

## Alpha Lipoic Acid and Longevity

Alpha lipoic acid is a naturally occurring compound found in plant foods such as spinach and broccoli. It is also produced naturally in small amounts by humans.<sup>1</sup> In the body, alpha lipoic acid plays a key role in energy production, acts as a powerful antioxidant, helps to regenerate other antioxidants, and helps detoxify harmful compounds.<sup>2</sup>

Among the biochemical actions of alpha lipoic acid, a central health benefit is its ability to slow the process of aging. Researchers from the Linus Pauling Institute (LPI) at Oregon State University (OSU) have identified how alpha lipoic acid helps promote longevity. The research found that alpha lipoic acid helps restore the body's glutathione levels and may be the key reason for the anti-aging benefits.<sup>3</sup> Glutathione is an important antioxidant produced inside the cells of the body. It plays a vital role in the detoxification and elimination of damaging compounds.

“The evidence suggests that lipoic acid is actually a low-level stressor that turns on the basic cellular defenses of the body, including some of those that naturally decline with age...In particular, it tends to restore levels of glutathione, a protective antioxidant and detoxification compound, to those of a young animal. It also acts as a strong anti-inflammatory agent, which is relevant to many degenerative diseases.”<sup>3</sup>

Researchers at OSU believe that alpha lipoic acid indirectly stimulates functions that may begin to decline in aging cells. With age, the body's glutathione levels decline, making older animals more susceptible to free radical damage. But alpha lipoic acid can return glutathione actions to near normal. With improved glutathione levels, cellular functions in the animal improve as well.

Researchers at OSU and LPI are studying the actions of alpha lipoic acid as part of their focus on supplements that may support longevity. They seek interventions that can improve “healthspan,”<sup>3</sup> not just lifespan. While lifespan addresses only the length of time a person lives, healthspan focuses on the quality of life. Healthspan is “the ability to live a long life with comparatively good health and vigor, free of degenerative disease, until very near death.”<sup>3</sup> Alpha lipoic acid may be part of a unique group of nutrients that promote healthspan by sustaining vital cellular defenses, which otherwise decline as the body ages.

In animal studies, alpha lipoic acid shows promise in supporting healthspan. “Our studies have shown that mice supplemented with lipoic acid have a cognitive ability, behavior, and genetic expression of almost 100 detoxification and antioxidant genes that are comparable to that of young animals...They aren't just living longer, they are living better.”<sup>3</sup>

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<sup>1</sup> Lodge JK, Youn HD, Handelman GJ, et al. “Natural sources of lipoic acid: determination of lipoyllysine released from protease-digested tissues by high performance liquid chromatography incorporating electrochemical detection.” *J Appl Nutr.* 49 (1997): 3-11.

<sup>2</sup> Jellin JM, Gregory PJ, Batz F, Hitchens K, et al. *Natural Medicines Comprehensive Database. 9th Ed.* Stockton, CA: Therapeutic Research Faculty, 2007.

<sup>3</sup> “Function Outlined of Lipoic Acid as Anti-Aging Compound.” 17 May 2007. Oregon State University. 1 July 2007 <<http://oregonstate.edu/dept/ncs/newsarch/2007/May07/lipoicacid.html>>.

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