Researchers develop system to test brain ultrasound treatments in mice

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Noninvasive brain ultrasound treatment represents a promising alternative to other brain stimulation modalities and pharmaceutical drugs; however, testing it can be challenging due to a lack of preclinical

systems for chronic stimulation in awake animals. As described in research published in *Advanced Science*, investigators recently developed a system to deliver ultrasound stimulation to the brain in awake, naturally behaving mice.

The team used the system to evaluate the effects of ultrasound neuromodulation on sleep and working memory. The advance will also help other scientists test different ultrasound treatment protocols in mouse models of diverse neurological conditions.

"Ultrasound is an exciting modality of neuromodulation—because of its non-invasive nature, there is a high potential for using ultrasound to treat brain disorders." said corresponding author Hyunjoo J. Lee, Ph.D., of Korea Advanced Institute of Science and Technology. "I hope our system can help many neuroscientists to explore the therapeutic potential of ultrasound stimulation in the future."

More information: General-Purpose Ultrasound Neuromodulation System for Chronic, Closed-Loop Preclinical Studies in Freely Behaving Rodents, *Advanced Science* (2022). DOI: 10.1002/advs.202202345

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