



Glutathione Liposomal GSH_{500MG}

Areas of Research

Asthma COPD, Lungs
Cellular Antioxidant (Intra and Extracellular)
Viral Inactivation
Blood Brain Barrier
Nervous System Antioxidant
Immune Regulation
Chronic Fatigue
Head Injury
Sulfation- Methylation

Glutathione (L-gamma-glutamyl-L-cysteinylglycine, GSH), is a vital intra- and extracellular protective antioxidant. The intracellular GSH redox homeostasis is strictly regulated to govern cell metabolism and protect cells against oxidative stress. Growing evidence has suggested that cellular oxidative processes have a fundamental role in inflammation through the activation of stress kinases. The critical balance between the induction of pro-inflammatory mediators and antioxidant genes and the regulation of the levels of GSH in response to oxidative stress at the site of inflammation is not known. Knowledge of the mechanisms of redox GSH regulation and gene transcription in inflammation could lead to the development of novel therapies based on the pharmacological manipulation of the production of this important antioxidant in inflammation and injury.

Inflammatory lung diseases are characterized by chronic inflammation and oxidant/antioxidant imbalance, a major cause of cell damage. Alterations in alveolar and lung GSH metabolism are widely recognized as a central feature of many inflammatory lung diseases such as idiopathic pulmonary fibrosis, acute respiratory distress syndrome, cystic fibrosis and asthma. The development of an oxidant/antioxidant imbalance in lung inflammation may activate redox-sensitive transcription factors such as nuclear factor-KB, and activator protein-1 (AP-1), which regulate the genes for pro-inflammatory mediators and protective antioxidant genes. Glutathione (GSH), a ubiquitous tripeptide thiol, is a vital intra- and extracellular protective antioxidant against oxidative stresses, which plays a key role in the control of pro-inflammatory processes in the lungs. Recent findings have suggested that GSH is important in immune modulation, remodeling of the extracellular matrix, apoptosis and mitochondrial respiration. The imbalance and/or genetic variation in antioxidant gamma-GCS and pro-inflammatory versus antioxidant genes in response to oxidative stress and inflammation in some individuals may render them more susceptible to lung inflammation.

Glutathione and Liposomal Technology

The blood-brain barrier (BBB) represents a major obstacle for the delivery and development of drugs curing brain pathologies. However, this biological barrier presents numerous endogenous specialized transport systems that can be exploited by engineered nanoparticles to enable drug delivery to the brain. In particular, conjugation of glutathione (GSH) onto liposomes showed to safely enhance delivery of encapsulated drugs to the brain. Yet, understanding of the mechanism of action remains limited and full mechanistic understanding will aid in the further optimization of the technology. In vitro studies show that human cerebral microvascular endothelial (CMEC) cell lines show that liposomal uptake occurs through the process of endocytosis and that the brain-specific uptake is also glutathione conjugation-dependent. Interestingly, the uptake mechanism is an active process that is temperature-, time- and dose-dependent.

Antiviral Action

The role of glutathione (GSH) in the in vitro infection and replication of human herpes simplex virus type 1 (HSV-1) was investigated. Intracellular endogenous GSH levels dramatically decreased in the first 24 h after virus adsorption, starting immediately after virus challenge. The addition of exogenous GSH was not only able to restore its intracellular levels almost up to those found in uninfected cells, but also to inhibit more than 99% the replication of HSV-1.

Immune System Regulation

Glutathione (GSH), a major cellular antioxidant, is considered an inhibitor of the inflammatory response involving reactive oxygen species (ROS). However, evidence is largely based on experiments with exogenously added antioxidants/reducing agents or pro-oxidants. Studies show that depleting macrophages of 99% of GSH does not exacerbate the inflammatory gene expression profiles. Consequently, GSH depletion prevented the LPS-induced activation of antiviral response and its inhibition of influenza virus infection. Some studies have concluded that the main function of endogenous GSH is not to limit inflammation but to fine-tune the innate immune response to infection.



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Reduces Neuronal Death

In 2013, there was a journal published in regard to a study that was done about neuronal death on individuals with severe trauma from concussions. Almost half of the individuals had leakage to the meninges that the original brain scans did not pick it up. Direct contact with Glutathione reduced neuronal death by 67% and decreased reactive oxygen species molecules. The patients were given another fighting chance with this discovery.

Glutathione may be beneficial for memory in older adults and individuals with traumatic brain injury or concussions. It aids in the detoxification of chemicals, herbicides, pesticides and medications. It helps with Chronic Fatigue Syndrome and increases the methylation through the transulfation pathway.

Proprietary Blend:

Purified Water, Non-GMO Sunflower Lecithin, Natural Flavors, Glycerin (from palm kernel), Stevia Leaf Extract (as Glucosylsteviosides), Potassium Sorbate

Cited Sources:

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