Our World Changing Idea: Enhancing Human Longevity

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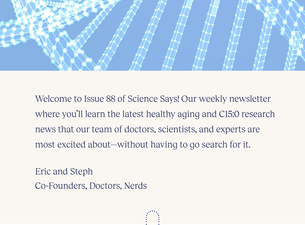

Welcome to Issue 88 of Science Says! Our weekly newsletter where you'll learn the latest healthy aging and C15:0 research news that our team of doctors, scientists, and experts are most excited about—without having to go search for it.

Eric and Steph
Co-Founders, Doctors, Nerds

What Dr. Stephanie Venn-Watson, our co-founder and author of over 80 peer-reviewed scientific publications, is reading.

HEALTHY AGING

Optimizing nature to enhance longevity

Well, given that our latest scientific advances with C15:0 were just recognized as a 2024 *Fast Company* World Changing Idea in the Wellness category, we thought we would share the science behind this idea that will, well, change the world for the better.

Congrats! But what is a Fast Company World Changing Idea?

Fast Company is a media brand that focuses on innovative businesses. Every year, they honor teams driving meaningful change in the world via their "World Changing Ideal" list. The criteria to be on this list in the Wellness category includes: creating ***meaningful change***, championing solutions that are ***improving people's lives***, addressing ***global challenges***, and contributing to a ***better future for all***. This year, only five teams made their Wellness list, and only one idea included a health ingredient or supplement - that's us!

So, what fatty15 idea was considered world changing?

The world is experiencing a tsunami of aging-related conditions that have real costs to people's quality of life, as well as to the global economy.

Since our discovery of C15:0 as the first essential fatty acid to be found in over 90 years, we and other scientists around the world have been busy understanding the breadth of C15:0's essentiality to protecting our health. Our team wanted to test the idea that pure C15:0 could be used to enhance both our healthspan and lifespan.

The goal: Optimize nature's secret of longevity to help people live meaningfully healthier, longer.

Well, that's a great idea. What was fatty15's award-winning science project?

Simply put, we had fatty15 compete against three leading longevity-enhancing candidate molecules: rapamycin, metformin, and acarbose. In this study, we used an independent third party to evaluate how well fatty15 reversed 148 different clinically relevant indices across 12 human cell systems mimicking various disease states. Fatty15's cell-repairing report card was then compared with the leading longevity compounds.

Sounds fancy. What did you find?

Excitedly, as published in *Nutrients*, we discovered that fatty15 has **36+ cell repairing benefits**, including **calming 18+ pro-inflammatory cytokines** that are directly relevant to protecting our metabolic, liver, heart, lung, immune, and skin health - **which was better than rapamycin** (with 32 benefits), metformin (17 benefits), and acarbose (5 benefits). As a side note, pure omega-3 had 7 benefits.

Just as importantly, the optimal concentration of fatty15 was 20 μM, which aligned with similar studies showing C15:0's optimal concentrations for mitochondrial-repairing and cell membrane-stabilizing benefits published in *Nature's Scientific Reports*. Clinical trials have shown that this circulating concentration is readily achievable via fatty15 supplementation at 100 to 200 mg per day.

Cool science. But how does that translate into World Changing, and how is this relevant to my longevity?

Here's the awesome part. This latest project was icing on a longevity cake that has been in the making for the past decade. It's really the culmination of studies on C15:0 and fatty15 that show: 1) our bodies need C15:0 to support healthy aging, and 2) optimized pure C15:0 can have more positive effects than food-based C15:0 to support our longevity.

As summarized in the *Nutrients*' paper, here's where we are today on C15:0 & longevity:

- C15:0 is an essential fatty acid that **physically strengthens our cell membranes**, making them more resistant to lipid peroxidation and age-related breakdown. This role of C15:0 as a longevity enhancer is core to A.L. Hulbert's Cell Membrane Pacemaker Theory of Aging, which explains how stronger cell membranes help us live longer than mice.
- C15:0 targets the core of the Human Longevity Regulating Pathway, including **activating AMPK and inhibiting mTOR**, which are mechanisms known to extend mammalian longevity.
- C15:0 **targets 6 out of 12 hallmarks of aging**, which are mechanisms that define how we age at the cellular level. Specifically, C15:0 targets cellular senescence, mitochondrial dysfunction, inflammaging, impaired cellular signaling, epigenetic alterations, and dysbiosis.
- C15:0 **directly supports clinically relevant health**, including healthy cholesterol, healthy glucose, healthy liver enzymes, and lower pro-inflammatory cytokines.
- People living in **High Longevity Zones (aka Blue Zones) have almost 3x higher C15:0** levels compared to people living in Low Longevity Zones. This is consistent with numerous studies showing that people with higher C15:0 levels have **better long-term metabolic, heart, and liver health.**
- People with higher C15:0 levels age slower. Using epigenetic clocks, a population-based study showed that people with higher circulating C15:0 had **biological ages that were younger** than their chronological age (aka aging in years).

Amazing, isn't it? All this longevity-enhancing power, delivered by nature in a simple, stable, and essential nutrient. Thanks for being with us on this world changing journey, and have a wonderful week!

Dive deeper into the science

READ THESE STUDIES

- Seraphina Therapeutics' groundbreaking discovery of C15:0 as a leading longevity nutrient recognized as a 2024 Fast Company World Changing Idea.
- Venn-Watson et al. C15:0 as a leading longevity-enhancing molecule.
- Manca et al. C15:0 levels are higher among people who live in high longevity zones (Blue Zones).
- Liu et al. Lipidomic correlates of epigenetic aging across the adult lifespan: A population-based study.
- Kongerslev et al. Whole dairy matrix or single nutrients in assessment of health effects: current evidence.
- Bishop et al. C15:0 improves metabolic and liver health, while dairy fat worsens it.
- Nerd out on all the C15:0 science at DiscoverC15.com.