



**Did you
know...**

**GliSODin[®]
promotes
the body's
primary
antioxidant
defense
system?***



***GliSODin*[®]**

The Antioxidant Catalyst™

GliSODin – The antioxidant catalyst

If you are like most people, chances are you never knew the human body has its own built-in antioxidant defense system. And that the body's own antioxidants, including SOD, are by far the most important and the fastest acting in protecting us against harmful oxidative stress.

Unfortunately, aging, environmental factors and the stresses of daily life can diminish the levels of these important innate antioxidants. How can we be sure that our internal defense system is going to be ready for whatever life throws our way?

GliSODin is a radically new approach to antioxidant supplementation. Unlike secondary dietary antioxidants, such as vitamins and minerals, GliSODin works as an antioxidant catalyst, promoting the production of the body's own, primary antioxidants at the cellular level.* And human research has proven GliSODin effective in helping to maintain cellular health and protect against damage caused by oxidative stress.^{(1)*}

Let's start at the beginning...

What are Antioxidants?

In the cells of our tissues and organs, metabolic processes constantly occur, including oxygen metabolism. As oxygen and other compounds are broken down to be utilized by the body, molecules become unbalanced, creating "free radicals" or "oxidants."

When free radicals or oxidants are produced in abundance, cells suffer from oxidative stress. Fortunately, compounds called antioxidants quickly balance the free radicals, inhibiting oxidative stress. Cellular health, and our health overall, depends on maintaining this balance.

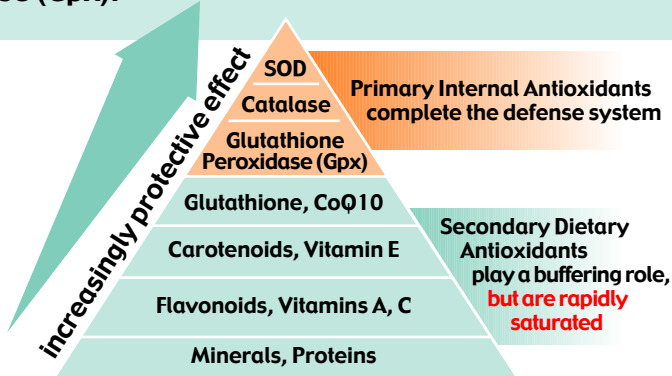
Primary vs. Secondary Antioxidants?

GliSODin works to promote our own antioxidant production at the cellular level.* This internal antioxidant defense system differs from secondary antioxidants that are obtained from dietary sources.

The body's antioxidant supply can be classified into two groups:

- **Primary antioxidants** are made by the body, thus internally provided. This internal antioxidant defense system includes Superoxide Dismutase (SOD), Catalase and Glutathione Peroxidase (Gpx), which are the first, and most powerful, line of defense against oxidative stress.
- **Secondary antioxidants** are externally provided from dietary sources, such as vitamins (vitamins A, C and E), minerals (selenium, zinc, copper and manganese) and other substances, including polyphenols found in grapes and green tea. These dietary antioxidants contribute to the antioxidant reserve, yet play a secondary role to the body's own antioxidants.

GliSODin activates the most powerful antioxidants known, the body's own internal antioxidant defense system, including Superoxide Dismutase (SOD), Catalase and Glutathione Peroxidase (Gpx):



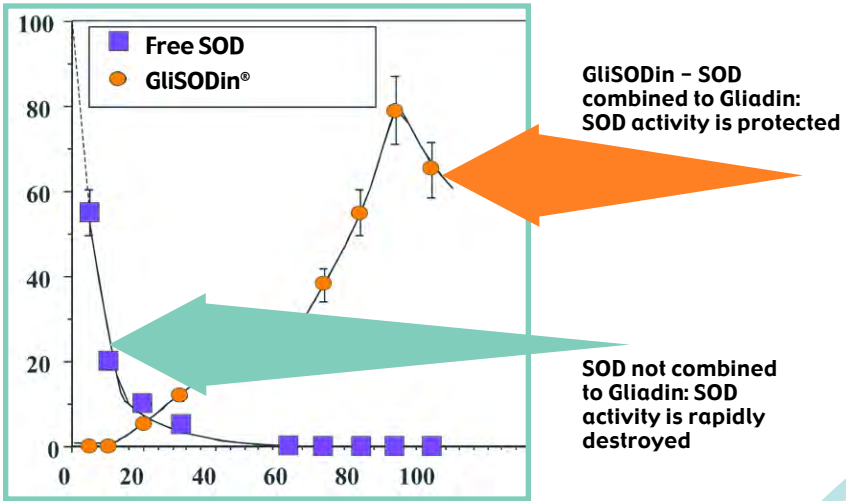
Superoxide Dismutase (SOD)

Among the antioxidants our bodies produce, SOD plays the primary role. SOD transforms the most reactive, and therefore, the most dangerous, free radicals – the superoxide radicals – into ions that are less reactive. These less reactive ions are then transformed by Catalase and Gpx. This transformation is called dismutation, thus its name Superoxide Dismutase. SOD also “signals” other cells to produce more SOD, preparing the antioxidant defense system against free-radical attack.^{(2)*}

GliSODin is the first orally-effective SOD supplement!

SOD can be derived from a number of sources, including wheat, melons, and most commonly from animal (bovine) sources. Yet when SOD from these sources is consumed, it is destroyed in the digestive system by stomach acids and digestive enzymes.

“Digestive medium sampled to measure SOD levels over time”⁽⁵⁾



Using a medium that mimicked the GI tract, scientists sampled SOD levels over time. Free SOD activity was totally destroyed within the first 10 minutes. However, when the SOD was encased in gliadin wheat protein, its enzymatic activity remained intact. The controlled release of SOD was seen after 30 minutes and reached a maximum release between 80 and 100 minutes.⁽⁵⁾

GliSODin's effectiveness is due to the two unique compounds from which its name is derived, Gliadin and SOD. First, GliSODin provides a melon source of SOD. Second, GliSODin is protected by gliadin, a wheat protein that guards SOD during digestion, making GliSODin a completely vegetarian product.

In addition to protecting the SOD, Gliadin is a patented, scientific breakthrough in the delivery of the SOD. Gliadin has bio-adhesive properties that make GliSODin "stick" to the epithelial cells in the small intestine, presenting the SOD for utilization by the body.

In a series of experiments, scientists have demonstrated that the gliadin proteins protect SOD against the acids and digestive enzymes produced in the stomach and intestines, thus promoting internal antioxidant levels.^{(3)*}

Effect of GliSODin supplementation on antioxidant blood levels ⁽³⁾

	Control	GliSODin
Antioxidant Status	1.39 ± 0.03	1.98 ± 0.06
SOD (U/g Hb)	1720 ± 125	3250 ± 255
Gpx (U/g Hb)	800 ± 33	1210 ± 89
Catalase (KU/g Hb)	35 ± 5	95 ± 6

Laboratory research: GliSODin was supplemented for 28 days. Samples were tested for antioxidant levels.

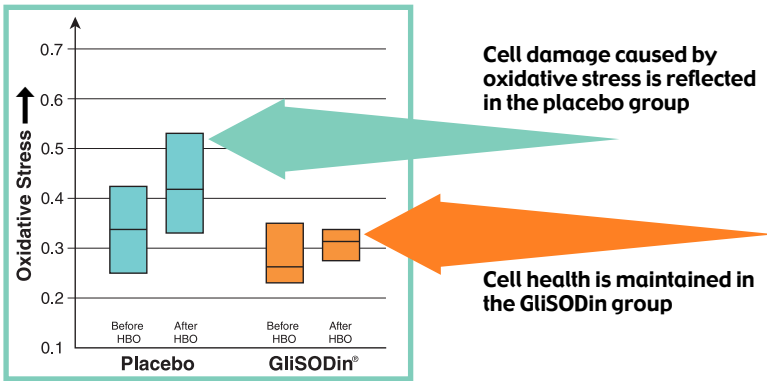
GliSODin, the only orally-effective SOD supplement, is protected by international patents and U.S. patents 6,045,809 and 6,426,068B1, with additional patents pending.

Clinical Research

GliSODin promotes cellular integrity and health by increasing the antioxidant response.^{(2)*} And GliSODin's protective benefits have been demonstrated in human interventional studies*.

GliSODin helps protect against damage caused by cellular oxidative stress*. In a double-blind, placebo-controlled trial, healthy volunteers were given pure oxygen in a hyperbaric chamber (HBO), which increased atmospheric pressure to 2.5 times normal, inducing intense oxidative stress. Cellular integrity was measured before and after to determine the effect of oxidative stress.⁽¹⁾

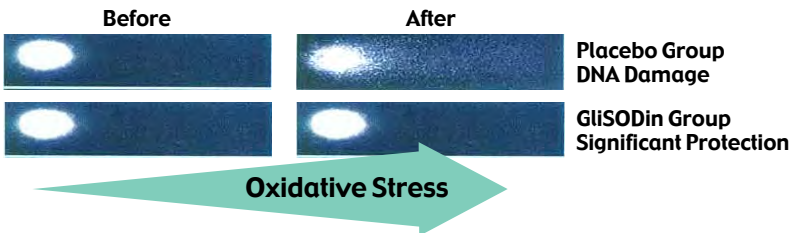
Effect of GliSODin In a human study with induced oxidative stress⁽¹⁾



In this model a hyperbaric chamber creates oxidative stress using pressure and pure oxygen.

One group was given 1000 mg GliSODin once daily for two weeks prior to the test, while the placebo group received 1000 mg of wheat gliadin alone. The GliSODin group had significantly lower cellular DNA damage as evidenced by a test called "Comet Assay." Further, these findings coincided with reduced blood isoprostane levels, another marker of oxidative stress.^{(1)*}

Comet Assay Cell Nucleus Damage



Exercise-Induced Oxidative Stress

Extreme exercise is another model for evaluating the effects of induced oxidative stress. In a compelling study, healthy volunteers supplemented their diets with 1500 mg of GliSODin for four weeks. The participants underwent strenuous exercise before and after GliSODin supplementation, and several markers of oxidative stress were compared. Total blood antioxidant levels, lactic acid accumulation and several other markers were measured for each participant.

GliSODin supplementation resulted in a significant positive change in oxidative status and a significant decrease in exercise-induced lactate release, suggesting that damage-causing oxidative stress was significantly inhibited.^{(4)*}

What about other forms of SOD?

SOD supplements derived from wheat or bovine sources have been evaluated and tested by different scientific teams. Unfortunately, it was shown that the oral administration of SOD was inefficient due to the fragility of this enzyme, which is immediately destroyed by gastric enzymes and acidity. Enteric coating, or coating that protects against stomach acids, are also ineffective. Once the coating is broken down so that the nutrients can be absorbed, the digestive enzymes in the small intestines will destroy the SOD. Further, only gliadin's bioactive properties have been shown to promote SOD utilization*:

What about Gliadin (gluten) allergies?

Gliadin is a wheat biopolymer and is a source of gluten. For this reason, GliSODin is NOT recommended for anyone with wheat or gluten sensitivities. If so, please use as directed by a physician. However, there is less gliadin in 250 mg of GliSODin than in one slice of bread. Additionally, a published study hypothesized that the SOD delivered in the GliSODin complex actually decreased the pro-allergenic effects of gliadin during digestion.^{(5)*} Therefore, for most people, the gliadin content in GliSODin is likely not an issue.

Is GliSODin safe?

GliSODin combines an extract from a variety of non-genetically modified melon (*Cucumis melo*) that is naturally rich in SOD, providing a food-based, vegetable source of SOD. Gliadin is a food-based wheat polymer. GliSODin is well tolerated and is safe for consumption with no chronic or acute toxicity.



The Antioxidant Catalyst™

- Promotes the production of the body's own, natural antioxidants, including Superoxide Dismutase (SOD)*
- Clinically proven to help maintain cellular health and protect against damage caused by oxidative stress*
- Reduces lactic acid build up in humans under physical stress
- Supports healthy immune function *

¹ Muth, et.al., "Influence of an orally effective SOD on hyperbaric, oxygen-related cell damage," Free Radical Research 38:9 (2004), 927-932

² Vouldoukis, et.al., "Antioxidant and anti-inflammatory properties of a *cucumis melo* extract rich in superoxide dismutase activity," J. Ethnopharmacology 94 (2004), 67-75

³ Vouldoukis, et.al., "Supplementation with gliadin-combined plant superoxide dismutase extracts promotes antioxidant defenses and protects against oxidative stress," Phytotherapy Res 2005 (in press)

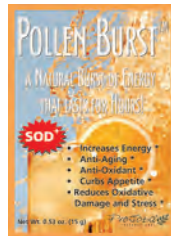
⁴ Y. Kong, et.al., Korea Cancer Center Hospital, "Influence of an orally effective superoxide dismutase (GLISODin)® on strenuous exercise-induced changes of blood antioxidant enzymes and plasma lactate," AACC Poster, Presented July 2004

⁵ Dugas, et.al., "Wheat gliadin promotes the interleukin-4-induced IgE production by normal human peripheral mononuclear cells through a redox-dependent mechanism," Cytokine 21 (2003) 1-11

*These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.

You can find GliSODin® in products like Pollen Burst™ from ProJoba International. Pollen Burst™ is the world's first energy drink containing superoxide dismutase (SOD).

PROJOBA
INTERNATIONAL



For more information, please contact PLT
Phone 973-984-0900 • Fax 973-984-5666

or visit us on the web at:

www.plthomas.com