



## ***Nature* study shows that Nerve Stimulation Therapy Can Eliminate Tinnitus in an Animal Model**

TEXAS – January 12, 2011 – In one of the first studies to demonstrate a complete reversal of tinnitus in noise exposed animals, a team of researchers from MicroTransponder and the University of Texas at Dallas were able to pair vagus nerve stimulation with tones to eliminate tinnitus on a long-term basis. The research was published in the January 12, 2011 advance online edition of the journal *Nature*. These findings have allowed the team at MicroTransponder, a privately held medical device company, to design clinical trial protocols for treating patients suffering from tinnitus.

Tinnitus is the annoying perception of sound in the ears or head where no external source is present, commonly referred to as “constant ringing in the ears.” The American Tinnitus Association estimates that as many as 2 million people in the United States currently suffer from severe debilitating tinnitus that prevents them from normal functioning on a daily basis. It has become an especially common problem in soldiers returning from Iraq and Afghanistan who are exposed to loud blasts. The Veterans Administration estimates that over \$1.2 billion is distributed annually in tinnitus-related disability payments. There is currently no cure for tinnitus, and while some devices attempt to mask the sound of tinnitus, none has shown significant long-term clinical success.

MicroTransponder has been conducting preclinical studies under the leadership of Navzer Engineer, MD, PhD, its Vice President of Preclinical Affairs. As the lead author on the *Nature* paper, Dr. Engineer explained that, “the brain lacks the ability to optimally repair itself after damage to the inner ear is caused by exposure to loud sounds. The brain does not sit dormant either. Instead, neurons fire spontaneously without auditory input and the patient perceives this spontaneous firing as a phantom sound.”

The aim of MicroTransponder’s neurostimulation therapy is to retrain the brain so the patient no longer perceives constant ringing in their ears. To do this, the researchers stimulate the vagus nerve in the neck which then directs the brain to release specific neuromodulators. “By precisely pairing the release of neuromodulators with simultaneous delivery of tones, we were able to reduce abnormal brain activity and eliminate the tinnitus perception” said Dr. Engineer.

“Conditions like tinnitus need to be tackled in a powerful and precise manner. Our technique rewires damaged neural circuits in the auditory cortex and reverses the spontaneous activity that is generating the phantom sound. We expect that this therapy may be effective in eliminating the symptoms and suffering related to tinnitus in the clinical setting,” continued Dr. Engineer.

Will Rosellini, CEO of MicroTransponder, stated, “We are pleased that our research team’s results have passed rigorous scientific peer review and have been accepted into the journal *Nature*. We anticipate raising additional funds for device development and expanded human trials.”

For updates on the latest developments in MicroTransponder’s tinnitus research and tinnitus clinical trials, individuals can email [tinnitus@microtransponder.com](mailto:tinnitus@microtransponder.com) to be placed on the company’s “Tinnitus Update List.”

### **About MicroTransponder Inc.**

MicroTransponder Inc. ([www.microtransponder.com](http://www.microtransponder.com)) is a medical device development company with a strong neuroscience research focus. An experienced team of scientists and engineers is developing a wireless neurostimulation technology platform referred to as the “SAINT™” (Subcutaneous Array of Implantable Neural Transponders) System to treat various forms of neurological disease. The lead indication is chronic pain, but other products in the development pipeline include treatments for tinnitus, motor and speech deficit after traumatic brain injury, and anxiety disorders. MicroTransponder has raised more than \$18M in private investment and grants, including 8 NIH grants. These MicroTransponder devices are all currently in the development phase, are limited to investigational use, and are not currently available for sale or marketing in the United States.

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