

American Tinnitus Association Announces New Diagnostic Tool to Identify Tinnitus in Animals

How do you know if a rat has ringing in the ears, and who cares?

Portland, Oregon ([PRWEB](#)) January 03, 2017 -- An optimized diagnostic tool for tinnitus in animals has been developed by a team led by the chair of the American Tinnitus Association (ATA) Scientific Advisory Committee (SAC). The team of researchers developed the tool that may significantly facilitate investigations of the underlying mechanisms of tinnitus, and the development of drugs and other effective treatment methods for the approximately 50 million individuals in the United States who have experienced tinnitus. SAC Chair Jinsheng Zhang, PhD, and his team worked for more than three years to develop a conditioned behavioral testing method for tinnitus. Their findings were recently published in PLOS ONE, a multidisciplinary open access journal that accepts scientifically rigorous primary research.

Currently, there is an urgent need to develop reliable, behavioral tests for tinnitus so a cure can be developed to help the millions of tinnitus sufferers. Particularly for tinnitus, finding an effective and objective way to test humans is essential in order to truly assess onset, severity, and other factors. Before this objective test can be administered to humans, it must be tested on animals based on their reactions and behavior rather than their opinions or thoughts about their affliction. Research like that done by Dr. Zhang and his is the critical first step needed in the journey to a potential cure for tinnitus.

The most frequently used method to evaluate tinnitus-like behavior in animals is the unconditioned gap-detection behavioral paradigm, according to this new paper by Dr. Zhang and his team, “A Conditioned Behavior Paradigm for Assessing Onset and Lasting Tinnitus in Rats.” Gap-detection has been widely used to assess onset and lasting tinnitus-like behavior and may provide characteristics of tinnitus-like behavior, including pitch, duration, and diagnosis of individual animals. Recent studies, however, have raised questions about potential confounding factors, such as startle reflex reduction following acoustic trauma and the possibility that tinnitus may not necessarily impair gap-detection. While this paradigm remains to be validated using rigorously controlled metrics in both animal and human studies, behavioral paradigms that utilize conditioning procedures should also be explored.”

Dr. Zhang, who is a professor and Associate Chair for Research in the Otolaryngology-Head and Neck Surgery and Communication Sciences & Disorders departments for Wayne State University, said the ultimate goal is to help the millions of people who suffer from tinnitus by creating better methods of treatment.

“When we can objectively determine onset, severity, longevity, etc., in an animal, we can then do mechanistic studies, record brain activity to measure effectiveness of potential therapies and use that information to develop effective therapeutic treatments, including pharmacological agents and medical device approaches,” Zhang explained.

According to the paper, many paradigms “have been developed to assess tinnitus-like behavior in animals. Nevertheless, they are often limited by prolonged training requirements, as well as an inability to assess onset and lasting tinnitus behavior on the same animal subjects, tinnitus pitch or duration, or tinnitus presence without grouping data from multiple animals or testing sessions.”

Because of these limitations, the research team worked to establish a behavioral paradigm devoid of long

training periods, and that would “determine onset tinnitus, lasting tinnitus and tinnitus pitch, and tinnitus presence in individual animals over time and without averaging data. These capabilities would enable us to address tinnitus in a realistic and clinically relevant manner.”

These studies spurred Zhang and his team to begin their research into a robust method for tinnitus detection. The scientists who worked with Zhang to conduct this research are Edward Pace (the first author of the paper), Hao Luo, Michael Bobian, and Xueguo Zhang, all from the Department of Otolaryngology-Head and Neck Surgery, Wayne State University School of Medicine; Ajay Panekkad, from the Department of Electrical Engineering, Wayne State College of Engineering; and Huiming Zhang, Department of Biological Sciences, University of Windsor, Ontario.

Tinnitus affects approximately 50 million people in the United States, according to data analyzed from the National Health and Nutrition Examination Survey conducted by the Centers for Disease Control. The leading causes of tinnitus are exposure to loud sound and head or neck trauma. Tinnitus is also the leading service-connected disability for U.S. veterans

About the American Tinnitus Association

The American Tinnitus Association (ATA), headquartered in Portland, OR, has been a publicly-supported 501(c)3 organization since 1971, with its Scientific Advisory Committee representing the top researchers in the field. The ATA fulfills its mission by: 1) funding targeted research projects; 2) providing education, hope and support for the tinnitus community; 3) advocating for effective public policies focused on advancing science towards cures for tinnitus and hyperacusis; and 4) collaborating with others to promote awareness, encourage prevention, and to ultimately silence tinnitus. <http://www.ata.org>



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