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Creighton UNIVERSITY School of Medicine

DR. RICHARD J. BELLUCCI Translational Hearing Center Creighton University

Introducing the Bellucci Translational Hearing Center

Translational Hearing Center to be Renamed to Honor Alumnus and Pioneering Surgeon Richard J. Bellucci, MD

OMAHA, Neb. (April 25th, 2023) – The Translational Hearing Center at Creighton University will be renamed to honor alumnus and pioneering surgeon Richard J. Bellucci, MD, in an on-campus ceremony on May 19th, 2023

Dr. Bellucci was a 1942 graduate of Creighton University School of Medicine before building a long career as chair of the Department of Otolaryngology at the Manhattan Eye, Ear, and Throat Hospital in his native New York City.

"Dr. Bellucci was a surgeon, scientist, teacher, and humanitarian – through a generous, multi-year grant from the Bellucci DePaoli Family Foundation, the Richard J. Bellucci Translational Hearing Center is proud to be part of his legacy," said Center Director Peter Steyger, PhD. "Dr. Bellucci was a giant in his field, someone we can all hope to emulate. With this donation, we can work to further his mission to prevent and treat hearing loss." (Continued on page 6)

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Featured articles

New Drug Discovery & Delivery Core Director

Dr. Patrick Swanson began as the interim director of the Drug Discovery & Delivery Core, effective February 1st, 2023. Patrick C. Swanson, PhD is a Professor and the Graduate Program Director in the Department of Medical Microbiology and Immunology in the School of Medicine at Creighton University. He is also currently the Director of the Creighton University Flow Cytometry Core Facility. His graduate work in the Department of Chemistry at the University of Michigan involved in analyzing anti-DNA antibody recognition of conformationally constrained DNA hairpin molecules. His current research is focused on understanding how RAG1 protein stability in regulated in developing B cells, and its role in supporting efficient immunoglobulin gene rearrangement and B cell development. In particular, he has an interest in developing and using small molecule inhibitors of receptor signaling pathways and protein degradation to elucidate mechanisms regulating RAG1 protein turnover. His research is supported by NIH and LB595 grants.

Patrick Swanson, PhD

Litao Tao, PhD

Litao Tao, PhD Hearing Restoration Project Appointment

The Hearing Restoration Project has formally announced Dr. Tao's participation in the consortium projects. More information about Dr. Tao's appointment can be found here: Litao Tao, Ph.D. — Hearing Health Foundation. Congratulations Dr. Tao!

New Assistant Director - Charles Klinetobe

Charles Klinetobe, PhD joined the Bellucci Translational Hearing Center earlier this year and immediately contributed to the success of the Center's visibility at ARO in February. Charles has brought valuable recruiting knowledge as well as organizational skills that will allow the Bellucci Symposium and Center to grow for years to come. We are thrilled to have Charles!

Featured articles

2023 Bellucci Symposium

May 19th, 2023

The 5th annual Bellucci Symposium on Hearing Research will be held on Creighton University's beautiful campus while also being available on Zoom for those wanting to participate remotely. Please follow the registration link below for more information regarding the registration for this year's symposium.

This year, the symposium will honor the 2023 Bellucci Prize Winner, Jaime García-Añoveros, PhD, from Northwestern University as well as the 2023 Bellucci Trainee Award Winner, Nesrine Benkafadar, PhD, PharmD from Stanford University.

We would like to thank all of the organizers, moderators and administrators who have made this possible: Litao Tao, Brian North, Jun Xia, David He, Tal Teitz, Peter Steyger, Jian Zuo, John Bolas and Charles Klinetobe.

To learn more about the 2023 Bellucci Symposium please visit the Bellucci Symposium website: Home (weebly.com)

Jaime García-Añoveros, PhD

Nesrine Benkafadar, PhD, PharmD

Click here to register for the 2023 Bellucci Symposium:https://blueq.co1.qualtrics.com/jfe/form/SV_725hCAzdH32CWHk

"The Origin of Life - Cell"

1.5 billion years ago, persistent efforts for survival and to enjoy life to the fullest evolution took place. May be the unicellular prokaryotic organisms started to form symbiotic relationships to develop into the eukaryotic organisms. The life started with a single cell and the current image is captured in honor it.

The samples were labeled with phalloidin (red) and DAPI (blue). Phalloidin is a highly toxic rigid bicyclic heptapeptide that selectively binds to filamentous actin (F-actin) structures throughout the cytoplasm, most prominently as stress fibers. DAPI (4′,6-diamidino-2-phenylindole) is a blue fluorescent label that binds strongly to adenine–thymine-rich regions in DNA within the nucleus of all cells, and is particularly visible in this epithelial cell in this image. Within the nucleus, DAPI has labeled several nuclear structures, likely nucleoli & Chromatin.

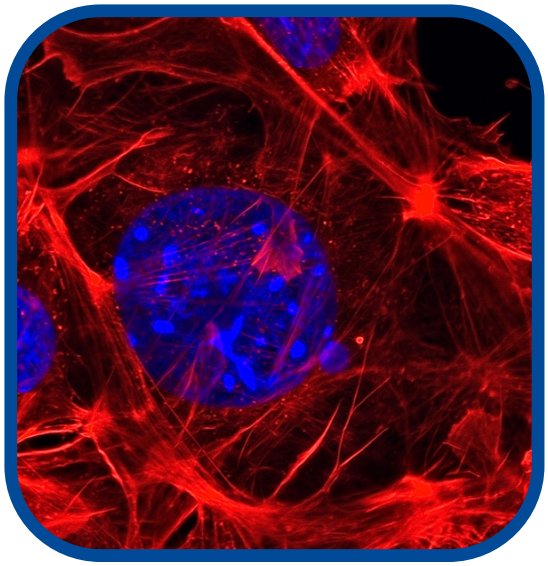

Image courtesy of Vignesh Ra

Featured articles

Translational Hearing Center at ARO Mid-Winter Research Meeting

The Translational Hearing Center had a booth at the ARO Mid-Winter Research Meeting in Orlando, Florida from February 7th - February 15th, 2023. Assistant Director of the Translational Hearing Center Charles Klinetobe, PhD accompanied by Jacob Walker, manned the booth with frequent assistance from the various members of the Center that were in attendance. Numerous center faculty and trainees presented podium talks and posters throughout the week along with many members giving talks. The Center was able to generate numerous new connections from all around the world as well as reconnect with familiar faces. This was the first in-person ARO meeting since the Covid-19 pandemic. The Center was able to distribute countless flyers and advertisement materials related to the center to a wide variety of potential clients. We were also able to generate interest in the upcoming Bellucci Symposium. We are hopeful this will lead to even more use of our Auditory and Vestibular & Technology Core and Drug Discovery & Delivery Core along with increasing the attendance at this year's Bellucci Symposium. These interactions also should increase visibility of our various funding opportunities and position openings. By attending ARO, the Center was able to connect and develop relationships with other professionals within the audiology and research field. We look forward to attending this outstanding conference in 2024 in Anaheim, CA.

Featured articles

Our Current Research Project Leaders

Jeffery North, PhD

Aminoglycosides (AG) have broad antibiotic spectra against aerobic gram-positive and gram-negative bacteria and mycobacterial pathogens. AG toxicities include kidney tubular necrosis, vertigo, and, most notably, hearing loss. AG are used to treat multidrug-resistant tuberculosis (MDR-TB) and *Mycobacterium abscessus* complex (MABSC) infected patients (e.g. cystic fibrosis, bronchiectasis or chronic obstructive pulmonary disease). Studies have shown that 55-58% of patients infected with MDR-TB who received amikacin as part of their therapy, experienced hearing loss due to its ototoxic effects. Likewise, up to 27% of cystic fibrosis patients infected with *M. abscessus* who received AG therapy experienced hearing loss. Read more here: Research Project Leaders (creighton.edu)

Litao Tao, PhD

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... Read more here: Research Project Leaders (creighton.edu)

Padmashri Ragunathan, PhD

Exposure to alcohol during pregnancy produces fetal alcohol spectrum disorders (FASD) that are associated with sensory and cognitive deficits. Individuals with FASD have impaired auditory processing and also frequently exhibit atypical auditory behaviors. It is therefore important to determine the molecular mechanisms that govern auditory processing in normal and developmentally abnormal brain. We will examine auditory processing in mice prenatally exposed to alcohol, perform in vivo imaging in the primary auditory cortex to track AMPARs α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid.) and dendritic spines over days, and perform electrophysiological recordings... Read more here: Research Project Leaders (creighton.edu)

Our Current Pilot Project Awardee

Centers for Disease Control and Prevention (CDC) states noise induced hearing loss (NIHL) as one of the prevalent health issues in the U.S. Currently, there are no FDA approved treatments for NIHL. Therefore, a search to identify novel druggable targets for NIHL is required. Recently, inflammation has proved to be an attractive target for novel drug discovery against NIHL and associated ototoxicity. TREM1 is a primary target responsible for exaggerating various inflammatory disorders by manipulating human immune system. Its pharmacological inhibition by LR12 in the subversion of various disease models, suggest that it might be used as a template to design TREM1 inhibitory agents, provided derivatives devoid mainly of proteolytic... Read more here: Pilot Project Awardees (creighton.edu)

Gopal Jadhav, PhD

Featured articles

Translational Hearing Center to be Renamed to Honor Alumnus and Pioneering Surgeon Richard J. Bellucci, MD

DR. RICHARD J. BELLUCCI
Translational Hearing Center
Creighton University

...Bellucci is best known for his work on stapedectomy, a surgery where a prothesis is inserted into the middle-ear to improve hearing. He expanded the use of microscopes in surgery and invented the Bellucci Micro Ear Scissors--which remain a standard instrument for otological surgeons.

He was president of the American Otological Society and volunteered his expertise in Haiti. He received the Italian *Cavaliere de Merito*, the Legion of Merit Award, for his work treating World War II veterans suffering from hearing loss.

About Creighton University

Creighton University, founded in Omaha, Nebraska, in 1878, is one of 27 Jesuit colleges and universities in the U.S. The Omaha campus has more than 8,000 undergraduate, graduate, and professional students among nine schools and colleges. No other university its size offers students such a comprehensive academic environment with personal attention from faculty-mentors. The new health sciences campus in Phoenix, which will accommodate nearly 1,000 students by 2025, is the largest expansion outside of Omaha in Creighton's history and positions the University as one of the largest Catholic health professions educators in the country. Creighton is ranked in the top third of National Universities by U.S. News & World Report.

More About Richard J. Bellucci, MD

Dr. Bellucci's mission in starting the Bellucci DePaoli Family Foundation was to ensure the important work of hearing preservation and restoration continues. The Foundation offers funding to impressive PhD candidates and post-doctoral fellows making important contributions in auditory research, plus support for acquiring necessary research equipment. 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.

Visit our website: Translational Hearing Center | School of Medicine | Creighton University

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