

# Hearing loss may be preventable with development of new drug

August 12 2019

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Robert Frisina is chair of the USF Medical Engineering Department and director of the Global Center for Hearing and Speech Research at the University of South Florida. Credit: University of South Florida

The first ever medication to treat age-related hearing loss could

potentially receive FDA approval through a comprehensive study being conducted at the University of South Florida.

Robert Frisina, Ph.D., chair of the USF Medical Engineering Department and director of the USF Global Center for Hearing and Speech Research, and his team were awarded a U.S. patent for his theory that you can slow hearing loss by combining supplements for the hormone [aldosterone](#) with anti-inflammatory medications, such as aspirin or ibuprofen. Aldosterone is a naturally-occurring steroid that influences sodium and potassium regulation in the body, including the inner ear used for hearing. Its level typically decreases as we age, impacting auditory perception.

"Our novel idea, embodied in the new patent, involves boosting aldosterone to young adult levels, to make the ear "young" again." said Frisina.

The research is part of a five-year, \$9 million grant awarded from the National Institutes of Health to USF's Global Center. Since its renewal launch in 2016, the study has included pre-clinical trials on mice. The aging mice received subcutaneous, time release aldosterone treatments for 4 months, equivalent to about 7-8 years of treatment for people. Frisina and his colleagues found untreated aging mice experienced a 50 percent decline in aldosterone compared to young adult mice. However, following treatment, the levels rose to a near normal range. It's important to note that the hormone supplement did not induce potential negative side effects, such as elevating blood pressure. Most importantly, the treated mice did not undergo age-related hearing loss during the study, whereas the control [mice](#) did suffer from continued age-linked hearing impairment.

Frisina's team is now in the process of licensing the patent and if successful, will then conduct four levels of FDA human clinical trials in

collaboration with the pharmaceutical company doing the licensing. Once the drug is FDA-approved, it would then be available to the public. Its eventual commercialization could be life-changing for many, as age-related hearing loss is the number one communication disorder of our elderly population and impacts more people than any other neurodegenerative disease of aging.

Provided by University of South Florida

Citation: Hearing loss may be preventable with development of new drug (2019, August 12) retrieved 25 April 2024 from <https://medicalxpress.com/news/2019-08-loss-drug.html>

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