



# A Message From Our Director



Dr. Peter Steyger

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Welcome to the Translational Hearing Center, an NIH/NIGMS-funded Center of Biomedical Research Excellence (CoBRE) committed to developing a cadre of translational auditory/vestibular research scientists developing biomedical and othotherapeutic solutions that preserve or restore hearing and vestibular function. The Center is hosted by Creighton University, and additional faculty are located at Boys Town National Research Hospital (BTNRH) and the University of Nebraska Medical Center (UNMC). We currently support 3 Research Projects Leaders (each at \$200k per year for up to three years) and 3 Pilot Project Awardees (each at \$50k for 1 year). The Center has 2 specialized Research Cores, the Auditory & Vestibular Technology Core, and the Drug Discovery & Delivery Core, to assist researchers in meeting their research goals.

The Center has 2 new hires to report. (1) Dr. Anthony Stender in the AVT advanced microscopy core. (2) Dr. Molly McDevitt as a Research Scientist-Mass Spectrometry. These hires will be instrumental in the progress of each respective core and drive the research projects success.

Please contact us for more information and we look forward to seeing many of you at the upcoming virtual Bellucci Symposium on June 2nd, 2023, which has the theme of "Hair Cell Development and Regeneration."

## Featured articles

### Introducing the Newest Members of Our Team



Molly McDevitt, PhD

Dr. McDevitt is the manager for the Mass Spectrometry subcore of the Translational Hearing Center. As manager, she is responsible for running and maintaining all instrumentation including mass spectrometers (Bruker UltrafleXtreme and Thermo Q-Exactive Orbitrap) and liquid chromatography platforms (Vanquish™ Flex Binary UHPLC and EASY-nLC™ 1200). This includes performing preventative maintenance and coordinating with service technicians when required. The current systems are amenable to a wide array of mass spectrometry techniques, encompassing everything from cellular imaging to both discovery and targeted methods for proteomics, lipidomics, and analysis of various other small molecules. To use the instruments to the fullest potential, Dr. McDevitt collaborates with laboratories to discuss their research goals, advises by what means the core can help them reach these goals, and acts as the mass spectrometry expert for the project – preparing, running, and analyzing samples. She will coordinate instrument usage between labs to operate efficiently and productively and will contribute to progress reports, presentations, and grant submissions as needed.



Anthony Stender, PhD

Dr. Stender's primary role is to manage the day-to-day operations of the Integrated Biomedical Imaging Facility and the AVT Advanced Microscopy subcore of the Translational Hearing Center, which include confocal microscopes from Nikon and Zeiss, a Leica confocal/multiphoton microscope, an Olympus TIRF microscope, a Zeiss PALM laser capture microscope, and the Molecular Devices Micro4 high content imaging system. Dr. Stender helps to maintain the instruments in excellent working order, performs regular quality assurance checks, and interfaces with technical service personnel from the various vendors. He will also conduct training sessions for new users, advise users on optimizing imaging protocols, maintain billing records, and send out monthly invoices to users. This position is supported by multiple state and federally funded research grants (NIH, NE-INBRE, COBRE), so Dr. Stender will also be contributing to the preparation of progress reports, presentations, and future grant submissions.

### AVT Core Director Change

On August 1st, 2022 Dr. Michael Nichols became the newest AVT Core Director. Former AVT Core Director Dr. David He will still play a valuable part of the AVT Core going forward as he works with the Electrophysiology and Molecular Biology subcores. We would also like to thank Dr. He for his incredible efforts as the inaugural director of the AVT Core. Dr. He was a critical part of writing the AVT Core proposal in the A0 and A1 submissions. We are looking forward to Dr. Nichols leading the AVT Core. Dr. Nichols is assisted by Dr. Anthony Stender.



Michael Nichols, PhD

## Renovations



Rendering of The CL Werner Center for Health Sciences Education

In the fall of 2023 the school of medicine will have a new \$75 million building to call home. The CL Werner Center of Health Sciences Education is under currently under construction and will be an innovative building for the school of medicine. The CL Werner Center for Health Sciences Education will include shared spaces for each of the university's health sciences and colleges. It is estimated that nearly 5,900 students, faculty and staff will use the building each year. The new facility will provide health sciences with more efficient space, resulting in an annual cost savings of \$700,000. With the construction of a new building to be the home of the school of medicine, there will also be \$10 million in renovations to the Criss buildings where the Translational Hearing Center is located. "We stand at a significant moment in the life of Creighton University. This investment by CL and Rachel Werner is a bold statement of support for our mission and our students, and it reinforces Creighton's strong commitment to the Omaha community, the region, and the nation." Fr. Hendrickson said.

## Central Region IDeA Meeting June 7-9, 2023

The Central Region IDeA Meeting is a biennial IDeA conference that showcases the various IDeA programs in our Central Region States (ND, SD, NE, KS, OK). Our next regional conference will be hosted and coordinated by Kansas in 2023. The meeting will take place on June 7-9, 2023 at the InterContinental Hotel in Kansas City. We are planning a two-day meeting with keynote speakers, oral presentations from students and faculty, poster sessions, and active participation from university and NIH leadership. Please mark your calendars and save the date. Feel free to distribute this to students and investigators in your respective programs. More information about the scientific program and a call for papers will be distributed at a later date!

## Dr. Litao Tao Appointed to the HRP



Dr. Litao Tao was formally announced as a participant of the consortium projects. Congrats Dr. Tao! Dr. Tao's said this in regards to his area of focus: "We are interested in the role of epigenetic repression (i.e., chromatin architecture and histone modifications to block gene expression) in the silencing of sensory hair cell programming in the supporting cells of the mammalian cochlea. We hypothesize that in mammals, the epigenetic silencing state of hair cell genes in supporting cells hampers reactivation of those genes and hence blocks the conversion of supporting cells to hair cells, one major hair cell regeneration mechanism found in non-mammalian animals. Investigation of the epigenetic regulatory mechanisms not only helps us understand the failure of sensory hair cell regeneration in humans, but also provides potential targets for us to manipulate the epigenetic status of genes to stimulate gene expression for hair cell regeneration toward hearing restoration."

**Dr. Tao's HRP webpage:** [Litao Tao, Ph.D. – Hearing Health Foundation](#)

# First Annual Regional ARO Meeting - 2022



The Translational Hearing Center is happy to have co-sponsored the first annual Regional ARO meeting at Creighton University. Thank you to everyone who joined us for the first Regional ARO Meeting on October 10th! It was a day of fascinating presentations and knowledge sharing between researchers in various universities and institutes across Nebraska, Iowa, Indiana and Missouri. It was held in the beautiful Hixson-Lied Auditorium in the Heider Building, and had 70 participants throughout the day. The event was sponsored by the Association for Research in Otolaryngology (ARO), Creighton University School of Medicine (Translational Hearing Center, Biomedical Sciences Department, Pharmacology and Neuroscience Department) and Boys Town National Research Hospital.

Six keynote talks were delivered in the morning session from established researchers in the field of hearing and balance, Dr. Ryan McCreery, Dr. Alexander Claussen, Dr. Bo Zhao, Dr. Benjamin Perrin, Dr. Tatjana Piotrowski and Dr. David He. Eight presentations were given in the afternoon from talented Research Scientists, Post-doctorate Fellows, PhD and Master students in the field, Dr. Lara Bergdolt, Dr. Tian Cong, Dr. Rene Vielman, Dr. Matthew Ingersoll, Dr. Chunkai Wang, Lauren Barbush MSc, Emma Longsworth Doctoral Student, Dr. Molly McDevitt.



Thank you for our students and PIs who participated whole heartedly in the presentations and poster sessions, and to our dedicated session moderators- Drs. Litao Tao, Gopal Jadhav, Hela Azaiez and Tal Teitz. The spirit of fun was extended to the evening hours when we shared dinner, an exciting singing performance, and a student-led dancing. Thank you for our organizers Dr. Tal Teitz, Dr. Hela Azaiez, Dr. Jian Zuo, Dr. Peter Steyger, and Mr. Jacob Walker. Additional help for the event was provided by Mary Brutsche, Mary Jo Render, Jerrod Lawrence, Stacy Barney, John Bolas, Jon Hemphill and Minh Vu.

We look forward to making it an annual tradition for our area hearing and balance researchers, and to all who are interested in hearing research!



## About Dr. Richard J. Bellucci

Dr. Bellucci's mission in starting the Bellucci DePaoli Foundation was to ensure the important work of hearing restoration continues. The Foundation offers stipends to impressive PhD candidates, making important contributions in auditory research, plus support for acquiring necessary research equipment. Dr. Bellucci is best known for a surgical operation he pioneered, the stapedectomy, and as the inventor of the surgical tool used during this operation: the Bellucci Micro Ear Scissors. The operation was developed in the late 1950s and was one of the first uses of a microscope during surgery. During the procedure, the stapes (a tiny bone in the ear) is removed and replaced by a prosthetic device, gifting patients with certain types of hearing loss to regain their hearing. Dr. Bellucci was Chair of Otolaryngology at the Manhattan Eye, Ear & Throat Hospital (1963-79) and Chairman of Otolaryngology at New York Medical College (1966-80), completing his residency at the former. He trained many ear, nose, and throat specialists who practice today throughout the United States, Canada, and beyond. Dr. Bellucci was also the Director of several impressive residency programs. In addition to running his own private practice and serving as a longtime president of the American Otological Society, he volunteered time and services in his later years at the Hopital de Sacre Coeur in Milot, Haiti, exemplifying the Jesuit spirit of service.

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