

# Alpha Lipoic CR



## CLINICAL APPLICATIONS

- Neutralizes Oxygen Radicals, Ionized Metals and a variety of other Free Radicals
- Coenzyme for Whole Body Glucose Utilization
- Increases Intracellular Glutathione levels reduced by Aging, Diseases, Moderate/ Strenuous Exercise
- Reduces Oxidative Stress that leads to Diabetic Neuropathy, etc.
- Regenerates Vitamins C&E and maintain balance between Oxidized & Reduced CoQ10

*Alpha Lipoic CR, a potent oxidative stress antagonist, is a proprietary, orally active, controlled-release formulation of racemic  $\alpha$ -lipoic acid (containing both R and S-enantiomers) that has a pharmacokinetic advantage over other alpha lipoic acid formulas. Other brands are cleared from the plasma within two to three hours; whereas, Alpha Lipoic CR remains in the plasma for four to six hours.<sup>[1]</sup>*

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## DISCUSSION

Alpha-Lipoic Acid (ALA) is an eight-carbon disulfide water- and fat-soluble compound that is synthesized in small quantities in the liver and other tissues. Orally, supplementation readily crosses the blood brain barrier after it is absorbed in the small intestine, goes into the portal vein and is distributed via systematic circulation. Once in the tissues ALA can be found inside and outside the cells including inside the mitochondria where it functions naturally as a coenzyme for the oxidation of pyruvate, alpha ketoglutarate and branched-chain amino acids.

Researchers recently identified lipoic acid's mechanisms of action in metabolic syndrome-related conditions. It has a direct binding site at the insulin receptor tyrosine kinase domain giving it potential as a model substance for the development of insulin mimetics. ALA appears to modulate 5' -AMP-activated protein kinase and PPAR-regulated genes, to activate PPAR-alpha and PPAR-gamma and to upregulate expression of PPAR-gamma mRNA and protein in heart tissue and smooth muscle of the aorta.<sup>[2]</sup>

Controlled-release technology improves the efficacy of alpha-lipoic acid in blood sugar management. Data from a 12-week clinical study in patients with type 2 diabetes indicate that supplementation with Alpha Lipoic CR (1200 mg per day, divided doses as add-on therapy with other anti-hyperglycemic medications) results in a significant reduction of plasma fructosamine, along with a trend towards reduced C-peptide, an indication of increased insulin sensitivity.<sup>[3,4]</sup>

Complications of diabetes and decreased insulin sensitivity may be the result of oxidative stress.  $\alpha$  Lipoic acid is a natural antioxidant that effectively neutralizes a variety of free radicals, including oxygen radicals and ionized metals. It increases tissue levels of glutathione, typically reduced in a variety of diseases, with aging and during moderate to strenuous exercise.  $\alpha$  Lipoic acid regenerates vitamins C and E, and helps maintain the proper ratio of reduced to oxidized coenzyme Q10 in the mitochondria. It helps repair oxidized proteins, preventing DNA damage. In addition, alpha lipoic acid has metal-chelating activity.

In Germany, ALA is approved as a drug for diabetic/alcoholic neuropathies and liver disease. A comprehensive review of the clinical studies on ALA in the treatment of diabetic neuropathy has been published.<sup>[5]</sup>

Impairment of endothelial-mediated vasodilation is accepted as a surrogate marker for the eventual development of CVD. The cause may be decreased synthesis, bioavailability or action of nitric oxide (NO). Increased oxidative stress appears to play a significant role in neutralizing or inactivating NO. ALA's antioxidant properties, along with its demonstrated safety and potency qualify it as a prime candidate to evaluate for its ability to improve endothelial dysfunction.<sup>[6]</sup>

The ability of  $\alpha$ -lipoic acid to improve energy metabolism and decrease oxidative stress alludes to its ability to at least partially reverse the decline in mitochondrial function and increase in oxidative stress associated with normal aging.

Biotin has been added because chronic administration of lipoic acid lowers the activities of pyruvate carboxylase and betamethylcrotonyl-CoA carboxylase in vivo by competing with biotin.<sup>[7]</sup>



## Supplement Facts

Serving Size: 1 Tablet  
Servings Per Container: 60

	Amount Per Serving	%Daily Value
Biotin	450 mcg	150%
Alpha-Lipoic Acid (as thioctic acid)	600 mg	**

\*\* Daily Value not established.

**Other Ingredients:** Calcium Phosphate, Croscarmellose Sodium, Magnesium Stearate.\*

\* Derived from non-bovine (vegetable) sources only.

**U.S. Patents:** 6,191,162(B1); 6,197,340(B1); 6,572,888(B2); 7,118,762(B2).

## DOSAGE:

Take one tablet 30 minutes before breakfast and one tablet 30 minutes before dinner.<sup>[8]</sup>

## REFERENCES

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## CAUTION:

Whether taken alone, or in combination with other anti-hyperglycemic medications, Alpha Lipoic CR is well tolerated and does not produce alterations in liver or kidney function. There are some theoretical interactions with medications: please consult an appropriate information source.<sup>[9]</sup>

\*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.



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