

Research Review: Mito Recharge

Nutritional Support for Healthy Cellular Energy Production*

NutriDyn's Mito Recharge formula contains an innovative mix of ingredients that support energy production in the mitochondria.* As we age, mitochondria function naturally decreases and free radical production increases, which also damages mitochondrial DNA. The body's ability to efficiently produce energy can result in a host of health concerns.

The nutrients in Mito Recharge help organelles efficiently carry out their role in producing adenosine triphosphate (ATP), the energy currency of cells, which help support immune, brain, and heart health.* It is formulated with efficacious amounts of mitochondrial-supporting ingredients called mito-nutrients that have a high antioxidant capacity.*¹

Bruce Ames, Ph.D., originally coined the term mito-nutrients based on years of animal and human research studies.^{2,3} He determined that mito nutrients can have up to four mechanisms of action within mitochondria, including:

1. Promoting mitochondrial enzymatic activity.*
2. Inducing phase II detoxification enzymes to support antioxidant capacity.*
3. Scavenging free radicals and promoting healthy inflammatory markers.*
4. Supporting healthy mitochondrial membranes.*

The carefully selected nutrients in Mito Recharge each fulfill at least one of these mechanisms:

- Alpha-lipoic acid, hydroxytyrosol, sulforaphane, quercetin, resveratrol, and taurine are considered mito-nutrients since they help support the actions of items 1, 3, and 4 of Ames' definition.*^{2,3}
- Acetyl-L-carnitine HCl and green tea catechins from EGCG help support the actions of items 1 and 3 of Ames' definition.*^{2,3}
- Coenzyme Q10 is a primary factor in ATP generation in the electron transport chain allowing it to be defined as a mito nutrient based on action item 1 of Ames' definition.*^{2,3}
- Hydroxytyrosol, sulforaphane, quercetin, resveratrol, taurine, EGCG, N-acetyl-L-cysteine, and alpha-lipoic acid support mitochondria based on item 2 of Ames' definition.*^{2,3}

Additional research findings on the individual ingredients in Mito Recharge further reveal how the nutrients support mitochondria health, such as:

- Taurine, which is found in high concentrations in healthy oxidative tissues, is involved in mitochondrial oxidation supporting healthy antioxidant properties.*^{4,5}
- Low levels of CoQ10 and EGCG are associated with energy-related cell disturbances affecting cardiovascular and brain health.*^{6,7,8} As an integral part of the electron transport

chain which takes place in mitochondria, both CoQ10 and EGCG assist in the synthesis of ATP.*^{6,7,8}

- NAC, ALA, quercetin, and resveratrol promote proper blood flow by supporting healthy nitric oxide function—a molecule that relaxes blood vessels.*^{9,10,11,12} Proper blood flow is imperative for cells to help the body produce energy as blood carries oxygen and nutrients, as well as removes waste products.*
- Bioavailable acetyl-L-carnitine HCl helps transport long-chain fatty acids into the mitochondria for their breakdown to occur, enabling the body to use them for energy.*¹³
- Polyphenolic compounds with high antioxidant capacities like sulforaphane glucosinolate and olive leaf extract may help promote healthy mitochondrial function needed to support heart and brain health.*^{14,15}
- Hydroxytyrosol is the primary bioactive polyphenol in olive oil, with research suggesting it promotes mitochondrial biogenesis through healthy oxidative stress responses.*^{16,17,18}

In addition, the Mito Recharge formula includes pyrroloquinoline quinone (PQQ), known for its ability to promote healthy inflammatory markers, support mitochondrial-related metabolism, and promote mitochondrial biogenesis.*^{19,20} Several clinical studies have shown how supplementation with PQQ promotes mitochondrial health, including:*

- Harris et al. (2013) demonstrated how PQQ supplementation supported healthy mitochondrial-related functions by promoting healthy inflammatory markers in the body.*¹⁹
- Hwang et al. (2020) showed how supplementation with PQQ promoted the antioxidant capacity of PGC-1α protein content of skeletal muscle tissue, which relies upon healthy mitochondrial biogenesis.*²⁰
- Chohanadisai et al. (2010) revealed how the bioactive compounds in PQQ promote mitochondrial biogenesis and support energy utilization.*²¹

Mito Recharge is rounded out with a comprehensive mineral and vitamin profile that supports energy production through the mitochondria.*^{22,23} Kucharská (2008) conducted research showing how vitamins and minerals participate in mitochondrial respiration and energy production such as:

- CoQ10 requires the metabolic functions of B vitamins for its role in mitochondrial oxidation.*²³
- B vitamins play a critical role in metabolic pathways in mitochondrial respiration and energy production.*²³
- Vitamins C, E, niacin, and B6 are effective free radical scavengers and help provide further support for mitochondrial oxidation.*²³

For more information, visit: www.nutridyn.com

Why Use Mito Recharge?

The ingredients in Mito Recharge are congruous with what research suggests to be effective and safe, particularly for promoting cellular health.* Clinical evidence and research cited herein shows that the ingredients in Mito Recharge may:

- Promote healthy mitochondria.*
- Support immune, heart, and brain health.*
- Support blood flow and nitric oxide production.*
- Promote healthy antioxidant status.*
- Support healthy detoxification capacity.*

References:

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* 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.