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## **Corrigendum: Multidisciplinary Tinnitus Research: Challenges and Future Directions From the Perspective of Early Stage Researchers**

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# Corrigendum: Multidisciplinary Tinnitus Research: Challenges and Future Directions From the Perspective of Early Stage Researchers

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**Keywords:** tinnitus, review, heterogeneity, standardization, interdisciplinary collaborations, big data, treatment development

## A Corrigendum on

### Multidisciplinary Tinnitus Research: Challenges and Future Directions From the Perspective of Early Stage Researchers

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In the original article, there was an error. For the sentence “NMDA receptor antagonists (AM-101) have been discontinued in phase III for not meeting endpoints (van de Heyning et al., 2014)” there was a typographical error (phase III should have been phase II). In addition, it was brought to our attention that clinical trials for AM-101 are ongoing.

A correction has been made to section 6. Treatment Development, Subsection 6.4. Pharmacology-Based Interventions, paragraph 1. The corrected paragraph is below.

A wide variety of therapeutic drugs have been used to relieve tinnitus (Elgoyhen and Langguth, 2010). For acute tinnitus, a dose-dependent reduction in tinnitus intensity was observed with intravenous lidocaine (Trellakis et al., 2006). However, its use is controversial due to its short-lasting response, its potentially life threatening arrhythmogenic side effects, and the low bioavailability of its oral form (Israel et al., 1982; Trellakis et al., 2007; Gil-Gouveia and Goadsby, 2009). A potential goal of pharmacologic tinnitus research could be to identify the mechanism by which lidocaine interferes with tinnitus and mimic this effect using a drug with better tolerance that can be orally administered. For chronic tinnitus, the off-label use of medicines like betahistine (Hall et al., 2018d), anticonvulsants

(Hoekstra et al., 2011), and glutamate receptor antagonists have shown little or no effect in clinical trials. Prescription of antidepressants and benzodiazepines is limited to tinnitus-associated comorbidities such as depression, insomnia and anxiety (Langguth et al., 2019). Moreover, three clinical research programs, in the last few years, were discontinued in phase II and III. AMPA antagonist selurampanel (BGG492) has not resulted in a new compound (Cederroth et al., 2018). NMDA receptor antagonists (AM-101) did not meet the primary endpoint of improving minimum masking level in acute tinnitus in a phase II clinical trial but showed improvement for tinnitus loudness, annoyance, sleep difficulties, and tinnitus impact in patients with tinnitus after noise trauma or otitis media (van de Heyning et al., 2014). Many other treatments decreasing tinnitus percept or targeting central auditory processing pathways are at a preclinical phase (Schilder et al., 2019). The modulator of voltage-gated potassium channels (Kv3.1) (AUT00063) was not effective in alleviating tinnitus symptoms (Hall et al., 2019b).

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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