



## *Physician and Scientist Information on the Ultrathione® Brand of Pharmaceutical Grade Glutathione, for Oral Administration*

Ultrathione® is a stabilized, non-toxic highly absorbable pharmaceutical formulation of glutathione, reduced (L-gamma-glutamylcysteinyl glycine).

This should not be confused with ordinary glutathione available from retail venues and the Internet. They are dangerous, and fortunately are poorly absorbed.

Glutathione has an exposed thiol (-SH) group that oxidizes rapidly outside the body. Once it oxidizes it can desulfurate (loses its-SH), leaving behind a highly toxic end-product, ophthalmic acid, and emitting an odor of “rotten eggs”. This can block enzymes and receptors that utilize authentic glutathione. Damage can occur in all tissues including brain, muscles, heart, liver and the Immune System.

Ordinary glutathione has a significant electric charge that precludes its passage across cell membranes. Therefore, it is poorly absorbed, even when given intravenously. It disappears from the blood stream after IV use within 3 minutes, due to rapid renal elimination.

Our Ultrathione® is stable in the capsules, and in humans. It is “charge-neutral” and is well absorbed and rapidly distributed into cells. Following an oral dose of Ultrathione® on a relatively empty stomach, about 80% of the dose is absorbed and inside cells within 90 minutes after ingestion.

Because of its stability, and other special manufacturing technologies, Ultrathione® has proven to be safe, even at multi-gram doses per day. It has been used continuously for as long as two decades, without reported ill effects. The pharmacokinetics, orally, make it unnecessary to use Ultrathione® intravenously. An IV form is in development for emergency medical use in comatose patients.

If there are questions, please visit [www.glutathionescience.com](http://www.glutathionescience.com) and feel free to e-mail any other inquiries: [hdemopoulos@thyogen.com](mailto:hdemopoulos@thyogen.com)

A large informational base is on the [glutathionescience.com](http://glutathionescience.com) website

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