

Aging Driven by One Protein, Not Inflammation

New discovery shows granzyme K accelerates tissue aging without triggering immune response.

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THE DATA

Improved heart and liver function

Tissue Function in Aged Mice

Mice genetically engineered to lack granzyme K showed significant reversal of age-related decline.

This finding reveals a previously unknown pathway in aging: tissue degeneration can occur independently of inflammation. The absence of granzyme K preserved organ integrity and function in aged mice, suggesting that targeting this enzyme could delay aging without compromising immune defense.



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Targeting Granzyme K Could Decouple Aging from Immunity

Current anti-aging therapies often suppress inflammation, which weakens the immune system. This discovery shows that aging can be halted without affecting immune function—offering a path to healthier longevity. In commercial space and aviation, where crews face extreme physiological stress, such therapies could extend peak performance lifespans without increasing infection risk.



02

Enzyme-Driven Aging May Be Reversible

The fact that removing granzyme K reversed tissue damage in aged mice suggests aging is not a one-way process. In high-stress environments like spaceflight or long-duration aviation missions, where cellular stress accelerates aging, this mechanism could be exploited to maintain crew health. Future bioengineering may involve targeted enzyme inhibition to sustain physiological resilience during extended missions.

George Arnold Alexander III, MPA

Partner, ALEX Companies
Associate Broker, Alexander Tiffany Southwest, LLC
Licensed Broker in TX, CO, NC, AL

george@alex.realestate · +1 713.918.9951

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