



Kaneka Ubiquinol[®] for Mitochondrial Health

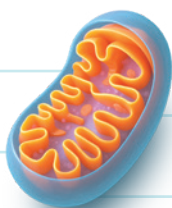
Mitochondria are increasingly understood as central to systemic wellness and healthy aging, helping to coordinate processes such as immune response, signaling, and cellular repair.^{1,2}

Beyond their role in producing adenosine triphosphate (ATP)—the energy molecule of the cell—mitochondria are now recognized for their contribution to broader cellular processes that support health and resilience, such as:

Cell signaling pathways³

Mitochondrial biogenesis⁴

Mitochondrial fission
and fusion^{4,5}



Programmed cell death
(apoptosis) and mitophagy^{6,7}

Cell senescence^{8,9}

Altered mitochondrial function profoundly impacts overall cellular health and is a common component underlying numerous conditions of aging.^{10,11}

The Influence of Oxidative Stress on Mitochondria

Reactive oxygen species (ROS) are natural byproducts of mitochondrial energy generation and are neutralized by antioxidants.^{12,13}

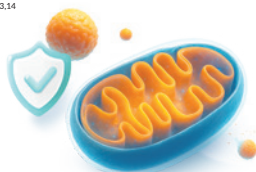
When ROS production exceeds the cell's antioxidant defenses, oxidative stress may occur, potentially affecting mitochondrial integrity—including membrane lipids, proteins, cellular and mitochondrial DNA, and mitochondrial structures and functions involved in energy production.^{13,14}

Ubiquinol's Role Supporting Mitochondrial Function

Ubiquinol—the active antioxidant form of CoQ10—is naturally produced in the body and found throughout the cells and mitochondria.^{12,13}

Ubiquinol supports mitochondrial function through its dual role in supporting energy production and antioxidant defense.^{12,13,15}

Antioxidant defense mechanisms become less efficient with age, which can lead to increased free radical damage. Additionally, levels of ubiquinol decline with age due to a decreased ability to convert ubiquinone to ubiquinol and an increased demand for its antioxidant activity because of greater ROS production.¹⁶⁻¹⁸



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.



Benefits of Ubiquinol Supplementation

Research demonstrates that 200 mg of Kaneka Ubiquinol[®] increases ubiquinol levels by approximately 8x compared to baseline in healthy adults when taken daily for at least 30 days.¹⁹



Healthy Aging

Clinical studies show that supplementation with Kaneka Ubiquinol[®] increases plasma ubiquinol levels.^{20,21} Research demonstrates a correlation between higher total CoQ10 status and lower risk of frailty and sedentarism in older adults.²²



Cardiovascular Wellness

Clinical research shows that Ubiquinol supplementation improves certain blood markers associated with heart health and that ubiquinol status is associated with heart health.²³ Additional studies highlight the relevance of these markers as indicators associated with cardiovascular health.²⁴⁻²⁶

Ubiquinol has been shown to benefit vessel health by²¹:

- Facilitating proper vasodilation
- Enhancing nitric oxide (NO) production
- Protecting LDL from oxidation

Kaneka
NUTRIENTS

Nutrients.Sales@Kaneka.com

[KanekaNutrients.com](https://www.KanekaNutrients.com)



Formats

Kaneka Ubiquinol® is available as a pure crystalline powder for use in the following product applications:

- Softgels
- Gummies
- Cap-within-cap
- Liposomal formulations
- Liquid capsules
- Other light- and oxygen-controlled environments

Kaneka Ubiquinol® is also available in an air-stable form as Kaneka Q30™, a 30% Ubiquinol powder. Additional applications include:

- Stick packs
- Sachets
- Soft chews

Packaging

- 1 kg or 5 kg units
- MOQ: 1 kg
- Q30 MOQ: 3 kg



Safety

Kaneka Ubiquinol® has a well-established safety profile as demonstrated by extensive clinical trial data.

Kaneka
NUTRIENTS

Nutrients.Sales@Kaneka.com

KanekaNutrients.com



Preconception Support

Female preconception support:

Ubiquinol supports mitochondrial function and cellular energy generation—essential for oocyte quality and overall egg health.²⁷⁻²⁹

Male preconception support:

Kaneka Ubiquinol® supports healthy sperm function, including sperm count, motility, and morphology.^{30,31}



Menopausal Well-Being

Kaneka Ubiquinol® supports general health and well-being during and after menopause.^{32,33} In a consumer use study, 80% of menopausal women taking 200 mg of Kaneka Ubiquinol® per day reported decreased irritability, sensitivity, stress, and mood swings after 60 days of supplementation.³²



Athletic Performance

Research shows that Kaneka Ubiquinol® supports physical performance by:

- Promoting a healthy oxidative balance during exercise³⁴
- Supporting energy metabolism³⁵
- Supporting cardiovascular performance when training at high altitudes^{36,37}
- Enhancing peak power production in elite athletes when taken at 300 mg/day³⁸



Lifelong Wellness

- Supports mitochondrial and cellular function through cellular energy production and antioxidant defense.^{12,35,39}
- Higher blood ubiquinol levels correlate with decreased fatigue at high altitude^{36,37}

References

- Mohanty A, et al. Mitochondria: the indispensable players in innate immunity and guardians of the inflammatory response. *J Cell Commun Signal*. 2019;13(3):303-18.
- Marchi S, et al. Mitochondrial control of inflammation. *Nat Rev Immunol*. 2023;23(3):159-73.
- Picard M, Shiriha OS. Mitochondrial signal transduction. *Cell Metab*. 2022;34(11):1620-53.
- Adebayo M, et al. Mitochondrial fusion and fission: the fine-tune balance for cellular homeostasis. *FASEB J*. 2021;35(6):e21620.
- Liu YJ, et al. Mitochondrial fission and fusion: a dynamic role in aging and potential target for age-related disease. *Mech Ageing Dev*. 2020;186:111212.
- Wang S, et al. The mitophagy pathway and its implications in human diseases. *Signal Transduct Target Ther*. 2023;8(1):304.
- Tait SWG, Green DR. Mitochondrial regulation of cell death. *Cold Spring Harb Perspect Biol*. 2013;5(9):a008706.
- Kumari R, Jat P. Mechanisms of cellular senescence: cell cycle arrest and senescence associated secretory phenotype. *Front Cell Dev Biol*. 2021;9:645593.
- Varesi A, et al. The role of antioxidants in the interplay between oxidative stress and senescence. *Antioxidants* (Basel). 2022;11(7):1224.
- Lee-Glover LP, et al. Mitochondria - the CEO of the cell. *J Cell Sci*. 2025;138(9):jcs263403.
- Bratic A, Larsson NG. The role of mitochondria in aging. *J Clin Invest*. 2013;123(3):951-7.
- Ernster L, Forsmark-Andrée P. Ubiquinol: an endogenous antioxidant in aerobic organisms. *Clin Invest*. 1993;71(8 Suppl):S60-5.
- Bentinger M, et al. The antioxidant role of coenzyme Q. *Mitochondrion*. 2007;7(Suppl):S41-50.
- Forsmark-Andrée P, et al. Lipid peroxidation and changes in the ubiquinone content and the respiratory chain enzymes of submitochondrial particles. *Free Radic Biol Med*. 1997;22(3):391-400.
- Pallotti F, et al. The roles of coenzyme Q in disease: direct and indirect involvement in cellular functions. *Int J Mol Sci*. 2021;23(1):128.
- Schniertschauer D, et al. Age-dependent loss of mitochondrial function in epithelial tissue can be reversed by coenzyme Q10. *J Aging Res*. 2018;2018:6354680.
- Wada H, et al. Redox status of coenzyme Q10 is associated with chronological age. *J Am Geriatr Soc*. 2007;55(7):1141-2.
- Navas P, et al. The importance of plasma membrane coenzyme Q in aging and stress responses. *Mitochondrion*. 2007;7(Suppl):S34-40.
- Hosoe K, et al. Study on safety and bioavailability of ubiquinol (Kaneka QH) after single and 4-week multiple oral administration to healthy volunteers. *Regul Toxicol Pharmacol*. 2007;47(1):19-28.
- Langsjoen PH, Langsjoen AM. Comparison study of plasma coenzyme Q10 levels in healthy subjects supplemented with ubiquinol versus ubiquinone. *Clin Pharmacol Drug Dev*. 2014;3(1):13-7.
- Sabbatinelli J, et al. Ubiquinol ameliorates endothelial dysfunction in subjects with mild-to-moderate dyslipidemia: a randomized clinical trial. *Nutrients*. 2020;12(4):1098.
- de la Bella-Garzon R, et al. Levels of plasma coenzyme Q10 are associated with physical capacity and cardiovascular risk in the elderly. *Antioxidants* (Basel). 2022;11(2):279.
- Onur S, et al. Ubiquinol reduces gamma glutamyltransferase as a marker of oxidative stress in humans. *BMC Res Notes*. 2014;7:427.
- Onur S, et al. Association between serum level of ubiquinol and NT-proBNP, a marker for chronic heart failure, in healthy elderly subjects. *Biofactors*. 2015;41(1):35-43.
- Lee DS, et al. Gamma glutamyl transferase and metabolic syndrome, cardiovascular disease, and mortality risk: the Framingham Heart Study. *Arterioscler Thromb Vasc Biol*. 2007;27(1):127-33.
- Dhingra R, et al. Serum gamma-glutamyl transferase and risk of heart failure in the community. *Arterioscler Thromb Vasc Biol*. 2010;30(9):1855-60.
- Zhu Z, et al. Ovarian aging: mechanisms and intervention strategies. *Med Rev* (2021). 2022;2(6):590-610.
- Zhang M, et al. Coenzyme Q10 ameliorates the quality of postovulatory aged oocytes by suppressing DNA damage and apoptosis. *Free Radic Biol Med*. 2019;143:84-94.
- Ben-Meir A, et al. Coenzyme Q10 restores oocyte mitochondrial function and fertility during reproductive aging. *Aging Cell*. 2015;14(5):887-95.
- Thakur AS, et al. Effect of ubiquinol therapy on sperm parameters and serum testosterone levels in oligoasthenozoospermic infertile men. *J Clin Diagn Res*. 2015;9(9):BC01-3.
- Cakiroglu B, et al. Ubiquinol effect on sperm parameters in subfertile men who have asthenozoospermia with normal sperm concentration. *Nephrourol Mon*. 2014;6(3):e16870.
- Kaneka Internal Report. Real-life UBIQUINOL study on 200 postmenopausal women. Expansion Consultteam. 2024.
- Palacios S, et al. Estudio clínico para conocer la eficacia de la coenzima Q10 sobre la calidad de vida en mujeres postmenopáusicas. *Toko-Gin Pract*. 2019;78(1):3-7. (Proprietary English translation on file.)
- Sarmiento A, et al. Short-term ubiquinol supplementation reduces oxidative stress associated with strenuous exercise in healthy adults: a randomized trial. *Biofactors*. 2016;42(6):612-22.
- Martini FH. Metabolism, nutrition and energetics. In: *Fundamentals of Anatomy and Physiology*. 12th ed. Pearson; 2024:943-50.
- Liu Z, et al. Effect of ubiquinol on electrophysiology during high-altitude acclimatization and de-acclimatization: a substudy of the Shigatse CARDiorespiratory fitness (SCARF) randomized clinical trial. *Int J Cardiol*. 2024;401:131817.
- Lv H, et al. CARDiorespiratory fitness and effects of ubiquinol during high-altitude acclimatization and deacclimatization: the SCARF trial. *iScience*. 2025;28(3):112112.
- Alf D, et al. Ubiquinol supplementation enhances peak power production in trained athletes: a double-blind, placebo controlled study. *J Int Soc Sports Nutr*. 2013;10:24.
- Sies H. Strategies of antioxidant defense. *Eur J Biochem*. 1993;215(2):213-9.

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.