

# Mito Build



## Clinical Applications

- Supports Emotional Balance\*
- May Help with Chronic Fatigue Syndrome and Fibromyalgia\*
- Supports Increased Energy Levels\*
- Contains Anti-Aging Properties\*
- May Help Those with Type 2 Diabetes\*
- Athletic Performance and Weight Management\*

*Mito Build is designed to help support optimal mitochondrial biogenesis, which not only encompasses the formation of new mitochondria, but is also accompanied by variations in size, number, and mass or density of the mitochondria. Thus, the focus of Mito Build™ is on making new mitochondria and increasing their density (as opposed to strictly supporting mitochondrial function). With an increase in mitochondria density, more ATP is formed, which translates into more energy as well as a greater capacity to burn fat for energy as opposed to storing it as body fat.*

All Absolute Health Formulas Meet or Exceed cGMP Quality Standards

## Discussion

Mito Build is designed to help support optimal mitochondrial biogenesis, which not only encompasses the formation of new mitochondria, but is also accompanied by variations in size, number, and mass or density of the mitochondria. Thus, the focus of Mito Build is on making new mitochondria and increasing their density (as opposed to strictly supporting mitochondrial function). With an increase in mitochondrial density, more ATP is formed, which translates into more energy as well as a greater capacity to burn fat for energy as opposed to storing it as body fat.<sup>1</sup>

**Highlights of Pyrroloquinoline quinone (PQQ)** Mito Build's PQQ is a water-soluble, vitamin-like compound, although not a vitamin itself. While the body cannot make it, it can be found in a variety of foods including parsley, green tea, green peppers, kiwi, and papaya. It is an enzyme cofactor possessing antioxidative, neuroprotective, and cardioprotective properties.<sup>2-6</sup>

**Cardioprotective** Mito Build was shown to reduce myocardial infarct size (site of cardiac muscle death due to blocked blood supply in a heart attack) and protect the mitochondria from resultant oxidative damage.<sup>4</sup>

**Neuroprotective** Mito Build helps to prevent neuron cell death from oxidation and enhances the production of nerve growth factor (NGF), which is important for the growth and maintenance of brain and peripheral nerve cells. NGF is essential for the survival of sympathetic and sensory neurons. Research suggests that Mito Builds involvement with NGF could play a beneficial role in helping to prevent neural diseases in the central and peripheral nervous system.<sup>5</sup>

**Mito Build & Mitochondrial Biogenesis** Mito Build works as a potent antioxidant and encourages mitochondrial biogenesis. This attribute distinguishes it from other anti-aging and energy-stimulating nutrients such as L-carnitine, which works via a transport system, shuttling fat inside the mitochondria where it can be burned as fuel. Mito Build stimulates cell-signaling pathways that can initiate the potential for increased mitochondrial production. It works by influencing the activity of PGC-1, a major protein involved in the regulation of energy metabolism and mitochondrial biogenesis.<sup>3</sup> For this reason, Mito Build may be beneficial in a wide range of conditions associated with mitochondrial dysfunction.

**Rhodiola rosea** Rhodiola rosea is also known as "golden root," is a popular adaptogenic herb, which means it works in the cells to normalize their function and stimulate healing. Adaptogens such as Rhodiola rosea assist the body in adapting to stress, anxiety, and fatigue by helping to support the adrenal glands.

Research shows that Rhodiola rosea is a powerful herb for enhancing mitochondrial energy production. It works by activating the synthesis of ATP in mitochondria and stimulating reparative energy processes.<sup>9</sup> Rhodiola rosea is also a potent antioxidant and helps to defend against oxidative damage to the nervous system, as well as the mitochondria. Like Mito Build, Rhodiola rosea exhibits both neuroprotective and cardioprotective traits. Its effect on the central nervous system mainly stems from its ability to influence and stabilize levels of the neurotransmitters dopamine, serotonin, and norepinephrine in the brain. It also helps to allow serotonin's precursor tryptophan to cross the blood brain barrier.

Rhodiola rosea is cardioprotective in that it works to prevent stress-induced cardiac damage by decreasing myocardial catecholamine levels and reducing adrenal catecholamine release during times of stress.<sup>12-14</sup> These catecholamines are part of the sympathetic nervous system and are the neurotransmitters released by the adrenal glands in response to stress.

\*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.

Absolute Health  
7350 SW 60th Ave., Suite 2  
Ocala, FL 34476  
www.AbsoluteHealthOcala.com

Mito Build



# Supplement Facts

Serving Size 2 capsules  
Servings Per Container 30

Amount Per Serving	% Daily Value
Rhodiola Extract ( <i>Rhodiola rosea</i> )(root) [standardized to contain 3% rosavins and 1% salidroside]	300 mg *
Pyroloquinoline Quinone Disodium Salt (as BioPQQ®)	20 mg *

\*Daily Value not established.

**Other Ingredients:** Microcrystalline cellulose, cellulose (capsule), vegetable stearate.

## Directions

Take two capsules per day, or as directed by your healthcare provider. Do not take close to bedtime, due to potential energizing effect.

Consult your healthcare provider prior to use. Individuals taking blood thinners or other medication should discuss potential interactions with their healthcare practitioner. Do not use if tamper seal is damaged.

## Caution

Possible contraindication with *Rhodiola rosea*—may be too stimulating for anyone with anxiety or panic attacks.



## References

1. Mitochondrial biogenesis and healthy aging. López-Lluch G, Irueta PM, Navas P, de Cabo R. *Exp Gerontol*. 2008 Sep;43(9):813-9. Epub 2008 Jul 9.
2. Pyrroloquinoline quinone modulates mitochondrial quantity and function in mice. Stites T, Storms D, Bauerly K, Mah J, Harris C, Fascetti A, Rogers Q, Tchapanian E, Satre M, Rucker RB. *J Nutr*. 2006 Feb;136(2):390-6.
3. Control of mitochondrial transcription specificity factors (TFB1M and TFB2M) by nuclear respiratory factors (NRF-1 and NRF-2) and PGC-1 family coactivators. Gleyzer N, Vercauteren K, Scarpulla RC. *Mol Cell Biol*. 2005 Feb;25(4):1354-66.
4. Comparison of pyrroloquinoline quinone and/or metoprolol on myocardial infarct size and mitochondrial damage in a rat model of ischemia/reperfusion injury. Zhu BQ, Simonis U, Cecchini G, Zhou HZ, Li L, Teerlink JR, Karlner JS. *J Cardiovasc Pharmacol Ther*. 2006 Jun;11(2):119-28.
5. Stimulation of nerve growth factor production by pyrroloquinoline quinone and its derivatives invitro and in vivo. Yamaguchi K, Sasano A, Urakami T, Tsuji T, Kondo K. *Biosci Biotechnol Biochem*. 1993 Jul;57(7):1231-3.
6. Synthesis of esters of coenzyme PQQ and IPQ, and stimulation of nerve growth factor production. Urakami T, Tanaka A, Yamaguchi K, Tsuji T, Niki E. *Biofactors*. 1995-1996;5(3):139-46.
7. Pyrroloquinoline quinone preserves mitochondrial function and prevents oxidative injury in adult rat cardiac myocytes. Tao R, Karlner JS, Simonis U, Zheng J, Zhang J, Honbo N, Alano CC. *Biochem Biophys Res Commun*. 2007 Nov 16;363(2):257-62. Epub 2007 Aug 14.
8. Pyrroloquinoline quinone stimulates mitochondrial biogenesis through cAMP response element-binding protein phosphorylation and increased PGC-1alpha expression. Chowanadisai W, Bauerly KA, Tchapanian E, Wong A, Cortopassi GA, Rucker RB. *J Biol Chem*. 2010 Jan 1;285(1):142-52. Epub 2009 Oct 27.
9. Effect of extracts from *Rhodiola rosea* and *Rhodiola crenulata* (Crassulaceae) roots on ATP content in mitochondria of skeletal muscles. Abidov M, Crendal F, Grachev S, Seifullina R, Ziegenfuss T. *Bull Exp Biol Med*. 2003 Dec;136(6):585-7.
10. Chronic *Rhodiola rosea* extract supplementation enforces exhaustive swimming tolerance. Lee FT, Kuo TY, Liou SY, Chien CT. *Am J Chin Med*. 2009;37(3):557-72.
11. Evidence-based efficacy of adaptogens in fatigue, and molecular mechanisms related to their stress-protective activity. Panossian A, Wikman G. *Curr Clin Pharmacol*. 2009 Sep;4(3):198-219. Epub 2009 Sep 1.
12. [The cardioprotective and antiadrenergic activity of an extract of *Rhodiola rosea* in stress]. [Article in Russian] Maslova LV, Kondrat'ev Bl, Maslov LN, Lishmanov IuB. *Eksp Klin Farmakol*. 1994 Nov-Dec;57(6):61-3.
13. *Rhodiola rosea*: a possible plant adaptogen. Kelly GS. *Altern Med Rev*. 2001 Jun;6(3):293-302.
14. Reducing mitochondrial decay with mitochondrial nutrients to delay and treat cognitive dysfunction, Alzheimer's disease, and Parkinson's disease. Liu J, Ames BN. *Nutr Neurosci*. 2005 Apr;8(2):67-89.]

\*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.

For all your supplement needs please visit [www.DoctorEStore.com](http://www.DoctorEStore.com)

REV. 12/29/21