

LymphGenic

Lymphatic, Glymphatic & Kidney Support

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Lymphatic, Glymphatic, & Kidney Support

Formulated to aid downstream toxin removal by promoting drainage via the glymphatic, lymphatic, and renal systems through healthy expression of *FLT4*, *VEGF*, and *AQP4* genes.



Detox



Brain



Immunity



Whole Body

Health Indications

- Support Lymphatic and Glymphatic Systems
- Encourage Proper Drainage
- Promote Detoxification
- Enhance Immune Function
- Protect Kidney and Liver Health
- Improve Circulation
- Prevent Unchecked Oxidative Stress
- Reduce Inflammation
- Mitigate Swelling and Fluid Buildup

Instructions For Use

For therapeutic results take 2 capsules daily, or as directed by your practitioner.

**Individual needs may vary; please consult your practitioner before altering the prescribed doses or protocols.

Product Description

The lymphatic system is a specialized network of vessels, organs, and tissues that plays a crucial role in maintaining fluid balance within the body. Additionally, it serves as a vigilant defender against infections by screening the body for potential threats, such as pathogenic microbes or cancer cells, and initiating appropriate immune responses. This function is primarily facilitated by the directed flow of fluids.

While blood contains red and white blood cells, the majority of its volume is made up of a clear, amber-colored fluid known as plasma. As blood circulates, delivering oxygen and nutrients to cells, some plasma remains in the tissues. Excess plasma, along with damaged cells, pathogens, cancer cells, and other waste products, is absorbed by lymphatic capillaries, forming lymph fluid. This lymph fluid is then transported through lymphatic vessels and eventually rejoins the circulatory system via major blood vessels in the chest. Subsequently, the liver and kidneys filter out waste from the blood for excretion from the body.



During its journey, lymph fluid passes through small structures known as lymph nodes. These nodes play a crucial role in filtering lymph, enabling the body to identify and mount immune responses against bacterial, viral, fungal, and parasitic infections, or cancer cells. Other organs contributing to the immune function of the lymphatic system include the spleen, which filters out dead or dysfunctional blood cells; the bone marrow, which is responsible for producing new red and white blood cells, including lymphocytes; and mucosa-associated lymphoid tissue (MALT), such as the tonsils and adenoids, which serve as the body's initial defense against pathogens entering through ingestion or inhalation.¹

A specialized component of the lymphatic system, known as the glymphatic system, has recently been identified and is exclusive to the central nervous system. It serves the same functions as the rest of the lymphatic system, but is uniquely adapted to the sensitive and complex environment of the brain and the blood-brain barrier.² Despite its significance, the lymphatic system is often underappreciated for its role in numerous bodily functions. With increasing exposure to environmental toxins, emerging infections, and rising cancer rates, supporting the entire lymphatic system is more crucial than ever.

LymphGenic offers a blend of research-backed ingredients designed to naturally support both the lymphatic and glymphatic systems. These ingredients aid in removing excess fluids, waste, and toxins from the body. Furthermore, since the waste processed by the lymphatic system is ultimately excreted by the kidneys and liver, LymphGenic's ingredients also aim to protect these organs from the chronic stress of exposure to harmful compounds. In a world where exposure to toxins and infections feels increasingly unavoidable, LymphGenic stands as a premier choice for promoting healthy cellular and lymphatic drainage, enhancing immune response, and facilitating detoxification.



Key Elements and Features of LymphGenic

Supports Lymphatic and Glymphatic Systems

Ensuring an optimized , healthy lymphatic and glymphatic system is critical for whole-body health. These systems are often overlooked, yet they play crucial roles in stabilizing fluid levels, removing waste, and facilitating the distribution of immune cells. Supporting these drainage systems helps prevent inflammation, swelling, waste buildup, and immune dysfunction.

Improves Circulation

The lymphatic system works closely with the circulatory system to maintain proper blood volume and fluid levels. By supporting the health and function of the lymphatic system, the circulatory system won't have to overcompensate, thus preventing a cascade of issues.

Enhances Immune Function

ImmuneGenic contains crucial and necessary cofactors that many supplement companies refuse to include due to their expense. Overuse of vitamin D3 without concurrent supplementation of vitamin K2 can result in a decline in heart and bone health.

Encourages Drainage and Detox

The lymphatic and glymphatic systems serve as the frontline systems for proper drainage, absorbing toxic waste products and other unnecessary compounds from tissues, and transporting them to our excretory organs to effectively eliminate these unwanted toxins from the body. Ensuring the proper maintenance of these systems is paramount to systemic cellular health.

Protects Kidney and Liver

The lymphatic system collaborates with the kidneys and liver to facilitate efficient detoxification and toxin removal. By reducing oxidative stress and inflammation in these organs and tissues, it supports their interconnected functioning and safeguards the overall health of the body.



Gene Spotlight

LymphGenic enhances the expression of key genes related to the lymphatic and glymphatic systems through its nutrigenomic components. By carefully selecting high-quality ingredients known to support these genes, this formula facilitates targeted and effective lymphatic drainage.

Genetic Interactions

***FLT4* (FMS Related Receptor Tyrosine Kinase 4) Gene**

The *FLT4* gene codes for a protein known as the vascular endothelial growth factor receptor 3 (VEGFR-3). VEGFR-3 is heavily involved in the development and maintenance of the lymphatic system by facilitating the replacement of old or damaged cells lining its vessels. Mutations in this gene can impair the lymphatic system's ability to maintain tissue integrity, leading to poor lymphatic drainage and accumulation of interstitial fluid. This accumulation can lead to swelling and overall cellular dysfunction.^{3,4}

***VEGF* (Vascular Endothelial Growth Factor) Gene**

The *VEGF* gene encodes a protein involved in the formation of new blood and lymphatic vessels, including vessel valves, and regulates the permeability of these vessels. Mutations in this gene can lead to leakage of lymphatic fluid, causing symptoms such as swelling, pain, infections, kidney issues and more.⁵

***AQP4* (Aquaporin 4) Gene**

The *AQP4* gene codes for a protein called aquaporin-4, which controls the flow of water between cells. It is the most abundant water transport protein in the brain and is critical for proper management of the glymphatic system. Mutations in this gene can disrupt the balance of water and essential molecules, leading to ineffective clearance of waste from the brain's delicate tissues.^{4,6}

GJC2 (Gap Junction Protein Gamma 2) Gene

Gap junction genes code for a family of proteins that facilitate and regulate the passage of fluid, ions, and other molecules between adjacent cells. These proteins are essential for maintaining the integrity of vessels and tissues to prevent fluid and ion imbalances. Compromised gap junction proteins can lead to swelling, inflammation, infections, and more.^{4,7}

How LymphGenic Works

LymphGenic functions through its unique blend of cellular ingredients to influence key genes that are involved in lymphatic drainage, cellular defense, and detoxification. By using this nutrigenomic approach, LymphGenic promotes healthy gene expression by incorporating safe, natural ingredients that are rich in the essential nutrients that are often lacking in modern diets. This supports the body's natural mechanisms in maintaining optimal health.



Key Ingredients

Vitamin B6 (Pyridoxal 5'-Phosphate)

Low levels of vitamin B6 has been associated with kidney damage due to oxidative stress harming the delicate tissues of the kidney. Research has shown that vitamin B6 supplementation can help to boost the immune system by enhancing the production of lymphocytes, aiding in recovery from infection and illness. Cutting-edge research suggests that low levels of vitamin B6 may also contribute to the dysfunction of the lymphatic system through alterations in the AQP4 protein.⁸⁻¹⁰

Resveratrol

Resveratrol is a potent, naturally occurring polyphenol found in plants such as red grapes, renowned for its robust anti-inflammatory, antioxidant, and blood pressure benefits. It can be absorbed into the bloodstream and lymphatic system, helping reduce inflammation throughout the body. Additionally, studies show that it may reduce inflammation in the brain and encourage lymphatic clearance of harmful substances like amyloids.¹¹

Ginger Root (Ext)

Ginger root has a rich history of being used in traditional medicine spanning thousands of years, and recent research has shed light on its mechanisms of action. While being known for its strong anti-inflammatory and antioxidant effects, ginger has also demonstrated the ability to reduce blood pressure and improve circulation by relaxing blood vessels through vasodilation. This relaxation of vessels, coupled with its anti-inflammatory properties, encourages the lymphatic system to regulate fluid levels effectively and modulate the immune system. By promoting proper lymphatic drainage, ginger may help to reduce swelling and puffiness, and improve the efficiency of clearing away harmful byproducts produced by the body's natural reactions.¹²

Alpha-Lipoic Acid

Alpha-lipoic acid is a compound naturally produced in plants and animals, especially in the mitochondria, to help combat oxidative stress caused by the accumulation of reactive oxygen species. Research has shown that supplementation of alpha-lipoic acid protects the spleen, a critical component of the lymphatic system, from damage caused by oxidative stress, toxins produced by pathogenic bacteria, and inflammation resulting from infection or immune dysregulation. Additionally, it is reported that alpha-lipoic acid may help regulate the expression of the *VEGF* gene to combat damage to the body caused by metabolic dysfunction.^{13,14}

Dandelion Root (Ext)

Dandelion is a plant that contains the important flavonoid quercetin, which has recently been the focus of scientific inquiry due to its numerous health benefits that come from its antioxidant, anti-inflammatory, cardiovascular protective, and anticancer properties. Quercetin can be absorbed from the gastrointestinal tract into the lymphatic system, where it is believed to help protect the body from excessive inflammation and the spread of cancer cells.^{15,16}

Astragalus (Ext)

Astragalus membranaceus is a plant native to northeastern Asia renowned for its powerful immunomodulatory effects. Upon absorption from the gastrointestinal tract, it enters the lymphatic system, where it interacts directly with immune cells and key components of the immune and lymphatic systems, including lymph nodes, spleen, and bone marrow. *Astragalus* supports the healthy production and function of various immune cells, facilitating an appropriate response to infection, clearance of aged immune cells, and prevention of an overly reactive immune system.^{17,18}

Reishi Mushroom

Also known as *Ganoderma lucidum*, Reishi mushroom has been a staple in traditional Asian medicine for centuries. In recent years, it has garnered broader scientific attention for its reported health benefits, including boosting the immune system, improving sleep, and modulating glucose and lipid blood levels. Studies have also shown its protective effects against kidney injury caused by chronic conditions or toxin exposure. Given the interconnected functions of the kidneys and the lymphatic system in maintaining fluid and ion balance in the body, these findings are particularly noteworthy.^{19–21} Additionally, the polysaccharides found in Reishi mushroom have demonstrated the ability to increase *AQP4* gene expression, which is extremely important for optimal lymphatic system functionality.^{22,23}

Warnings/Contraindications

When used as directed there are no known contraindications for LymphGenic.

******It is always recommended that you consult your practitioner prior to adding any new supplement to your regimen if you are pregnant, breastfeeding, experiencing renal failure, undergoing an organ transplant(s), managing diabetes with insulin, or are taking medication(s) for any pre-existing conditions. ******

Safety

All ingredients are tested before use for:

- Pathogenic microbial contaminants
- Heavy metals and/or chemical contaminants
- Purity

Additional Information

- Gluten Free
- Dairy Free
- Vegan
- No Sugar
- Non-GMO
- cGMP Facility



References

1. *What Does the Lymphatic System Do? Learn Its Function & How It Works*. Cleveland Clinic. <https://my.clevelandclinic.org/health/body/21199-lymphatic-system> (accessed 2024-04-03).
2. *Glymphatic System – Lab Focuses – Nedergaard Lab – University of Rochester Medical Center*. <https://www.urmc.rochester.edu/labs/nedergaard/projects/glymphatic-system.aspx> (accessed 2024-04-03).
3. *FLT4 gene: MedlinePlus Genetics*. <https://medlineplus.gov/genetics/gene/flt4/> (accessed 2024-03-21).
4. Brouillard, P.; Boon, L.; Vikkula, M. Genetics of Lymphatic Anomalies. *J. Clin. Invest.* **2014**, *124* (3), 898–904. <https://doi.org/10.1172/JCI71614>.
5. Rauniyar, K.; Jha, S. K.; Jeltsch, M. Biology of Vascular Endothelial Growth Factor C in the Morphogenesis of Lymphatic Vessels. *Front. Bioeng. Biotechnol.* **2018**, *6*. <https://doi.org/10.3389/fbioe.2018.00007>.
6. Silva, I.; Silva, J.; Ferreira, R.; Trigo, D. Glymphatic System, AQP4, and Their Implications in Alzheimer's Disease. *Neurol. Res. Pract.* **2021**, *3* (1), 5. <https://doi.org/10.1186/s42466-021-00102-7>.
7. *GJC2 gene: MedlinePlus Genetics*. <https://medlineplus.gov/genetics/gene/gjc2/> (accessed 2024-03-27).
8. Chen, C.-H.; Yang, W.-C.; Hsiao, Y.-H.; Huang, S.-C.; Huang, Y.-C. High Homocysteine, Low Vitamin B-6, and Increased Oxidative Stress Are Independently Associated with the Risk of Chronic Kidney Disease. *Nutrition* **2016**, *32* (2), 236–241. <https://doi.org/10.1016/j.nut.2015.08.016>.

9. Cheng, C.-H.; Chang, S.-J.; Lee, B.-J.; Lin, K.-L.; Huang, Y.-C. Vitamin B6 Supplementation Increases Immune Responses in Critically Ill Patients. *Eur. J. Clin. Nutr.* **2006**, *60* (10), 1207–1213. <https://doi.org/10.1038/sj.ejcn.1602439>.
10. Price, B. R.; Norris, C. M.; Sompol, P.; Wilcock, D. M. An Emerging Role of Astrocytes in Vascular Contributions to Cognitive Impairment and Dementia. *J. Neurochem.* **2018**, *144* (5), 644–650. <https://doi.org/10.1111/jnc.14273>.
11. Amontree, M.; Nelson, M.; Stefansson, L.; Pak, D.; Maguire-Zeiss, K.; Turner, R. S.; Conant, K. Resveratrol Differentially Affects MMP-9 Release from Neurons and Glia; Implications for Therapeutic Efficacy. *J. Neurochem.* **2023**. <https://doi.org/10.1111/jnc.16031>.
12. Wu, H.-C.; Horng, C.-T.; Tsai, S.-C.; Lee, Y.-L.; Hsu, S.-C.; Tsai, Y.-J.; Tsai, F.-J.; Chiang, J.-H.; Kuo, D.-H.; Yang, J.-S. Relaxant and Vasoprotective Effects of Ginger Extracts on Porcine Coronary Arteries. *Int. J. Mol. Med.* **2018**, *41* (4), 2420–2428. <https://doi.org/10.3892/ijmm.2018.3380>.
13. El-Shenawy, N. S.; Hamza, R. Z.; Khaled, H. E. Protective Effect of α -Lipoic Acid against Spleen Toxicity of Dimethylnitrosamine in Male Mice: Antioxidant and Ultrastructure Approaches. *Biomed. Pharmacother.* **2017**, *96*, 459–465. <https://doi.org/10.1016/j.biopha.2017.10.010>.
14. Dworacka, M.; Chukanova, G.; Iskakova, S.; Kurmambayev, Y.; Wesółowska, A.; Frycz, B. A.; Jagodziński, P. P.; Dworacki, G. New Arguments for Beneficial Effects of Alpha-Lipoic Acid on the Cardiovascular System in the Course of Type 2 Diabetes. *Eur. J. Pharm. Sci.* **2018**, *117*, 41–47. <https://doi.org/10.1016/j.ejps.2018.02.009>.
15. Fan, M.; Zhang, X.; Song, H.; Zhang, Y. Dandelion (*Taraxacum* Genus): A Review of Chemical Constituents and Pharmacological Effects. *Molecules* **2023**, *28* (13), 5022. <https://doi.org/10.3390/molecules28135022>.

16. Pinheiro, R. G. R.; Pinheiro, M.; Neves, A. R. Nanotechnology Innovations to Enhance the Therapeutic Efficacy of Quercetin. *Nanomaterials* **2021**, *11* (10), 2658.
<https://doi.org/10.3390/nano11102658>.
17. Li, C.; Liu, Y.; Zhang, Y.; Li, J.; Lai, J. Astragalus Polysaccharide: A Review of Its Immunomodulatory Effect. *Arch. Pharm. Res.* **2022**, *45* (6), 367–389.
<https://doi.org/10.1007/s12272-022-01393-3>.
18. Zhang, Q.; Li, L.; Hao, S.; Liu, M.; Huo, C.; Wu, J.; Liu, H.; Bao, W.; Zheng, H.; Li, Z.; Cheng, H.; Fung, H.; Wong, T.; Leung, P.; Wang, S.; Li, T.; Zhang, G.; Li, M.; Zhao, Z.; Jia, W.; Bian, Z.; Mitchison, T.; Zhang, J.; Lyu, A.; Han, Q.; Sun, H. A Lymphatic Route for a Hyperbranched Heteroglycan from Radix Astragali to Trigger Immune Responses after Oral Dosing. *Carbohydr. Polym.* **2022**, *292*, 119653.
<https://doi.org/10.1016/j.carbpol.2022.119653>.
19. Abdullah, B. A.; Sarhat, E. R.; Owain, M. S. *Effect of Ganoderma lucidum supplement on kidney function markers and histology in albino rats given hydrogen peroxide in drinking water for 30 days*. CABI Databases.
<https://www.cabidigitallibrary.org/doi/full/10.5555/20193186104> (accessed 2024-03-28).
20. Nadar, R. M.; Deruiter, J.; Pathak, S.; Kadannagari, S.; Dhingra, J.; Pondugula, S.; Moore, T.; Agrawal, D. C.; Dhanasekaran, M. Nephroprotective Effects of Four Ganoderma Species. In *Mushrooms with Therapeutic Potentials: Recent Advances in Research and Development*; Agrawal, D. C., Dhanasekaran, M., Eds.; Springer Nature: Singapore, 2023; pp 425–440. https://doi.org/10.1007/978-981-19-9550-7_15.
21. Geng, X.; Zhong, D.; Su, L.; Lin, Z.; Yang, B. Preventive and Therapeutic Effect of *Ganoderma Lucidum* on Kidney Injuries and Diseases. In *Advances in Pharmacology*; Du, G., Ed.; Pharmacological Advances in Natural Product Drug Discovery; Academic Press, 2020; Vol. 87, pp 257–276. <https://doi.org/10.1016/bs.apha.2019.10.003>.

22. Wu, M.; Huang, B.; Hu, L.; Zhang, T.; Zhang, B.; Zhao, X.; Lu, R.; Xiong, W.; Zhang, S.; Li, J.; Chen, D.; Yang, B.; Li, G.; Ran, J. Ganoderma Lucidum Polysaccharides Ameliorates D-Galactose-Induced Aging Salivary Secretion Disorders by Upregulating the Rhythm and Aquaporins. *Exp. Gerontol.* **2023**, *175*, 112147. <https://doi.org/10.1016/j.exger.2023.112147>.
23. Mader, S.; Brimberg, L. Aquaporin-4 Water Channel in the Brain and Its Implication for Health and Disease. *Cells* **2019**, *8* (2), 90. <https://doi.org/10.3390/cells8020090>.