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Compound Found in Aged Garlic Extract Shows Potential to Improve Muscle Health During Aging

Ground-breaking study reveals a new anti-aging approach that improves muscle function by activating fat-brain-muscle communication triggered by a garlic-derived compound

LOS ANGELES – May 8, 2026 –Wakunaga of America announced a groundbreaking study published today in the journal *Cell Metabolism* reveals that a specific metabolite found in Aged Garlic Extract (AGE) can significantly counteract skeletal muscle aging and improve age-related health conditions. Researchers have discovered that **S-1-propenyl-L-cysteine (S1PC®) stimulates an inter-organ communication pathway between fat tissue and the brain to enhance muscle strength in aged subjects.**

Historically, garlic has been utilized to boost vitality, enhance endurance, and combat infections. This new research uncovers the precise molecular mechanism behind these ancient benefits. The study demonstrates that **S1PC activates a critical metabolic regulator called liver kinase B1 (LKB1) within white adipose tissue (fat)**. S1PC achieves this by enhancing LKB1's ability to form a complex with two essential proteins, STRAD and MO25. This complex formation stimulates the anti-aging protein SIRT1 (known as the longevity gene) which subsequently triggers the release of extracellular vesicles containing the key enzyme eNAMPT into the bloodstream.

In a surprising discovery, the researchers found that **these fat-derived eNAMPT vesicles specifically target the hypothalamus in the brain, rather than acting directly on the muscles**. Once in the hypothalamus, the enzyme boosts local NAD⁺ production, which in turn enhances the sympathetic nervous system's signaling directed toward skeletal muscles.

When researchers administered long-term S1PC treatments to aged mice, this enhanced brain-to-muscle signaling resulted in profound anti-aging effects: **significantly increased skeletal muscle force, restored body temperatures to youthful levels, and substantially reduced overall frailty index scores.**

Crucially, the study indicates that the benefits of S1PC are highly translatable to humans. In a randomized, double-blind clinical trial involving healthy middle-aged individuals, **a single oral**

dose of S1PC-enriched garlic powder successfully increased circulating eNAMPT levels in subjects who maintained healthy body fat mass.

"These findings open a new avenue to develop a novel, effective anti-aging intervention that can be translated to humans," the authors concluded in the study. The discovery firmly positions S1PC as a highly promising nutraceutical compound in the urgent global effort to extend healthspan and delay aging in rapidly aging societies.

"These observations could be a game changer for millions of American seniors, particularly since research consistently links sarcopenia (age-related muscle loss) to increased all-cause and cause-specific mortality," says Ryuichi Sakamoto, MBA, Wakunaga of America's President. "Many see muscle retention as the currency of aging. The findings that this novel bioactive compound, which is also found in Kyolic Aged Garlic Extract (AGE), could help prevent muscle depletion and the resulting frailty associated with aging can be of significant importance to healthspan."

"While significant progress has been made in understanding the biology of aging, most current research and clinical interventions focus on improving lifespan rather than directly extending healthspan. In particular, the lack of widely established pharmacological treatments for sarcopenia highlights the need for sustainable, non-pharmaceutical approaches to support healthy aging", notes Hiroshi Jikihara, Ph.D., Wakunaga's Director of Research and Development.

"Since sarcopenia affects approximately 16% of seniors, these findings suggest that the simple inclusion of an S1PC-based nutraceutical as part of their daily supplement routine could help older Americans live a healthier, more active and independent life well into their golden years," notes Dr. Jikihara.

About Wakunaga: From the founding of Wakunaga Pharmaceutical Co., Ltd. in 1955 to the establishment of Wakunaga of America in 1972, the Wakunaga group of companies has played a unique role in promoting consumer health worldwide through the research, development, manufacturing and marketing of high-quality medicinal herbs. The corporate philosophy of Wakunaga centers around a commitment to research and a mission to serve public health. This mission is accomplished by providing products of the highest quality, which are supported by truthful science and accompanied by helpful consumer information.

To learn more about S1PC, please contact us: S1PC@wakunaga.com.

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Highlights

- A groundbreaking new study found that S-1-propenyl-L-cysteine (S1PC), a compound in Kyolic Aged Garlic Extract, plays a primary role in coordinating communication between adipose tissue and the hypothalamus to support healthy muscle function.
- Because sarcopenia impacts approximately 16% of older adults, these findings could make a significant difference for supporting muscle health and independent living amongst the elderly.
- The study found that S1PC activates liver kinase B1, which leads to the activation of the SIRT1 pathway and the secretion of eNAMPT—a key to the synthesis of NAD+, which is essential for skeletal muscle health.
- The study also reported that long-term administration of S1PC reduced frailty scores, increased muscle force, and restored eNAMPT in mice.
- The research also showed that S1PC increased blood levels of eNAMPT in humans.
- This Japanese study was conducted jointly by the Institute for Research on Productive Aging (IRPA) and Wakunaga Pharmaceutical, Co., Ltd.

Reference

Title of original paper:	Garlic-derived metabolite activates LKB1, promotes adipose eNAMPT secretion and improves age-related muscle function via hypothalamic signalling
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