

LE Magazine February 1996

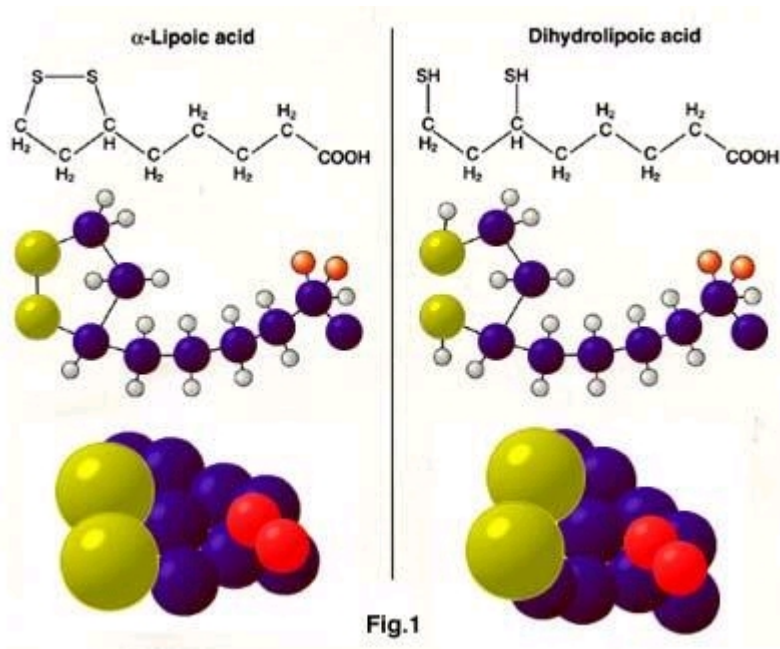
## UPDATE

## Alpha Lipoic Acid

## CRITERIA FOR THE EVALUATION OF ANTIOXIDANTS

One of the leading free radical researchers in the world is Lester Packer, who leads the Membrane Bioenergetics Group and Department of Molecular & Cell Biology at the University of California at Berkeley. Dr. Packer's recent review article entitled "Alpha-Lipoic Acid As A Biological Antioxidant" (in the journal *Free radical Biology & Medicine*--see *Life Extension Abstracts*) presents a compelling case for the "universal" antioxidant properties of alpha lipoic acid.

In his article, Dr. Packer proposes that the following biochemical criteria be considered when evaluating the antioxidant potential of a compound:



- Specificity of free radical quenching
- Metal chelating activity
- Interaction with other antioxidants
- Effects on gene expression

Dr. Packer then presents other important criteria when considering the preventive and therapeutic applications of antioxidant:

- Absorption and bioavailability
- Concentration in tissues, cells, and extracellular fluids
- Locations (in aqueous or membrane domains, or in both)

After presenting these criteria, Dr. Packer makes it clear that an antioxidant need only meet a few of them to play an important role in the body.

*"A substance need not excel in meeting all the criteria to be considered a good antioxidant. For example, Vitamin E acts only in the membrane or lipid domains, its dominant action is to quench lipid peroxy, and it has little or no activity against radicals in the aqueous phase, yet it is considered one of the central antioxidants of the body. Epidemiological studies are confirming its role in the prevention of numerous oxidant related diseases, such as heart disease".*

This is also true with regard to betacarotene, which has a specialized role (the quenching of singlet oxygen radicals) in the body, The long awaited findings of a long awaited findings of a long term study of the role of beta carotene in the prevention of age related diseases will show that subjects who took high levels of beta carotene every other day for 5 years had 50% fewer coronary or vascular events than subjects not taking beta carotene, and that the subjects taking beta carotene developed only a small fraction of the cancers developed in the control group. We'll be reporting the extraordinary details of these findings in *Life Extension Magazine* as soon as they are published.

#### Dr. Packer's Conclusions About Alpha Lipoic Acid

After reviewing hundreds of studies dealing with the antioxidant properties of alpha lipoic acid, Dr. Packer came to the following conclusions:

*"An 'ideal' antioxidant would fulfill all of the above criteria. The alpha lipoic redox couple approaches the ideal; it has been called the 'universal antioxidant'. Alpha lipoic acid is readily absorbed from the diet. It is rapidly converted to DHLA in many tissues, as recent advances in assay technique have made evident. One or both of the components of the redox couple in both lipid and aqueous domains. Both DHLA and alpha lipoic acid have metal chelating activity. DHLA acts synergetically with other antioxidants, including that it is capable of regenerating other antioxidants from their radical or inactive forms. Finally, there is evidence that they may have effects on regulatory proteins and on genes involved in normal growth and metabolism.*

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Regeneration Of Other Antioxidants

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