

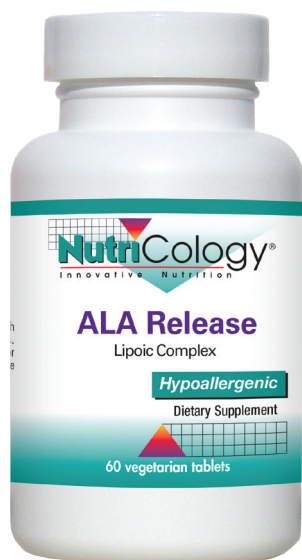
# ALA Release

## Advanced Lipoic Complex

Alpha-lipoic acid (ALA), an important metabolite synthesized in the mitochondria, is soluble in oil or water, and active in both extracellular and intracellular environments. Besides playing a key role in the production of cellular energy, ALA has important antioxidant functions.\* It also helps restore or recycle other antioxidants to their active states, including vitamins C and E, Coenzyme Q10, and glutathione.\*

Because R-lipoic acid is highly unstable and sensitive to heat, **ALA Release** utilizes a proprietary stabilized form of R-lipoic acid.

Biotin is added because long-term administration of alpha-lipoic acid may theoretically increase the need for biotin.\* Biotin may also extend the life of alpha-lipoic acid in the body.\*



#56330  
60 tablets

### Key Features

- Advanced formula with stabilized R-lipoic acid and biotin
- Supports blood sugar regulation, and healthy liver and nerves\*
- Participates in the mitochondrial production of cellular energy\*
- Provides crucial antioxidant activities, and recycles other antioxidants\*



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ALA is used in Europe to support liver health, blood sugar regulation, and the health of the nerves.\* It can enhance glucose uptake, inhibit the abnormal attachment of sugar to protein (glycosylation), and supports the health of nerve tissue, including the promotion of new axon and dendrite growth.\*

ALA protects in general from oxidative stress, and in particular it can help prevent the oxidation of LDL cholesterol.\*

ALA holds promise in the field of healthy aging, as it supports general metabolic and mitochondrial function.\* It may also chelate transition metals.\* ALA has been shown to help protect against cadmium, inhaled hexane, and *Amanita phalloides* mushroom poisoning.\* ALA can cross the blood-brain barrier, and has been shown to increase ATP production.\*

Alpha-lipoic acid can scavenge several reactive oxygen species, including hydroxyl radicals, peroxyxynitrite, hydrogen peroxide, hypochlorite, and singlet oxygen.\* Its reduced metabolite, dihydrolipoic acid (DHLA) can scavenge superoxide and peroxy reactive oxygen species.\* Alpha-lipoic acid is involved in mitochondrial metabolism, facilitating the oxidation of metabolites such as pyruvic acid and alpha-ketoglutarate.\* It also helps the oxidation of the branched-chain amino acids leucine, isoleucine and valine.\*

#### References:

- Al-Majed AA, Gdo AM, Al-Shabanah OA, et al. Alpha-lipoic acid ameliorates myocardial toxicity induced by doxorubicin. *Pharmacol Res* 2002;Dec, 46(6):499-503.
- Ametov AS, Barinov A, Dyck PJ, et al. The sensory symptoms of diabetic polyneuropathy are improved with alpha-lipoic acid: the SYDNEY trial. *Diabetes Care* 2003;Mar, 26(3):770-776.
- Balachandrar AV, Malarkodi KP, Varalakshmi P. Protective role of DL alpha-lipoic acid against adriamycin-induced cardiac lipid peroxidation. *Hum Exp Toxicol* 2003;May, 22(5):249-254.
- Baur A, Harter T, Peukert M, et al. Alpha-lipoic acid is an effective inhibitor of human immunodeficiency virus (HIV-1) replication. *Klin Wochenschr* 1991;69:722-4.
- Bondy SC, Yang YE, Walsh TJ, et al. Dietary modulation of age-related changes in cerebral pro-oxidant status. *Neurochem Int* 2002;Feb, 40(2):123-130.
- Busse E, Zimmer G, Schorppohl B, et al. Influence of alpha-lipoic acid on intracellular glutathione in vitro and in vivo. *Arzneimittelforschung* 1992;42:829-31.
- Chidlow G, Schmidt KG, Wood JP, et al. Alpha-lipoic acid protects the retina against ischemia-reperfusion. *Neuropharmacology* 2002;Nov, 43(6):1015-1025.
- Filina AA, Davydova NG, Endrikhovskii SN, et al. Lipoic acid as a means of metabolic therapy of open-angle glaucoma. *Vestn Oftalmol* 1995;111:6-8.
- Hagen TM, Ingersoll RT, Lykkesfeldt J, et al. (R)-alpha-lipoic acid-supplemented old rats have improved mitochondrial function, decreased oxidative damage, and increased metabolic rate. *FASEB J* 1999; 13:411-418.
- Jacob S, Rius P, Hermann R, et al. Oral administration of RAC-alpha-lipoic acid modulates insulin sensitivity in patients with type-2 diabetes mellitus: a placebo-controlled pilot trial. *Free Radic Biol Med* 1999;27(3-4):309-314.
- Kagan V, Khan S, Swanson C, et al. Antioxidant action of thioctic acid and dihydrolipoic acid. *Free Radic Biol Med* 1990;9:5-15.
- Kagan V, Serbinova E, Packer L. Antioxidant effects of ubiquinones in microsomes and mitochondria are mediated by tocopherol recycling. *Biochem Biophys Res Commun* 1990;169:851-7.
- Lykkesfeldt J, Hagen TM, Vinarsky V, Ames BN. Age-associated decline in ascorbic acid concentration, recycling and biosynthesis in rat hepatocytes-reversal with (R)-alpha-lipoic acid supplementation. *FASEB J* 1998; 12:1183-1189.
- Marangon K, Devaraj S, Tirosch O, et al. Comparison of the effect of alpha-lipoic acid and alpha-tocopherol supplementation on measures of oxidative stress. *Free Rad Biol Med* 1999; 27:1114-1121.
- Natreg CV, Gandhi VM, Melon KKG. Lipoic acid and diabetes: effect of dihydrolipoic acid administration in diabetic rats and rabbits. *J Biosci* 1984; 6:37-46.
- Nichols TW Jr. Alpha-lipoic acid: biological effects and clinical implications. *Altern Med Rev* 1997;2:177-83 [review].
- Nickander KK, McPhee BR, et al. Alpha-lipoic acid: antioxidant potency against lipid peroxidation of neural tissues in vitro and implications for diabetic neuropathy. *Free Rad Biol Med* 1996; 21:631-639.
- Ohmori H, Yamauchi T, Yamamoto I. Augmentation of the antibody response by lipoic acid in mice II. Restoration of the antibody response in immunosuppressed mice. *Japan J Pharmacol* 1986; 42:275-280.
- Packer L, Tritschler HJ, Wessel K. Neuroprotection by the metabolic antioxidant alpha-lipoic acid. *Free Rad Biol Med* 1997; 22:359-378.
- Packer L, Witt EH, Tritschler HJ. Alpha-lipoic acid as a biological antioxidant. *Free Radic Biol Med* 1995;19:227-50 [review].
- Reljanovic M, Reichel G, Rett K, et al. Treatment of diabetic polyneuropathy with the antioxidant thioctic acid (alpha-lipoic acid): a two year multicenter randomized double-blind placebo-controlled trial (ALADIN II). *Alpha Lipoic Acid in Diabetic Neuropathy*. *Free Radic Res* 1999;31(3):171-179.
- Ruhnau KJ, Meissner HP, Finn JR, et al. Effects of 3-week oral treatment with the antioxidant thioctic acid (alpha-lipoic acid) in symptomatic diabetic polyneuropathy. *Diabet Med* 1999;16(12):1040-1043.
- Sachse G, Willms B. Efficacy of thioctic acid in the therapy of peripheral diabetic neuropathy. *Horm Metab Res Suppl* 1980; 9:105-107.
- Schölich H, Murphy ME, Sies H. Antioxidant activity of dihydrolipoate against microsomal lipid peroxidation and its dependence on alpha-tocopherol. *Biochem Biophys Acta* 1989;1001:256-61.
- Tirosch O, Sen CK, Roy S, et al. Neuroprotective effects of alpha-lipoic acid and its positively charged amide analogue. *Free Rad Biol Med* 1999; 26:1418-1426.
- Wagh SS, Natraj CV, Menon KKG. Mode of action of lipoic acid in diabetes. *J Biosci* 1987; 11:59-74.
- Zempleni J, Trusty TA, Mock DM. Lipoic acid reduces the activities of biotin-dependent carboxylases in rat liver. *J Nutr* 1997;127:1776-81.
- Ziegler D, Hanefeld M, Ruhnau KJ, et al. Treatment of symptomatic diabetic peripheral neuropathy with the antioxidant alpha-lipoic acid. A three-week multicenter randomized controlled trial (ALADIN study). *Diabetologia* 1995; 38:1425-1433.
- Ziegler D, Hanefeld M, Ruhnau KJ, et al. Treatment of symptomatic diabetic polyneuropathy with the antioxidant alpha-lipoic acid: a 7-month multicenter randomized controlled trial (ALADIN III Study). *ALADIN III Study Group*. *Alpha-Lipoic Acid in Diabetic Neuropathy*. *Diabetes Care* 1999;22(8):1296-1301.
- Ziegler D, Schatz H, Conrad F, et al. Deutsche Kardiale Autonome Neuropathie. *Diabetes Care* 1997;20(3):369-373.
- Zimmer G, Beikler TK, Schneider M, et al. Dose/response curves of lipoic acid R- and S- forms in the working rat heart during reoxygenation: superiority of the R-entantiomer in the enhancement of aortic flow. *J Mol Cell Cardiol* 1995; 27:1895-1903.

## Supplement Facts

Serving Size 1 Tablet  
Servings Per Container 60

Amount Per Serving	% Daily Value*	
Biotin (as d-Biotin)	1 mg	333%
Calcium (as Calcium hydroxyapatite)	60 mg	5%
Phosphorus (as Calcium hydroxyapatite)	31 mg	2%
Alpha-Lipoic acid (as Thioctic Acid)	270 mg	†
R-Alpha-Lipoic acid (43 mg of R-alpha Lipoic Acid sodium salt)	30 mg	†

† Daily Value not established.

\* Percent Daily Value are based on a 2,000 calorie diet.

Other ingredients: Magnesium stearate, cellulose, magnesium trisilicate, silica, cellulose & glycerin coating, stearic acid, vegetable glaze.

**Suggested Use:** As a dietary supplement, 1 tablet one or two times daily with food, or as directed by a healthcare practitioner.

**Warning:** Alpha-lipoic acid may lower blood glucose levels; those with diabetes or related conditions should monitor blood glucose levels. Pregnant or breast-feeding women, those with thiamine deficiency or thyroid disease, and children should use alpha-lipoic acid only under the supervision of a healthcare professional.