

# Mold Multi™



THIS INFORMATION IS FOR PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ONLY. THE INFORMATION IS INTENDED TO ASSIST PRACTITIONER DECISION MAKING AS TO WHETHER OR NOT THESE PRODUCTS FIT THE NEEDS OF THEIR PATIENT. THE SCIENTIFIC INFORMATION AND DIETARY SUPPLEMENT PRODUCTS PROVIDED BY ALIGHT HEALTH FORMULAS ARE NOT INTENDED FOR USE BY CONSUMERS AS A MEANS TO CURE, TREAT, PREVENT, DIAGNOSE, OR MITIGATE ANY DISEASE OR OTHER MEDICAL CONDITION.

Mold Multi™ was formulated to replete and optimize the most common nutrient depletions seen in people exposed to damp and mold-infested buildings. Additional aspects were added to address the inflammatory sequelae from mold and mold chemical exposure. Specific forms of nutrients were carefully selected to enhance absorption and effectiveness. Similar to a daily multivitamin, Mold Multi™ may be used daily during and throughout healing from mold as a foundation and to mitigate the negative health effects.

Indoor molds excrete chemicals and toxins during metabolism. These include products of normal metabolism, such as alcohols, aldehydes, and microbial volatile organic compounds (mVOCs), as well as mycotoxins, which are produced as a competitive response to other microbes. This toxigenic menagerie has the effect of both inhibiting absorption and increasing utilization of specific nutrients.

This is a comprehensive formulation containing an array of antioxidant and anti-toxin nutrients, including lutein, zeaxanthin, bilberry, ginkgo, turmeric, taurine, lipoic acid, and vitamin A with mixed carotenoids, as well as nutrient co-enzymes and co-factors for enhanced detoxification support.

## Taurine

Taurine is one of the amino acid conjugates of bile acids. Mold treatment often involves the use of binders, which binds bile and enhances its excretion, which can leave a mold-affected patient depleted in this necessary detoxification component.

Taurine is an osmoregulator, affecting homeostasis. When depleted, patients may experience symptoms of cellular dehydration and orthostatic dysregulation. It's also involved in retinal health, leading patients to experience visual disturbances when deficient.

Taurine alleviates renal and liver injury from mycotoxin exposure by inhibiting oxidative stress, mitochondrial dysfunction, apoptosis, and inflammation. Additionally, it prevents retinal injury from oxidative stress.

## Recommended Use

Take one capsule three times daily with meals, or as directed by a health care practitioner.

Does not contain gluten, dairy, soy, or GMOs.

Supplement Facts			
Serving Size 2 capsules Servings Per Container 30			
Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Vitamin A (from Retinyl Palmitate and Mixed Carotenoids from Palm Tree Fruit)	960 mcg RAE 107%	N-Acetyl-L-Cysteine (NAC)	200 mg *
Vitamin C (as Ascorbic Acid)	100 mg 111%	Quercetin	100 mg *
Thiamin (Vitamin B-1) (as Thiamin HCl and Benfotiamine)	10 mg 833%	Bilberry Extract ( <i>Vaccinium myrtillus</i> )(fruit) [standardized to contain 25% anthocyanidins]	100 mg *
Riboflavin (Vitamin B-2) (as Riboflavin and Riboflavin-5-Phosphate)	20 mg 1538%	Ginkgo Extract ( <i>Ginkgo biloba</i> )(leaf) [standardized to contain 24% ginkgo flavonglycosides and 5.4% terpene lactones]	60 mg *
Niacin (Vitamin B-3)(as Niacinamide)	10 mg NE 63%	Vitamin E Isomers (as DeltaGold®) delta and gamma tocotrienols	50 mg *
Vitamin B-6 (as Pyridoxine HCl)	10 mg 588%	Alpha Lipoic Acid	50 mg *
Folate (as Quatrefolic® [6S]-5-methyltetrahydrofolate, glucosamine salt)	680 mcg DFE 170%	Turmeric ( <i>Curcuma longa</i> )(root) [standardized to contain 95% curcuminoids]	50 mg *
Vitamin B-12 (as Methylcobalamin)	100 mcg 4167%	Lutein (from Marigold Extract)	10 mg *
Zinc (as Zinc Bisglycinate (Chelate))	15 mg 136%	Zeaxanthin Isomers (from Marigold Extract)	2 mg *
Selenium (as Selenium Glycinate Complex)	50 mcg 91%		
Taurine	200 mg *		

**Other Ingredients:** Cellulose (capsule), dicalcium phosphate, microcrystalline cellulose, sunflower lecithin, vegetable stearate, silicon dioxide.

Quatrefolic® is a registered trademark of Gnosis S.p.A., U.S. Patent No. 7,947,662. Quatrefolic®  
DeltaGold® is a registered trademark of American River Nutrition, LLC and protected by US Patent Number 8,586,109.

Lutemax® 2020 is a registered trademark of OmniActive Health Technologies, Ltd.

## **N-Acetyl Cysteine (NAC)**

Whether mycotoxins are ingested or absorbed through respiration, the powerful antioxidant NAC has a protective effect. NAC inhibits reactive-oxygen species (ROS) generation, and alleviates mycotoxin-induced apoptosis and inflammation, particularly in the male reproductive system.

## **Quercetin**

Mold spores induce allergic responses. Quercetin acts as an inhibitor of mast cell secretion, dramatically inhibiting mast cell tryptase and IL-6 release in a dose-dependent manner. In cell studies, quercetin is involved in the down-regulation of histidine decarboxylase mRNA transcription from human mast cells, thereby reducing the expression of pro-inflammatory cytokines.\*

Quercetin is a key cytoprotective factor for mycotoxin exposure. It modulates oxidative stress mediators in multiple tissues, resulting in immunoprotective, neuroprotective, nephroprotective, hepatoprotective, and genoprotective effects.

## **Bilberry (standardized to contain 36% anthocyanidins)**

Mold is a potent inducer of mucosal and skin irritation, inflammation, and allergic responses including mast cell recruitment and degranulation. It can also lead to systemic chronic inflammatory responses.

Bilberry extract alleviates inflammation and acts as an antioxidant, decreasing plasma biomarkers of inflammation and tissue damage. Anthocyanidins from bilberry inhibit mast cell degranulation and ease pruritus related to mold exposure.

## **Ginkgo (standardized to contain 24% ginkgo flavonglycosides and 5.4% terpene lactones)**

While primarily thought of in the context of cerebral health, with beneficial activity on cerebral perfusion and neuroinflammation, Ginkgo Biloba has additional mycotoxin protective effects in the liver and kidneys. In animal studies of aflatoxin-induced hepatocellular carcinoma, ginkgo showed effective inhibition of hepatocarcinogenesis by markedly increasing glutathione peroxidase activity and reducing malondialdehyde levels.

Additionally, ginkgo may assist with allergic and asthmatic symptoms related to mold exposure, as it's been shown to reduce airway inflammation in pulmonary diseases, likely related to its anti-inflammatory and mast cell stabilizing properties. In a mouse model of asthma, ginkgo alleviated almost all established chronic histological changes found in the lungs of asthmatics.

This product does not contain synthetic carotenoids, as research shows that natural carotenoids offer a superior spectrum of benefits.

## Tocotrienols

Vitamin E isomers are lipid-soluble antioxidants. Mycotoxins are lipid-soluble as well, causing lipid-rich tissue to sustain oxidative and inflammatory damage. Tocotrienols play a preventive role in the histopathological changes seen with mold spore and mycotoxin exposure. Vitamin E isomers are immunoprotective, hepatoprotective, cardioprotective, and nephroprotective as related to mycotoxin exposure.

## Alpha Lipoic Acid (ALA)

Alpha Lipoic Acid (ALA) has been shown to protect against, or reverse, the adverse health effects of mycotoxins. In addition, animal models suggest that ALA offers antioxidant, hematological, hepatic, and immunological protective effects, with notable reduction in the expression of inflammatory genes.

## Turmeric

As one of the more diverse and broad acting anti-inflammatory herbs, it comes as no surprise that turmeric protects against the inflammatory cascade induced from mold and mold chemical exposure, including mycotoxins. Turmeric has mild antifungal properties and encompasses a diverse array of antioxidants. Turmeric reduces histamine secretion from mast cells, resulting in amelioration of allergic symptoms.

Turmeric mitigates mycotoxin-induced liver injury via the Nrf2 signaling pathway, and in animal models is neuroprotective and protective to the gastrointestinal system, primarily acting upon the gut microbiota. Turmeric combats mycotoxin effects on hemodynamics by being hemoprotective.

## Zeaxanthin

The kidneys are the primary organs of detoxification of a number of inflammatory markers resulting from mold exposure, as well as many mycotoxins. In order for the kidneys to filter the mycotoxins into urine, the mycotoxins must first be denatured from their high-affinity bond to the blood protein albumin.

Bioflavonoids assist with this denaturing process, specifically those in the orange color band, such as astaxanthin and zeaxanthin. If denaturing is attenuated due to a lack of necessary bioflavonoids, the renal interstitium sustains profound oxidative damage. These fat-soluble bioflavonoids protect against mycotoxin-induced kidney, myocardial, and lung injury via the Nrf2 pathway.

## Therapeutic Differences by Composition



Natural lutein esters show superior absorbability over non-esterified lutein. Uses natural plant-sourced zeaxanthin and lutein.

Bilberry anthocyanidins are particularly sensitive to thermal treatment and are easily hydrolyzed to anthocyanidins when exposed to high temperatures. Our non-heated bilberry preserves the active component and is standardized to contain 36% anthocyanins.

For more information about Alight Health Formulas™, email [contact@alighthealthformulas.com](mailto:contact@alighthealthformulas.com)

## References

- Li W, Wu G, Yang X, Yang J, Hu J. Taurine Prevents AFB1-Induced Renal Injury by Inhibiting Oxidative Stress and Apoptosis. *Adv Exp Med Biol.* 2022;1370:435-444. doi: 10.1007/978-3-030-93337-1\_41. PMID: 35882817.
- Ji X, Tang Z, Zhang F, Zhou F, Wu Y, Wu D. Dietary taurine supplementation counteracts deoxynivalenol-induced liver injury via alleviating oxidative stress, mitochondrial dysfunction, apoptosis, and inflammation in piglets. *Ecotoxicol Environ Saf.* 2023 Mar 15;253:114705. doi: 10.1016/j.ecoenv.2023.114705. Epub 2023 Feb 28. PMID: 36863159.
- Castelli V, Paladini A, d'Angelo M, Allegretti M, Mantelli F, Brandolini L, Cocchiario P, Cimini A, Varrassi G. Taurine and oxidative stress in retinal health and disease. *CNS Neurosci Ther.* 2021 Apr;27(4):403-412. doi: 10.1111/cns.13610. Epub 2021 Feb 23. PMID: 33621439; PMCID: PMC7941169.
- Kang R, Li R, Dai P, Li Z, Li Y, Li C. Deoxynivalenol induced apoptosis and inflammation of IPEC-J2 cells by promoting ROS production. *Environ Pollut.* 2019 Aug;251:689-698. doi: 10.1016/j.envpol.2019.05.026. Epub 2019 May 10. PMID: 31108302.
- Yang X, Liu P, Zhang X, Zhang J, Cui Y, Song M, Li Y. T-2 toxin causes dysfunction of Sertoli cells by inducing oxidative stress. *Ecotoxicol Environ Saf.* 2021 Dec 1;225:112702. doi: 10.1016/j.ecoenv.2021.112702. Epub 2021 Aug 31. PMID: 34478974.
- Min YD, Choi CH, Bark H, Son HY, Park HH, Lee S, Park JW, Park EK, Shin HI, Kim SH. Quercetin inhibits expression of inflammatory cytokines through attenuation of NF-kappaB and p38 MAPK in HMC-1 human mast cell line. *Inflamm Res.* 2007 May;56(5):210-5. doi: 10.1007/s00011-007-6172-9. PMID: 17588137.
- Kalagatur NK, Abd Allah EF, Poda S, Kadirvelu K, Hashem A, Mudili V, Siddaiah C. Quercetin mitigates the deoxynivalenol mycotoxin induced apoptosis in SH-SY5Y cells by modulating the oxidative stress mediators. *Saudi J Biol Sci.* 2021 Jan;28(1):465-477. doi: 10.1016/j.sjbs.2020.10.030. Epub 2020 Oct 27. PMID: 33424329; PMCID: PMC7783655.
- Barcelos GR, Grotto D, Angeli JP, Serpeloni JM, Rocha BA, Bastos JK, Barbosa F Jr. Evaluation of antigenotoxic effects of plant flavonoids quercetin and rutin on HepG2 cells. *Phytother Res.* 2011 Sep;25(9):1381-8. doi: 10.1002/ptr.3436. Epub 2011 Feb 24. PMID: 25363758.
- Bøhn SK, Myhrstad MCW, Thoresen M, Erlund I, Vasstrand AK, Marciuch A, Carlsen MH, Bastani NE, Engedal K, Flekkøy KM, Blomhoff R. Bilberry/red grape juice decreases plasma biomarkers of inflammation and tissue damage in aged men with subjective memory impairment - a randomized clinical trial. *BMC Nutr.* 2021 Nov 22;7(1):75. doi: 10.1186/s40795-021-00482-8. PMID: 34802467; PMCID: PMC8607697.
- Yamaura K, Ishiwatari M, Yamamoto M, Shimada M, Bi Y, Ueno K. Anthocyanins, but not anthocyanidins, from bilberry (*Vaccinium myrtillus* L.) alleviate pruritus via inhibition of mast cell degranulation. *J Food Sci.* 2012 Dec;77(12):H262-7. doi: 10.1111/j.1750-3841.2012.02974.x. Epub 2012 Nov 19. PMID: 23164040.
- Hao YR, Yang F, Cao J, Ou C, Zhang JJ, Yang C, Duan XX, Li Y, Su JJ. [Ginkgo biloba extracts (EGb761) inhibits aflatoxin B1-induced hepatocarcinogenesis in Wistar rats]. *Zhong Yao Cai.* 2009 Jan;32(1):92-6. Chinese. PMID: 19445131.
- Tao Z, Jin W, Ao M, Zhai S, Xu H, Yu L. Evaluation of the anti-inflammatory properties of the active constituents in Ginkgo biloba for the treatment of pulmonary diseases. *Food Funct.* 2019 Apr 17;10(4):2209-2220. doi: 10.1039/c8fo02506a. PMID: 30945705.
- Son JK, Son MJ, Lee E, Moon TC, Son KH, Kim CH, Kim HP, Kang SS, Chang HW. Ginkgetin, a Biflavone from Ginkgo biloba leaves, inhibits cyclooxygenases-2 and 5-lipoxygenase in mouse bone marrow-derived mast cells. *Biol Pharm Bull.* 2005 Dec;28(12): 2181-4. doi: 10.1248/bpb.28.2181. PMID: 16327145.
- Babayigit A, Olmez D, Karaman O, Ozogul C, Yilmaz O, Kivcak B, Erbil G, Uzuner N. Effects of Ginkgo biloba on airway histology in a mouse model of chronic asthma. *Allergy Asthma Proc.* 2009 Mar-Apr;30(2):186-91. doi: 10.2500/aap.2009.30.3187. Epub 2008 Dec 31. PMID: 19118503.
- Yilmaz S, Kaya E, Comakli S. Vitamin E ( $\alpha$  tocopherol) attenuates toxicity and oxidative stress induced by aflatoxin in rats. *Adv Clin Exp Med.* 2017 Sep;26(6):907-917. doi: 10.17219/acem/66347. PMID: 29068590.
- Abdel-Hamid AA, Firgany Ael-D. Vitamin E supplementation ameliorates aflatoxin B1-induced nephrotoxicity in rats. *Acta Histochem.* 2015 Oct;117(8):767-79. doi: 10.1016/j.acthis.2015.08.002. Epub 2015 Aug 24. PMID: 26315992.
- Rogers SA. Lipoic acid as a potential first agent for protection from mycotoxins and treatment of mycotoxicosis. *Arch Environ Health.* 2003 Aug;58(8):528-32. doi: 10.3200/AEOH.58.8.528-532. PMID: 15259433.
- Karaman M, Ozen H, Tuzcu M, Cigremiş Y, Onder F, Ozcan K. Pathological, biochemical and haematological investigations on the protective effect of alpha-lipoic acid in experimental aflatoxin toxicosis in chicks. *Br Poult Sci.* 2010 Feb;51(1):132-41. doi: 10.1080/00071660903401839. PMID: 20390578.
- Ma Q, Li Y, Fan Y, Zhao L, Wei H, Ji C, Zhang J. Molecular Mechanisms of Lipoic Acid Protection against Aflatoxin B1-Induced Liver Oxidative Damage and Inflammatory Responses in Broilers. *Toxins (Basel).* 2015 Dec 14;7(12):5435-47. doi: 10.3390/toxins7124879. PMID: 26694462; PMCID: PMC4690129.
- Li Y, Ma QG, Zhao LH, Wei H, Duan GX, Zhang JY, Ji C. Effects of lipoic acid on immune function, the antioxidant defense system, and inflammation-related genes expression of broiler chickens fed aflatoxin contaminated diets. *Int J Mol Sci.* 2014 Apr 2;15(4):5649-62. doi: 10.3390/ijms15045649. PMID: 24699046; PMCID: PMC4013587.
- Kurup VP, Barrios CS. Immunomodulatory effects of curcumin in allergy. *Mol Nutr Food Res.* 2008 Sep;52(9):1031-9. doi: 10.1002/mnfr.200700293. PMID: 18398870.
- Wang Y, Liu F, Liu M, Zhou X, Wang M, Cao K, Jin S, Shan A, Feng X. Curcumin mitigates aflatoxin B1-induced liver injury via regulating the NLRP3 inflammasome and Nrf2 signaling pathway. *Food Chem Toxicol.* 2022 Mar;161:112823. doi: 10.1016/j.fct.2022.112823. Epub 2022 Jan 19. PMID: 35063475.
- Scazzocchio B, Minghetti L, D'Archivio M. Interaction between Gut Microbiota and Curcumin: A New Key of Understanding for the Health Effects of Curcumin. *Nutrients.* 2020 Aug 19;12(9):2499. doi: 10.3390/nu12092499. PMID: 32824993; PMCID: PMC7551052.
- Mathuria N, Verma RJ. Aflatoxin induced hemolysis and its amelioration by turmeric extracts and curcumin in vitro. *Acta Pol Pharm.* 2007 Mar-Apr;64(2):165-8. PMID: 17665866.
- Cui G, Li L, Xu W, Wang M, Jiao D, Yao B, Xu K, Chen Y, Yang S, Long M, Li P, Guo Y. Astaxanthin Protects Ochratoxin A-Induced Oxidative Stress and Apoptosis in the Heart via the Nrf2 Pathway. *Oxid Med Cell Longev.* 2020 Mar 4;2020:7639109. doi: 10.1155/2020/7639109. PMID: 32190177; PMCID: PMC7073479.
- Li L, Chen Y, Jiao D, Yang S, Li L, Li P. Protective Effect of Astaxanthin on Ochratoxin A-Induced Kidney Injury to Mice by Regulating Oxidative Stress-Related NRF2/KEAP1 Pathway. *Molecules.* 2020 Mar 18;25(6):1386. doi: 10.3390/molecules25061386. PMID: 32197464; PMCID: PMC7144393.
- Xu W, Wang M, Cui G, Li L, Jiao D, Yao B, Xu K, Chen Y, Long M, Yang S, He J. Astaxanthin Protects OTA-Induced Lung Injury in Mice through the Nrf2/NF-kB Pathway. *Toxins (Basel).* 2019 Sep 17;11(9):540. doi: 10.3390/toxins11090540. PMID: 31533259; PMCID: PMC6784241.