Lipoic Select™ is a professional strength antioxidant formula that provides your patients with high levels of alpha-lipoic acid, along with meaningful amounts of synergistic taurine and biotin.

LIPOIC ACID (LA; alpha-lipoic acid; thioctic acid) is an organosulfur compound that can be produced endogenously in small amounts and is considered a conditionally essential nutrient. Known as the “universal antioxidant” for its solubility in both fat and water mediums, LA is able to scavenge highly reactive compounds in a wide range of body tissues.

Lipoic acid has been researched extensively since the early 1990s for its powerful antioxidant activity and for its roles in energy production and glycation. Early studies focused on the potential usefulness of lipoic acid in helping to prevent downstream complications from diabetes, notably retinopathy. Subsequent human and animal studies have explored additional mechanisms and benefits for LA, including helping to protect against ischemia-reperfusion injury, helping to protect liver, eye and brain cells, helping to induce Phase II detoxification enzymes and helping to preserve and support collagen in the skin. The ability of lipoic acid to function as a redox regulator of proteins such as myoglobin, prolactin, thioredoxin and NF-kappa B transcription factor has been a further subject of investigation.

Lipoic acid plays an essential role in mitochondrial dehydrogenase reactions and, as lipoate, forms a key component of the pyruvate dehydrogenase complex that produces acetyl coenzyme A for use in the Krebs cycle, enabling cellular respiration. Therefore, LA is often included in protocols intended to promote healthy metabolism and energy levels.

(continued on reverse side)
Alpha-lipoic exhibits anti-inflammatory effects and has been suggested to help support cardiovascular health and insulin metabolism. Research suggests that LA may inhibit the expression of sticky, atherosclerosis-promoting cellular adhesion molecules by increasing the activity of endothelial nitric oxide synthase. Lipoic acid has been shown to bind to insulin receptor sites at the tyrosine kinase domain and to enhance glucose uptake in adipocytes and muscle cells, helping to decrease high levels of circulating glucose to support healthy blood sugar balance.

Biotin requirements have been suggested to increase in tandem with LA supplementation because lipoic acid is known to compete with biotin for enzymes involved in macronutrient metabolism and other cellular processes, notably the biotin-dependent carboxylases. Research published in the *Journal of Nutrition*, for example, found that chronic administration of lipoic acid lowered the activities of biotin-dependent pyruvate carboxylase and betamethylcrotonyl-CoA carboxylase. **Lipoic Select™** provides a substantial 5000 mcg of active form D-Biotin to offset this potential effect. Of the eight different isomers in which biotin occurs, only D-Biotin is biologically active.

Taurine is a sulfur-containing amino acid that exhibits antioxidant, anti-inflammatory and anti-glycating activity. Taurine helps reduce the build-up of age-related glycated end products (AGEs) and often is included in nutritional supplements targeting metabolic balance and glycemic control. In a 2013 study, taurine was shown to attenuate chronic inflammation in adipose tissue and to improve obesity-related insulin resistance in mice fed a high fat diet. Taurine is also the most prevalent amino acid in eye and heart tissue, and is an important cardiovascular support nutrient. In a 2012 study published in *Diabetes and Vascular Disease Research*, taurine supplementation at levels of 500 mg tid for two weeks was suggested to reverse early endothelial abnormalities in Type 1 diabetics. Significant levels of L-taurine (600 mg per capsule) provide **Lipoic Select™** with synergistic, sulfur-based antioxidant support.

**REFERENCES**


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