

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 ALAmx™ 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 (ALAmx™ 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.*

ALAmx™ 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, ALAmx 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.*

*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.

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ALAmax™ CR Supplement Facts

Serving Size: 1 Tablet

	Amount Per Serving	%Daily Value
Biotin	450 mcg	1500%
Alpha-Lipoic Acid	600 mg	**

** Daily Value not established.

Other Ingredients: Hydroxypropyl methyl cellulose, microcrystalline cellulose, hydroxypropyl cellulose, dicalcium phosphate, magnesium stearate, silica, and coating (hydroxypropyl methyl cellulose and medium-chain triglycerides).

FORMULATED TO EXCLUDE: Wheat, gluten, corn, yeast, soy, animal and dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.

N.O.max™ ER Supplement Facts

Serving Size: 3 Caplets

	Amount Per Serving	%Daily Value
Arginine <i>alpha</i> -ketoglutarate	1.98 g	**
Whey Peptide Fraction [‡] §1	150 mg	**

** Daily Value not established.

Other Ingredients: Cellulose and cellulose derivatives, stearic acid, magnesium stearate, silica, and glycerin.

Contains: Milk

FORMULATED TO EXCLUDE: Wheat, gluten, corn, yeast, soy, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.

PROTECTED BY U.S. PATENTS: 6,905,707 and 7,579,020.

‡ Controlled Delivery Formulation.

UP-REGULATED WITH:

ACTINOS²

NO₂-Enhancing Peptide Fraction

§1. ACTINOS is a registered trademark of Glanbia plc.

Resveratin™ Plus Supplement Facts

Serving Size: 1 Capsule

	Amount Per Serving	%Daily Value
Quercetin (as quercetin dihydrate)(from <i>Saphora japonica</i>)(bud)	250 mg	**
<i>trans</i> -Resveratrol (as <i>Polygonum cuspidatum</i> root extract)	75 mg	**
<i>trans</i> -Pterostilbene ^{§2}	62.5 mg	**

** Daily Value not established.

Other Ingredients: Capsule (hypromellose and water), microcrystalline cellulose, stearic acid, magnesium stearate, silica, and medium-chain triglyceride oil.

FORMULATED TO EXCLUDE: Wheat, gluten, yeast, soy, animal and dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.preservatives.

§2. pTeroPure® is a trademark of ChromaDex, Inc.

DIRECTIONS: Consume the contents of one packet with 8 oz. water, 30 minutes before breakfast and 30 minutes before lunch, or as directed by your healthcare professional. Each packet supplies (3) N.O.max ER caplets, (1) Resveratin Plus capsule, and (1) ALAmax CR tablet.

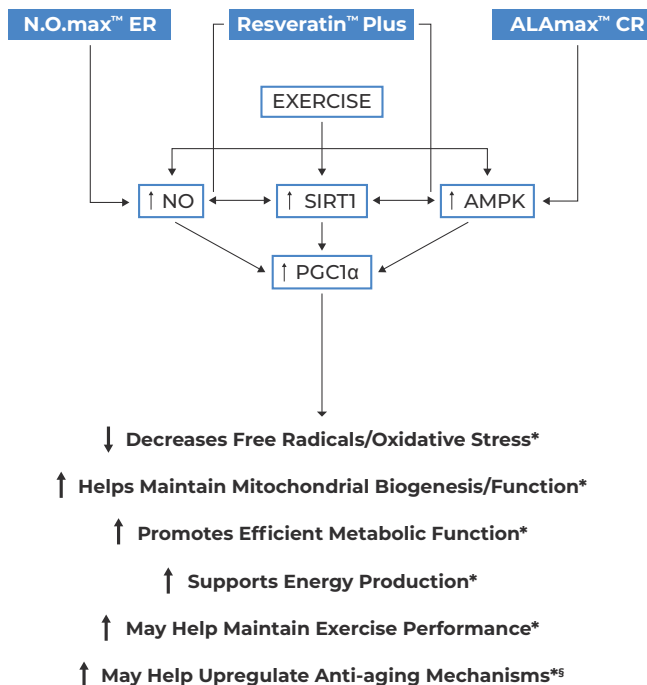
Individuals with a medical condition (including diabetes or cold sores), that are taking prescription drugs, that are pregnant or lactating, or are under the age of 18 should consult their healthcare professional prior to use. Do not use if packet is damaged.

STORAGE: Keep closed in a cool, dry place out of reach of children.

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Additional references available upon request



§ Based on emerging experimental research.



All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

*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.

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