PEPTIDE PERSPECTIVES®

CAN WE INFLUENCE HOW WE AGE?

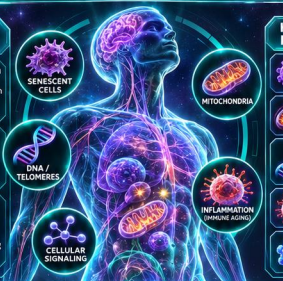
Exploring Peptides & the Science of Longevity

WHY LONGEVITY RESEARCH MATTERS

Lifespan vs. Healthspan
Researchers distinguish lifespan (total years of life) from healthspan (years of good health and function).

Healthy Aging
Involves maintaining strength, mobility, cognition, and independence as we age.

A Complex Process
Aging is not one process and is not controlled by a single peptide or hormone. It involves multiple, interacting biological systems.



KEY BIOLOGICAL PATHWAYS

Cellular Senescence
Protective shutdown that can become chronic and inflammatory with age.

Mitochondrial Dysfunction
Changes in energy production, resilience, and stress signaling that can influence aging.

Telomeres / DNA Repair / Epigenetics
Chromosome protection, DNA maintenance, and gene regulation that help sustain cellular function.

Inflammation / Immune Aging
Chronic low-grade inflammation ("inflammaging") and changes in immune function and tissue repair.

Klotho & Nutrient Signaling
Protective systemic signaling (e.g., Klotho, mTOR, AMPK) linked to resilience and healthy aging.

COMPOUNDS RESEARCHERS ARE EXPLORING

A. EXPERIMENTAL / LONGEVITY PEPTIDE RESEARCH
(PRECLINICAL OR EARLY-STAGE HUMAN RESEARCH)

EPITALON
RESEARCH
Telomeres, circadian / bioregulator research.

HUMANIN
RESEARCH
Cell-stress and survival signaling.

FOXO4-DRI
EXPERIMENTAL
Experimental senolytic concept (targets senescent cell survival).

MOTS-c
RESEARCH
Mitochondrial metabolic adaptation (energy, resilience).

PINEALON
RESEARCH
Neurologic bioregulator research (e.g., brain aging, function).

LIVAGEN
RESEARCH
Chromatin / gene-regulation hypothesis (epigenetic effects).

B. MITOCHONDRIAL / CLINICAL MILESTONE

SS-31 / ELAMIPRETIDE
FDA APPROVED (SPECIFIC USE)
Cardiolipin and mitochondrial membrane support.
FDA accelerated approval only for eligible Barth syndrome patients, not general anti-aging.

C. RELATED LONGEVITY BIOLOGY TARGETS
(NOT STANDARD PEPTIDES)

KLOTHO
BIOLOGY TARGET
Protective protein target linked to resilience and healthy aging.

NAD+
METABOLIC TARGET
Metabolic coenzyme that supports cellular energy and repair (not a peptide).

WHAT THE EVIDENCE SUGGESTS

- **Mechanistic and preclinical signals are promising** (e.g., cellular aging, mitochondrial function, stress resilience).
- **No featured compound has proven human lifespan extension** in rigorous human trials.
- **Human healthspan benefits remain unconfirmed** for most compounds (limited and early human data).
- **Biomarker changes do not automatically equal better aging outcomes** (they are indirect signals, not proof).
- **Safety and context matter, especially with senescence and cell-survival pathways** (potential risks, trade-offs, and system-wide effects).

WHERE THE SCIENCE IS HEADING

Better Healthspan Measures
Use more meaningful outcomes (function, mobility, cognition, independence), not just lifespan.

Match Therapies to the Right Problem
Target specific aging pathways (e.g., senescence, mitochondria, inflammation) rather than a one-size-fits-all approach.

Study Cellular Resilience, Repair & Tissue Communication
Understand how cells maintain, repair, and coordinate across tissues and systems as we age.

Combine Mechanism with Rigorous Human Trials
Move from promising biology to well-designed, controlled human studies to clarify real benefits, risks, and appropriate use.

EVIDENCE TAKEAWAY

- Extending cell survival is not the same as extending human life.
- Regulatory approval applies only to specific drugs and indications.
- Longevity biology is complex and multi-system.
- Educational overview only; not medical advice.

NO COMPOUND IN THIS INFOGRAPHIC HAS BEEN PROVEN TO BROADLY SLOW HUMAN AGING OR EXTEND HUMAN LIFESPAN IN RIGOROUS HUMAN TRIALS.

Educational infographic based on the Peptide Perspectives article "Can We Influence How We Age? Exploring Peptides and the Science of Longevity" • Reviewed Novemlber 2026 • For educational purposes only • Not medical advice.