

Imaging Ends the Controversy: Taking Glutathione Daily Enriches the Body's Own

The Journal of Agricultural and Food Chemistry has published proof that GSH is transported intact across intestinal epithelial cells.

Last August **KOHJIN Life Sciences** of Japan, the world's leading manufacturer of Glutathione (GSH), presented findings to the **American Chemical Society** based on clinical studies conducted by a consortium of university research laboratories. The findings end uncertainty about GSH's bio-accessibility and prove conclusively that humans are not solely consigned to the amount of this important factor that nature allows us throughout life.

What do we know about Glutathione? We know that it's one of the most prevalent substances in mammalian cells, the body's major intracellular non-protein thiol compound, and essential for regulating homeostatic functions. We know that it's the most potent systemic means of protecting cells and tissue structures against oxidation. We know that as the body ages or endures chronic disease, a primary signal of its decline is diminishing levels of GSH.

In short, we know we want GSH present throughout our lives to help preserve health and fight oxidative stress from within and without.

What we have not known until recently was that we can take steps to ensure that the level of Glutathione in the body can be maintained consistently and even increased by daily oral intake, with all the benefits to human health that entails, and despite the toll that seasonal and allergenic illness, pollution, alcohol, and everyday stress take on it. **Orally administered GSH has now been proven to transport intact across intestinal epithelial cells, making it readily available for utilization via blood and the liver.**

The research, conducted by Canada's University of Guelph working with Japan's Kyushu University, not only visualized through MALDI-MS imaging the presence of intact Glutathione in the small intestine after an hour of transport, it also laid to rest certain presumptions about the nature of GSH uptake that had traditionally called into question its bioavailability, and thus its value in defending cell integrity.

Prior studies had failed to show increased serum levels of GSH after ingestion. Some concluded that orally-induced GSH was degraded early on in the system by peptidases into Glutathione precursors such as N-acetylcysteine (NAC) – that this is all that appears at the intestinal epithelial cell surface, and that there is no clear evidence that it holds benefits for healthy adults. The new study demonstrates conclusively, and shows through spectrometric imaging, that GSH is in fact present, that uptake is rapid and not proton-dependent, and that rather than maintaining a configuration of free GSH in plasma, a part of the GSH is converted into GSSG,

which made it difficult to gauge by conventional measurement. In short, **GSH was shown to be present and available intact, once observers were shown where, and how, to look for it.**

On September 8th this important research was accepted for publication in the prestigious *Journal of Agricultural & Food Chemistry*, and is [available for review](#) under the title, “*In Vitro and ex Vivo Uptake of Glutathione (GSH) across the Intestinal Epithelium and Fate of Oral GSH after in Vivo Supplementation*”. (*J. Agric. Food Chem.* 2014, 62, 9499–9506)

The implications of this report and the effect it will have on the health food and nutritional supplementation fields throughout the world are dramatic.

Supplemental Glutathione has been an ingredient in health foods in Japan and elsewhere for decades. Indeed, **KOHJIN Life Sciences** has been the foremost pioneer in studying its benefits for nearly 50 years, and its signature method of refining GSH from Torula yeast has yielded a product unparalleled in quality and consistency, and has garnered the ingredient a raft of international dietary certifications. Yet no matter how strong the confidence shown by the medical community in Glutathione’s nutraceutical benefit, it lacked the support of clinical evidence that regular oral ingestion could increase the volume of useful GSH to the system.

This breakthrough proof opens the way to including food-based GSH in the daily health regimen with confidence, as central to the essential work of detoxifying free radicals and oxygen-reactive species involved in pathogenic disease. For increasingly health-conscious consumers it means reducing the impact of allergens, increasing productivity by aiding resistance against seasonal illness, enhancing the body’s ability to recover from vigorous exercise, and helping all individuals to assume the full, energetic life they envision for themselves. **KOHJIN Life Sciences** is proud to have played a part in bringing this news to light.

