Protein offers protection against nerve degeneration in ALS model

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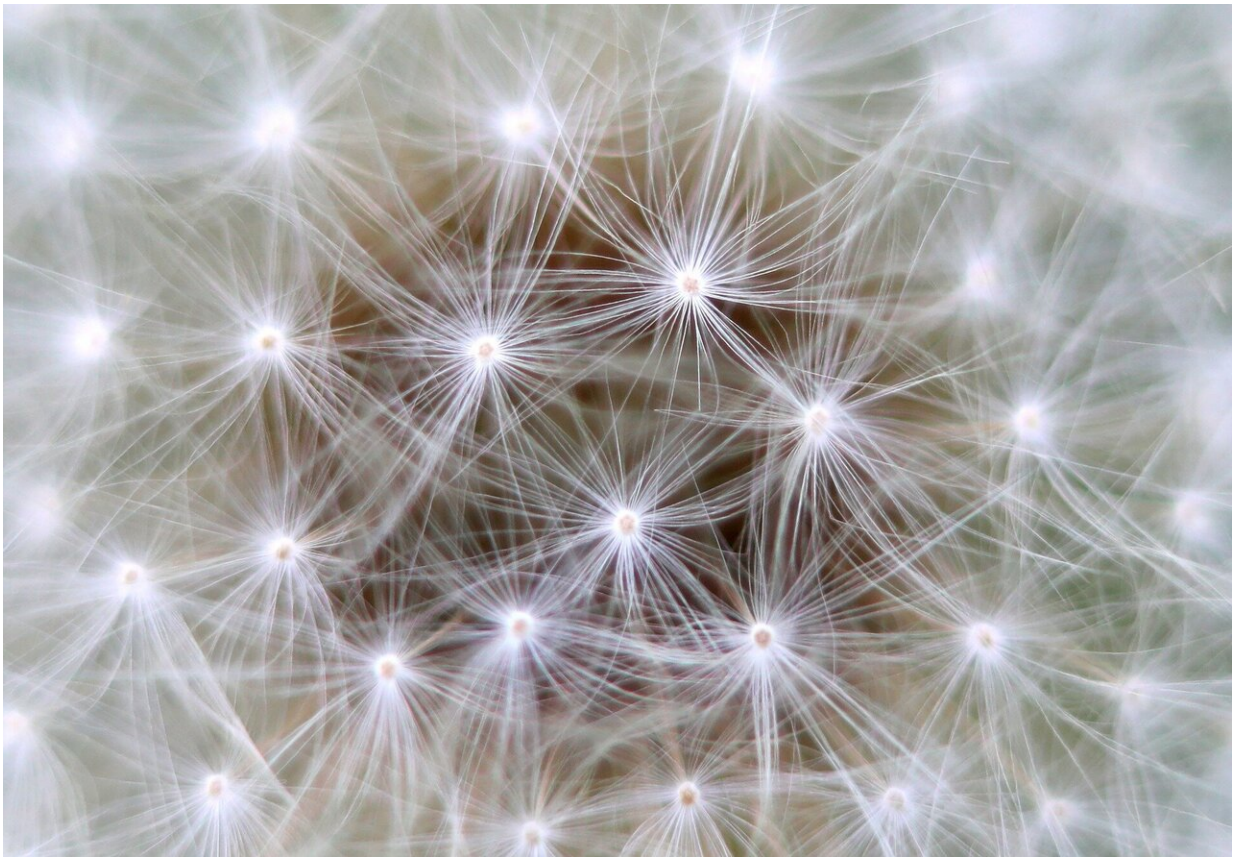

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Increasing the levels of the anti-aging protein hormone Klotho improves the neurological deficits and prolongs life span in an experimental model with Amyotrophic Lateral Sclerosis (ALS). In addition, brain immune

cells called microglia play an important role in protecting the brain against inflammation and, likely, motor neuron loss in this model.

ALS or Lou Gehrig's disease, is a devastating neurodegenerative disease characterized by the loss of upper and lower motor neurons, leading to progressive muscle atrophy and paralysis, which is fatal within three to five years of diagnosis.

Researchers from Boston University School of Medicine (BUSM) have previously shown that increasing Klotho protein levels is beneficial in experimental models of Alzheimer's disease and multiple sclerosis. "Here we now show that Klotho is also neuroprotective in an ALS model. Thus, increasing Klotho levels would be a logical treatment for age-related neurodegenerative and neuroinflammatory diseases," explained corresponding author Carmela Abraham, Ph.D., professor of biochemistry at BUSM.

Unfortunately, very few treatments are available to ALS patients today. "We propose that increasing the levels of the Klotho protein would significantly alleviate the neurologic manifestations, improve the quality of life and prolong life span in patients with ALS. If one was to extrapolate the results of this study, increasing Klotho by only 50 percent would prolong life by approximately 300 days."

According to Abraham, anything that increases Klotho levels is neuroprotective. For example, it has been shown that exercise increases Klotho. "This may be relevant for healthy individuals or patients newly diagnosed with ALS. Additionally, in the cases of familial ALS, family members who wish to be tested and discover that they are carriers of an ALS gene could start exercising or start Klotho boosting therapy, once it becomes available."

More information: Ella Zeldich et al. Klotho Is Neuroprotective in the

Superoxide Dismutase (SOD1G93A) Mouse Model of ALS, *Journal of Molecular Neuroscience* (2019). DOI: 10.1007/s12031-019-01356-2