

## Mitochondrial Energy Optimizer

### 120 capsules

Item Catalog Number: 01268

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called Mitochondrial Energy Optimizer that protects delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

### GLYCATION AND AGING

As humans age, their proteins become irreversibly damaged by lethal glycation reactions. Glycation is the cross-linking of proteins and sugar to form nonfunctioning structures in the body, which can lead to alterations of normal cell function. Carnosine is not only the premier antiglycating agent, but it also protects neurons against reactive and cytotoxic protein carbonyl species associated with normal aging.<sup>1-5</sup>

The new Mitochondrial Energy Optimizer is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

Unremitting systemic inflammation is involved with virtually every undesirable consequence of aging. Culprits behind chronic inflammatory reactions are pro-inflammatory cytokines, such as interleukin-1 and tumor necrosis factor alpha. *Luteolin* is a super-potent plant extract that has been shown to suppress these dangerous inflammatory cytokines.<sup>6-11</sup>

### GLUCOSE AND FREE RADICALS

*Benfotiamine* blocks multiple destructive biochemical pathways, including advanced glycation end-products' (AGEs) formation pathway, which are induced by higher than desirable blood glucose levels. Human mortality studies indicate that ideal fasting glucose levels are between 74–85 mg/dL. Yet many aging people have fasting glucose above 90 mg/dL, which is less than optimal.<sup>12-14</sup> Benfotiamine can correct endothelial cell defects induced by high glucose. In addition, benfotiamine exhibits direct antioxidative capacity and prevents induction of DNA damage.<sup>15</sup>

Aging results in protein glycation and the formation of AGEs in tissues throughout our body. *Pyridoxamine*, a form of vitamin B6, is an efficient AGE inhibitor — or cross-link breaker — that has been validated to protect the body's aging proteins against carbonyl stress via multiple independent mechanisms.<sup>16-17</sup>

Destructive free radical activity in the mitochondria plays a major role in the loss of cellular vitality. A new microencapsulated Bio-Enhanced™ *R-lipoic acid* facilitates youthful mitochondrial energy output while guarding against **free radicals**. Two forms of lipoic acid are sold on the supplement market, but R-lipoic acid is far more potent.<sup>18-21</sup> The amino acid L-carnitine is required to transport fats into the mitochondria to be burned for cellular energy. *Acetyl-L-carnitine arginate* is a patented form of carnitine that also stimulates the growth of neurites in the brain.

#### References:

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## Supplement Facts

Serving Size 4 capsules

Servings Per Container 30

### Amount Per Serving

Vitamin B6 (as pyridoxamine from pyridoxamine dihydrochloride)	50 mg
Sodium	25 mg
Carnosine	1000 mg
Acetyl-L-carnitine arginate dihydrochloride	750 mg
Benfotiamine	150 mg
R-Lipoic Acid (as microencapsulated Bio-Enhanced™ stabilized NALA® sodium R-lipoate)	150 mg
Luteolin (high purity luteolin as Pureolin™)	8 mg

Other ingredients: magnesium stearate, gelatin, silicon dioxide.

Contains soybeans. This product contains NO milk, egg, fish, peanuts, crustacean shellfish (lobster, crab, shrimp), tree nuts, wheat, yeast, gluten, corn, or rice. Contains NO sugar, and no artificial sweeteners, flavors, colors, or preservatives.

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## Dosage and Use

- Take two capsules twice daily, preferably early in the day or all at once upon waking, or as recommended by a healthcare practitioner.
- This product can be taken with or without food.

## Warnings

- Keep out of reach of children.
- Do not exceed recommended dose.
- Do not purchase if outer seal is broken or damaged.
- If you have a bad reaction to product discontinue use immediately.
- When using nutritional supplements, please consult with your physician if you are undergoing treatment for a medical condition or if you are pregnant or lactating.

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