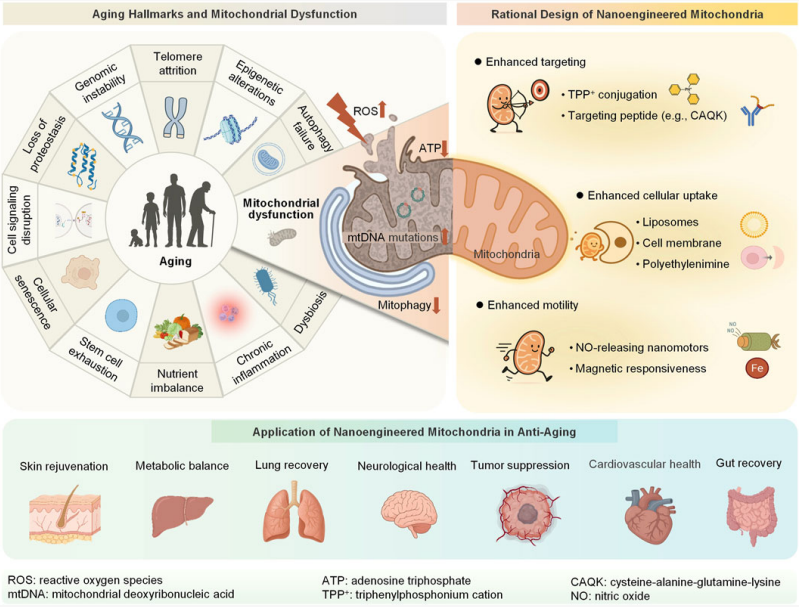
64K Cellssense Featured in Frontiers in Aging for Pioneering Review on Nanoengineered Mitochondria

Company outlines how nanoengineering approaches may advance studies of mitochondrial function and cellular health.



Schematic overview of the relationship between aging and mitochondrial dysfunction, the design of nanoengineered mitochondria, and their applications in anti-aging therapy.

LAUSANNE, SWITZERLAND, October 27, 2025 /EINPresswire.com/ -- 64K Cellssense announced its Research and Innovation Center published a review article in Frontiers in Aging, a leading Swiss academic journal. The article, titled “Nanoengineered Mitochondria for Mitochondrial Dysfunction and Anti-Aging Interventions,” explores the emerging field of mitochondrial nanoengineering and its implications for maintaining cellular function and energy balance.

The review provides a comprehensive overview of recent advances in nanoengineered mitochondria — a rapidly growing focus in life sciences. It details how nanoscale design can support mitochondrial integrity, optimize metabolic efficiency, and enhance resilience under cellular stress. The review offers an international perspective on how nanotechnology is shaping next-generation mitochondrial research, reflecting 64K Cellssense’s contribution to the global dialogue on healthy cellular aging.

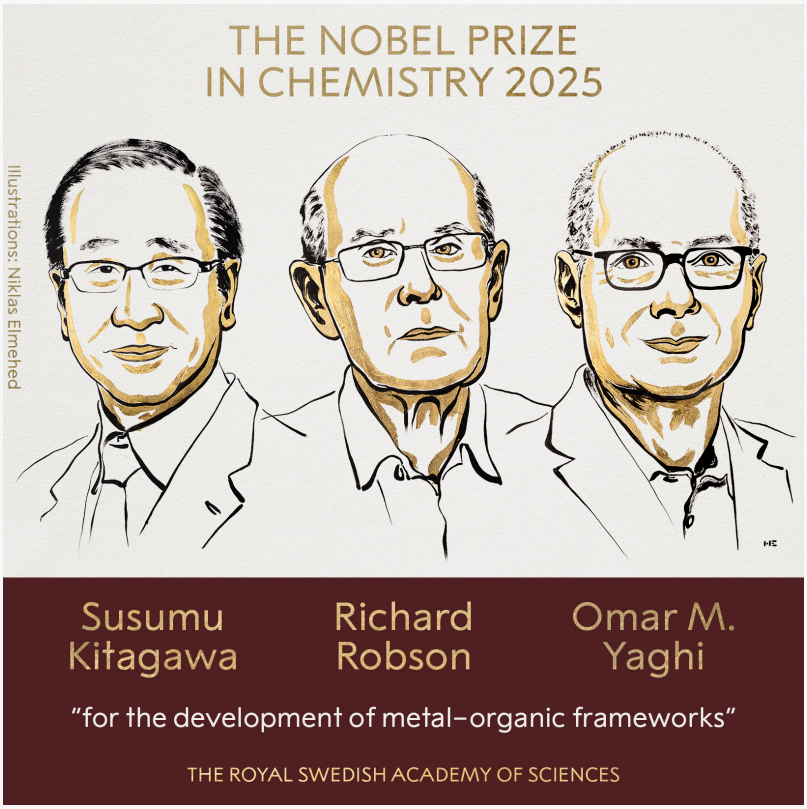
Within 64K Cellssense’s 12-Dimensional Longevity Framework, mitochondrial performance is studied as a core determinant of cellular function. The review proposes a research framework that integrates nanoengineering strategies to optimize mitochondrial energy systems and mitigate oxidative imbalance at the cellular level.

The article also summarizes key natural mitochondrial regulators — including α-ketoglutarate (AKG), ergothioneine (EGT), resveratrol, CoQ10, and selenium — and highlights how nano-

delivery approaches may improve their stability and targeted bioavailability in experimental models.

Building on these foundational insights, 64K Cellssense continues to develop its proprietary MPNutria® Nano-Nutrition Delivery Technology, based on metal–phenolic network (MPN) nanostructures — a technology lineage related to the 2025 Nobel Prize -winning research on metal-organic frameworks (MOFs). This technology exemplifies how the brand translates cutting-edge scientific concepts into scalable, experimentally validated applications.

While mitochondrial nanoengineering shows considerable potential, the review notes that further research is required to address challenges related to delivery consistency, biological compatibility, and scalable production.



The Royal Swedish Academy of Sciences has decided to award the 2025 Nobel Prize in Chemistry to Susumu Kitagawa, Richard Robson and Omar M. Yaghi "for the development of metal–organic frameworks."

The Research and Innovation Center of 64K Cellssense has collaborated on projects with academic and clinical partners in Switzerland, the United States, Australia and China, including, among others, ETH Zurich, Harvard University and Clinique Eden Suisse.

Collectively, these efforts reinforce 64K Cellssense's long-term mission to drive data-driven innovation in cellular health, bridging academic research and practical, scalable applications in life sciences.

“

This publication in Frontiers in Aging represents a synthesis of emerging data on mitochondrial nanoengineering, reflecting our commitment to peer-reviewed science and measurable longevity research.”

Thomas Miller, Head of the 64K Cellssense International Research Center

Anastasia Y.
Vitagenix Technology Limited
email us here