

Mitochondrial Renewal Kit

Comprehensive Mitochondrial Biogenesis Formula



Discussion

Mitochondria are the organelles inside cells that produce energy. Representing approximately 10% of total body weight, mitochondria have a number of roles in the body. Primarily, they are cellular “fuel stations” responsible for supplying greater than 95% of the body’s energy needs.^[1] Mitochondrial biogenesis is the process by which new mitochondria are produced, and it is believed to delay the effects of aging and the onset of age-associated diseases.^[2-5] This complex process involves more than 1,000 genes^[2] and is responsible for producing 20% of total cellular protein.^[1] Aerobic exercise and caloric restriction are the two most compelling approaches to stimulate mitochondrial biogenesis,^[2,3] most notably by activating the “master regulator” of mitochondrial biogenesis and function known as PGC-1 α , a transcriptional coactivator. Dysregulation of PGC-1 α has been implicated in aging and the pathogenesis of numerous age-associated complications such as poor glucose control, increased fat mass with accompanying decrease in muscle mass, and various neurological conditions.*

PGC-1 α -deficient animals display defects in energy metabolism, glucose disposal, and insulin action. These deficient animals also display reduced resistance to oxidative stress, increased fat mass, decreased muscle mass, impaired exercise performance, and other issues suggestive of an impaired ability to adapt to metabolic and physiological stress.^[6] Conversely, PGC-1 α activation contributes to an increase in metabolic fitness in the form of an increased metabolic rate, improved glucose disposal and insulin function, enhanced fatty acid oxidation, increased resistance to oxidative stress, decreased fat mass, and increased muscle mass and exercise performance.*

The nutrients in the MRK have been clinically tested for their oral bioavailability and also for their safety and efficacy in activating PGC-1 α and upstream cellular signaling cascades. These actions mimic the protective effects of exercise and caloric restriction on mitochondrial

Clinical Applications

- » Promotes Efficient Use of Insulin and Glucose in the Body*
- » Enhances Conversion of Glucose into Usable Energy*
- » Promotes Healthy Aging*
- » Increases Exercise Performance*
- » Promotes Nitric Oxide (NO) Production*
- » Supports Cardiovascular and Endothelial Function*
- » Improves Antioxidant Status and Resistance to Oxidative Stress*

*The XYMOGEN Mitochondrial Renewal Kit (MRK) is formulated to support and promote mitochondrial biogenesis and function. MRK supplies three active, orally bioavailable formulations—N.O.max ER™, Resveratin™ Plus, and ALAmax CR™—which function synergistically to support the critical role that mitochondria play in metabolism. The patented functional components found in the MRK are safe, well-tolerated, and have been uniquely prepared to enhance both absorption and overall bioavailability in order to maximize patient benefit and satisfaction.**

biogenesis, metabolic fitness, and aging. The key signaling cascades affected include those involving nitric oxide (N.O.max ER™), SIRT1 (Resveratin™ Plus), and AMPK (ALAmax CR™). Ultimately, it is the stimulation of these cascades that leads to activation of PGC-1 α and subsequent upregulation of mitochondrial biogenesis and promotion of overall metabolic fitness. For optimal benefit, combine this product with a healthy diet and exercise regimen.*

N.O.max ER™ is a patented, extended-release formulation containing arginine alpha-ketoglutarate and ACTINOS^{2®}, a proprietary whey peptide fraction. This synergistic combination serves as an effective nitric oxide (NO) precursor. As a vasodilator, NO exerts a protective effect on blood vessel endothelium.^[7] Within the cell, NO plays an important role in intracellular communication, acting as a trigger for mitochondrial biogenesis.*^[8]

Resveratin™ Plus provides a distinctive bioflavonoid complex with resveratrol, quercetin, and pterostilbene (bio-optimized methylated resveratrol).^[9] These three antioxidants work together synergistically and are being extensively studied in the areas of cardiovascular health and aging.*

ALAmax CR™ is a multifunctional antioxidant that has the ability to neutralize free radicals in both the aqueous-based and lipid-based environments of cells. In addition, ALAmax CR’s patented, controlled-release formulation provides extended protection^[10] by promoting synthesis of glutathione and “recharging” other important antioxidants such as vitamin C, vitamin E, and coenzyme Q10.*

An independent study of the MRK was performed. A report of the study, written by Dr. Joseph Evans and entitled “A Three-Month, Open-Label Pilot Clinical Study Evaluating the Efficacy of the Mitochondrial Renewal Kit™ on Aerobic Conditioning and Body Composition,” is available through your XYMOGEN Functional Medicine Consultant.*

EXCLUSIVE • PATENTED

*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.

XYMOGEN® Exclusive Professional Formulas

Antioxidants

Blood Sugar Support

Female Health

Male Health

Sports Nutrition

ALMax CR™ Supplement Facts

Serving Size: 1 Tablet

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

** Daily Value not established.

Other Ingredients: Dicalcium phosphate, cellulose and cellulose derivatives, croscarmellose sodium, magnesium stearate, silica, and stearic acid.**PROTECTED BY U.S. PATENTS:** 6,191,162(B1); 6,197,340(B1); 6,572,888(B2); 7,118,762(B2)**Resveratin™ Plus Supplement Facts**

Serving Size: 1 Capsule

	Amount Per Serving	%Daily Value
Quercetin	250 mg	**
trans-Resveratrol (as <i>Polygonum cuspidatum</i> extract)	75 mg	**
trans-Pterostilbene (pTeroPure™ ††)	62.5 mg	**

** Daily Value not established.

Other Ingredients: Rice powder, microcrystalline cellulose, carboxy methylcellulose, silica, stearic acid, and magnesium stearate.

†† pTeroPure™ is a trademark of ChromaDex, Inc.

N.O.max ER™ Supplement Facts

Serving Size: 3 Caplets

	Amount Per Serving	%Daily Value
Arginine <i>alpha</i> -ketoglutarate	1980 mg	**
ACTINOS ^{2B} Whey Peptide Fraction†	150 mg	**

** Daily Value not established.

†Controlled Delivery Formulation

Other Ingredients: Dicalcium phosphate, cellulose and cellulose derivatives, pectin (citric fruit extract), seaweed extract, corn extract, magnesium stearate, silica, and stearic acid.**PROTECTED BY U.S. PATENT:** 6,905,707

UP-REGULATED WITH:



NOS-Enhancing Peptide Fraction

ACTINOS^{2B} is a trademark of Glanbia plc.

DIRECTIONS: Take one to two packets per day, or as directed by your healthcare practitioner. Each packet supplies three N.O.max ER, one Resveratin Plus, and one ALMax CR. Take one packet with 8 oz. water, 30 minutes before breakfast and 30 minutes before lunch.

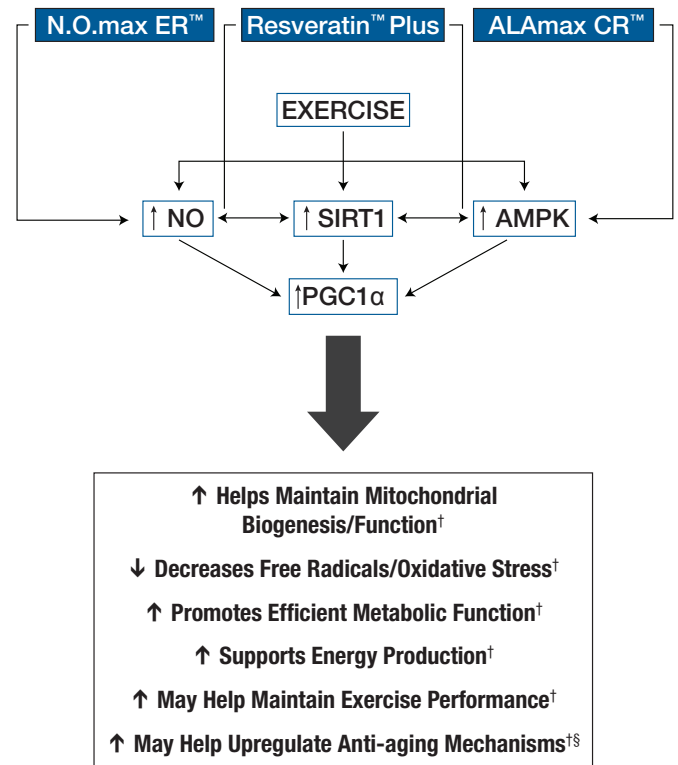
DOES NOT CONTAIN: Wheat, gluten, yeast, soy, animal or dairy products, fish, shellfish, nuts, tree nuts, artificial colors, sweeteners, or preservatives.

CAUTIONS: Consult your healthcare practitioner before use, especially if you have or suspect you have a medical condition, including diabetes or cold sores; if you take prescription drugs or are allergic to any ingredient; or if you are pregnant or lactating. Keep out of reach of children. This product is not intended for use by individuals under 18 years of age.

STORAGE: Store in a cool, dry place.

References

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All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

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