

CURRICULUM VITAE
JOHN STEVEN OGHALAI, MD

GENERAL BIOGRAPHICAL INFORMATION

Personal

Date and of Birth: December 14, 1968; Superior, Wisconsin
Citizenship: United States
Marital Status: Married, two children
Business Address: Caruso Department of Otolaryngology-Head and Neck Surgery
University of Southern California
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Professional Experience

Primary appointment

2017-pres Leon J. Tiber and David S. Alpert Professor, and Chair, Caruso Department of Otolaryngology – Head and Neck Surgery, University of Southern California, Los Angeles, CA

Secondary, Adjunct, Administrative, and Past appointments

2019-pres Professor, by courtesy, Department of Biomedical Engineering, USC Viterbi School of Engineering
2018-pres Program faculty, USC Stem Cell
2017-pres Professor, by courtesy, Department of Neurosurgery, USC Keck School of Medicine
2017-pres Faculty Preceptor and Executive Committee Member, USC Hearing and Communication Neuroscience Training Program
2015-2017 Professor (University Tenure Line), Department of Otolaryngology – Head and Neck Surgery, Stanford University, Stanford, CA
2016-2017 Program Director, Clinician-Scientist Training Program in Otolaryngology – Head and Neck Surgery
This T32-funded program trains otolaryngology residents and post-otolaryngology residency graduates to become independent clinician-scientist investigators.
2016-2017 Professor, by courtesy, Department of Neurosurgery, Stanford University, Stanford, CA
2015-2017 Professor, by courtesy, Department of Pediatrics, Stanford University, Stanford, CA
2015-2017 Adjunct Professor, Department of Otolaryngology – Head and Neck Surgery, McGill University, Montréal, Qc, Canada
I had this appointment because I mentored an Otolaryngology resident from McGill University in cochlear implant research. This appointment was required by his institution. I received no salary support from McGill University.

- 2014-2017 Neuroscience Program Faculty Member, Stanford University, Stanford, CA
- 2010-2017 Director, The Stanford Children's Hearing Center
- 2010-2017 Faculty, Bio-X Program, Stanford University, Stanford, CA
- 2012-2015 Associate Professor, by courtesy, Department of Pediatrics, Stanford University, Stanford, CA
- 2010-2015 Associate Professor (University Tenure Line), Department of Otolaryngology – Head and Neck Surgery, Stanford University, Stanford, CA
- 2009-2015 Adjunct Associate Professor, Department of Bioengineering, Rice University, Houston, TX
This appointment was granted to me when I was a faculty at Baylor College of Medicine and actively collaborated with several faculty at Rice University. I maintained this appointment after moving to Stanford because I was the primary mentor of a Rice University Bioengineering Graduate Student, Simon Gao. I received no salary support from Rice University.
- 2009-2010 Associate Professor (Tenured), Bobby R. Alford Department of Otolaryngology – Head and Neck Surgery, Baylor College of Medicine, Houston, TX
- 2009-2010 Secondary appointment, Associate Professor, Department of Neuroscience, Baylor College of Medicine, Houston, TX
- 2008-2009 Secondary appointment, Assistant Professor, Department of Neuroscience, Baylor College of Medicine, Houston, TX
- 2005-2009 Adjunct Assistant Professor, Department of Bioengineering, Rice University, Houston, TX
- 2004-2010 Clinic Chief and Director of The Hearing Center at Texas Children's Hospital
- 2003-2009 Assistant Professor (Tenure Track), Bobby R. Alford Department of Otolaryngology – Head and Neck Surgery, Baylor College of Medicine, Houston, TX
- 2001-2003 Clinical Instructor, Department of Otolaryngology - Head and Neck Surgery, University of California - San Francisco, San Francisco, CA

Education and Training

Postgraduate

- 2001-2003 Fellowship in Neurotology and Skull Base Surgery, Department of Otolaryngology - Head and Neck Surgery, University of California - San Francisco, San Francisco, CA
- 1995-2001 Residency: Otolaryngology - Head and Neck Surgery, Bobby R. Alford Department of Otorhinolaryngology and Communicative Sciences, Baylor College of Medicine, Houston, TX
- 1996-1998 Post-Doctoral Research Fellowship: Bobby R. Alford Department of Otorhinolaryngology and Communicative Sciences, Baylor College of Medicine, Houston, TX. Advisor: William E. Brownell, Ph.D.
- 1994-1995 Internship: General Surgery, Department of Surgery, Baylor College of Medicine, Houston, TX

Medical

- 1990-1994 M.D., University of Wisconsin – Madison

Undergraduate

1986-1990 B.S., Electrical Engineering, University of Wisconsin – Madison

Other Information

Honors and Awards

2019 Elected President of the Association for Research in Otolaryngology
 2018 Elected into Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum (CORLAS)
 2012 Stanford School of Medicine Faculty Fellow
 2007 Fellow of the American College of Surgeons
 2004 The Dawn and Brook Lenfest Grant in Auditory Science
 2002 Neurotology Trainee Award from the American Neurotology Society: *The Effect of Age upon Acoustic Neuroma Surgery Outcomes*
 2000-2001 Voted Administrative Chief Resident by other residents
 2000 Resident Teaching Award (for peer and medical student teaching)
 1999 The J. Charles Dickson Award for Basic Science Research: *Outer Hair Cell Electromotility and the Lateral Wall: Lipid-Protein Interactions on a Nanoscale*
 1999 Texas Association of Otolaryngology - Head and Neck Surgery Resident Paper Award (2nd place): *Nanoscale membrane rippling in the cochlear outer hair cell*
 1998 The J. Charles Dickson Award for Basic Science Research: *Innate and voltage-dependent mobility within the lateral wall plasma membrane domain of the outer hair cell*
 1998 Texas Association of Otolaryngology - Head and Neck Surgery Resident Paper Award (2nd place): *Ionic currents and electromotility in human hair cells*
 1997 The J. Charles Dickson Award for Basic Science Research: *Fluorescence-imaged microdeformation of the outer hair cell lateral wall*
 1997-2001 Association for Research in Otolaryngology Midwinter Meeting Resident Travel Awards
 1994 Alpha Omega Alpha
 1993 The Evan and Marion Helfaer Scholarship
 1992 The Youmans Award in Medical Physiology
 1990 University of Wisconsin Engineering Departmental Scholarship
 1987 University of Wisconsin Chemistry Departmental Scholarship
 1986-1990 Dean's Honor List every semester
 1986 Acceptance to University of Wisconsin Medical Scholars Program
 1983 Eagle Scout

Board Certification and Licensure

2010-2020 Neurotology; American Board of Otolaryngology
 2002-2020 Otolaryngology-Head and Neck Surgery; American Board of Otolaryngology
 2001-pres California Medical License: A75420
 1996-pres Texas Medical License: J9532
 1996-pres DEA certification
 12/1996 USMLE Step III

3/1994 USMLE Step II
6/1992 USMLE Step I

Other non-academic positions

1989 Co-Op Engineer, McDonnell Douglas Corporation, St. Louis, MO
1988 Co-Op Engineer, General Motors Corporation, Lansing, MI
1985-1986 Summer Day Camp Counselor, Madison Metropolitan School District,
Madison, WI

RESEARCH INFORMATION

Research support

1. Mechanisms of cochlear synaptopathy after noise or blast trauma
 - a. Funding Agency: NIH R01 DC017741
 - b. Investigator relationship: PI
 - c. Dates of funding: 12/1/2019-11/30/24
 - d. Annual direct cost: \$556,746 Total cost for overall period: \$3,792,587
 - e. Grant Goal: About 15% of Americans have hearing loss due to noise exposure. Here, we propose to use in vivo imaging of the mouse cochlea to determine how auditory nerves are damaged by loud sounds. The findings of this research may ultimately support a clinical trial in human subjects that attempts to treat hearing loss during the few hours after blast or noise trauma.

2. Cochlear mechanics in the mouse
 - a. Funding Agency: NIH R01 DC014450
 - b. Investigator relationship: PI
 - c. Dates of funding: 5/01/15-4/30/20
 - d. Annual direct cost: \$453,860 Total cost for overall period: \$3,794,904
 - e. Grant Goal: Mammals hear when the highly-organized organ of Corti vibrates in response to sound pressure waves and stimulates hair cells. Herein, we propose image these vibrations non-invasively and understand how these structures work together to create high auditory sensitivity and sharp frequency tuning. This question remains unsolved and is clinically important because while hearing aids can compensate for the loss of sensitivity, we have no treatments for the loss of frequency tuning.

3. Optical coherence tomography for 3D measures of cochlear mechanics in vivo
 - a. Funding Agency: NIH R01 DC013774
 - b. Investigator relationship: PI
 - c. Dates of funding: 4/01/15-3/31/20
 - d. Annual direct cost: \$402,802 Total cost for overall period: \$2,575,198
 - e. Grant Goal: This is a Bioengineering Research Grant in which our team proposes to develop the technology to image sound-induced vibrations within the mouse cochlea non-invasively in 3D. Furthermore, we will determine the impact of outer hair cell passive stiffness and active force generation on the vibratory patterns using transgenic mouse strains.

4. Optical imaging technologies to identify residual cholesteatoma and improve ossiculoplasty outcomes
 - a. Funding Agency: R01 EB027113
 - b. Investigator relationship: PI: Applegate; role: co-investigator

- c. Dates of funding: 4/1/2019-12/31/22
 - d. Annual direct cost: \$420,368 Total cost for overall period: \$2,682,164
 - e. Grant Goal: We are developing advanced optical instrumentation for identifying residual cholesteatoma lesions, candidates for revision ossiculoplasty, and sizing of middle ear prosthetics. This work will improve clinical care by reducing the need for middle ear surgery, thus leading to better outcomes and lower health care costs.
5. Conference on implantable auditory prostheses
- a. Funding Agency: NIH R13 DC015965
 - b. Investigator relationship: PI (Bob Shannon, PhD is listed as the co-PI, but it is really his grant and he runs the conference. I am only listed as the PI because Bob is retired and does not have PI status at USC any longer)
 - c. Dates of funding: 4/01/17-3/31/22
 - d. Annual direct cost: \$40,000 Total cost for overall period: \$120,000
 - e. Grant Goal: This supports the bi-annual auditory prosthesis conference that Bob has run for many years.
6. Clinician-Scientist Training Program in Otolaryngology
- a. Funding Agency: NIH T32 DC015209
 - b. Investigator relationship: PI
 - c. Dates of funding: 7/1/2016-6/30/2021 (I transferred the PI position to Alan Cheng, MD, when I moved from Stanford to USC in 2017)
 - d. Annual direct cost: \$178,470 Total cost for overall period: \$968,404
 - e. Grant Goal: This program aims to train otolaryngology residents and post-residency graduates to become physician scientists. It is designed to provide intense research experiences, a structured didactic program, and close mentorship and guidance in how to integrate clinical and research activities. Trainees will be ingrained with the philosophy that research is intrinsic to an academic surgeon's career and that they should build their career by sustaining excellence in both research and clinical care. If our training program is successful, our graduates will become independent NIDCD-funded investigators in faculty positions in academic departments. The ultimate long-term goal, of course, is for them to improve human health by advancing our field via scientific discovery that is translated to clinical care.
7. Outcomes in Children with Developmental Delay and Deafness: a Randomized Trial
- a. Funding Agency: NIH R01 DC010075
 - b. Investigator relationship: PI
 - c. Dates of funding: 9/18/09-8/31/16 (includes an approved two-year no-cost extension due to delays in starting this trial)
 - d. Annual direct cost: \$327,036 Total cost for overall period: \$2,481,327
 - e. Grant Goal: Currently, there is little compelling evidence supporting the idea that cochlear implantation provides benefit to children that don't have the cognitive potential to develop normal speech and language. We hypothesize that development and quality of life will improve more in deaf children with developmental delays when treated with a cochlear implant compared to those treated with hearing aids. We are performing a prospective, randomized clinical trial to answer the question of which intervention provides more benefit to this population of children using validated, norm-referenced tests. If our hypothesis is correct and cochlear implants significantly improve development and quality of life in deaf

children with developmental delays, our study will provide essential evidence to support clinical decision-making in this population.

8. Designing new aminoglycosides to alleviate inner ear toxicity
 - a. Funding Agency: NIH R01 DC014720
 - b. Investigator relationship: Co-investigator (PIs: Anthony Ricci and Alan Cheng)
 - c. Dates of funding: 7/1/2015-6/30/2020
 - d. Annual direct cost: \$ 468,825
 - e. Grant Goal: This project aims to design, synthesize, and test new aminoglycoside-derivatives that can be less ototoxic and nephrotoxic *in vitro* and *in vivo*.

9. Bilirubin Binding Capacity to Assess Bilirubin Load in Preterm Infants
 - a. Funding Agency: NIH R21 HD08231901
 - b. Investigator relationship: Co-investigator (PI: Vinod Bhutani)
 - c. Dates of funding: 12/1/15-11/30/2017
 - d. Annual direct cost: \$ 135,097
 - e. Grant Goal: This project will evaluate two new innovative nanotechniques to quantify bilirubin load for the first time in the context of a clinical decision algorithm to identify those most at risk for any bilirubin-related neurotoxicity. We anticipate that knowledge gained from this study will lead to ethically testable hypotheses to individualize the prescription of phototherapy.

10. Stanford OHNS Core Center
 - a. Funding Agency: NIH P30 DC010363
 - b. Investigator relationship: Co-director of the physiology core (PI: Stefan Heller)
 - c. Dates of funding: 9/18/09 – 8/31/17
 - d. Annual direct cost: \$147,929
 - e. Grant Goal: The Core Center at Stanford Otolaryngology - Head & Neck Surgery aims to support the research endeavors of a central group of 11 Principal Investigators working on topics related to auditory and vestibular neurobiology. It is meant to generate a central hub of knowledge, technology, and collaboration for R01- funded basic researchers as well as clinicians, thereby spawning new ideas and translational advances.

11. Three-dimensional and multi-scale organ of Corti biomechanics
 - a. Funding Agency: NIH NIDCD R01 DC007910-05A1 (PI: Charles Steele)
 - b. Investigator relationship: Co-investigator
 - c. Dates of funding: 10/1/05-6/30/17
 - d. Annual direct cost: \$372,390
 - e. Grant Goal: This proposal attempts to test the feed-forward feedback model of cochlear amplification by incorporating *in vivo* morphological data that assesses the tonotopic structural interaction of Dieter cells with outer hair cells as well as by incorporating realistic receptor potential parameters for outer hair cells.

12. Regenerating the blast and noise damaged cochlea
 - a. Funding Agency: DoD MR130316
 - b. Investigator relationship: Co-investigator (PI: Alan Cheng)
 - c. Dates of funding: 9/30/2014- 9/29/2017
 - d. Annual direct cost: \$302,855

- e. Grant Goal: This project applies Wnt signaling or reprogramming factors to regenerate the blast or noise damaged cochlea.
13. Translating optical coherence tomography to diagnose Meniere's disease
- a. Funding Agency: Stanford Spectrum Pilot Grant for Predictives and Diagnostics, a subcomponent of the Stanford Clinical and Translational Science Award (CTSA) (UL1 TR001085)
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/15 – 12/31/15
 - d. Annual direct cost: \$45,000 Direct cost for overall period: \$45,000
 - e. Grant Goal: Dizziness is an extremely common condition that is poorly managed by modern medicine because there are multiple potential causes of this symptom but few of them can be definitively diagnosed. Here, we proposed to translate optical coherence tomography (OCT) technology that we have developed for basic science mouse auditory research to permit imaging of the human inner ear. This diagnostic device will permit the physician to conclusively state whether or not a patient in his/her clinic presenting with dizziness has Meniere's disease, a disorder of the inner ear that can be treated with proper medical and/or surgical management. We have already built a prototype device that works in human cadavers and propose herein to perform testing in living patients.
14. Diagnostic imaging of the inner ear: Initial human trials of a novel device
- a. Funding Agency: Stanford University Birdseed Grant from the Office of Technology and Licensing
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/13 – 12/31/15
 - d. Annual direct cost: \$36,643 Direct cost for overall period: \$36,643
 - e. Grant Goal: The objective of this research is to translate OCT technology that we have developed to study the mouse cochlea into a novel biotech product that addresses a currently-unmet clinical need. We will perform feasibility first-in-human trials of a device we designed for diagnostic imaging of the human inner ear. Hopefully, this groundbreaking application of technology will substantially improve our ability to diagnose and treat disorders of the ear.
15. Speech encoding within the mammalian cochlea
- a. Funding Agency: Stanford University Cracking the Neural Code Seed Grant
 - b. Investigator relationship: Co-PI (Together with Audrey Ellerbee, Ph.D.)
 - c. Dates of funding: 12/1/12 – 12/30/15
 - d. Annual direct cost: \$56,907.92 Direct cost for overall period: \$113,815.84
 - e. Grant Goal: Human speech is a complex mixture of sounds of different frequencies, intensities, and timing. Our ability to communicate depends upon how well our auditory system handles these transients. Herein, we aim to determine how non-linear processing inherent to the mammalian cochlea encodes transients given the hypothesis that the magnitude of basilar membrane vibration will vary with sound stimulus duration. An anticipated consequence of our results is that new hearing aid algorithms may be designed to maximize these features and enhance speech recognition abilities.
16. Diagnosis & Treatment of Blast-Induced Hearing Loss
- a. Funding Agency: DoD W81XWH-11-2-0004
 - b. Investigator relationship: PI

- c. Dates of funding: 11/1/10-11/14/15
 - d. Annual direct cost: \$750,000 Total cost for overall period: \$3,192,936
 - e. Grant Goal: Blast-induced hearing loss is a common injury sustained by military personnel and produces a long-term disability that requires chronic management. We will develop improved techniques for imaging of the ear and correlate the findings with a detailed assessment of the tissue, cellular, and genetic changes that occur within the ear using a novel mouse model of blast injury.
17. Translation of near-infrared spectroscopy for use in clinical neuro-imaging of deaf children after cochlear implantation
- a. Funding Agency: NIH R56 DC010164
 - b. Investigator relationship: PI
 - c. Dates of funding: 8/1/10-7/31/12
 - d. Annual direct cost: \$250,000 Direct cost for overall period: \$250,000
 - e. Grant Goal: The goal of this proposal is to develop near-infrared spectroscopy neuroimaging into a valid and reliable clinical tool to aid the care of children who hear through a cochlear implant. This technique is expected to enhance the ability of a cochlear implant team to program a child's device.
18. Development of High Resolution Endoscopes for In Vivo Imaging of the Inner Ear
- a. Funding Agency: John S. Dunn Foundation Collaborative Research Award
 - b. Investigator relationship: Co-PI (with Tomasz Tkaczyk, PhD, Dept of Bioengineering, Rice University)
 - c. Dates of funding: 09/01/09 to 08/31/11
 - d. Annual direct cost: \$50,000 Direct cost for overall period: \$100,000
 - e. Grant Goal: A major difficulty in evaluating patients (especially children) with hearing loss is understanding the reason why they have the hearing loss, and deciding whether or not a cochlear implant should be placed. Unfortunately, current techniques for imaging the cochlea are inadequate for making this determination. Methods like computed tomography (CT) and magnetic resonance imaging (MRI) are routinely performed as part of the evaluation of deafness but can identify only gross malformations of the cochlea. In this application, we propose to develop a novel imaging technique designed to overcome this limitation. We will combine optical coherence tomography, an imaging technique commonly used to image the eye, with tunable miniature objectives that can be positioned close to the cochlea and will permit change of imaging depth. The combination of these techniques will permit visualization of the internal anatomy of the cochlea with adequate resolution to detect crucial features. In addition we will design a miniature tunable lens specifically for use in patients. The ultimate goal is to place this lens on an endoscopic device and test our ability to image the inner ear in humans.
19. Stimulation of Auditory Neurons by Multi-Photon Laser Targeting
- a. Funding Agency: The Virginia and L.E. Simmons Family Foundation Collaborative Research Fund
 - b. Investigator relationship: Co-PI (with Robert Raphael, PhD, Dept of Bioengineering, Rice University)
 - c. Dates of funding: 3/1/09-2/28/10
 - d. Annual direct cost: \$145,544 Direct cost for overall period: \$145,544
 - e. Grant Goal: The goal of this research is to investigate the potential of stimulating nerves using light. In contrast to electrical stimulation, light can be tightly focused so that single

neurons can be stimulated. In particular, we propose to 1) characterize the ability of a laser to stimulate auditory neurons in culture and 2) test the feasibility of this approach to restore hearing within the mammalian inner ear. This research is an interdisciplinary collaboration between John S. Oghalai, MD (Baylor College of Medicine) and Robert M. Raphael, PhD (Rice University). The fusion of Dr. Raphael's basic science and engineering expertise with Dr. Oghalai's clinical and auditory research expertise will lay a strong foundation for this translational research effort. A direct potential outcome of this research would be the development of a new auditory prosthetic that can provide superior performance to that currently available with a cochlear implant. Many indirect outcomes could potentially stem from the transformative nature of this research because the ability to selectively stimulate neurons of interest non-invasively within an organ could be used as the basis for neural prosthetic development in many other organ systems, such as the brain, spinal cord, eye, and peripheral nerves.

20. Optical Neuro-Imaging of Deaf Children with Cognitive Delays after Cochlear Implantation
- a. Funding Agency: The Dana Foundation
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/08-12/31/11
 - d. Annual direct cost: \$66,750 Direct cost for overall period: \$200,000
 - e. Grant Goal: Outcomes after cochlear implantation are variable in children and depend upon correct programming of the device. However, programming the implant is complicated in children, particularly those with cognitive delays, because of the inability to accurately measure behavioral responses. We hypothesize that optically imaging activity within the auditory cortex using near-infrared spectroscopy (NIRS) can provide an accurate and immediate measure of speech perception in deaf children hearing through a cochlear implant. This translational research has the potential to guide cochlear implant programming in all young children and especially in patients with absent behavioral responses, such as those with cognitive delays.
21. Stereotactic Stimulation of the Cochlea for the Treatment of Hearing Loss
- a. Funding Agency: The Clayton Foundation
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/07-12/31/10
 - d. Annual direct cost: \$337,606 Direct cost for overall period: \$1,017,986
 - e. Grant Goal: To develop new treatment strategies for hearing loss in humans, an interdisciplinary research project at Baylor College of Medicine, Rice University, and UC-Riverside studies hearing loss in mice. We plan to develop an experimental setup to rapidly target a laser beam to a three-dimensional structure. The primary goals are to: 1) image the inner ear using optical coherence tomography and 2) produce photonic stimulation of the inner ear in a stereotactic manner.
22. Modulation of Inner Ear Nanomechanics
- a. Funding Agency: Alliance for Nanohealth – U.S. Department of Defense
 - b. Investigator relationship: PI
 - c. Dates of funding: 2/1/07-9/28/09
 - d. Annual direct cost: \$131,262.50 Direct cost for overall period: \$131,262.50
 - e. Grant Goal: We hypothesize that laser-induced nano-scale structural changes within the basilar membrane will change the stiffness of the basilar membrane and subsequently alter the resonant frequency map. We will test this hypothesis *in situ* and *in vivo* using a

laser Doppler vibrometer to measure basilar membrane resonance in the mouse cochlea before and after laser irradiation.

23. Research Training in Otolaryngology – Head and Neck Surgery
 - a. Funding Agency: NIH-NIDCD Grant T32 DC007367
 - b. Investigator relationship: Program Faculty PI: William E. Brownell, Ph.D.
 - c. Dates of funding: 7/1/05-6/30/10
 - d. Annual direct cost: \$88,069 Direct cost for overall period: \$578,557
 - e. Grant Goal: This grant funds a two-year research training program in otolaryngology for residents, a one-year research training elective for medical students, and a two-month research elective for medical students

24. Prestin Transduction in the Mouse Cochlea (competing renewal)
 - a. Funding Agency: American Hearing Research Foundation
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/2005-12/31/2005
 - d. Annual direct cost: \$20,000 Direct cost for overall period: \$20,000
 - e. Grant Goal: The aim of this research proposal is to determine whether the prestin protein can be transduced in the mouse cochlea using a helper-dependent adenoviral vector and whether this restores electromotility in mouse outer hair cells. The development of techniques to restore the cochlear amplifier could lead to valuable methods of treating patients with hearing loss.

25. Transduction of Prestin Using Adenovirus in the Mouse Inner Ear
 - a. Funding Agency: Caroline Wiess Law Fund for Research in Molecular Medicine
 - b. Investigator relationship: PI
 - c. Dates of funding: 8/10/2004-8/9/2005
 - d. Annual direct cost: \$25,000 Direct cost for overall period: \$25,000
 - e. Grant Goal: The aim of this research proposal is to determine whether adenoviral transduction of the prestin protein in the prestin null mouse restores outer hair cell electromotility.

26. Modulation of Cochlear Tuning
 - a. Funding Agency: NIH-NIDCD Grant K08 DC006671
 - b. Investigator relationship: PI
 - c. Dates of funding: 4/1/2004-2/28/2010
 - d. Annual direct cost: \$155,000 Direct cost for overall period: \$775,000
 - e. Grant Goal: The aim of this research proposal is to understand the relationship between the passive and active tuning properties of the cochlear partition and to develop techniques that can be used to change the cochlear frequency map. In vivo and in vitro experiments designed to manipulate both the passive and the active components of the cochlear partition will be performed using the guinea pig cochlea. Clinically, these studies may lead to therapeutic interventions for progressive sensorineural hearing loss. Mentors: Bill Brownell and Ruth Anne Eatock

27. The Effect of Modulating Outer Hair Cell Biomechanics on Cochlear Tuning
 - a. Funding Agency: The National Organization for Hearing Research Foundation
 - b. Investigator relationship: PI
 - c. Dates of funding: 1/1/2004-12/31/2004

- d. Annual direct cost: \$15,000 Direct cost for overall period: \$15,000
- e. Grant Goal: The aim of this research proposal is to understand the effect of changing outer hair cell electromotility on the cochlear frequency map. The ability to change cochlear tuning characteristics may lead to new therapeutic interventions for patients with noise-induced and age-related sensorineural hearing loss.
28. Prestin Transduction in the Mouse Cochlea
- a. Funding Agency: American Hearing Research Foundation
- b. Investigator relationship: PI
- c. Dates of funding: 1/1/2004-12/31/2004
- d. Annual direct cost: \$17,500 Direct cost for overall period: \$17,500
- e. Grant Goal: The aim of this research proposal is to determine whether the prestin protein can be transduced in the mouse cochlea using a viral vector and whether this restores hearing in mice with sensorineural hearing loss. The development of techniques to restore the cochlear amplifier could lead to valuable methods of treating patients with hearing loss.
29. Modulation of Cochlear Mechanics
- a. Funding Agency: NIH-NIDCD Grant R03 DC05131
- b. Investigator relationship: PI
- c. Dates of funding: 8/1/2001-5/31/2004
- d. Annual direct cost: \$50,000 Direct cost for overall period: \$150,000
- e. Grant Goal: The objective of these studies is to understand how drugs modulate the cochlear amplifier, specifically those that affect outer hair cell biomechanics. Clinically, they will improve our comprehension of the generation of otoacoustic emissions, as well as the role of the efferent nerves on the cochlear amplifier in health and disease. Additionally, these studies may lead to therapeutic interventions for noise-induced hearing loss and tinnitus.
30. The Effect of the Subsurface Cisternae on Outer Hair Cell Transmembrane Potential
- a. Funding Agency: Deafness Research Foundation
- b. Investigator relationship: PI
- c. Dates of funding: 1/1/96-12/31/98
- d. Annual direct cost: \$15,000 Direct cost for overall period: \$30,000
- e. Grant Goal: The long-term objective of this project is to determine the electrical and mechanical contribution of cellular components towards outer hair cell electromotility. The central hypothesis is that the elegant nanoscale organization of the cell's lateral wall is required for OHC function.

National scientific participation

Journal editing, editorial boards, and advisory boards

2015-pres Associate Editor, Laryngoscope (Otology/Neurotology section)

2005-pres Editorial board, Otology & Neurotology

- Search committee member for a new Editor-in-Chief (2016)

2015-2019 Board of Directors, American Audiology Society

2012-2015 Associate Editor, IEEE Journal of Translational Engineering in Health and Medicine

2008-2015 Editorial board, Journal of International Advanced Otology

- 2013-2015 Council Member, Council for Accreditation in Occupational Hearing Conservation (CAOHC)
- Member of Professional Supervisor sub-committee (2013-2015)
- 2006-2010 Scientific advisory board, Alliance for Nanohealth

Review panels

NIH/NIDCD Study Sections

- NIDCD Board of Scientific Counselors (7/2019-)
- Communicative Disorders Review Committee (CDRC): 2/2014
 - Standing study section member: 7/2014-6/2018
- Special emphasis panels: 2/2006, 11/2006, 5/2010, 7/2010, 3/2011, 9/2011, 3/2012, 10/2012, 11/2012, 7/2014, 3/2014, 1/2019
- Auditory System Study Section (AUD): 9/2009

Deafness Research Foundation Grant Reviewer (2010, 2011)

American Academy of Otolaryngology – Head and Neck Surgery Foundation CORE Grant review study section member (2007-2012)

Professional societies

The American Otological Society

- 2015-2022 AOS Research Advisory Board member
 2016-2022 Executive Secretary, AOS Research Advisory Board

The Triological Society (inducted May, 2008)

- 2009-2015 TrioBP (Triological Society Best Practice) committee

The American Academy of Otolaryngology - Head and Neck Surgery

- 2008-2013 Program Advisory Committee
 2008-2010 AAO-HNSF representative co-chair of the Research Forum for the American Academy of Otolaryngology – Head and Neck Surgery Foundation Annual Meeting
 2005-2007 ARO representative co-chair of the Research Forum for the American Academy of Otolaryngology – Head and Neck Surgery Foundation Annual Meeting

The American Neurotology Society, Fellow

- 2014-2017 Chair, ANS Research Committee
 2014-2017 Education Committee
 2011-2015 Audit Committee (Chair 2014-2015)
 2010-2013 Research Steering Committee
 2008-2009 Research Program Committee

The Association for Research in Otolaryngology

- 2020-2021 President-Elect
 2012-2015 JARO Publications Committee (another term)
 2007-2010 Animal Research Committee
 2004-2007 JARO Publications Committee
 2000-2002 Committee on Patient Advocacy Group Relations

American Board of Otolaryngology – Head and Neck Surgery

- Guest examiner for oral boards (2011, 2013, 2015, 2018)
- Senior examiner for oral boards (2019-pres)

CORLAS (Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum)

- 2018-pres Member

Society for University Otolaryngologists (SUO)

Society for Neuroscience

The American Physiological Society

Kappa Eta Kappa electrical engineering fraternity

The Society of Photo-Optical Instrumentation Engineers (SPIE)

American Cochlear Implant Alliance

10/2013

Session co-chair: *Cochlear Implantation in the Multiply Involved Child* at CI2013 national meeting

Publications

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101. **Olds C, Pollonini L, Abaya H, Larky J, Loy M, Bortfeld H, Beauchamp MS, Oghalai JS** (2015) Cortical Activation Patterns Correlate With Speech Understanding After Cochlear Implantation. *Ear Hear*. DOI:10.1097/AUD.0000000000000258.
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 109. **Zheng W-Z, Grillet N, Dewey JB, Trouillet A, Krey J, Barr-Gillespie PG, Oghalai JS, Mueller U** (2016) Neuroplastin Isoform Np55 is Expressed in the Stereocilia of Outer Hair Cells and Required for Normal Outer Hair Cell Function. *J Neurosci*. 36(35):9201-16.
 110. **Lee HY, Raphael PD, Xia A, Kim J, Grillet N, Applegate BE, Ellerbee Bowden AK, Oghalai JS** (2016) Two-dimensional cochlear micromechanics measured in vivo demonstrate radial tuning within the mouse organ of Corti. *J Neurosci* 36:8160–8173.
 111. **Xia A, Liu X, Raphael PD, Applegate BE, Oghalai JS** (2016) Hair cell force generation does not amplify or tune vibrations within the chicken basilar papilla. *Nat Commun*. 7:13133.
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 113. **Chen MM, Oghalai JS** (2016). Diagnosis and Management of Congenital Sensorineural Hearing Loss. *Curr Treat Options Pediatr* 2, 256–265.
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 115. **Liu GS, Kim J, Applegate BE, Oghalai JS** (2017). Computer-aided detection and quantification of endolymphatic hydrops within the mouse cochlea in vivo using optical coherence tomography. *J Biomed Opt*. 22(7):76002.
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120. **Dewey JB, Xia A, Müller U, Belyantseva IA, Applegate BE, Oghalai JS.** Mammalian Auditory Hair Cell Bundle Stiffness Affects Frequency Tuning by Increasing Coupling along the Length of the Cochlea. *Cell Rep.* 2018 Jun 5;23(10):2915–27.
121. **Recio-Spinoso A, Oghalai JS.** Unusual mechanical processing of sounds at the apex of the guinea pig cochlea. *Hear Res.* 2018;
122. **Dong W, Xia A, Raphael PD, Puria S, Applegate BE, Oghalai JS.** Organ of Corti vibration within the intact gerbil cochlea measured by volumetric optical coherence tomography and vibrometry. *J Neurophysiol.* 2018 Oct 3;jn.00702.2017.
123. **Gabouer A, Oghalai J, Bortfeld H.** Hearing parents' use of auditory, visual, and tactile cues as a function of child hearing status. *Int J Comp Psychol* 2018;31:1–27.
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Other non-peer reviewed papers

1. **Oghalai JS** (2005) Revision cochlear implantation after device failure. *Oper Tech Otolaryngol - Head Neck Surg* 16: 146–148.
2. **Oghalai JS, Corrales CE** (2013) Cochlear implantation in children with developmental delays. *ENT Audiol News.*
3. **Applegate B, Park J, Oghalai J** (2014) Observing cochlear function. *SPIE Newsroom* 10.1117/2.: 1–4.
4. **Quinones PM, Applegate BE, Oghalai JS.** Preserving Warfighter Hearing. Optical Coherence Tomography Leads to Novel and Improved Therapies. *HDIAC J.* 2019;5(4):37–43.

Complete books written

Oghalai JS, Driscoll C (2016) *Atlas of Neurotologic and Lateral Skull Base Surgery.* Heidelberg, Germany: Springer. ISBN: 978-3662466933 (325 pages)
http://www.amazon.com/Atlas-Neurotologic-Lateral-Skull-Surgery/dp/3662466937/ref=tmm_hrd_title_0?encoding=UTF8&qid=1453506454&sr=8-1

- Award of Merit winner in the Professional Illustrated Text category at the Association of Medical Illustrators Annual Conference, 2016

Book chapters written

- 1) **Brownell WE, Oghalai JS**. Lateral diffusion and the plasma membrane area-motor hypothesis. In: Goncalves PB, Jasiuk I, Pamplona D, Steele C, Weber HI, Bevilacqua L, eds. Applied Mechanics in the Americas 6. Rio de Janeiro: AAM and ABCM; 1999: 61-64.
- 2) **Brownell WE, Oghalai JS**. Structural basis of outer hair cell motility or where's the motor? In: Lim D, ed. Cell and Molecular Biology of the Ear. New York: Kluwer Academic/Plenum Press; 2000:69-83.
- 3) **Oghalai JS, Brownell WE**. Voltage- and drug-dependent outer hair cell plasma membrane fluidity. In: Wada H, Takasaka T, Ikeda K, Ohyama K, Koike T. Recent Developments in Auditory Mechanics. Singapore: World Scientific Publishing Co., Pte. Ltd.; 2000:295-301.
- 4) **Oghalai JS**. Neoplasms of the temporal bone. In: Lalwani A, ed. Current Diagnosis and Treatment in Otolaryngology – Head and Neck Surgery. New York; Lange Medical Books/McGraw-Hill; 2004:845-64.
- 5) **Oghalai JS**. Trauma of the inner ear and temporal bone. In: Lalwani A, ed. Current Diagnosis and Treatment in Otolaryngology – Head and Neck Surgery. New York; Lange Medical Books/McGraw-Hill; 2004:793-801.
- 6) **Oghalai JS, Brownell WE**. Anatomy and physiology of the ear. In: Lalwani A, ed. Current Diagnosis and Treatment in Otolaryngology – Head and Neck Surgery. New York; Lange Medical Books/McGraw-Hill; 2004:611-30.
- 7) **Oghalai JS**. Cochlear hearing loss. In: Jackler R, Brackmann D, eds. Neurotology. 2nd edition. Philadelphia: Mosby; 2004:589-606.
- 8) **Oghalai JS, Jackler RK**. Overview of facial nerve surgery. In: Jackler R, Brackmann D, eds. Neurotology. 2nd edition. Philadelphia: Mosby; 2004:1212-22.
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- 13) **Puria, S., B. Hartman, J. Kim, J.S. Oghalai, A.J. Ricci, and M.C. Liberman**, Three-dimensional imaging of the mouse organ of Corti cytoarchitecture for mechanical

modeling, in *Mechanics of Hearing*, C.A. Shera and E.S. Olson, Editors. 2011, Institute of Physics.

- 14) **Pikhart, K.N., G.R. Popelka, A. Moleti, R. Sisto, J.S. Oghalai, A. Xia, and S. Puria**, Measurement of SFOAEs at high frequencies in humans and mice, in *Mechanics of Hearing*, C.A. Shera and E.S. Olson, Editors. 2011, American Institute of Physics. p. in press.
- 15) **Oghalai, J.S., A. Xia, C.C. Liu, S.S. Gao, B.E. Applegate, S. Puria, I. Rousso, and C. Steele**, Biophysical mechanisms underlying hearing loss associated with a shortened tectorial membrane, in *Mechanics of Hearing*, C.A. Shera and E.S. Olson, Editors. 2011, Institute of Physics.
- 16) **Applegate, B.E., Park, J., Carbajal, E., Lee, H-Y., Oghalai, J.S.**, What is OCT measuring? Where is the technology now and where is it going?, in *Mechanics of Hearing*, D.P. Corey and K.D. Karavatak, Editors. 2014, American Institute of Physics.
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- 18) **Oghalai, J.S., Gao, S.S., Lee, H-Y., Raphael, P.D., Groves, A.K., Zuo, J., Applegate, B.E.**, Gain and Frequency Tuning within the Mouse Cochlear Apex, in *Mechanics of Hearing*, D.P. Corey and K.D. Karavatak, Editors. 2014, American Institute of Physics.
- 19) **Jawadi Z, Applegate BE, Oghalai JS** (2015) Optical Coherence Tomography to Measure Sound-Induced Motions within the Mouse Organ of Corti *In Vivo*. In: Sokolowski B, editor. *Auditory and Vestibular Research: Methods and Protocols*. Springer.

Other works communicating research results to scientific colleagues

- US provisional patent application: Technique for measuring and analyzing sound vibrations within the inner ear. Serial # US 61/530,806, Filing Date: 9/02/11, Inventors: Oghalai JS, Applegate BE, Gao SS, Raphael PD.
- US patent application: Method and apparatus for examining inner ear. Application # 13/599,772, Filing date: 8/30/12, Inventors: Oghalai JS, Applegate BE, Gao SS, Raphael PD.
- US provisional patent application: Micropositioner and head holder for cochlear endoscopy. Provisional application # 61/777,807, Filing Date: 3/12/13, Inventors: Oghalai JS, Applegate BE.

Other works communicating work to the public

- Showcased on the Discovery Health Channel program *Mystery Diagnosis* (Mar, 2006). A patient of mine with a temporal lobe encephalocele and intracranial cholesteatoma was presented.

- Showcased on the Discovery Health Channel program Mystery ER (Oct, 2008). “Nothing to sneeze at”. A patient of mine with a temporal lobe encephalocele was presented. <https://www.youtube.com/watch?v=kF6yUo7okiU>
- Live webinar presentation for AudiologyOnline (CEU Course #23979) “How the cochlea works and what happens when it doesn’t” (4/30/2014).
- Video interview about hearing loss with The Verge (5/2018). <https://www.youtube.com/watch?v=zGG3YsKpe88>
- Summary of recent research from my lab: “Ba-Boom! There Goes Your Hearing” by Claudio Wallis, Scientific American, August, 2018. <https://www.scientificamerican.com/article/ba-boom-there-goes-your-hearing/>

Recent Abstracts

1. Xia A, Wooltorton JW, Palmer DJ, Ng P, Pereira FA, Eatock RA, Oghalai JS. Prestin-null OHCs transduced with prestin demonstrate plasma membrane expression and non-linear capacitance. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2007.
2. Xia A, Visosky AM, Cho J-H, Tsai M-J, Pereira FA, Oghalai JS. Reduced traveling wave propagation and endocochlear potential in a mouse model of Mondini cochlear dysplasia. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2007.
3. Tonini RT, Rasmus J, Emery C, Haymond J, Manolidis S, Vrabc JT, Oghalai JS. Intra-operative monitoring of cochlear function permits improved hearing preservation during pediatric cochlear implantation. Abstracts of the Spring Meeting of the American Otological Society 2007.
4. Sung A, Cristobal R, Tonini R, Emery C, Rasmus J, Haymond J, Oghalai JS. Hearing aid trials in pediatric cochlear implantation. Abstracts of the Annual Meeting of the American Academy of Otolaryngology - Head and Neck Surgery Foundation, Inc. 2007, p. P92.
5. Maricich SM, Xia A, Oghalai JS, Fritzch B, Zoghbi HY. Spatially restricted conditional disruption of *Math1* in the developing murine brainstem causes centrally-mediated deafness and results in the loss of spiral ganglion cells in the cochlea. Society for Neuroscience Meeting, San Diego, California, 2007.
6. Xia A, Pereira FA, Pfister M, Oghalai JS. Hearing Loss in alpha-tectorin C1509G transgenic mouse. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2008.
7. Maricich SM, Xia A, Oghalai JS, Fritzch B, Zoghbi HY. Conditional disruption of *Atoh1* in the developing hindbrain results in central deafness and reveals a novel function of the cochlear nucleus in the maintenance of neurons in the brainstem accessory auditory nuclei and spiral ganglion. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2008.

8. Zevallos JP, Oghalai JS. Intracranial complications of otitis media in children. Abstracts of the Spring Meeting of the Triological Society 2008, p.128.
9. Oghalai JS, Xia A, Gao SS, Yuan T, Pfister M, Pereira FA. Altered tectorial membrane anatomy produces cochlear dysfunction in alpha tectorin C1509G transgenic knockin mice. Abstracts of the Society for Neuroscience Annual Meeting 2008, #259.11/BB7.
10. Gao SS, Xia A, Osborn AJ, Pfister M, Pereira FA, Oghalai JS. Characterization of the alpha tectorin C1509G mutation in mice. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2009.
11. Sevy ABG, Bortfeld H, Huppert TJ, Tonini RE, Oghalai JS. Neuro-imaging of deaf children following cochlear implantation: Speech-evoked activity within the auditory cortex detected with near infrared spectroscopy. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2009.
12. Osborn AJ, Gao SS, Xia A, Maricich SM, Pereira FA, Oghalai JS. Altered tectorial membrane development and outer hair cell physiology in an alpha tectorin transgenic mouse. Abstracts of the Spring Meeting of the Triological Society 2009, p.20.
13. Osborn AJ, Oghalai JS, Vrabec JT. Extent of aeration in congenital aural atresia. Abstracts of the Spring Meeting of the Triological Society 2009, p.20.
14. Lin JW, Mody A, Tonini R, Vrabec JT, Oghalai JS. Characteristics of channel faults in failed cochlear implants. Abstracts of the Spring Meeting of the American Neurotology Society 2009, p. 17.
15. Williamson RA, Oghalai JS, Vrabec JT. Auditory performance after cochlear implantation in late septuagenarians and octogenarians. Abstracts of the Spring Meeting of the American Neurotology Society 2009, p. 17.
16. Sevy ABG, Bortfeld H, Huppert TJ, Beauchamp M, Nath A, Tonini RE, Oghalai JS. Neuroimaging of deaf children following cochlear implantation: Speech-evoked activity within the auditory cortex. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2010.
17. Yuan T, Shelton R, Applegate B, Gao S, Oghalai JS. Imaging of the mouse cochlea by frequency domain optical coherence tomography. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2010.
18. Liu C, Gao S, Yuan T, Oghalai JS. Prestin upregulation in TECTA C1509G mice increases electromotility and membrane permeability to propidium iodide. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2010.
19. Lin, J.W., Chowdhury, N., Mody, A., Tonini, R., Emery, C., Haymond, J., Oghalai, J.S. Comprehensive diagnostic battery for evaluating sensorineural hearing loss in children. Abstracts of the Spring Meeting of the American Neurotology Society 2010, p. 15.
20. Bortfeld H, Sevy ABG, Huppert TJ, Beauchamp MS, Tonini RE, Oghalai JS. Speech-Evoked Activity in the Auditory Cortex of Deaf Children Following Cochlear Implantation as

Measured using NIRS. Abstracts of the Biannual Meeting of the Society for Research in Child Development 2011.

21. Sevy, A., Bortfeld, H., Huppert, T., Beauchamp, M., Tonini, R., & Oghalai, J. Establishing speech-evoked activity in the auditory cortex of deaf children following cochlear implantation using near-infrared spectroscopy. 2nd Annual Neurobiology of Language Conference (satellite meeting of the Society for Neuroscience) 2010. San Diego, CA.
22. Gao, S.S., Yuan, T., Xia, A., Raphael, P.R., Shelton, R.L., Applegate, B.E., Oghalai, J.S. Imaging of the intact mouse cochlea by spectral domain optical coherence tomography. Proceedings of the SPIE Biophotonics meeting, 2011, San Francisco.
23. Scully P, Oghalai JS, Brownell WE. Reactive Components of the Cochlear Microphonic. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2011.
24. Gao SS, Xia A, Yuan T, Raphael P, Shelton RL, Applegate BE, Oghalai JS. Imaging of the intact mouse cochlea by spectral domain optical coherence tomography. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2011.
25. Clifton WL, Chiu I, Groves AK, Pereira FA, Oghalai JS. Increased Prestin Expression in Remaining Outer Hair Cells after Noise-Induced Hearing Loss. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2011.
26. Xia A, Liu C, Puria S, Steele C, Gao SS, Yuan T, Oghalai JS. Altered Radial and Longitudinal Patterns of Noise-Induced Outer Hair Cell Loss in the TectaC1509G/+ Mouse. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2011.
27. Gurgel RK, Oghalai JS, Chang KW, Blevins NH, Jackler RK, Popelka G. Correlation of Measured vs Averaged 3kHz Pure Tone Averages. AAO-HNSF Annual Meeting 2011. P90.
28. Oghalai JS, Caudle SE, Lin J, Bortfeld H, Bentley B, Abaya H. Cognitive outcomes and stress after cochlear implantation in deaf children with and without developmental delays. Abstracts of the Spring Meeting of the American Neurotology Society 2012.
29. Lin JW, Tonini R, Emery C, Williamson RA, Vrabec JT, Oghalai JS. Efficacy of hearing aid trial in determining pediatric cochlear implantation candidacy. Abstracts of the Spring Meeting of the American Neurotology Society 2012.
30. Xia A, Wang R, Clifton W, Raphael P, Gao S, Pereira F, Groves A, Oghalai JS. Prestin Regulation in Residual Outer Hair Cells After Noise-Induced Hearing Loss. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2013.
31. Gao S, Raphael P, Wang R, Applegate B, Oghalai JS. In Vivo Vibrometry at the Apex of the Unopened Mouse Cochlea. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2013.
32. Olds C, Pollonini L, Abaya H, Gurgel R, Beauchamp MS, Bortfeld H, Oghalai JS. Cortical Hemodynamic Response to Speech Stimuli in Adult Cochlear Implant Users by

Functional Near-Infrared Spectroscopy. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2013.

33. Pawlowski M, Shrestha S, Oghalai JS, Applegate BE, Tkaczyk T. Miniature, needle-like tunable endoscope for in vivo investigation of middle ear. Abstracts of the Advances in Optics for Biotechnology, Medicine, and Surgery XIII, Engineering Conferences International, 2013.

34. Harakshing RR, Kenari FJ, Rodriguez-Paris J, Gelernter J, Nadeau KC, Oghalai JS, Schrijver I, Snyder MP. Genomics for Personalized Medicine and Human Health. Abstracts of the 9th Molecular Biology of Hearing and Deafness Conference, 2013.

35. Oghalai JS, Gao SS, Raphael PD, Wang R, Applegate BE. Genetic Dissection of the Vibratory Modes of the Organ of Corti Using *In Vivo* Imaging. Abstracts of the 9th Molecular Biology of Hearing and Deafness Conference, 2013.

36. Xia A, Wang R, Song Y, Gao SS, Clifton W, Raphael P, Cho S-I, Pereira FA, Groves AK, Oghalai JS. Prestin upregulation in Residual Outer Hair Cells After Noise-Induced Hearing Loss. Abstracts of the 9th Molecular Biology of Hearing and Deafness Conference, 2013.

37. Oghalai JS. The physician's role in improving the treatment of children with deafness and developmental delays. CI 2013 Conference, Washington, DC. 2013

38. Lee HY, Raphael PR, Ellerbee AK, Applegate BE, Oghalai JS. Swept Source Optical Coherence Tomography for Imaging and Vibrometry within the Mouse Cochlea in Vivo. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2014.

39. Song Y, Wang R, Ricci A, Oghalai JS. Functional prestin expression varies with tectorial membrane malformations. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2014.

40. Ellerbee AK, Lee HY, Raphael PD, Oghalai JS, Applegate BE. In vivo vibratory response of the organ of Corti in the apex of the mouse cochlea. SPIE Biophotonics West 2015.

41. Lee HY, Raphael PD, Park J, Ellerbee AK, Oghalai JS, Applegate BE. In vivo vibratory response of the organ of Corti in the apex of the mouse cochlea. Volumetric optical coherence tomography: vibrometry for in vivo measurement of traveling waves in the mouse inner ear with picometer sensitivity. SPIE Biophotonics West 2015.

42. Xia A, Raphael PR, Applegate BE, Oghalai JS. Mechanics of the chicken cochlea. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2015.

43. Chang KW, Oghalai JS. "Cognitive outcomes and familial stress after cochlear implantation in deaf children with and without developmental delays." 10th Asia Pacific Symposium on Cochlear Implants and Related Sciences, China National Convention Center, Beijing, China, May 2, 2015.

44. Xia A, Raphael PR, Liu X, Applegate BE, Oghalai JS. Active force generation by hair cells does not sharpen frequency tuning within the chicken basilar papilla. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2016.
45. Yan W, Xia A, Raphael PR, Applegate BE, Oghalai JS. Sound-induced motion of the mouse organ of Corti measured *in vivo* by imaging through the ear canal using volumetric optical coherence tomography vibrometry (VOCTV). Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2016.
46. Kim J, Liu X, Jawadi Z, Grillet N, Oghalai JS. Acute changes in the mouse cochlea after blast injury. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2016.
47. Liu G, Kim J, Applegate BE, Oghalai JS. Computer-aided Detection of Endolymphatic Hydrops in Vivo Using Optical Coherence Tomography Imaging. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2017.
48. Applegate BE, Mattison S, Raphael P, Kim S, Oghalai JS. Near Real-time Volumetric Optical Coherence Tomography and Vibrometry (VOCTV). Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2017.
49. Dong W, Oghalai JS, Xia A, Puria S. Optical Coherence Tomography (OCT) Measurements of In Vivo Organ of Corti Vibration Within the Gerbil Cochlear Apex. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2017.
50. Oghalai JS, Recio-Spinoso A. Sound-Induced Vibrations within the Guinea Pig Cochlear Apex. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2017.
51. Recio-Spinoso A, Oghalai JS. Differences Between Mechanical and Neural Tuning at the Apex of the Intact Guinea Pig Cochlea. Abstracts of the Mechanics of Hearing Workshop 2017.
52. Dewey JB, Xia A, Raphael PR, Mueller U, Belyantseva IA, Applegate BE, Oghalai JS. Cochlear Vibrations in Mice with Altered Stereociliary Mechanics. Abstracts of the Mechanics of Hearing Workshop 2017.
53. Xia A, Tomokatsu U, Raphael PR, Cheng A, Steele C, Applegate BE, Oghalai JS. Basilar membrane vibration after targeted removal of the third row of OHCs and Deiter cells. Abstracts of the Mechanics of Hearing Workshop 2017.
54. Dong W, Xia A, Puria S, Applegate BE, Oghalai JS. Signal processing within apical turn of the intact gerbil cochlea measured by Volumetric Optical Coherence Tomography and Vibrometry (VOCTV). Abstracts of the Mechanics of Hearing Workshop 2017.
55. Oghalai JS. How does sound vibrate inner ear tissues in different species. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2019.
56. Oghalai JS. Cochlear mechanics in the apex. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2019.

57. Dewey JB, Applegate BE, Oghalai JS. Buildup of reticular lamina traveling wave amplification in the mouse cochlea. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2019.

58. Badash I, Quinones P, Wang J, Applegate BE, Oghalai JS. Mechanisms of noise-induced cochlear trauma. CORLAS meeting 2019, Bern, Switzerland.

TEACHING INFORMATION

Didactic teaching

Teaching within the primary department

- 2017 Faculty Leader for a Bing Overseas Seminar Program: 3-week full-time seminar for upper-level Stanford undergraduate students entitled: *Can you hear me now? The biology, comparative behavior, and engineering of sound*. This will be held in Germany, Switzerland, and Austria. Organized by Stanford University in collaboration with the University of Tübingen.
- 2011-2017 Temporal bone drilling course to Stanford otolaryngology residents: 4 hours per session, 2 times per year.
- 2010-2017 Otology & Neurotology lectures to Stanford otolaryngology residents, medical students, and fellows: 1 hour per lecture, 2-4 times per year.
- 2003-2010 Temporal bone drilling course to Baylor otolaryngology residents: 4 hours per session, 2-3 times per year.
- 2005-2010 Coordinator of Baylor departmental Morbidity and Mortality monthly conference (2005-2010): 1 hour, 6 times per year.
- 2003-2010 Otology & Neurotology lectures to Baylor otolaryngology residents and medical students: 2 hours per lecture, 2-3 times per year.
- 2003-2010 Otolaryngology class on diseases of the ear for Baylor third year medical students: 1 hour per lecture, 4 times per year.

Teaching external to the primary department

- 2015-2017 Annual 3-hour lecture and journal club discussion about cochlear implants to engineering and neuroscience graduate students in a course entitled *Brain Machine Interfaces: Science, Technology, and Application*.
- 2013-2017 Annual lecture to neuroscience graduate students about research in auditory neurophysiology
- 2008 Course director, Bench to Bedside seminar series journal club for Baylor Translational Biology and Molecular Medicine Program graduate students: 1 hour per week for 8 weeks.
- 2003-2010 Lecturer on cochlear implantation Sensory Integration Course within the Bioengineering Department at Rice University for senior undergraduate students: 2 hours per lecture, once a year.

Continuing Medical Education (CME) courses that I have organized

- 2012&2014 Program Co-Chair, Stanford University: *Stanford Otology Course*, Stanford University School of Medicine, Li Ka Shing Center for Learning & Knowledge. A long-standing course to update general ENTs on the latest in otology; 18-20 CME credits; averages ~250 registrants.

- 2007 Program Director, Baylor College of Medicine Continuing Medical Education Course: *Comprehensive Management of the Pediatric Ear*, Omni Houston Hotel, Houston TX. A nationwide course for pediatricians, family practitioners, otolaryngologists, and audiologists; 16 CME credits - 261 registrants.
- 2005 Program Director, Baylor College of Medicine Continuing Medical Education Course: *Advances in Otology and Neurotology*, Hilton Americas, Houston TX. A nationwide course for general otolaryngologists; 9.5 CME credits - 103 registrants.
- 2000 Instruction course at the Annual Meeting of the American Academy of Otolaryngology - Head and Neck Surgery Foundation, Inc., New Orleans, LA: A Basic Science Review of the Cochlea – 1 CME credit
- 1999 Instruction course at the Annual Meeting of the American Academy of Otolaryngology - Head and Neck Surgery Foundation, Inc., New Orleans, LA: An Update on Active Hearing – 1 CME credit

Non-didactic teaching

Resident training

- Surgical ~8 hours per week
- Clinical skills during clinic and hospital rounds ~8 hours per week

Residents rotating through my lab for basic science research training

- 2017 Nathan Tu, MD – Currently in Neurotology fellowship.
- 2015 Joe Saliba, MD – Finished Neurotology fellowship
- Received Master's Research Scholarship for health professionals (*Fonds de Recherche Sante-Quebec (FRSQ)/Quebec-Health Research Fund*, \$66,711) for work done in my lab.
- 2005 Etai Funk, MD – Finished plastic surgery fellowship; now in private practice
- 2004-2005 Ann Marie Viskosy, MD – now in private practice
- Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2005)
- 2004 Brad Evans, MD – now in private practice

Clinical fellow training

Neurotology and Skull Base Surgery

- 2016-2017 Jennifer Alyono, MD - Assistant Professor, Stanford University
- 2016-2017 Yona Vaisbuch, MD - Assistant Professor, Israel
- 2014-2016 Alec Sevy, MD – Assistant Professor, Louisiana State University
- 2012-2015 Peter Santa Maria, MD (2012-2015) - Assistant Professor at University of Western Australia and the Ear Science Institute, Australia
- Received the Garnett Passe & Rodney Williams Memorial Principal Surgeon Scientist Scholarship based on a research proposal for work done in my lab.
- 2012-2014 Eduardo Corrales, MD - Associate Surgeon at the Brigham and Women's - Assistant professor at Harvard Medical School through the Massachusetts Eye and Ear Infirmary.
- Received the Stanford Society of Physician Scholars collaborative research grant based on a research proposal for work to be done in my lab
- 2010-2012 Richard Gurgel, MD – Assistant Professor at Univ of Utah
- Received the Stanford Society of Physician Scholars collaborative research grant based on a research proposal for work to be done in my lab.

- 2008-2010 Jerry Lin, MD, PhD – Initially became an Assistant Professor at Baylor College of Medicine; now faculty at University of Kentucky, Louisville.
- Won the American Neurotology Society Trainee Award based on clinical research that I mentored (2009)
- 2006-2008 Ricardo Cristobal, MD, PhD – Clinical Faculty at UT-Southwestern, Fort Worth, TX
- 2004-2006 Brandon Isaacson, MD – Now an Associate Professor at UT-Southwestern, Dallas, TX

Pediatric otolaryngology

- 2015-2016 Morgan Bliss – Assistant Professor, UC-San Diego
- 2014-2015 Christian Hochstim – Assistant Professor at USC Keck School of Medicine.
- 2013-2014 Josee Paridis - Now an Assistant Professor at University of Western Ontario
- 2012-2013 Kevin Huoh – Now in private practice at Children’s Hospital Orange County
- 2011-2012 Nguyen Pham - Now an Assistant Professor at UC Irvine
- 2009-2010 Julina Onkasguan – Now an Assistant Professor at Baylor College of Medicine.
- 2009-2010 Rachelle Wareham – now an Assistant Professor at Loma Linda University.
- 2008-2009 Vicky Owczarzak, MD – Initially became an Assistant Professor at Baylor College of Medicine; now in private practice.
- 2008-2009 Tony Kille, MD – now an Assistant Professor at University of Wisconsin – Madison.
- 2007-2008 Binoy Chandy, MD – now an Assistant Professor at Baylor College of Medicine
- 2007-2008 Shraddha Mukerji, MD (2007-2008) – now an Assistant Professor at University of Texas – Medical Branch, Galveston, TX.
- 2006-2007 John Gavin, MD – now in private practice
- 2005-2007 Tulio Valdez, MD – now an Assistant Professor of Otolaryngology, University of Connecticut School of Medicine
- 2004-2006 Debra Weinberger, MD – now an Assistant Professor at UT-Southwestern, Dallas

Research fellow training

- 2018-pres Amir Nankali, PhD – post-doc in my lab
- 2017-pres Patricia Quniones, PhD – post-doc in my lab
- 2015-pres James Dewey, PhD – post-doc in my lab
- Received Dean’s Postdoctoral Fellowship at the Stanford University School of Medicine for work in my lab (2015) - \$25,000
 - Received F32 training grant from NIH-NIDCD for work in my lab (2017)
 - Received Association for Research in Otolaryngology Post-Doctoral Fellowship Travel Award for work in my lab (2017)
- 2003-2017 Anping Xia, MD, PhD – Reached Senior Research Scientist level at Stanford
- 2015-2017 Jinkyung Kim, PhD – post-doc in my lab
- Received Association for Research in Otolaryngology Post-Doctoral Fellowship Travel Award for work in my lab (2016)

- 2015-2016 Xiaofang Liu, MD – Assistant Professor, First Affiliated Hospital of China Medical University, ShenYang, Liaoning Province, China
- 2014-2015 Yanling Dou, MD – Assistant Professor, Dept of Otolaryngology – Head and Neck Surgery, Peace Hospital of Chongqing. Chengdu, China
- 2013-2014 Soo-Keun Kong, MD – Associate Professor, Dept of Otolaryngology – Head and Neck Surgery, Pusan National University School of Medicine, South Korea
- 2011-2012 Sung-II Cho, MD – Assistant Professor, Dept. of Otolaryngology – Head and Neck Surgery, Chosun University Hospital, South Korea
- 2008-2010 Alec Sevy, MD – Faculty, Louisiana State University.
- Received Association for Research in Otolaryngology Resident Travel Awards for work in my lab (2009&2010)
- 2007-2010 Tao Yuan, PhD – Took a post-doctoral fellowship at Baylor College of Medicine. Now an engineer in industry.
- 2003-2006 Chul-Hee Choi, PhD – Department Chair of Audiology and Speech-Language Pathology, Catholic University of Daegu, Korea.
- Received an American Academy of Audiology mentored research grant while in my lab (2005) - \$10,000
- 2003-2005 Gentiana Wenzel, MD – now a ENT Faculty Specialist, Saarland University, Germany.
- Received the Thyssen Mentored Research Grant while in my lab (2005) - \$58,000E

Graduate student training

- 2015-2016 Wenqing Yan, BS – Visiting PhD student from Shandong University School of Medicine, China
- Received Association for Research in Otolaryngology Travel Award for work in my lab (2015)
- 2013-2016 Hee Yoon Lee, PhD – Electrical engineering; Research Engineer at Oculus Rift division of Facebook
- Received Association for Research in Otolaryngology Travel Award for work in my lab (2014)
 - Received Mechanics of Hearing Travel Award for work in my lab (2014)
- 2008-2013 Simon Gao, BS (2008-2013) - Bioengineering; PhD awarded 11/2013. Post-doctoral fellowship at OHSU; Research Engineer at Genentec
- Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2009)

Medical students rotating through my lab for basic science research training

- 2018-2019 Christopher Lui – Currently in training
- Received Dean's Research Scholarship for work in my lab
- 2018-2019 Ido Badash – Currently in training
- Received Dean's Research Scholarship for work in my lab
- 2015-2017 George Liu – now in Otolaryngology residency at Stanford
- Received Medical Scholars Research Program grant for work in my lab Fall 2015
 - Won Best Poster Award, Stanford Medical Student Research Symposium, 2016
 - Received Association for Research in Otolaryngology Medical Student Travel Award for work in my lab (2017)
- 2015-2016 Niharika Chimalakonda, MD – Residency in Internal Medicine
- 2014 Abhinav Golla – currently finishing medical school
- Received Medical Scholars Research Program grant for work in my lab (\$12,000) - summer 2014
- 2012-2014 Yohan Song – now in Otolaryngology residency at Stanford

- Received Howard Hughes Medical Institute Research Training Fellowship Grant for Medical Students (\$39,000) for his one year research project
 - Received one year Medical Scholars Research Program grant for work in my lab – 2012/13
 - Received the Stanford Society of Physician Scholars collaborative research grant based on a research proposal for work done in my lab - 2013/14
 - Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2014)
- 2011-2014 **Cristen Olds – now in Otolaryngology residency at Stanford**
- Received Medical Scholars Research Program grant for work in my lab (\$12,000) - summer 2012
 - Received the Stanford Society of Physician Scholars collaborative research grant based on a research proposal for work done in my lab - 2012/13
 - Received Howard Hughes Medical Institute Research Training Fellowship Grant for Medical Students (\$39,000) for his one year research project – summer 2013
 - Received one year Medical Scholars Research Program grant for work in my lab – 2013/14
- 2009-2010 **William Clifton – Entrepreneurial development**
- Received Howard Hughes Medical Institute Research Training Fellowship Grant for Medical Students (\$38,000) for his one year research project
- 2009-2010 **Ilene Chiu – otolaryngology residency (research track position)**
- 2008-2009 **Christopher Liu – otolaryngology residency**
- Received Howard Hughes Medical Institute Research Training Fellowship Grant for Medical Students (\$38,000) for his one year research project
 - Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2010)
- 2008 **Chrystal Obi– unknown**
- 2007 **Alec Sevy, BS – otolaryngology residency**
- Accepted into the Baylor College of Medicine Resident Research Tract in Otolaryngology – Head and Neck Surgery.
- 2006 **Justo Gonzalez, BS – surgery residency**
- 2005-2006 **Vikram Shenoy, BS – otolaryngology residency**
- 2005 **Calvin Wei, BA– otolaryngology residency**
- 2005 **Sally Merryman, BS – otolaryngology residency**
- 2004 **Robert Schmidt, BS – otolaryngology residency**
- 2004 **Drew Sawyer, BS – otolaryngology residency**

Undergraduate and high school students rotating through my lab for basic science research training

- 2016-2017 **Tom Pritsky - Undergraduate at Stanford University**
- 2016-2017 **Jackie Yau - Undergraduate at Stanford University**
- 2016 **Brent Han – High school summer student**
- 2016 **Henry Low - High school summer student**
- 2015-2017 **Zina Jawadi – Undergraduate at Stanford University**
- Received Bio-X Undergraduate Summer Research Program for work in my lab (\$7,400) - summer 2016
- 2015 **Karine Taroco de Oliveira – SLP/Audiology student from University of Minas Gerais, Brazil**
- 2014-2015 **Maya Ben-Efraim – Senior at Paly High School**
- 2014 **Jeffrey Chen – Undergrad at Rensselaer Polytechnic Institute. Accepted to medical school at Albany Medical College**
- 2011 **Jashan Bhumkar – Undergraduate studies at UC-Berkeley.**

2011 Jacqueline Wachtel – Undergraduate studies at UCSD.
 2008-2009 Avni Mody – medical school at Texas A&M
 2004-2005 Amaan Mazhar – bioengineering graduate school
 2004 Audrey Nath – bioengineering graduate school

Graduate student Thesis Committee participation

2016-2017 Sasi Madugula – Ph.D Committee Member
 2014 Ryan Jackson - Ph.D. Bioengineering; Chair of the Oral Committee
 2012 Namkeun Kim – Ph.D. Mechanical Engineering; Chair of the Oral Committee

Undergraduate Advisor

2015 Jackie Yau and Chai Arnold

Invited Lectures

International

9/2019 Keynote speaker, the 5th Colloque GDR Vertige meeting. Marseille, France. *In vivo cochlear imaging of blast-induced endolymphatic hydrops.*
 11/2016 Invited Lecturer, The 101st Academy meeting of Taiwan Otolaryngological Society, Taiwan. *Good Vibrations: How the cochlea hears.*
 5/2014 Invited Visiting Professor, The Pasteur Institute, Paris, France. *Good Vibrations: How sound drives the organ of Corti*
 11/2013 Invited Lecturer, The 23rd Annual Meeting of the Japan Otological Society, Miyazaki, Japan. 1) *An Update on Sensorineural Hearing Loss: A Basic Science Perspective;* 2) *Good Vibrations: Dissecting How Sound Drives the Organ of Corti.*
 11/2013 Invited Visiting Professor, Department of Otorhinolaryngology, Fukuoka University School of Medicine, Fukuoka, Japan. *Surgery of the Lateral Skull Base.*
 7/2012 Invited Chief Faculty, Nector 2012 Conference for 352 Indian otolaryngologists, Singapore and Indonesia. 1) *An Update on Sensorineural Hearing Loss: A Basic Science Perspective;* 2) *Surgery of the Lateral Skull Base.*
 12/2010 Invited Foreign Speaker, The 4th Assiut Otorhinolaryngology Conference in collaboration with the Egyptian O.R.L. Society. Pyramisa Isis Hotel, Luxor, Egypt. 1) *The Outer Hair Cell in Hearing and Hearing Loss;* 2) *Surgery of the Lateral Skull Base;* 3) *Cochlear Implant Surgery and Complications.*

National

6/2019 Guest of Honor, The Pacific Coast Oto-Ophthalmological Society, 103rd Annual Meeting, Maui, HI. *Four talks on otology/neurotology.*
 7/2016 Invited speaker, AG Bell Convention. *Neuroimaging- Predicting hearing and language outcomes*
 5/2016 Invited speaker, American Neurotology Society Young Members Association Symposium. *Building research success: Early career advice for young ANS members*
 2/2015 Invited speaker, Presidential Symposium, Association for Research in Otolaryngology Annual Meeting, Baltimore. *Functional neuroimaging of speech perception in cochlear implant recipients.*

- 5/2012 Invited speaker, Baylor College of Medicine Alumni Reunion Weekend Scientific Symposium. *Diagnosing hearing loss: the future of cochlear imaging.*
- 5/2011 Invited speaker, The American Neurotological Society Annual Spring Meeting. Inner Ear Diagnostics. *Advances in Molecular Diagnostics and Therapeutics in Otology Panel.*
- 2/2011 CME Course Faculty, Pediatric Otolaryngology Update, Stanford University
- 11/2010 CME Course Faculty, Otology and Neurotology Update, Stanford University
- 11/2008 CME Course Faculty, Otology and Neurotology Update, Stanford University. *How the ear works*
- 11/2006 CME Course Faculty, Otology and Neurotology Update, Stanford University. *How the cochlea works; Complications of otitis media.*
- 11/2004 CME Course Faculty, Otology and Neurotology Update, Stanford University. *How the Ear Works; Microsurgery within the Inner Ear.*
- 9/2004 American Neurotologic Society Fall Scientific Session, New York City. *Surgery of the Inner Ear.*
- 10/2002 CME Course Faculty, Otology and Neurotology Update, University of California-San Francisco. *Retrocochlear Diagnosis.*
- Regional
- 1/2019 Invited speaker, Cedars-Sinai, Los Angeles, CA. *Acoustic Neuroma: An update on current treatments and research to improve surgical outcomes*
- 5/2019 Invited visiting faculty, Advanced Bionics Corp, Valencia, CA. *Optical imaging of cochlear function and dysfunction*
- 4/2019 Invited speaker, Norris Guild Annual Doctor's Forum, San Pedro, CA. *An update on hearing loss*
- 1/2018 Invited presentation, The Research Study Club, Los Angeles, CA *Sensorineural hearing loss: How new imaging technologies can help explain what is going on inside the cochlea*
- 5/2015 Presentation at a regional Cochlear Implant Support Group at the Hearing and Speech Center of Northern CA. *Hearing Loss and Cochlear Implantation: What is so hard about understanding speech?*
- 10/2014 Presentation at the monthly meeting of the regional Acoustic Neuroma Patient Support Group. *What does a surgeon think about when evaluating a patient with an acoustic neuroma?*
- 5/2014 Invited outside guest speaker for CME course, Loma Linda Medical School, Loma Linda, CA. *How the cochlea works and what happens when it doesn't; An update on pediatric cochlear implantation*
- 2/2012 Visiting Guest Faculty, The Research Study Club, Los Angeles, CA
- 10/2010 Presentation at the monthly meeting of the regional Acoustic Neuroma Patient Support Group. *Hearing Loss, Tinnitus, and Vestibular Schwannoma*
- 3/2009 *Do You Hear What I Hear? A resource for identifying and managing hearing loss.* Workshop sponsored by St. Luke's United Methodist Church, the Hearing Loss Association – Houston Chapter, and the Office for Deaf and Hard of Hearing Services

- 5/2007 Guest Lecturer for the annual meeting of the Texas Neurofibromatosis Society. *Tumors of the Head, Neck, and Skull Base in Patients with NF1 and NF2*
- 4/2003 Santa Clara Valley Chapter Meeting of the Institute of Electrical and Electronic Engineers, Engineering in Medicine and Biology Society, *NANOMECHANICS IN THE COCHLEA: How the inner ear works and what happens when it doesn't*
- 1/2000 The Ear 2000, Association of Houston Audiologists, Houston, TX. *Active Hearing or How Does the Cochlea Really Work?*

Local

- 11/2010 Geriatric Research Education and Clinical Center Grand Rounds, Stanford University and Palo Alto VAH. *Turning up the volume on adult hearing loss*
- 3/2010 Evening with Genetics – monthly family seminar series at the Children's Museum of Houston. *Turning up the volume on adult hearing loss*
- 1/2007 Evening with Genetics – monthly family seminar series at the Children's Museum of Houston. *The Genetics of Hearing Loss: How Early Evaluation, Diagnosis, and Treatment Can Help Your Child*
- 2/2006 Dept of Neurology Grand Rounds, Baylor College of Medicine, Houston, TX. *Skull Base Surgery*
- 8/2004 Grand Rounds, Dept of Otolaryngology - Head and Neck Surgery, University of Texas-Houston. *Management of Acoustic Neuroma*
- 3/2004 CME Course Faculty, ENT for the Primary Care Physician, St. Luke's Episcopal Hospital, Houston TX. *Earaches: Causes and Cures*
- 5/1998 Dept of Geriatrics Grand Rounds, Baylor College of Medicine, Houston, TX. *Geriatric Balance Disorders*
- 5/1996 Dept of Endocrinology Grand Rounds, Baylor College of Medicine, Houston, TX. *Minimally Symptomatic Hyperparathyroidism*

Other talks

- 4/2009 Gulf Coast Consortium for Membrane Biology, Clinical Aspects of Membrane Biology Seminar Series, UT-Houston, Houston, TX. *Membrane-Based Outer Hair Cell Electromotility in Hearing and Hearing Loss.*
- 4/2003 Grand Rounds, Dept of Otolaryngology - Head and Neck Surgery, University of California-Davis. *Modulation of Cochlear Nanomechanics*
- 11/2001 CCRMA Hearing Seminar, Stanford University, Palo Alto, CA. *Modulation of Cochlear Biomechanics.*
- 5/1999 Dept of Otolaryngology - Head and Neck Surgery, Oregon Health Sciences University, Portland, OR. *Outer hair cell electromotility and the lateral wall: lipid-protein interactions on a nanoscale.*

Invited Visiting Professorships

- 12/2019 University of Utah, Department of Otolaryngology – Head and Neck Surgery and Department of Biomedical Engineering. Two presentations: Clinical Grand Rounds and Research Seminar.
- 4/2018 James Moore Lecturer, Department of Otolaryngology – Head and Neck Surgery, Weill Cornell Medical College

5/2017	Department of Otolaryngology – Head and Neck Surgery, Washington University in St. Louis.
4/2017	Department of Physics and Astronomy, UCLA
11/2016	Departments of Otolaryngology-Head and Neck Surgery: (1) Tri-Service General Hospital National Defense Medical Center, (2) Taipei Veterans General Hospital, and (3) Chang Gung Memorial Hospital, Taipei, Taiwan
5/2015	Harvard University, Mass Eye & Ear Infirmery
12/2014	Yale University, Dept of Physiology
12/2014	NIH, National Institute of Deafness and other Communication Disorders (NIDCD)
5/2014	Johns Hopkins University, Dept of Bioengineering
5/2014	The Pasteur Institute, Paris, FR
11/2013	Invited Visiting Professor, Department of Otorhinolaryngology, Fukuoka University School of Medicine, Fukuoka, Japan
5/2012	Case Western University, Dept of Neuroscience
9/2011	University of Pennsylvania, Dept of Otolaryngology– Head and Neck Surgery, Both Visiting Professor and Guest Instructor for temporal bone course
1/2010	Stanford University, Dept of Otolaryngology – Head and Neck Surgery
6/2009	University of Rochester, Dept of Neurobiology and Anatomy
10/2008	Texas A&M, Dept of Neuroscience
9/2008	University of Michigan, Dept of Otolaryngology – Head and Neck Surgery, Both Visiting Professor and Guest Instructor for temporal bone course

MEDICAL AND SERVICE INFORMATION

Hospital privileges

2017-pres	Keck Hospital of USC, 1500 San Pablo St, Los Angeles, CA 90033
2017-pres	Los Angeles County (LAC+USC) Medical Center, 2051 Marengo St, Los Angeles, CA 90033
2017- 2019	Children’s Hospital Los Angeles, 4650 Sunset Blvd, Los Angeles, CA 90027
2010-2017	Stanford Hospital and Clinics, 300 Pasteur Drive, Stanford, CA 95305
2010-2017	Stanford Children’s Hospital, 725 Welch Road, Palo Alto, CA 94304
2003-2010	Texas Children’s Hospital, 6621 Fannin St. Houston, TX 77030
2003-2010	The Methodist Hospital, 6565 Fannin Street, Houston, TX 77030
2003-2010	St. Luke’s Episcopal Hospital, 6720 Bertner Avenue, Houston, TX 77030
2003-2010	Ben Taub Harris County Hospital, 1504 Taub Loop, Houston, TX 77030
2003-2010	Houston Michael E. DeBakey Veterans Affairs Hospital, 2002 Holcombe Blvd., Houston, TX 77030
2001-2003	University of California - San Francisco Medical Center, 505 Parnassus Ave, San Francisco, CA 94143-0208
2001-2003	San Francisco General Hospital, 2789 25 th Street, San Francisco, CA 94110

2001-2003 San Francisco Veterans Affairs Medical Center, 4150 Clement Street, San Francisco, CA. 94121

Medical school administrative assignments

2017-pres Council of Chairs, Keck School of Medicine at USC

2015-2016 Member, Stanford Neuroscience Institute Interdisciplinary Postdoctoral Scholars Program grant review committee

2013-2015 Senator to the Stanford Medical School Faculty Senate

- 2014 Co-Chair of the Sub-Committee on Welfare of the School

2014-2015 Member, search committee for Chair of Ophthalmology Department

2014-2015 Chair, search committee for Rhinologist faculty position, Dept of Otolaryngology-Head and Neck Surgery, Stanford University

2013-2014 Member, search committee for Chief of Audiology faculty position, Dept of Otolaryngology-Head and Neck Surgery, Stanford University

2013-2014 Member, search committee for Vestibular Neurotologist faculty position, Dept of Otolaryngology-Head and Neck Surgery, Stanford University

2013 Member, search committee for Basic Scientist faculty position, Dept of Otolaryngology-Head and Neck Surgery, Stanford University

2011-2013 Alternate Departmental Senator to the Stanford Medical School Faculty Senate

2007 Co-organizer of “Grand challenges for Nanomedicine and Nanobiology” workshop for researchers at Baylor College of Medicine, Rice University, MD-Anderson, and UTMB

2007 Nanomedicine workshop program committee, Baylor College of Medicine

2004 Translational Research Graduate School Program committee, Baylor College of Medicine

Hospital administrative assignments

2019-pres Patient Access Committee, USC Care

2017-pres Integrated Executive Peer Review Committee, Keck Hospital of USC

2017-pres Medical Executive Committee, Keck Hospital of USC

2017-pres Operating Room Committee, Keck Hospital of USC

2012-2017 Health Information Management Services (HIMS) committee member, Stanford Children’s Hospital

2007-2010 Department of Ambulatory Care Committee, Texas Children’s Hospital

2007 Medical Records Committee, Texas Children’s Hospital

2005 Operating room cost committee, The Methodist Hospital

Regional medical societies

2018-pres Los Angeles Otolaryngology Society

2003-2010 Harris County Medical Society

- 2005 Member of finance committee

2003-2010 Houston Society of Otolaryngology

- 2009-2010 President
- 2008-2009 Vice-president
- 2007-2008 Secretary
- 2007-2009 HSO Representative to the AAO-HNSF Board of Governors