CURRICULUM VITAE JOHN S. OGHALAI, MD

I. GENERAL BIOGRAPHICAL INFORMATION

A. Personal

1. Name: John S. Oghalai
2. Date of Birth: December 14, 1968
3. Citizenship: United States

B. Education

1. Undergraduate:
   a. B.S., Electrical Engineering, University of Wisconsin – Madison (1986-1990)
2. Medical:
   a. M.D., University of Wisconsin – Madison (1990-1994)
3. Postgraduate:
   a. Internship: General Surgery, Department of Surgery, Baylor College of Medicine, Houston, TX (1994-1995)
   b. Residency: Otolaryngology - Head and Neck Surgery, Bobby R. Alford Department of Otorhinolaryngology and Communicative Sciences, Baylor College of Medicine, Houston, TX (1995-2001)
   c. 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. (1996-1998)
   d. Fellowship in Neurotology and Skull Base Surgery, Department of Otolaryngology - Head and Neck Surgery, University of California - San Francisco, San Francisco, CA (2001-2003)

C. Academic Appointments

1. Faculty positions at BCM
   a. Associate Professor (Tenured), Bobby R. Alford Department of Otolaryngology – Head and Neck Surgery, Baylor College of Medicine, Houston, TX (2009-pres.)
   b. Assistant Professor (Tenure Track), Bobby R. Alford Department of Otolaryngology – Head and Neck Surgery, Baylor College of Medicine, Houston, TX (2003-2009)
   c. Secondary appointment, Department of Neuroscience, Baylor College of Medicine, Houston, TX (2008-pres.)
2. Previous faculty positions at other institutions
   a. Clinical Instructor, Department of Otolaryngology - Head and Neck Surgery, University of California - San Francisco, San Francisco, CA (2001-2003)
3. Faculty appointments at other institutions while at BCM
   a. Adjunct Associate Professor, Department of Bioengineering, Rice University, Houston, TX (2009-pres.)
   b. Adjunct Assistant Professor, Department of Bioengineering, Rice University, Houston, TX (2005-2009)

D. Other advanced training/experience – n/a

E. Other information

1. Honors and Awards
   a. Fellow of the American College of Surgeons (2007)
   b. The Dawn and Brook Lenfest Grant in Auditory Science (2004)
   c. Neurotology Trainee Award from the American Neurotology Society: The Effect of Age upon Acoustic Neuroma Surgery Outcomes (2002)
   d. Voted Administrative Chief Resident by other residents (2000-2001)
   e. Resident Teaching Award (for peer and medical student teaching) (2000)
   f. The J. Charles Dickson Award for Basic Science Research: Outer Hair Cell Electromotility and the Lateral Wall: Lipid-Protein Interactions on a Nanoscale (1999)
   g. Texas Association of Otolaryngology - Head and Neck Surgery Resident Paper Award (2^{nd} place): Nanoscale membrane rippling in the cochlear outer hair cell (1999)
   h. 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)
   i. Texas Association of Otolaryngology - Head and Neck Surgery Resident Paper Award (2^{nd} place): Ionic currents and electromotility in human hair cells (1998)
   j. The J. Charles Dickson Award for Basic Science Research: Fluorescence-imaged microdeformation of the outer hair cell lateral wall (1997)
   k. Association for Research in Otolaryngology Midwinter Meeting Resident Travel Awards (1997, 1998, 1999, & 2001)
   l. Alpha Omega Alpha (1994)
   m. The Evan and Marion Helfaer Scholarship (1993)
   n. The Youmans Award in Medical Physiology (1992)
   o. University of Wisconsin Engineering Departmental Scholarship (1990)
   p. University of Wisconsin Chemistry Departmental Scholarship (1987)
   q. Dean's Honor List every semester (1986-1990)
   r. Acceptance to University of Wisconsin Medical Scholars Program (1986)
   s. Eagle Scout

2. Board Certification and Licensure
   a. USMLE Step I (June, 1992)
   b. USMLE Step II (March, 1994)
   c. USMLE Step III (December, 1996)
   d. Texas Medical License: J9532 (1996-pres.)
   e. California Medical License: AFE75420 (2001-pres.)
   f. DEA certification (1996-pres.)
   g. American Board of Otolaryngology (2002)

3. Other non-academic positions
   a. Co-Op Engineer, McDonnell Douglas Corporation, St. Louis, MO (1989)
   b. Co-Op Engineer, General Motors Corporation, Lansing, MI (1988)
   c. Summer Day Camp Counselor, Madison Metropolitan School District, Madison, WI (1985-1986)

II. RESEARCH INFORMATION

A. Research support

1. 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: PI
   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.

2. 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: 1/1/08-12/31/10
   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.

3. 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: 1/1/07-12/31/13
   d. Annual direct cost: $401,250 Direct cost for overall period: $2,644,514
   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.

4. 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.

5. 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

6. 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 tranduced 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.

7. 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.

8. 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.

9. 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.

10. 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 tranduced 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.

11. 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.

12. 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.

B. National scientific participation

1. Editorial and advisory boards
   a. Otology & Neurotology, journal editorial board (2005-pres.)
   b. Joural of International Advanced Otology, editorial board member (2008-pres.)
   c. Alliance for Nanohealth, scientific advisory board (2006-2008)

2. Review panels
   a. Ad-Hoc Study Section Reviewer for R01 grants – NIH/NIDCD (2/2006 & 11/2006)
   b. American Academy of Otolaryngology – Head and Neck Surgery Foundation CORE Grant review study section member (2007-pres.)
   c. Journal reviewer
      1) Journal of Neuroscience
      2) Archives of Otolaryngology-Head & Neck Surgery
      3) Otolaryngology-Head and Neck Surgery
      4) Otology & Neurotology
      5) Laryngoscope
      6) Head and Neck
      7) Hearing Research
      8) Lasers in Surgery and Medicine
      9) European Journal of Neurology
      10) Journal of Biological Optics
      11) Pediatrics
      12) Experimental Biology and Medicine
      13) Journal of Neural Engineering
      14) Joural of International Advanced Otology

3. Professional societies
   a. The American Otological Society
   b. The Triological Society (inducted May, 2008)
      1) TrioBP (Triological Society Best Practice) committee (2009-pres.)
   c. The American Academy of Otolaryngology - Head and Neck Surgery
      1) ARO representative co-chair of the Research Forum for the American Academy of Otolaryngology – Head and Neck Surgery Foundation Annual Meeting (2005-2007)
      2) AAO-HNSF representative co-chair of the Research Forum for the American Academy of Otolaryngology – Head and Neck Surgery Foundation Annual Meeting (2008-2010)
      3) Research Steering Committee (2008-2010)
   d. The American Neurotology Society
      1) Research Program Committee (2008-pres)
   e. The Association for Research in Otolaryngology
      1) Committee on Patient Advocacy Group Relations (2000-2002)

2) JARO Publications Committee (2004-2007)
3) Animal Research Committee (2007-2010)

f. Society for Neuroscience
g. Kappa Eta Kappa electrical engineering fraternity
h. North American Skull Base Society
i. Harris County Medical Society
j. Houston Society of Otolaryngology
1) Elected secretary (2007)
2) AAO-HNSF Board of Governors society representative (2007-pres.)

4. Invited research lectures
a. 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 (May, 1999)
b. CCRMA Hearing Seminar, Stanford University, Palo Alto, CA: Modulation of Cochlear Biomechanics (Nov, 2001)
c. Dept of Otolaryngology - Head and Neck Surgery, Oregon Health Sciences University, Portland, OR: Modulation of Cochlear Mechanics: Preliminary Modeling and Experimental Results (Nov, 2004)
d. 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 (Apr, 2009).

C. Publications

1. Peer-reviewed manuscripts

1. Oghalai JS, Street WN, Rhode WS. A neural network-based spike discriminator. *Journal of neuroscience methods* 1994;54:9-22.
2. Oghalai JS, Favrot SR, Coker NJ. Imaging quiz case 2. Soft tissue fibrosis. *Arch Otolaryngol Head Neck Surg* 1996;122:1267-9.
3. Higgins JJ, Ide SE, Oghalai JS, Polymeropoulos MH. Lack of mutations in the biotin-binding region of the pyruvate carboxylase (PC) gene in a family with partial PC deficiency. *Clinical biochemistry* 1997;30:79-81.
4. Oghalai JS, Holt JR, Nakagawa T, Jung TM, Coker NJ, Jenkins HA, Eatock RA, Brownell WE. Ionic currents and electromotility in inner ear hair cells from humans. *Journal of neurophysiology* 1998;79:2235-9.
5. Oghalai JS, Patel AA, Nakagawa T, Brownell WE. Fluorescence-imaged microdeformation of the outer hair cell lateral wall. *J Neurosci* 1998;18:48-58.
6. Oghalai JS, Giannoni C, Donovan DT, Johnson PE, Green LK. Aggressive cervical lymphoma presenting as airway obstruction. *Otolaryngol Head Neck Surg* 1999;120:610-3.
7. Oghalai JS, Tran TD, Raphael RM, Nakagawa T, Brownell WE. Transverse and lateral mobility in outer hair cell lateral wall membranes. *Hearing research* 1999;135:19-28.

8. Oghalai JS, Holt JR, Nakagawa T, Jung TM, Coker NJ, Jenkins HA, Eatock RA, Brownell WE. Harvesting human hair cells. *The Annals of otology, rhinology, and laryngology* 2000;109:9-16.
9. Oghalai JS, Manolidis S, Barth JL, Stewart MG, Jenkins HA. Unrecognized benign paroxysmal positional vertigo in elderly patients. *Otolaryngol Head Neck Surg* 2000;122:630-4.
10. Oghalai JS, Zhao HB, Kutz JW, Brownell WE. Voltage- and tension-dependent lipid mobility in the outer hair cell plasma membrane. *Science* 2000;287:658-61.
11. Nguyen TU, Oghalai JS, McGregor DK, Janssen NM, Huston DP. Subcutaneous nodular amyloidosis: a case report and review of the literature. *Human pathology* 2001;32:346-8.
12. Jackler RK, Oghalai JS. Limitations to mobilizing the intrapetrous carotid artery. *The Annals of otology, rhinology, and laryngology* 2002;111:860.
13. Oghalai JS. Aspiration of a dental appliance in a patient with Alzheimer disease. *JAMA* 2002;288:2543-4.
14. Oghalai JS, Chen L, Brennan ML, Tonini R, Manolidis S. Neonatal hearing loss in the indigent. *The Laryngoscope* 2002;112:281-6.
15. Satar B, Jackler RK, Oghalai J, Pitts LH, Yates PD. Risk-benefit analysis of using the middle fossa approach for acoustic neuromas with >10 mm cerebellopontine angle component. *The Laryngoscope* 2002;112:1500-6.
16. Oghalai JS, Buxbaum JL, Pitts LH, Jackler RK. The effect of age on acoustic neuroma surgery outcomes. *Otol Neurotol* 2003;24:473-7.
17. Oghalai JS, Jackler RK. Anatomy of the combined retrolabyrinthine-middle fossa craniotomy. *Neurosurgical focus* 2003;14:e8.
18. Yates PD, Jackler RK, Satar B, Pitts LH, Oghalai JS. Is it worthwhile to attempt hearing preservation in larger acoustic neuromas? *Otol Neurotol* 2003;24:460-4.
19. Bloch DC, Oghalai JS, Jackler RK, Osofsky M, Pitts LH. The fate of the tumor remnant after less-than-complete acoustic neuroma resection. *Otolaryngol Head Neck Surg* 2004;130:104-12.
20. Lau CC, Oghalai JS, Jackler RK. Combination of aberrant internal carotid artery and persistent stapedial artery. *Otol Neurotol* 2004;25:850-1.
21. Oghalai JS. Chlorpromazine inhibits cochlear function in guinea pigs. *Hearing research* 2004;198:59-68.
22. Oghalai JS, Leung MK, Jackler RK, McDermott MW. Transjugular craniotomy for the management of jugular foramen tumors with intracranial extension. *Otol Neurotol* 2004;25:570-9; discussion 9.
23. Oghalai JS, Ramirez AL, Hegarty JL, Jackler RK. Chronic pachymeningitis presenting as asymmetric sensorineural hearing loss. *Otol Neurotol* 2004;25:616-21.

24. Oghalai JS, Buxbaum JL, Jackler RK, McDermott MW. Skull base chondrosarcoma originating from the petroclival junction. *Otol Neurotol* 2005;26:1052-60.

25. Pletcher SD, Oghalai JS, Reeck JB, Cheung SW. Management of superior canal dehiscence syndrome with extensive skull-base deficiency. *ORL; journal for oto-rhino-laryngology and its related specialties* 2005;67:192-5.

26. Oghalai JS. The cochlear amplifier: augmentation of the traveling wave within the inner ear. *Current opinion in otolaryngology & head and neck surgery* 2004;12:431-8.

27. Wenzel GI, Pikkula B, Choi CH, Anvari B, Oghalai JS. Laser irradiation of the guinea pig basilar membrane. *Lasers in surgery and medicine* 2004;35:174-80.

28. Choi CH, Oghalai JS. Predicting the effect of post-implant cochlear fibrosis on residual hearing. *Hearing research* 2005;205:193-200.

29. McMurphy AB, Oghalai JS. Repair of iatrogenic temporal lobe encephalocele after canal wall down mastoidectomy in the presence of active cholesteatoma. *Otol Neurotol* 2005;26:587-94.

30. Tang HY, Xia A, Oghalai JS, Pereira FA, Alford RL. High frequency of the IVS2-2A>G DNA sequence variation in SLC26A5, encoding the cochlear motor protein prestin, precludes its involvement in hereditary hearing loss. *BMC medical genetics* 2005;6:30.

31. Evans MB, Tonini R, Shope CD, Oghalai JS, Jerger JF, Insull W, Jr., Brownell WE. Dyslipidemia and auditory function. *Otol Neurotol* 2006;27:609-14.

32. Isaacson B, Coker NJ, Vrabec JT, Yoshor D, Oghalai JS. Invasive cerebrospinal fluid cysts and cephaloceles of the petrous apex. *Otol Neurotol* 2006;27:1131-41.

33. Nakagawa T, Oghalai JS, Saggau P, Rabbitt RD, Brownell WE. Photometric recording of transmembrane potential in outer hair cells. *Journal of neural engineering* 2006;3:79-86.

34. Patel N, Oghalai JS. Familial unilateral cochlear nerve aplasia. *Otol Neurotol* 2006;27:443-4.

35. Paylor R, Glaser B, Mupo A, Ataliotis P, Spencer C, Sobotka A, Sparks C, Choi CH, Oghalai J, Curran S, Murphy KC, Monks S, Williams N, O'Donovan MC, Owen MJ, Scambler PJ, Lindsay E. Tbx1 haploinsufficiency is linked to behavioral disorders in mice and humans: implications for 22q11 deletion syndrome. *Proc Natl Acad Sci U S A* 2006;103:7729-34.

36. Prichard CN, Isaacson B, Oghalai JS, Coker NJ, Vrabec JT. Adult spontaneous CSF otorrhea: correlation with radiographic empty sella. *Otolaryngol Head Neck Surg* 2006;134:767-71.

37. Tang HY, Fang P, Ward PA, Schmitt E, Darilek S, Manolidis S, Oghalai JS, Roa BB, Alford RL. DNA sequence analysis of GJB2, encoding connexin 26: observations from a population of hearing impaired cases and variable carrier

rates, complex genotypes, and ethnic stratification of alleles among controls. *American journal of medical genetics* 2006;140:2401-15.

38. Visosky AM, Isaacson B, Oghalai JS. Circumferential petrosectomy for petrous apicitis and cranial base osteomyelitis. *Otol Neurotol* 2006;27:1003-13.
39. Calzada G, Isaacson B, Yoshor D, Oghalai JS. Surgical approaches to the hypoglossal canal. *Skull Base* 2007;17:187-96.
40. Cristobal R, Oghalai JS. Peripetrosal arachnoid cysts. *Current opinion in otolaryngology & head and neck surgery* 2007;15:323-9.
41. Kushalnagar P, Krull K, Hannay J, Mehta P, Caudle S, Oghalai J. Intelligence, Parental Depression, and Behavior Adaptability in Deaf Children Being Considered for Cochlear Implantation. *J Deaf Stud Deaf Educ* 2007.
42. Pierson SK, Caudle SE, Krull KR, Haymond J, Tonini R, Oghalai JS. Cognition in children with sensorineural hearing loss: etiologic considerations. *The Laryngoscope* 2007;117:1661-5.
43. Rajagopalan L, Greeson JN, Xia A, Liu H, Sturm A, Raphael RM, Davidson AL, Oghalai JS, Pereira FA, Brownell WE. Tuning of the outer hair cell motor by membrane cholesterol. *J Biol Chem* 2007.
44. Wenzel GI, Anvari B, Mazhar A, Pikkula B, Oghalai JS. Laser-induced collagen remodeling and deposition within the basilar membrane of the mouse cochlea. *J Biomed Opt* 2007;12:021007.
45. Wenzel GI, Xia A, Funk E, Evans MB, Palmer DJ, Ng P, Pereira FA, Oghalai JS. Helper-dependent adenovirus-mediated gene transfer into the adult mouse cochlea. *Otol Neurotol* 2007;28:1100-8.
46. Xia A, Visosky AM, Cho JH, Tsai MJ, Pereira FA, Oghalai JS. Altered traveling wave propagation and reduced endocochlear potential associated with cochlear dysplasia in the BETA2/NeuroD1 null mouse. *J Assoc Res Otolaryngol* 2007;8:447-63.
47. Choi CH, Oghalai JS. Perilymph Osmolality Modulates Cochlear Function. *The Laryngoscope* 2008.
48. Cristobal R, Oghalai JS. Hearing loss in children with very low birth weight: current review of epidemiology and pathophysiology. *Arch Dis Child Fetal Neonatal Ed* 2008;93:F462-8.
49. Oghalai JS, Tonini R, Rasmus J, Emery C, Manolidis S, Vrabec JT, Haymond J. Intra-operative monitoring of cochlear function during cochlear implantation. *Cochlear implants international* 2008;10(1):1621-9.
50. Shenoy V, Oghalai JS. Chronic pachymeningitis and bilateral facial paralysis secondary to renal osteodystrophy. *Arch Otolaryngol Head Neck Surg* 2008;134:324-6.
51. Tang HY, Basehore MJ, Blakey GL, Darilek S, Oghalai JS, Roa BB, Fang P, Alford RL. Infrequency of two deletion mutations at the DFNB1 locus in patients and controls. *American journal of medical genetics* 2008;146:934-6.

52. Xia A, Wooltorton JR, Palmer DJ, Ng P, Pereira FA, Eatock RA, Oghalai JS. Functional Prestin Transduction of Immature Outer Hair Cells from Normal and Prestin-Null Mice. *J Assoc Res Otolaryngol* 2008.
53. Katzenstein JM, Oghalai JS, Tonini R, Baker D, Haymond J, Caudle SE. Neurocognitive Functioning of a Child with Partial Trisomy 6 and Monosomy 21. *Neurocase* 2009.
54. Yuan T, Gao SS, Saggau P, Oghalai JS. Imaging living hair cells within the cochlear epithelium of mice using two-photon microscopy. *Proceedings of SPIE (*in press).
55. Zevallos JP, Vrabec JT, Williamson RA, Giannoni CM, Sulek M, Larrier D, Friedman EM, Oghalai JS. Bacteriology and Management of Advanced Pediatric Mastoiditis with and without Intracranial Complications. *Laryngoscope* (in press).

2. Other papers
    1. Oghalai JS. Revision cochlear implantation after device failure. *Operative Techniques in Otolaryngology – Head and Neck Surgery* 2005;16:146-8.
    2. Sung A, Cristobal R, Tonini RT, Emery C, Rasmus J, Oghalai JS. Is there a role for a hearing aid trial in pediatric cochlear implantation?, Manuscript in preparation.
    3. Xia A, Gao SS, Yuan T, Osborne A, Pfister M, Maricich SM, Pereira FA, Oghalai JS. Deficient forward transduction and enhanced reverse transduction in the alpha tectorin C1509G human hearing loss mutation. Submitted
    4. Lin JW, Mody A, Tonini RT, Vrabec JT, Oghalai JS. Characteristics of channel faults in failed cochlear implants. Submitted.
    5. Maricich SM, A. X, 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. Submitted.

3. Abstracts given during last three years
    1. Xia A, Wenzel GI, Ng P, Pereira FA, Oghalai JS. Prestin transduction in the prestin null mouse cochlea in vitro and in vivo. Abstracts of the Midwinter Research Meeting of the Association for Research in Otolaryngology 2006.
    2. Funk E, Wenzel GI, Xia A, Ng P, Pereira FA. Oghalai JS. The scala media technique of adenoviral gene transfer into the mouse organ of corti. Abstracts of the Spring Meeting of the American Neurotology Society 2006:p. 26.
    3. Oghalai JS, Simon LM, Haymond J, Tonini R, Caudle SE, Baker D. Cochlear implantation improves developmental rate in children with global delay. Abstracts of the 9th International Conference on Cochlear Implants and Related Sciences, Vienna, Austria, 2006, p. 8.
    4. Tonini R, Rasmus J, Ballay C, Oghalai JS, Manolidis S. The Bark scale in children with cochlear implants: ongoing findings. Abstracts of the 9th

International Conference on Cochlear Implants and Related Sciences. Vienna, Austria, 2006, p. 31.

5. Isaacson, B, Simon LM, Oghalai JS. Otic capsule malformations in bacterial meningitis. Abstracts of the Annual Meeting of the American Academy of Otolaryngology - Head and Neck Surgery Foundation, Inc. 2006, p. P171.
6. 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.
7. 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.
8. Tonini RT, Rasmus J, Emery C, Haymond J, Manolidis S, Vrabec 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. Zevallos JP, Oghalai JS. Intracranial complications of otitis media in children. Abstracts of the Spring Meeting of the Triological Society 2008, p.128.
14. 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.
15. 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.
16. 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.

4. Books
   a. Complete books written
      1) Oghalai JS, Driscoll CLW. Atlas of Neurotologic and Lateral Skull Base Surgery. Heidelberg, Germany: Springer (Manuscript in preparation).

   b. Books edited – n/a

   c. 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.
      9) Oghalai JS. Trauma of the temporal bone. In: Stewart MG, ed. Head and Neck Trauma. New York: Thieme Medical Publishers; 2005:169-79.
      10) Oghalai JS, Choi C-H, Spector AA. Modulation of cochlear mechanics: model predictions and experimental findings of the effect of changing perilymph osmolarity. In: Nuttall F, ed. Auditory Mechanisms: Processes and Models. Singapore: World Scientific Publishing Co., Pte. Ltd.; 2006: 41-8.
      11) Brownell WE, Oghalai JS. Cochlear biophysics. In: Snow JB and Wackym PA, eds. Ballenger's Otorhinolaryngology Head and Neck Surgery. 17 edition, USA: Pmph; 2008: 101-6.
      12) Rajagopalan L, Sfondouris J, Oghalai JS, Pereira FA, Brownell WE. Membrane composition tunes the outer hair cell motor. In: Cooper N, ed.

Auditory Mechanisms: Processes and Models. Singapore: World Scientific Publishing Co., Pte. Ltd.; in press.

5. Other works communicating research results to scientific colleagues
   d. US provisional patent application: Method and Apparatus for Tuning of the Cochlea. Serial # PCT/US05/09188, Filing Date: 3/18/05, Priority Date: 3/18/04, Inventors: Oghalai JS and Anvari B, BLG# 04-091.

6. Other works communicating research results to public
   e. 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.
   f. 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.

III. TEACHING INFORMATION

A. Didactic course work

1. Courses taught at BCM within the primary department
   a. Program Director – Baylor College of Medicine Continuing Medical Education Course: Advances in Otology and Neurotology, Hilton Americas, Houston TX (Mar, 2005) A nationwide course for general otolaryngologists; 9.5 CME credits - 103 registrants.
   b. Program Director – Baylor College of Medicine Continuing Medical Education Course: Comprehensive Management of the Pediatric Ear, Omni Houston Hotel, Houston TX (May, 2007). A nationwide course for pediatricians, family practitioners, otolaryngologists, and audiologists; 16 CME credits - 261 registrants.
   c. Coordinator of departmental Morbidity and Mortality monthly conference (2005-pres.): 1 hour, 6 times per year.
   d. Otolaryngology class on diseases of the ear for third year medical students (2003-pres.): 1 hour per lecture, 4 times per year.
   e. Otology & Neurotology lectures to otolaryngology residents and medical students (2003-pres.): 2 hours per lecture, 8 times per year.
   f. Temporal bone drilling course to otolaryngology residents (2003-pres.): 4 hours per session, 2-3 times per year.

2. Courses taught at BCM external to the primary department
   a. Course director, Bench to Bedside seminar series journal club for Translational Biology and Molecular Medicine Program graduate students (Spring semester, 2008): 1 hour per week for 8 weeks.

3. Courses taught at other institutions while at BCM
   a. Lecturer on cochlear implantation Sensory Integration Course within the Bioengineering Department at Rice University for senior undergraduate students (2003-pres.): 2 hours per lecture, once a year.

b. 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 (1999) – 1 CME credit
c. 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

B. Curriculum development work – n/a

C. Non-didactic teaching while at BCM

1. Resident training
   a. Surgical ~ 8 hours per week
   b. Clinical skills during clinic and hospital rounds ~ 6 hours per week

2. Residents rotating through my lab for 3 months of basic science research training
   1) Brad Evans, MD (2004) – now in private practice
   2) Ann Marie Visosky, MD (2004) – now in private practice
      - received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2005)
   3) Etai Funk, MD (2005) –Finished plastic surgery fellowship; now in private practice

3. Clinical fellow training
   a. Neurotology and Skull Base Surgery
      1) Brandon Isaacson, MD (2004-2006) – now an Assistant Professor at UT-Southwestern, Dallas, TX
      2) Ricardo Cristobal, MD, PhD (2006-2008) – Clinical Faculty at UT-Southwestern, Fort Worth, TX
      3) Jerry Lin, MD, PhD (2008-pres) – Currently in training
         - Won the American Neurotology Society Trainee Award based on clinical work I mentored (2009)
   b. Pediatric otolaryngology
      1) Debra Weinberger, MD (2004-2006) – now an Assistant Professor at UT-Southwestern, Dallas
      2) Tulio Valdez, MD (2005-2007) – was an Assistant Professor at Baylor College of Medicine; now in private practice
      3) John Gavin, MD (2006-2007) – now in private practice
      4) Binoy Chandy, MD (2007-2008) – now an Assistant Professor at Baylor College of Medicine
      5) Shraddha Mukerji, MD (2007-2008) – now an Assistant Professor at University of Texas – Medical Branch, Galveston, TX.
      6) Vicky Owczarzak, MD (2008-pres) – Currently in training.
      7) Tony Kille, MD (2008-pres) – Currently in training

4. Research fellow training
   1) Gentiana Wenzel, MD (2003-2005) – now a resident in otolaryngology on academic tract at University of Hannover, Germany.
      - Received the Thyssen Mentored Research Grant while in my lab (2005) - $58,000E

2) Chul-Hee Choi, PhD (2003-2006) – now an Assistant Professor at the University of Oklahoma and Hough Ear Clinic.
   - Received an American Academy of Audiology mentored research grant while in my lab (2005) - $10,000
3) Anping Xia, MD, PhD (2003-2008) – now an Instructor at Stanford University.
4) Tao Yuan, PhD (2007-pres.) – currently in training.
5) Alec Sevy, MD (2008-pres.) – currently in training.
   - Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2009)

5. Graduate student training
   1) Simon Gao, BS (2008-pres.) - currently in training
      - Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2009)
6. Medical students rotating through my lab for basic science research training
   1) Robert Schmidt, BS (2004) – otolaryngology residency
   2) Drew Sawyer, BS (2004) – otolaryngology residency
   3) Calvin Wei, BA (2005) – otolaryngology residency
   4) Sally Merryman, BS (2005) – otolaryngology residency
   5) Vikram Shenoy, BS (2005-2006) – otolaryngology residency
   6) Justo Gonzalez, BS (2006) – surgery residency
   7) Alec Sevy, BS (2007) – otolaryngology residency
      - Accepted into the Baylor College of Medicine Resident Research Tract in Otolaryngology – Head and Neck Surgery.
      - Received Association for Research in Otolaryngology Resident Travel Award for work in my lab (2009)
   8) Christopher Liu (2008-2009) – currently in training
      - Received Howard Hughes Medical Institue Research Training Fellowship grant for Medical Students ($27,000) for his one year research project
   9) Chrystal Obi (2008) – currently in medical school at Univ of Pittsburgh
   10) William Clifton (2009-2010) – currently in training
      - Received Howard Hughes Medical Institue Research Training Fellowship grant for Medical Students ($27,000) for his one year research project
7. Undergraduate students rotating through my lab for basic science research training
   1) Amaan Mazhar (2004-2005) – bioengineering graduate school
   2) Audrey Nath (2004) – bioengineering graduate school
   3) Avni Mody (2008) – undergraduate studies at Texas A&M.

D. Lectures

1. International – n/a

2. National
   a. CME Course Faculty, Otology and Neurotology Update, University of California-San Francisco: Retrocochlear Diagnosis (Oct, 2002)
   b. Grand Rounds, Dept of Otolaryngology - Head and Neck Surgery, University of California-Davis: Modulation of Cochlear Nanomechanics (Apr, 2003)
   c. American Neurotologic Society Fall Scientific Session, New York City: Surgery of the Inner Ear (Sept, 2004)

d. CME Course Faculty, Otology and Neurotology Update, Stanford University: How the cochea works; Complications of otitis media (Nov, 2006)
e. CME Course Faculty, Otology and Neurotology Update, Stanford University: How the ear works (Nov, 2008)

3. Regional
   a. The Ear 2000, Association of Houston Audiologists, Houston, TX: Active Hearing or How Does the Cochlea Really Work? (Jan, 2000)
   b. 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 (Apr, 2003)
   c. 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 (May, 2007)
   d. Do You Hear What I Hear? A resource for identifying and managing hearing loss. Worshop sponsored by St. Luke's United Methodist Church, the Hearing Loss Association – Houston Chapter, and the Office for Deaf and Hard of Hearing Services (March, 2009)

4. Local
   a. Dept of Endocrinology Grand Rounds, Baylor College of Medicine, Houston, TX: Minimally Symptomatic Hyperparathyroidism (May, 1996)
   b. Dept of Geriatrics Grand Rounds, Baylor College of Medicine, Houston, TX: Geriatric Balance Disorders (May, 1998)
   c. CME Course Faculty, ENT for the Primary Care Physician, St. Luke's Episcopal Hospital, Houston TX: Earaches: Causes and Cures (Mar, 2004)
   d. Grand Rounds, Dept of Otolaryngology - Head and Neck Surgery, University of Texas-Houston: Management of Acoustic Neuroma (Aug, 2004)
   e. CME Course Faculty, Otology and Neurotology Update, Stanford University: How the Ear Works; Microsurgery within the Inner Ear (Nov, 2004)
   f. Dept of Neurology Grand Rounds, Baylor College of Medicine, Houston, TX: Skull Base Surgery (Feb, 2006)
   g. 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 (Jan, 2007)

E. Visiting professorships

1. University of Michigan Dept of Otolaryngology visiting professor (Sept, 2008)
2. Texas A&M Dept of Neuroscience (Oct, 2008)

IV. MEDICAL AND SERVICE INFORMATION

A. Patient care responsibilities at BCM and/or its affiliated institutions

1. Clinic Chief and Director of The Hearing Center at Texas Children's Hospital (2004-pres.).
   1) This multi-specialty center of excellence focuses on the care of children with atresia, chronic otitis media and cholesteatoma, sensorineural hearing loss, and anterior and lateral skull base tumors.

2) We are one of the largest pediatric cochlear implant programs in the U.S., and have become the regional referral center for Texas and Louisiana. Many families from the Middle East, Mexico, and Latin America bring their children to our Center for care.
3) Our team includes members from Otolaryngology, Audiology, Speech and Language Pathology, Neuropsychology, Genetics, Ophthalmology, Pediatric Neurology, Neurosurgery, Plastic Surgery, Neuroradiology, Medical Oncology, Radiation Oncology, and Pathology.

2. Adult Otology, Neurotology, and Skull Base Surgery at The Methodist Hospital and St. Lukes Episcopal Hospital (2003-pres).
   1) These responsibilities involve the care of patients with complex disorders of the ear and temporal bone.
   2) In particular, I commonly work in collaboration with the Baylor College of Medicine Department of Neurosurgery as a member of the skull base team. This involves the treatment of patients with cranial base tumors, either by microsurgical removal or stereotactic radiation.

B. Clinical laboratory responsibilities – n/a

C. National education or voluntary health organization participation – n/a

D. Administrative assignments at Baylor College of Medicine

1. Translational Research Graduate School Program committee (2004)
2. Nanomedicine workshop program committee (2007)
3. Co-organizer of “Grand challenges for Nanomedicine and Nanobiology” workshop for researchers at Baylor College of Medicine, Rice University, MD-Anderson, and UTMB (2007)

E. Hospital privileges and committee appointments (current)

1. Texas Children’s Hospital, 6621 Fannin St. Houston, TX 77030 (2003-pres.)
   a. Department of Ambulatory Care Committee – Texas Children’s Hospital (2007-pres.)
   b. Medical Records Committee - Texas Children’s Hospital (2007)
2. The Methodist Hospital, 6565 Fannin Street, Houston, TX 77030 (2003-pres.)
   a. Operating room cost committee (2005)
3. St. Luke’s Episcopal Hospital, 6720 Bertner Avenue, Houston, TX 77030 (2003-pres.)
4. Ben Taub Harris County Hospital, 1504 Taub Loop, Houston, TX 77030 (2003-pres.)
5. Houston Michael E. DeBakey Veterans Affairs Hospital, 2002 Holcombe Blvd., Houston, TX 77030 (2003-pres.)

F. Hospital privileges and committee appointments (past)

1. University of California - San Francisco Medical Center, 505 Parnassus Ave, San Francisco, CA 94143-0208 (2001-2003)
2. San Francisco General Hospital, 2789 25th Street, San Francisco, CA 94110 (2001-2003)

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