

Stabilized DHHLA

Dihydrolipoic Acid: The Premier Anti-Aging, Free Radical Quencher

- *The King of Antioxidants: Unparalleled Free Radical Protection*
- *The Best DHHLA Form Derived from a "Once Living" Source*

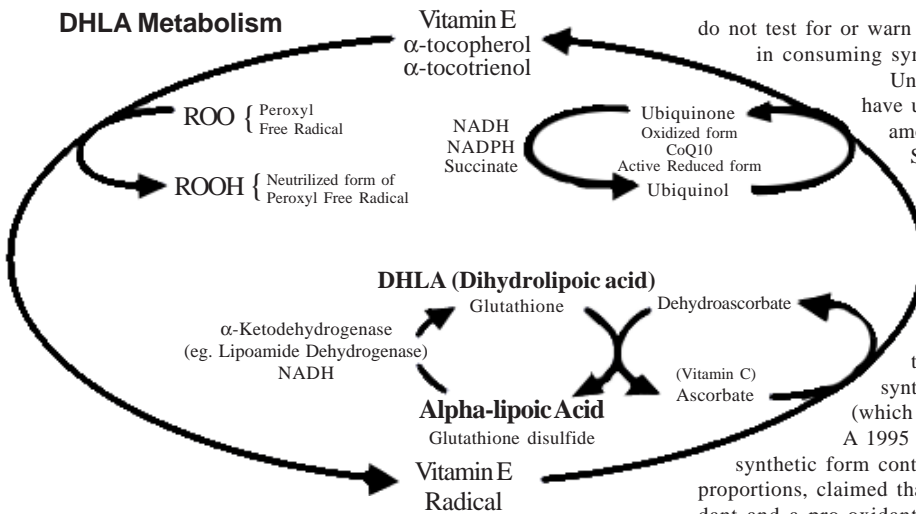
DHHLA: The Spectacular Antioxidant

DHHLA (dihydrolipoic acid) is unique as an antioxidant due to its spectacular effectiveness in quenching *every* known free radical that occurs in living tissue, including both fat and water-soluble tissues. No other antioxidant has this incredible capability. DHHLA is readily absorbed orally and has very low toxicity. It has unequalled potential as a highly effective therapeutic agent in clinical conditions associated with free radical damage such as Parkinson's disease, Alzheimer's disease and other neurodegenerative illnesses.¹

Until recently (2003), DHHLA in a stabilized form was not available. DHHLA could only be obtained indirectly through consuming ALA (alpha lipoic acid) which in turn, was converted by the body into small amounts of DHHLA. However, this process did not deliver a significant or reliable supply of DHHLA. Research studies have attempted to measure the effect of DHHLA on cellular tissue using indirect methods based on ALA consumption. As a result, DHHLA is known to be a powerful electron donor to other compounds. Ascorbic acid and indirectly vitamin E are regenerated by DHHLA.² Busse et. al. found the oxidized form of DHHLA, ALA, increased intracellular glutathione.³ DHHLA was shown to regenerate coenzyme Q10 and NADPH or NADH via glutathione and by this mechanism increased cellular ATP production.⁴ The oxidized form of DHHLA, ALA, also assists in the conversion of pyruvate to acetyl-coenzyme A, the beginning point of the Krebs cycle which produces the high energy molecule ATP.

The Discovery of Stabilized DHHLA

Recently, the world's first stabilized form of DHHLA has been created by Robert J. Marshall, PhD, CCN, of Round Rock, Texas and has been verified by independent laboratory testing. Stabilized DHHLA offers a significant and reliable source of DHHLA, never before available.



do not test for or warn against the long-term problems encountered in consuming synthetically-derived agents.

Unfortunately, most research studies using ALA have used the synthetic form which contains equal amounts of the R and the S racemic forms. The S form occurs only in synthetic-source ALA, never in naturally-derived ALA, and has negative, pro-inflammatory effects. In an attempt to enhance the effectiveness of synthetic ALA, some manufacturers have chemically removed the S-form, thus producing a new form, stand-alone R-lipoic acid. Because synthetically derived ALA contains both R and S forms, studies show that synthetic R-lipoic acid alone is superior to ALA (which contains both R and S forms).

A 1995 research study using DL-alpha-lipoic acid, a synthetic form containing both the R and the S forms in equal proportions, claimed that the resultant DHHLA was both an antioxidant and a pro-oxidant where hydroxyl radicals were generated.⁸ However, new research since the year 2000 has shown the S-form of lipoic acid (which has pro-inflammatory effects) may well be the cause of this pro-oxidant study finding (rather than as an effect of DHHLA).

The highlights of ALA research, including R-lipoic acid and S-lipoic acid, are as follows:

- **Scavenger of Free Radicals.** Lester Packer, PhD, of the University of California at Berkeley, has shown that ALA is a powerful free radical quencher and metal-chelating agent. It helps regenerate other antioxidants and favorably effects gene expression.¹ Experts are in general agreement that ALA can scavenge the hydroxyl radical, hypochlorous acid radical, and singlet oxygen radical, but not the peroxy or superoxide anion free radical.^{1, 5-7}
- **Kidney Protection:** Research by Sandhya et. al. found that ALA protected kidney cells in a dose-dependent manner.⁸
- **Arsenic Protection:** Research has shown that ALA can protect mice from poisoning by an arsenic compound, sodium arsenite an arsenical herbicide, insecticide and rodenticide by a ratio of ALA to arsenite of at least 8:1. The mice were protected even if the administration of ALA was given after onset of severe symptoms of poisoning.⁹
- **Cadmium Protection:** In another study, ALA and the R-lipoic acid were shown more effective than the S-lipoic acid (which occurs only in synthetic ALA) in metal chelation.¹⁰ In isolated hepatocytes (liver cells), ALA reduced cadmium-induced toxicity. However, DHHLA was much more effective than ALA.¹¹ ALA (and therefore DHHLA at least as much or more) was shown to provide signifi-

Synthetic vs. "Once Living" Sources

ALA, R-lipoic acid or DHHLA that are derived from synthetic sources can never match natural-source counterparts in the ability to sustain and repair the DNA of the cell. A natural ("once living") source is comprised of dynamic, complex processes where each molecule contains atoms that have spin-ahead and spin-reverse electrons which have become perfectly aligned and mass-accelerated to allow the atom to become a photon, or in other words, pure light. The photonic field around each molecule creates a "body of light" which surrounds all living substances. Only nutrients derived from a "once living" source are capable of upgrading cellular DNA, according to quantum physics researcher and expert, Dr. Fritz-Albert Popp.³³

On the other hand, synthetic-source nutrients may provide initial cellular benefits, but over time, they act to accelerate the degeneration of DNA, ending in earlier cell death. Synthetic nutrients initially stimulate the cell to accomplish work which may appear to be beneficial, but long-term, the DNA and cellular degradation cannot justify the initial benefits. Consequently, using ALA derived from a synthetic source can defeat the purpose of using an ALA supplement to live longer more healthfully. Not only has a stable form of DHHLA been badly needed, but also a DHHLA source that has been derived from a "once living" source so it is capable of imparting significant, long-term DNA protection and cellular benefits.

Benefits of ALA (Alpha Lipoic Acid)

Research Summary

Many research studies show the spectacular benefits from the use of ALA, even ALA derived from synthetic sources. Although these studies demonstrate many, short-term benefits of synthetic ALA, they

cant liver protection against cadmium toxicity, even under glutathione-depleted experimental conditions.¹² Another study showed ALA completely prevented cadmium-induced lipid peroxidation in the brain, heart and testicles in rats.¹³

- **Mercury Protection:** Further research has demonstrated that ALA removed mercury from renal slices (kidney).¹⁴ ALA was also shown to dramatically increase biliary excretion of injected mercury while decreasing cadmium, zinc, copper and methylmercury excretion.¹⁵
- **Restoration of Metabolism and Mobility:** R-lipoic acid supplementation reversed the age-related, declining ability of rats to respond to increased oxidative stress. The age decline was almost completely reversed on a two-week dietary supplementation of R-lipoic acid.¹⁶ When fed to old rats, R-lipoic acid showed complete reversal of declining levels of glutathione and ascorbic acid in hepatocytes. In addition, the metabolic rate and mobility of the old rats were also restored to that of youthful rats.^{17, 18}
- **Decreased Oxidative Stress in the Heart:** Another study found the aging rat heart is under increased mitochondrial-induced oxidative stress (elevated free radical attack). This oxidative stress in the heart was significantly reduced by R-lipoic acid supplementation.¹⁹
- **Improvement in Type II Diabetes.** Since the year 2000, about 80% of all type II diabetes is now believed to be linked to infection. Type II diabetes is now at epidemic proportions with 900,000 new cases per year in the U.S. The infectious process produces large amounts of free radicals. One marker of free radical damage common to Type II diabetes is AGEs (advanced glycation end products). Glycation of protein can be caused by elevated blood and tissue glucose. Packer and Kawabata²⁰ showed that non-covalent binding of ALA to albumin protects protein from glycation. Other studies using ALA in Type II diabetes have shown improvement in insulin metabolism.^{21, 22} Nerve damage (polyneuropathies) is common in diabetes and has been successfully treated with ALA in Germany for more than 20 years. Findings show that ALA administration yielded excellent results: albuminuria decreased 50%,²³ neuropeptide deficits, nerve blood flow and neurological symptoms all improved.^{24, 25, 26}
- **Glaucoma Improvement:** In one glaucoma study, stage I and II OAG (open-angle glaucoma) patients were assigned to one of 3 groups: no ALA, 75mg or 150mg ALA daily for 2 months. The greatest improvement in visual function, efficacy of liquid discharge and biochemical markers were observed in the group receiving the higher dose of ALA.³⁰
- **Protection Against Cataracts:** Cataracts in diabetics have shown a direct correlation with high levels of aldose reductase, which is inhibited by ALA in the lenses of rats.³¹ Other studies suggest ALA supplementation may be protective against cataract formation by other causes.³²

Benefits of Stabilized DHLA

The above clinical research studies using synthetically-derived ALA had obviously spectacular physiological benefits. However, as has been emphasized earlier, these benefits are not without a price to pay, namely, the eventual degradation of the cellular DNA which occurs during long-term use of synthetic compounds.

Advantages of Natural-Source DHLA: Stabilized DHLA (natural-source) may prove to be one of the most significant antioxidant compounds ever created, since it can accomplish all the feats attributed to ALA and more, but without ALA's negative effects. In fact, some authors believe that the benefits ascribed to ALA are in fact, actually due to the internal generation of DHLA (after ALA consumption). For the very first time, stabilized DHLA is now available that can offer significant and reliable amounts of DHLA, without the need to consume synthetic precursors.

DNA and Nerve Protection: Stabilized DHLA can provide exquisite neuroprotection as well as superior DNA protection and repair, unmatched by any other antioxidant. Studies show that DHLA increases cellular energy and efficiency by increasing ATP. At the same time, DHLA helps regenerate the production of vitamin E, CoQ10, glutathione, NADH and NADPH to provide unparalleled DNA protection. In addition, DHLA has the capacity to induce repair of DNA strand breaks.⁷ For long-term benefits of DHLA, only natural-source DHLA is recommended to avoid the long-term degradation of DNA from synthetically-derived sources.

Arterial and Heart Protection: Research has shown that DHLA can accelerate recovery of the aortic blood flow during reperfusion (resumption of blood flow) and increase ATP synthesis in the rat heart.²⁷ ALA forms were not helpful — only internally generated DHLA was able to reduce the infarct or necrotic tissue size in middle cerebral artery occlusion in mice.²⁸ Wolz et al. believe ALA must be reduced to the DHLA form in order to provide neuroprotection.²⁹ Natural-source, stabilized DHLA (now available) can provide exquisite neuroprotection as well as superior DNA repair and protection without compromise.

DHLA: Safety and Effectiveness

Clinical research by Dr. Robert J. Marshall has shown that the newly available natural-source, stabilized DHLA is both safe and effective for general use, includ-

ing those with chronic illness and neurodegenerative disease. If high dosages (over 300 mg/day) of stabilized DHLA are used, to get maximum benefits the concurrent use of additional nutrients such as nutritional yeast which contains natural-source B vitamins, sulphur-based amino acids and reduced glutathione, is an excellent adjunct.

Brief Clinical Observations. The discoverer and inventor of stabilized DHLA, Dr. Marshall, has observed various immediate, spectacular effects of oral administration of stabilized DHLA in his office.

One 44-year woman presented with a history of bilateral, maxillary sinus infection with extreme pain even to the touch. She had used oral antibiotics for more than a year with no relief and was unable to breathe through her sinuses for at least 10 months. Further, she had begun to experience pain at her liver, chronic fatigue, loose stool and severe brain fog. After only one dose (30 drops) of natural-source, stabilized DHLA, within less than one minute, she remarked, "I can breathe through my nose! My head feels clear for the first time in 10 months."

A 60 year-old male complaining of brain fog, diminished short-term memory and a general sense of malaise remarked that within one day of taking natural-source, stabilized DHLA, literally all his symptoms were gone. He had a renewed sense of mental acuity and a significant improvement in short-term memory.

A medical doctor has remarked that in many clinical cases, natural-source, stabilized DHLA reduced the amount of time and number of nutritional supplements needed to restore healthy nerve function in his patients. It has become one of his most used supplement "aces", especially in neurodegenerative cases.

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