i c a t r i x n a t u r a e

## Maitake Gold 404®

100% Whole Food Targeted Response Dietary Supplement

### Product Rationale

Written by Cynthia Pileggi  
Herbalist, Nutritional Consultant

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# MaitakeGold404<sup>®</sup> Innate Response Formulas<sup>®</sup>

## Rationale

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### MaitakeGold404<sup>®</sup> Superior Eleven ~ Organic Mushroom Tonic

Recorded use of Maitake is found in one of the earliest Chinese Materia Medica's dated around 220 AD. Maitake was traditionally used to support the spleen, treat stomach ailments and hemorrhoids, and to soothe the nerves and calm the mind.

While the use of medicinal mushrooms dates back over 2,000 years, the applications of these fungi treasures have never been more relevant than today. Our cellular health is constantly challenged by free radicals which can attack and damage healthy cells. In addition pollution, stress, bacteria, viruses and lifestyle choices compromise our immune system and our general well being. Scientific and ethno-medical research extols the protective, nutritive and healing properties of medicinal mushrooms.

#### Maitake Stands Above

In researching the therapeutic properties of mushrooms, Maitake stands above all other mushrooms.

Study results indicate Maitake mushrooms efficacy as part of the treatment and prevention of some forms of cancer, tumors, cholesterol management, stress induced disorders, AIDS and other types of compromised immune function. Maitake mushrooms are used as anti-aging rejuvenative tonics and for general immune support.

Research in Japan has shown that Maitake can significantly lower blood pressure, decrease low density lipid proteins (LDL's) and help regulate cholesterol. Maitake also assisted in lowering fatty-tissue weight and generally helped in the prevention of hypertension. Maitake, as 20 percent of a high cholesterol diet inhibited increases in body weight, liver weight and body fat [7]. Triglyceride and LDL's were decreased and HDL's were maintained.

Maitake may assist with weight loss, as is indicated in several Japanese studies.

Research on diabetes is being conducted with initial indications that Maitake may enhance insulin sensitivity, working with insulin receptors, facilitating normalization of sugar levels in diabetics. It does not interfere with normal blood sugar levels.

Research indicates that Maitake is an effective food for chronic fatigue syndrome, rheumatoid arthritis, hepatitis, HIV and AIDS, cancer and tumors.

As an adaptogen, Maitake supports the body's response to stress and is safe for regular use.

#### Maitake Is A Tonic

To be considered a tonic, a plant or food must invigorate, restore and increase body tone and function. Maitake has been renowned throughout Oriental history to aid in the preservation of vitality and well being. The Japanese have long recognized Maitake as a superior tonic that balances bodily function and enhances wellness, vitality, strength and vigor. Maitake meets and exceeds all the requirements to be considered a superior tonic.

The mushroom is nature's expert in adapting to and resisting a host of health challenges. Maitake is part of the polypore family of mushrooms. Polypore's are revered tonics that increase resistance and promote longevity.

**Maitake is a valuable addition to every nutrition program.**

### **Dr. Nanba and the 404 Glucan Peptide™**

Dr. Hiroaki Nanba, a microbiologist at the Pharmaceutical University at Kobe, Japan has been researching Maitake mushrooms for almost 20 years. As the father of medicinal Maitake mushroom research he has authored five books, more than 20 published journal articles and has lectured about medical mycology at more than thirty-five international medical conferences. The pioneer of Maitake research, Dr. Nanba holds 5 distinct patents relating to Maitake mushrooms.

In 1987, Dr. Nanba's work led him to the discovery of the potent immune activity in the extract of the whole Maitake mushroom. He named that active constituent the Maitake D fraction. This fraction had impurities that prevented the mushrooms from functioning at its highest level. Dr. Nanba returned to the lab and through extensive research, he overcame the limitations of his first discovery of the D fraction. The improved active constituent he discovered was the 404 Glucan Peptide™.

The discovery of the superior activity of the 404 Glucan Peptide™ was the breakthrough that Dr. Nanba had been searching for.

### **MaitakeGold404® and the 404 Glucan Peptide™**

*MaitakeGold404®* is the most advanced, effective and concentrated whole Maitake Mushroom extract ever created. *MaitakeGold404®* was created and is endorsed by Dr. Nanba, the foremost microbiologist on the special properties of Maitake Mushroom. *MaitakeGold404®* contains only the patented 404 Glucan Peptide™ that was found by Dr. Nanba.

### **Yakiguni Maitake Company**

Since the beginning, the Maitake mushrooms Dr. Nanba used in his research were organically cultivated by Yakiguni Maitake Company. Yakiguni's source of Maitake was the first consistently stable material Dr. Nanba found. In the 1980's, Yoshinobu Ohira, of Yakiguni Maitake Company, succeeded in cultivating Maitake of stable therapeutic quality. This cultivation led to the first organic bio-farming of Maitake.

Yakiguni's cutting-edge technology simulates Maitake's natural growing conditions deep in the mountains and dark valleys of Northern Japan. Using only pure subterranean water, and without any agricultural chemicals, Yakiguni organic Maitake are grown using quality controls that exceed every recognized industry standard. Dr. Hiroaki Nanba, now had the volume of raw material needed to research the exceptional properties of Maitake.

### **Maitake and Polysaccharides**

Polysaccharides are the extensively researched active components in mushrooms. Polysaccharides are complex carbohydrates found in certain species of plants. These carbohydrates possess powerful therapeutic benefits. Polysaccharides are complex sugar molecules which form long chains. The type of complex carbohydrates and how the chains are formed create the type of polysaccharide and its medicinal properties.

Different mushrooms will contain different beneficial polysaccharides. Yakiguni's proprietary strain of Maitake contains several polysaccharides with exceptionally high levels of a special polysaccharide called the 404 Glucan Peptide™, Beta 1/6, 1/3 Glucan. This fraction has been extensively researched for its anti-tumor and anti-cancer properties.

In order to be effective, these polysaccharides must be properly extracted. Proper extraction of the mushrooms is critical.

## **The Maitake 404 Glucan Peptide™ Extraction Process**

The Manufacturing Process for 404 Glucan Peptide™ (Extract from Maitake Mushroom) U.S. Patent # 5,854,404

- Step 1 Maitake Mushroom Powder (from organically grown *Grifola frondosa*)
- Step 2 Hot Water Extraction of organic Maitake Mushroom Powder
- Step 3 Filtration of the Hot Water Extraction
- Step 4 Addition of Alcohol to the Extract
- Step 5 Removal of the Alcohol
- Step 6 Controlled temperature Spray Drying of the extracted Maitake
- Step 7 Finished Product: A highly concentrated, organic *MaitakeGold404*®

*MaitakeGold404*® 404 Glucan Peptide™ is a hot water and alcohol extracted mushroom extract. No harsh chemicals or solvents such as hexane or acetone are used in the extraction process. Only filtered water and alcohol are used in the extraction of *MaitakeGold404*®. It is not just a fraction but a whole extract of Maitake mushroom as opposed to a standardized extract which focuses on only one isolated chemical constituent.

The organic MaitakeGold 404 Glucan Peptide™ (extract) contains a broad range of components, including carbohydrates, amino acids, proteins, dietary fiber, beta-glucans, polysaccharides, and other beneficial nutritional factors.

Innate Response Formulas®, *MaitakeGold404*® **Superior Eleven Organic Mushroom Tonic** also contains whole Maitake mushroom powder and a blend of ten different whole mushroom powders which have been made bioavailable through a traditional heat activation process, so as to incorporate all of the benefits of the mushroom.

### **The Importance Of Maximum Branching**

Beta Glucans are very active polysaccharide molecules that form chains. The number of glucose molecules branching off the chain determines its medicinal properties. The greater the degree of branching in the Beta Glucan, the greater the likelihood it will reach and activate more immune cells.

Maximum Branching of the Maitake mushroom beta glucans is provided by 1,6/1,3 and 1,6/1,4 Beta Glucan chains from the *MaitakeGold404*® extract 404 Glucan Peptide™.

### ***MaitakeGold404*® Beta 1/6,1/3 Glucan Extract**

The *MaitakeGold404*® extract is based on 17 years of extensive clinical research using Dr. Nanba's exclusive Maitake Mushroom strain to produce the patented 404 Glucan Peptide™. *MaitakeGold404*® has extremely powerful active polysaccharides. Patented *MaitakeGold404*® Mushroom Maitake's Beta 1,6 linked Glucan with 1,3 branches has superior immune activity when compared to other mushrooms. Its strength lies in the long chain structures with maximum branching chains. It is the uniqueness of the structure and composition of this chain of Beta Glucans that makes *MaitakeGold404*® the definitive source of its unique and specific immune boosting abilities. Of all the known medicinal mushrooms, *MaitakeGold404*® has demonstrated the highest level of bioavailability when taken orally.

## ***MaitakeGold404*<sup>®</sup> Actions**

***MaitakeGold404's*<sup>®</sup>** high polysaccharide content provides immune system support through enhanced macrophage and T-cell production and activation. Extensive research has been done on Maitake's effects on tumors both in Japan and in the United States. Significant anti-tumor and anti-cancer activity has been discovered in ***MaitakeGold404*<sup>®</sup>**. Research shows that orally administered Maitake 404 Glucan Peptide™ increased interleukin-1 production, enhanced macrophage activity and immune response.

“Maitake 404 Glucan Peptide™ has been shown to complement conventional chemotherapeutic agents. Not only does it seem to improve their positive benefits, it also aids in the amelioration of many of their side effects” [4]. The improved 404 Glucan Peptide™ has, in clinical research, shown even greater protective properties.

Research indicates that ***MaitakeGold404*<sup>®</sup>** is an effective food for chronic fatigue syndrome, hypertension, weight loss, rheumatoid arthritis, diabetes, hepatitis, cancer, tumors, HIV, AIDS, and high cholesterol.

As an adaptogen, ***MaitakeGold404*<sup>®</sup>** supports the body's response to stress and is safe for regular use.

Protecting cellular integrity on a daily basis is an important function of ***MaitakeGold404*<sup>®</sup>**.

***MaitakeGold404*<sup>®</sup>** stimulates overall physical vitality as well as enhancing immune system well-being.

## **The Superior Ten**

The 10 additional mushrooms in ***MaitakeGold404*<sup>®</sup> Superior Eleven** are organic and are grown on certified organic rice. This therapeutic blend of organically grown whole mushrooms is extracted by the low heat drying process. The mushrooms are extracted according to an established special extraction method designed to breakdown the mushroom cell walls.

### **The Whole Mushroom Extraction Process**

Chitin (kite-in) is an inactive polysaccharide that provides the structural cement for the cell wall of the mushrooms. This cement must be broken down. Without proper extraction most of the therapeutic and nutritive value of the mushroom is lost.

When the mushrooms are ready to be processed, they are dried using heat not to exceed 130 degrees. The temperature is important as the protein in the mushroom is denatured at temperatures above 150. For example, Beta 1/6, 1/3 Glucans as found in Maitake mushrooms are protein bound Beta Glucans and must be protected with low temperature extraction. The correct temperature is vital to the efficacy of the mushroom.

After drying, the mushrooms are pulverized to shatter the cell wall. This pulverizing process enhances the Beta-Glucans and other constituents bioavailability. Beta-Glucans are also found on the outside of the cell wall. The experts who grow and process the 10 additional mushrooms for the ***MaitakeGold404*<sup>®</sup> Superior Eleven Organic Mushroom Tonic** believe that this method of processing produces a superior whole food state mushroom extract. This form of mushroom extraction is considered superior to mere ground powders.

The bioavailability and efficacy of the superior 10 mushrooms is greatly enhanced by the extraction process.

**The Organic Whole Mushrooms in *MaitakeGold404*<sup>®</sup> *Superior Eleven Tonic* are:**

Maitake Mushroom (*Grifola Frondosa*)  
Shiitake (*Lentinula edodes*)  
Brazilian Mushroom (*Agaricus blazei*)  
Split Gil (*Schizophyllum commune*)  
Cordyceps (*Cordyceps sinensis*)  
White Wood Ear (*Tremella fuciformis*)  
Reishi (*Ganoderma lucidium*)  
Turkey Tail (*Corniolus versicolor*)  
Fu-Ling (*Poria cocos*)  
Lions Mane (*Hericium erinaceus*)

It is suggested that this type of medicinal mushroom combination be taken away from food.

The Superior Ten are considered superior herbs in traditional Chinese medicine and long term use is recommended.

**The Multi Mycelia Organic Mushrooms Blend**

**Shiitake** (*Lentinula edodes*)

Shiitake contains the polysaccharide, *lentinan*, a beta 1,3 glucan, that activates helper T-cells and B-cells and reduces the synthesis of prostaglandins responsible for suppressing immune response. It demonstrates anti-tumor, and anti-viral activity. *Lentinan* also shows promise at reversing the depressed enzyme activity associated with cancer and inhibits metastasis.

Another important Shiitake discovery is the constituent KS-2, a peptide that induces interferon production.

Studies on Shiitake mushrooms have discovered effective cholesterol lowering properties. *Eritadenine* is indicated as the constituent capable of lowering serum cholesterol, phospholipids and triglycerides.

Pro-vitamin D, important to calcium utilization, is present in some mushrooms and especially rich in Shiitake.

Recent research has found that there are receptor sites, in the Peyer's patches of the intestines, for the polysaccharides found in Shiitake. This may be a key to Shiitake's immune stimulating mode of action.

**Brazilian mushroom**, (*Agaricus blazei*)

Brazilian mushroom contains the beta glucans FIII 2-b, and beta 1,3/1,6 glucans, immunostimulants that enhance immune response and production of natural killer cells, T-cells, B-cells and macrophages.

Research indicates the Brazilian mushroom possesses significant antitumor properties.

The Brazilian mushroom is useful in supporting the liver, cardiovascular health, diabetes and asthma.

Brazilian mushroom is useful in reducing side-effects from chemotherapy.

**Split Gil, *Schizophyllum commune***

Traditionally Split Gil is used for general weakness, debility and for some gynecological disorders.

The key polysaccharide in Split Gil is *schizophyllan* (SPG) which shows anti-tumor activity against several forms of sarcoma. SPG demonstrates immune enhancing properties by restoring suppressed killer-cell activity to normal levels, and activating macrophages. SPG supports Kupffer cells in bone marrow, lymph nodes, liver and spleen. Research indicates that SPG can benefit chronic hepatitis B patients.

This mushroom has protective effects against the infections *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, and *Klebsiella pneumoniae*.

Split Gil is a supportive adjuvant therapy for those undergoing many forms of chemotherapy and radiation therapy.

**Cordyceps, *Cordyceps sinensis***

Often called caterpillar fungus. Cordyceps was used and revered in China by the royal family. It is a tonic and therapeutic for the disorders of the kidneys and lungs, increases sperm production, supports healthy blood and reinforces Qi (Chi).

Traditional use is as a restorative, for recovery after illness.

In Traditional Chinese Medicine it is considered to balance both yin and yang.

With Ginseng-like properties, it is strengthening, rejuvenating and increases endurance and stamina. It has been successfully used by athletes including the winning Chinese Women's Olympic track and field team.

Human studies indicate that Cordyceps enhances functions of the liver and kidneys.

Studies indicate Cordyceps stimulates immune response and suggest it helps restore immune response to normal levels.

Studies indicate Cordyceps has antitumor and anticancer properties.

Cordyceps has shown antibacterial actions against *Streptococcus*, *Bacterium mallei*, *Bacillus anthracis*, *Pasteurella suisepitica*, and *Staphylococcus*, *Microsporium gypseum* and *Microsporium lanosum*.

Clinical research now supports the use of Cordyceps to enhance sexual potency, sex drive and to support the gonads.

Cordyceps contains amino acids including glutamic acid, tyrosine, and L-tryptophan.

The isolation and identification of the polysaccharides in this mushroom are being researched.

**White Wood Ear, *Tremella fuciformis***

Also called Snow Fungus. Tremella has been used in China as a nutritive food and as a Qi and immune tonic. Traditional use includes support for vitality, strengthening the heart and blood and nourishing the yin and stomach. White Wood Ear is considered an anti-aging tonic.

White Wood Ear's polysaccharides and glycoproteins have demonstrated immune enhancing properties. They increase effectiveness of interferon, promote phagocytosis and support macrophage production.

White Wood Ear has eight polysaccharides, BI to BV and polysaccharides A, B, and C that have demonstrated antitumor activity.

White Wood Ear has shown protective actions for the liver.

White Wood Ear can increase SOD activity in the liver and brain.

Human clinical trails have shown White Wood Ear's usefulness in supporting chemotherapy and radiation therapy.

**Reishi, *Ganoderma lucidum* (Ling-Zhi)**

Reishi is one of the most highly regarded of all herbs in Oriental Medicine. The recorded use of Reishi mushroom dates back 4,000 years in both China and Japan. Traditionally thought to increase mental and intellectual capacity and to have aphrodisiac properties.

Reishi is considered the longevity or immortality elixir. Reishi has been called a divine herb or spirit plant.

Reishi is used in cancer prevention and to enhance well being to HIV patients.

Reishi is rich in polysaccharides including Beta-D-glucan, and Ganoderans A, B, C. Research demonstrates that these polysaccharides stimulate and modulate the immune system to increase activity and heighten response to foreign cells, whether bacteria, viruses or tumor cells.

The mycelia of Reishi contains active anti-tumor polysaccharides.

Research reveals that Reishi's polysaccharides can increase production of Interleukin 1 and 2, and enhances natural killer cell activity.

Several of Reishi's polysaccharides have cardio-protective properties.

Reishi is considered a superior tonic for the cardiovascular system.

Reishi has shown cholesterol regulating properties in numerous studies.

Reishi is considered a superior liver tonic. It is commonly used to treat chronic hepatitis and other liver dysfunction. Reishi is considered antihepatotoxic (Liver Protecting).

Reishi contains about 100 different triterpenes. The triterpenes such as ganoderic acids, have shown to assist in lowering blood pressure and cholesterol, improving liver function and inhibiting histamine release.

Reishi is considered a “‘fu zheng’ tonic: *a medicine that improves the ability of the body to maintain homeostasis by strengthening natural resistance and by improving general health*” [2].

Reishi provides adaptogenic support to adrenal function.

Reishi has demonstrated anti-oxidant properties.

Reishi is anti-bacterial against *Staphylococci*, *Streptococci* and *Bacillus pneumoniae*.

Reishi supports the central nervous system, helps with insomnia, inhibits allergic reactions, and can offer relief from bronchitis.

**Turkey Tail, Cloud Fungus (*Coriolus versicolor*, *Trametes versicolor*)**

Turkey Tail fungus is a polypore that is commonly found in the woods of the U.S. *Coriolus* is used in traditional Chinese medicine for lung and liver disease to support the spleen and heart, invigorate the spirit, strengthen those who are debilitated, increase energy and support those suffering from chronic illness.

Turkey Tail possesses the polysaccharide Kureha (PSK) also called Krestin. It is used in Japan in some cancer therapies for it's ability to suppress tumors and both activate and normalize the immune system's functions.

Other key polysaccharides in Turkey Tail are PSP, a polysaccharide-peptide and coriolan.

Turkey Tail is used in China for chemotherapy patients to increase appetite and reduce pain.

In China, Turkey Tail is used to treat hepatitis and other liver conditions.

Turkey Tail is indicated for general immune fragility.

Turkey Tail is used “for infection and inflammation of the upper respiratory, urinary, and digestive tracts” [1].

**Fu-Ling, Fuling, *Poria cocos*, *Wolfiporia cocos***

Also known as Hoelen, Fu-Ling is of economic importance in Nigeria where it is used as both a food and a medicine.

Fu-Ling is used as a cancer preventative and as a cardiogenic.

Fu-Ling's polysaccharides have demonstrated anti-tumor properties by immunostimulant action.

Fu-Ling has active triterpenes, the most studied being *poriatin* which has shown antiviral action, stimulation of macrophages and it increases phagocytosis. Research suggests that *poriatin* may be beneficial in the treatment of autoimmune dysfunctions.

**Lion's Mane, *Heridium erinaceus***

Lion's Mane has been used in Traditional Chinese Medicine as a general, nutritive tonic for all organs. Promoting good digestion, it is used for gastric and duodenal ulcers. Lion's Mane supports general vitality and physical strength. Research indicates anti-cancer and anti-tumor properties while enhancing immune response.

*Heridium erinaceus* supports the cardiovascular system, the lungs and respiratory system. Research indicates that Lion's Mane may assist in the growth and regeneration of nerve cells. Active constituents include cyathane derivatives; Erinancines and Hericenones nerve growth stimulators; Beta D-Glucans which provide antitumor properties; and Ergosterol which is provitamin D and also demonstrates some antitumor activity.

**FoodState™ Vitamin C**

FoodState™ Vitamin C enhances the efficacy and availability of this unique, therapeutic formula. It works with the body to break apart the beneficial polysaccharides increasing bioavailability and making the Beta-Glucans more accessible to the body.

In his book *Reishi, Ancient Herb for Modern Times*, Kenneth Jones reports; "Vitamin C reduces the high molecular weight of the polysaccharides. As the Vitamin C breaks up these sugars, their viscosity or stickiness drops and their bioavailability increases." "Once the polysaccharides are reduced ... they are rendered more accessible to the immune system cell called the "macrophage." When this immune cell becomes activated, an array of other defenders are signaled to go into action to protect the body against disease.

**What is the proper dosage for *MaitakeGold404*®?**

The dosage of Maitake extracts is based upon the level of the 404 Glucan Peptide™. The therapeutic dosage range is 2 tablets **Immune Response™** plus 1 tablet *MaitakeGold404*® to 4 tablets **Immune Response™** plus 2 tablets *MaitakeGold404*® depending on the problem and body weight. That translates to a dosage of approximately 35 - 70 mg of the 404 Glucan Peptide™ daily. The dosage recommendation for maintenance and prevention is typically 5 to 15 mg of the 404 Glucan Peptide™ per day. For best results take 20 minutes before meals or on an empty stomach.

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