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Creighton University School of Medicine

Translational Hearing Center
Creighton University
Boys Town National Research Hospital
University of Nebraska Medical Center

A Message From Our Director

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 ototherapeutic 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 4 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. Chunkai Wang as a Drug Discovery & Delivery Core Lab Manager. (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 3rd, 2022, which has the theme of Age-Related Hearing Loss. Poster abstracts are due May 6th, and digital poster uploads by May 13th, 2022. Register Here I hope to see many of you there! Until next time, may all be well, Peter

Dr. Peter Steyger

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Featured articles

Tejbeer Kaur Announced as Chair of the Diversity & Minority Affairs Committee at ARO

Tejbeer Kaur has been announced as the chair of the Diversity & Minority Affairs Committee at The Association for Research in Otolaryngology. The ARO has members located in universities, medical centers, research institutes and biotech industries throughout the world. The ARO is the world's largest organization of hearing and balance researchers. There are 2905 active members of the ARO. Congratulations Dr. Kaur!

Tejbeer Kaur, PhD

Lab News

- Shailee Parekh has received an award for 2022 M1 Summer Research Program stipend
- Sadie Keesler has been awarded the 2022 M1 Summer Research Program stipend
- Kimberly Levine has been awarded the 2022 M1 Summer Research Program stipend
- Vignesh Rathinavelpandian Anandavel has received travel award for the 2022 Molecular Biology of Hearing and Deafness conference in Iowa City in May
- Tian Cong has received a travel award for the 2022 Molecular Biology of Hearing and Deafness conference in Iowa City in May

Elyssa Pereyra Receives 2022 CURAS SURF Award

Elyssa Pereyra is a neuroscience major sophomore in Dr. Tejbeer Kaur's lab. (See image on page 4) Elyssa was awarded a summer research scholarship from the College of Arts and Sciences and the Center for Undergraduate Research and Scholarship (CURAS). Elyssa received the 2022 CURAS SURF award to study the role of glucocorticoids in degeneration and repair of cochlear ribbon synapses. She has been working in Dr. Kaur's lab for over a year and she independently thought of the project, collected the data and wrote the grant proposal. Elyssa will be presenting her research at the 2022 Ferlic Poster Presentation this fall and the 2023 University Research Week next spring. Congratulations Elyssa!

Drug Discovery & Delivery Core Launches Seminar Series

Corey R. Hopkins, PhD

The Drug Discovery & Delivery Core kicked off its seminar series on Tuesday, March 29th. The inaugural seminar was given by Corey R. Hopkins, PhD from the University of Nebraska Medical Center. He is a professor at UNMC in the Department of Pharmaceutical Sciences. Dr. Hopkins seminar was titled "Discovery and Characterization of Novel Small Molecules as in Vivo Tool Compounds for CNS Disorders."

For the next Drug Discovery & Delivery Core seminar we will have the honor of welcoming Paul Trippier, PhD from the University of Nebraska Medical Center. The date for the next DDDC seminar is set for Tuesday, April 26th.

More information about all Translational Hearing Center seminars can be found here - Seminar Schedule (creighton.edu)

Renovations

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.

Rendering of The CL Werner Center for Health Sciences Education

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.

New Pilot Project Awardee

Litao Tao

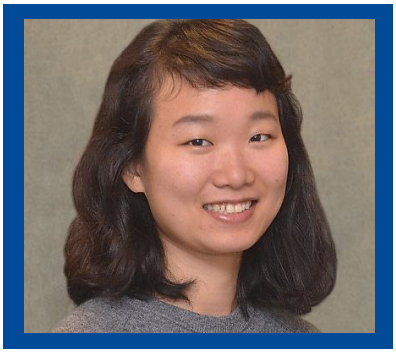
Transcription factor POU4F3 is indispensable for the differentiation and homeostasis of sensory hair cells, the essential cell type converting mechanical vibrations into electrical signals for hearing function. During hair cell differentiation, the pioneer factor activity of POU4F3 is required for ATOH1 to access many inaccessible elements to up-regulate hair cell genes. In mature hair cells, reduction of POU4F3 transcription activity due to mutations in one allele leads to hair cell death and hence progressive hearing loss (DFNA15,autosomal dominant non-syndromic hearing loss 15). It remains unclear how the expression of POU4F3 gene is regulated at different developmental stages and there is no feasible method to stimulate the POU4F3 gene in a cell type-specific and temporal-regulated manner. Using mouse models, we plan to investigate the regulatory roles of Pou4f3 enhancers to understand the transcription regulation of the Pou4f3 gene. In addition, we will epigenetically manipulate Pou4f3 enhancers to stimulate Pou4f3 expression specifically in hair cells for a potential therapeutic treatment of hearing loss in DFNA15 patients. Through this proposed study, we will gain a better understanding of how POU4F3 gene is regulated at the transcription level, and potentially find a therapeutic approach to treat DFNA15 patients.

4th Annunal Bellucci Symposium on Hearing Research

2022 Bellucci Prize and Trainee Award Winners

The 4th Annual Bellucci Symposium on Hearing Research will take place on **June 3, 2022**. This year's presentations will focus on Aging and Age-Related Hearing Loss. This years event will be held virtually due to the Covid-19 crisis. In light of the COVID-19 crisis, we combined the 2nd and 3rd annual events into a two-day, virtual symposia on Hearing Research on June 3rd/4th, 2021. The Symposia focused on drug therapeutics for hearing loss. We had 370+ registrants from 23 countries and territories join us virtually for two days of amazing presentations on research and development being undertaken. In addition to twelve guest speakers addressing different aspects on drug therapeutics for hearing loss, last year's virtual Symposia included academic poster sessions as well as representatives of several prominent national and local companies who presented on their recent progress on drug development and hearing loss.

The Bellucci Symposium Organizing Committee has announced Karen Steel, PhD, FRS, FMedSci as the 2022 Bellucci Prize Winner. Dr. Steel will give the Keynote Address at the 4th Annual Bellucci Symposium on Hearing Research. The title of the address is "Can Hearing Loss be Reversed?". Dr. Steel will give the address on June 3rd, 2022 at 11:55 AM CDT. Congratulations Dr. Steel!



The 2022 Bellucci Trainee award winner is Peizhe Wu, M.D., PhD from Harvard Medical School. Dr. Wu's title is still TBA. Congratulations Dr. Wu!

More details to be found at:
https://belluccisymposium.weebly.com

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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