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Medical Director, Ear & Hearing at Center for Neurosciences
Medical Director for Neurotology Services, Tucson Medical Center
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EDUCATION

<u>College Undergraduate</u>	Bachelor of Science - Biomedical Sciences (INTEFLEX: 7-year premedical/medical program) University of Michigan Ann Arbor, Michigan GPA: 3.926 8/1990-6/1994
<u>Medical School</u>	Doctor of Medicine University of Michigan Medical School Ann Arbor, Michigan Cum Laude 7/1994-6/1997
<u>Internship</u>	General Surgery Washington University in St. Louis/Barnes-Jewish Hospital 7/1997 - 6/1998
<u>Residency</u>	Otolaryngology - Head and Neck Surgery Washington University in St. Louis/Barnes-Jewish Hospital 7/1998 - 6/2004 Embedded Physician Scientist Training Program (T32 Grant from 6/1999 - 7/2001)
<u>Fellowship</u>	Otology, Neurotology, and Cranial Base Surgery Department of Otolaryngology-Head and Neck Surgery The Ohio State University with Brad Welling and Ed Dodson Columbus, Ohio 7/2004 - 6/2006

MEDICAL CERTIFICATION AND LICENSURE

1997-2006	Missouri State Board of Medical Examiners License #112997
2004-2012	Ohio State Board of Medical Examiners License #35.084212
2011-Present	Arizona State Medical License #44630
2012-2017	Nevada State Board of Medical Examiners License #14526
2005	Board Certification in Otolaryngology
2010 - 2020	Board Certification in Neurotology & Cranial Base Surgery
2018 - 2030	Recertification in Otolaryngology and Neurotology

NPI #1376592576

EMPLOYMENT

<u>Assistant Professor</u>	Department of Otolaryngology - Head and Neck Surgery The Ohio State University Columbus, Ohio 7/5/2006-7/25/2011
<u>Associate Professor</u>	Division then Dept. of Otolaryngology – Head & Neck Surgery Director, UA Ear Institute University of Arizona Tucson, Arizona 7/25/2011 – 6/2016
<u>Professor with Tenure</u>	Dept. of Otolaryngology – Head & Neck Surgery Founding Director, UA Ear Institute University of Arizona Tucson, Arizona 7/2016 – 3/2017
<u>Medical Director</u>	Ear & Hearing at The Center for Neurosciences 2450 E. River Road; Tucson, AZ 85718 3/2017 – present
<u>Medical Director</u>	Otology/Neurotology Services - Tucson Medical Center 3/2017 – present

HONORS/AWARDS

1989	National Merit Scholarship Finalist
1989	Rotary Club Scholar
1994	Phi Beta Kappa Honor Society
1994	Golden Key National Honor Society
1994	James B. Angell Scholar
1994	Phi Kappa Phi Honor Society
1996	Alpha Omega Alpha (AOA) Honor Society in Medicine
2004	Washington University Otolaryngology Medical Student Teaching Award
2007	Nicholas Torok Award - American Neurotology Society
2007	Columbus Business First's Forty under 40
2008	The Triological Society Career Development Award
2010	George L. Adams Young Faculty Award; Middle Section of the Triological Society
2011	Accepted Thesis/Induction to the Triological Society as Active Member
2011	Politzer Prize Recipient: Best Scientific Submission (Politzer Meeting – Greece)
2012	FDA awards Orphan Drug Status to AR42 (Arno Therapeutics) for treatment of Vestibular Schwannomas/Meningiomas
2012	Invited member – American Neurotology Society Program Advisory Committee
2013	First Elected to Tucson Lifestyle Magazine – Best Doctors
2013-	First Elected to Best Doctors in America
2014	First Elected to Castle Connolly Top Doctors
2014	Designated Tenure – University of Arizona
2014	Vice Chair Designation – Department of Otolaryngology (University of Arizona)
2014	Chair of the Dept. of Otolaryngology Promotion and Tenure Committee
2015	Featured Cover Story – AZ Cancer Center Publication – Act Against Cancer
2015	Invited to Cochlear Americas Surgeon Advisory Board
2015	Invited – American Otological Society Program Advisory Committee
2015	Surgeon Advisory Panel/Consultant – Olympus Americas
2016	American Otological Society 1 st place poster winner, 2016 COSM
2016	Triological Society Meeting 1 st place poster presentation, 2016 COSM
2016	Invited – Triological Society Program Advisory Committee
2016	Professor with Tenure Designation – University of Arizona
2016	Invited Otology Session Moderator – AAO/HNS National Meeting
2016	Invited to Otology/Neurotology Education Committee – American Academy of Otolaryngology

- 2016 Invited to Program Advisory Committee – American Academy of Otolaryngology
- 2017 Invited Panel Moderator – Triological Society Combined Sections Meeting
- 2017 Board Member – Auditory Implant Initiative
- 2017 Invited Faculty – University of Michigan Temporal Bone Course (Ann Arbor)
- 2017 Invited Faculty – Vanderbilt University Endoscopic Ear Surgery Course (Nashville)
- 2017 Invited Faculty – Oticon Medical Key Opinion Leaders Symposium (Copenhagen, Denmark and Nice, France)
- 2017 Invited Otology Session Moderator – AAO/HNS National Meeting
- 2017 Invited Co-Director. Endoscopic Ear Surgery Workshop (American Academy of Otolaryngology Meeting (Chicago, IL)
- 2018 Invited to Otology/Neurotology Education Committee – American Academy of Otolaryngology
- 2018 Invited Co-Director. Endoscopic Ear Surgery Workshop (American Academy of Otolaryngology Meeting; Atlanta, GA)
- 2018 Invited Interviewer – Expert Interview Series (American Academy of Otolaryngology Meeting; Atlanta, GA)
- 2019 President, Arizona Society of Otolaryngology – Head & Neck Surgery 2019-2021
- 2020 Invited to 3-member Audit Committee of the American Neurotology Society

SERVICE/OUTREACH

PROFESSIONAL AFFILIATIONS

- 1999-2001 Association for Research in Otolaryngology
- 1999-present American Medical Association
- 1999-present American Academy of Otolaryngology – Head & Neck Surgery
- 2004-2007 Ohio State Medical Association
- 2006-2011 Associate Member, Triological Society
- 2007-2013 Associate Member, American Neurotology Society
- 2007-present Politzer Society
- 2009-present Fellow, American College of Surgeons
- 2011-present Fellow, Triological Society (Thesis accepted 2011)
- 2011-present Arizona Society of Otolaryngology - Head and Neck Surgery
- 2012-present Tucson Surgical Society
- 2013-present Fellow, American Neurotology Society
- 2014-present Fellow, American Otological Society
- 2019-present Perioperative Services Oversight Committee - Tucson Medical Center

PROFESSIONAL SERVICE

- 2006-2011 Departmental Website Committee
Department of Otolaryngology-Head and Neck Surgery
The Ohio State University
- 2006-2011 Departmental Research Committee
Department of Otolaryngology-Head and Neck Surgery
The Ohio State University
- 2008-Present Journal Reviewer
Otology/Neurotology
Laryngoscope
Nanomedicine
Otolaryngology – Head & Neck Surgery Journal
Glia
Ear & Hearing
Translational Research
The Sultan Qaboos University Medical Journal
The European Journal of Pharmacology
- 2009-2011 Otology/Neurotology Resident Core Curriculum Director
Department of Otolaryngology-Head and Neck Surgery
The Ohio State University
- 2009-2011 Philanthropy/Development – OSU Temporal Bone Laboratory
(\$1.6 Million in Corporate Donations Procured)
Department of Otolaryngology-Head and Neck Surgery
The Ohio State University
- 2011 Invited Member
NIDCD Workshop for New Clinician-Investigators in
Communication Disorders: Strategies for Success
National Institutes on Deafness and Other Communication
Disorders
- 2011-2014 Website Development Committee
Otolaryngology – Head & Neck Surgery
University of Arizona
- 2011-2012 Scientific Reviewer
Neurofibromatosis Research Program Grant Review Panel
US Department of Defense
- 2011-2013 Otolaryngology Board Exam Item Writer

Board Exam Task Force
American Board of Otolaryngology

2012 Invited Member
Founding Esteem Surgeons Group Meeting – Envoy Medical

2012 Invited Member
Cochlear New Frontiers Panel Meeting – Cochlear Corporation

2012 Otolaryngology ACGME Milestones Project Committee
Accreditation Council for Graduate Medical Education and American Board of Otolaryngology

2012 Invited Member
Envoy Esteem Advisory Sessions – Envoy Medical

2012-2017 Course Director
ENT in the Desert Symposium (National CME Meeting)
Department of Surgery – Division of Otolaryngology
University of Arizona

2012-2017 Faculty Mentor,
University of Arizona College of Medicine Medical Student Research Program

2012-2014 Invited Member - Scientific Program Committee (3-year commitment)
American Neurotology Society

2013-2017 Otology/Neurotology Resident Core Curriculum Director
Department of Otolaryngology – Head & Neck Surgery
University of Arizona

2013 Invited Member
Cochlear VISTA Panel Meeting – Sydney, Australia
Cochlear Corporation

2013 Invited Member
Med-El Hearing Preservation Workshop – Heidelberg, Germany
Med-El Corporation

2013-2014 Marketing Advisory Committee
University of Arizona Medical Center

2013-2014	Executive Research Committee Department of Surgery University of Arizona
2014	Board Examiner for Otology/Audiology American Board of Otolaryngology
2014	Neurotology ACGME Milestone Project Committee Accreditation Council for Graduate Medical Education and American Board of Otolaryngology
2014-2017	Founding Physician Leader – UA College of Medicine Otolaryngology Interest Group (for junior level medical students)
2014	Strategic Planning - Research Committee Member Department of Surgery Faculty Retreat University of Arizona
2014-2017	Faculty Fellows Mentoring Program College of Medicine University of Arizona
2014	Invited Member New Frontiers: Current and Future Trends in Implantable Auditory Technology – Cochlear Corporation (Denver, CO)
2014	Invited Member Med-El Hearing Preservation Workshop – Tokyo, Japan Med-El Corporation
2014-2017	Chair – Promotions and Tenure Committee Department of Otolaryngology – The University of Arizona
2014-2017	Member, Clinical Compliance Committee for Resident Education Otolaryngology/Neurotology Milestones
2014-2015	Advisory Panel Member for Culture Integration of Banner and UAHN
2015	Board Examiner American Board of Otolaryngology; and Neurotology/Cranial Base Surgery Board

2015	Arizona Cancer Center Foundation – Presentation to the Board Concept to Proof of Principle: High throughput drug testing for hearing loss using a novel zebrafish model
2015	Otology Session Moderator (AAO-HNS National Meeting; Dallas, TX)
2015	Founding Director The University of Arizona Temporal Bone Laboratory
2015-16	Invited participant in 5-year administrative review of the Chair of the Department of Ophthalmology
2015	Invited external peer reviewer, Clinical Practice Guideline Update: Cerumen Impaction, American Academy of Otolaryngology
2015-16	The University of Arizona College of Medicine Research Committee Member
2016	Invited COSM-AOS Meeting Poster Award Evaluator American Otological Society
2016	Program Advisory Committee for the American Otological Society
2016	UA Department of Ophthalmology Chair – Performance Review Committee Member (Faculty Affairs; The University of Arizona College of Medicine)
2016	Triological Society Program Advisory Committee
2016	Otology Session Moderator (AAO-HNS National Meeting; San Diego, CA)
2017	Panel Moderator, Triological Society Combined Sections Meeting (New Orleans, LA)
2016-2018	Member, Otology & Neurotology Education Committee, AAO
2016-2018	Member, Annual Meeting Program Committee, AAO
2017	University of Michigan Temporal Bone Lab – Invited Instructor

2017	Vanderbilt University Endoscopic Ear Surgery Course – Invited Instructor
2017	Co-Director; American Academy of Otolaryngology Endoscopic Ear Surgery Workshop
2018	Co-Director; American Academy of Otolaryngology Endoscopic Ear Surgery Workshop
2018	Invited Interviewer: Expert Interview Series (American Academy of Otolaryngology)
2019	Designated Campus Colleague – University of Arizona
2020	Center for Neurosciences Land & Building Committee
2021	Center for Neurosciences Acquisitions & Mergers Committee

TEACHING

University Courses Taught

2004-2011	OSU/Annual Ambulatory Clerkship Lectures to M3/M4 Classes
2007-2011	OSU/Annual Neuroscience Lectures to M1 Class - Auditory Physiology
2012-2017	Otology Resident Core Curriculum Lectures
2012	UA/Vestibular Schwannomas: Past, Present and Future – UA Audiology Graduate School Guest Lecturer
2012	UA/Vertigo and the Vestibular System – Neurology Residency Didactic Course
2014	Middle Ear Implants – UA Audiology Graduate School Guest Lecturer
2015	Cochlear Implants – UA Audiology Graduate School Guest Lecturer
2017	Implantable Hearing Devices – ASU Audiology Graduate School Guest Lecturer

Mentor/Advisor – Medical Students

Jennifer Veraldi 2006

Jonathan Law 2007-2009

Ahmad Malas 2008-2009

Justin Wheeler 2008-2010
Griffin Santarelli 2010-2011
Katie Phillips 2010-2011
Brandon Fornwalt 2011-2012
Craig Miller 2011-2014
Moni Behbahani 2011-2015
Terry Platto 2013-2016
Hal T. Richens 2013-2014
Hung Van Tran (Kevin) 2013-2015
Audriana Hurbon 2013-2015
Jason C. Hanley 2014
Phi Tran 2013-2015
Ross Hutchison Francis 2014-2017
Jordan Mudery 2014-2017
Heather McGhee 2015-2016
Leanne Zabala 2015-2016
Hilary Caitlyn McCrary 2015-2017
Justin Caskey (MSRP Project) – 2016
Tyler Edward Russeth – 2017

Mentor/Advisor – Residents

Jeff Rastatter, MD 2006-2007
Omar Husein, MD 2006-2007
Kris Jatana, MD 2006-2009
Lawrence Robinson, MD 2008-2009
David Melon, MD 2010.
Agnes (Oplatek) Hurtuk, MD 2006-2011
Sarah N. Bowe, MD 2010-2011
Erynne Faucett, MD 2014 - Present
Saranya Reghunathan, MD 2015 - 2017
Jonnae Barry, MD – 2015 – 2017
Tyson Nielsen, MD – 2016 – 2017
John Symms, MD – 2016-2017
Samual Barber, MD – 2018

Mentor/Advisor – Clinical Fellows/Graduate Students/Postdoctoral Research Fellows

Mark Packer, MD 2006-2008
The Ohio State University College of Medicine, Columbus, Ohio -- Clinical Fellow in Neurotology 2006-2008
-- Faculty Position as Otologist/Neurotologist, Wilford Hall, Lackland Air Force Base, Texas

-- Head of the DOD Hearing Center of Excellence

Tina X. Lee, PhD 2006-2007

The Ohio State University College of Medicine, Columbus, Ohio -- Post-doctoral Fellow in Research – Neurotology/Cranial Base Surgery Laboratory

-- Accepted to medical school

Janet Oblinger, PhD 2007-2011

The Ohio State University College of Medicine, Columbus, Ohio -- Post-doctoral Fellow in Research – Neurotology/Cranial Base Surgery Laboratory

-- Promoted to Research Associate, Department of Otolaryngology

Charles Yates, MD 2008-2010

The Ohio State University College of Medicine, Columbus, Ohio -- Clinical Fellow in Neurotology 2008-2010

-- Faculty position in Otolaryngology; Otology/Neurotology – Indiana University

Matthew Bush, MD 2008-2011

The Ohio State University College of Medicine, Columbus, Ohio

Research Fellow in Neurotology 2008-2009

Clinical Fellow in Neurotology 2009-2011

-- Faculty position in Otolaryngology; Otology/Neurotology – University of Kentucky

Xiangdang Liu, MD 2012-2013

University of Arizona -- Post-doctoral Fellow in Research – University of Arizona Ear Institute

Maki Niihori, PhD 2012-2018

University of Arizona -- Post-doctoral Fellow in Research – University of Arizona Ear Institute

Douglas Todd 2014-2018

Masters student in Engineering

-- Zebrafish automated image analysis project

Rohit Philip 2014-2018

PhD student in Engineering

-- Zebrafish automated image analysis project

Bryan Wong 2014-2018

PhD student in Audiology

Clinical Research; Ear & Hearing | Center for Neurosciences

Mentor/Advisor – Mentored Faculty

Matthew L. Bush, MD 2014
University of Kentucky Medical Center
K Award External Referee

Christian Bime, MD 2014
University of Arizona
Faculty mentor – Faculty/Fellows Mentorship Program

Melania Mercado-Pimentel 2015-2017
University of Arizona
Faculty Mentor - COE Faculty Stipend Award

Faculty Mentor/Advisor – Other

Stephanie Bourn-MacDonald, 2012-2013. Audiology Graduate Student
Morgan Nelson, 2012-2013. Audiology Graduate Student]
Kate Woodworth, 2012-2013. 2012 NIH High School Student Research Program
Allison Dunn, 2012-2014. Undergraduate Student
Kelly Van De Wyngaerde, 2013. Undergraduate Speech, Language, Hearing
Science Student
Jimmy Griffiths, 2013-2014
Sunny R. Burdick 2014. Audiology Graduate Student
Jason Darrell Smith, 2014-present. Audiology Graduate Student
Lauren Hopwood, 2014-2015. Audiology Graduate Student
Giau Ngoc Le, 2014-2015. Audiology Graduate Student
Spencer B. Smith, 2014-2015. Audiology Graduate Student
Alexander S. Harris, 2014-2015. Biochemistry major, undergraduate student
Adelina I. Lilani Lane, 2014-present. Physiology Major, undergraduate student
Daniela Rolph, 2015. Undergraduate Student Volunteer
Edrick Villalobos, 2015. Undergraduate Student Volunteer
Macken Yrun-Duffy, 2015-2016. Undergraduate Student Volunteer
Kelsey Coyle, 2015. Undergraduate Student Volunteer
Sobia Fatima Zheri, 2015-2016. Undergraduate Student Volunteer
Ryan Alexander Ringle, 2015-2016. Undergraduate Student Volunteer
Lua Azmak, 2015-2016. Audiology Graduate Student
Swaroop Muruges, 2016. Undergraduate Student Volunteer
Neal Kalpesh, Patel 2016. Undergraduate Student Volunteer
Robyn Almario, 2016. Undergraduate Student Volunteer
Beatriz Smith, 2016. Undergraduate Student Volunteer
Karen Beltran, 2016. Undergraduate Student Volunteer
Bryan Wong, 2016. Audiology Graduate Student
Alejandro Chavez, 2016. Undergraduate Student Volunteer
Athena Q. Luong, 2017. Audiology Graduate Student

Laura Sommerfeld 2017. Audiology Graduate Student
 Aaron Whiteley 2017. Audiology Graduate Student
 Sarah (Sam) MacKenzie 2017. Audiology Graduate Student
 Tyler Edward Russeth 2017. UA Undergraduate Student.
 Clemente Morales 2017. Audiology Graduate Student
 Holden Sanders 2018. 4th Year Audiology Extern - UA
 Sarah Morris 2019. 4th Year Audiology Extern and Scribe - UA
 Juliana DeZolt 2019. 4th Year Audiology Extern and Scribe - ASU
 Alissa Knickerbocker 2020. 4th Year Audiology Extern and Scribe – ASU
 Hailey Dean 2020. UA Audiology Graduate Student
 Natasha Seaton 2020. UA Audiology Graduate Student
 Margaret Fries 2020. UA Audiology Graduate Student

Continuing Education – Invited Lectures

- 1/5/2007 Tumors of the Lateral Skull Base and CPA: A Neurotologist's Perspective
 Holzer Medical Center (Gallipolis, OH)
 Hospital Grand Rounds

- 2/23/2007 Chronic Otitis Media with and without Cholesteatoma
 Scioto County Medical Society (Portsmouth, OH)
 Hospital Grand Rounds

- 5/19/2007 Current Management Strategies for Sudden Sensorineural Hearing Loss
 Ohio State University College of Medicine (Columbus, OH)
 Current Management Strategies in Otolaryngology for the Primary Care Specialist

- 9/2007 Sudden Sensorineural Hearing Loss
 The Ohio State University College of Medicine (Columbus, OH)
 OSU MedNet 21 - Nationally televised curriculum

- 10/2007 Vertigo and the Vestibular System
 MedCentral Health System (Mansfield, OH)
 Hospital Grand Rounds

- 3/2008 Idiopathic Sudden Sensorineural Hearing Loss
 Genesis HealthCare System (Zanesville, Ohio)
 Hospital Grand Rounds

- 4/2009 Conductive Hearing Loss.
 Ohio State University College of Medicine (Columbus, OH)
 OSU Mednet 21 - Nationally televised curriculum.

- 1/2010 James Cancer Hearing Preservation Program
Presented at Phase I Clinical Trial Group Meeting, Comprehensive
Cancer Center.
Ohio State University (Columbus, Ohio)
- 6/2010 Vertigo and the Vestibular System
Presented at the Department of Family Medicine Grand Rounds.
Ohio State University (Columbus, Ohio)
- 1/2011 Conductive Hearing Loss
MedCentral Health System (Mansfield, OH)
Hospital Grand Rounds
- 8/2011 Temporal bone trauma
Neurosurgery Didactic Conference
University of Arizona
- 09/2011 The Vestibular Schwannoma: Current (Surgical) Treatment and
Future (Medical)
Management
Otolaryngology Grand Rounds
University of Arizona
- 10/2011 Vestibular Schwannomas: Past, Present, and Future
Neuroscience Grand Rounds
University of Arizona
- 2/2012 Conductive Hearing Loss
Hearing Healthcare Providers of Arizona meeting (Glendale, AZ)
- 2/2012 Fundamentals of Temporal Bone Radiology
Hearing Healthcare Providers of Arizona meeting (Glendale, AZ)
- 6/2012 UA Ear Institute Research Opportunities
Neurosurgery Didactic Conference
University of Arizona
- 10/2012 Implantable Hearing Devices
University of Arizona Medical Center Friends meeting (Tucson, AZ)
- 3/2013 Dizziness Panel Moderator
Presented at ENT in the Desert 2013 (Tucson, AZ)
- 3/2013 Implantable Hearing Devices
Presented at ENT in the Desert 2013 (Tucson, AZ)

- 3/2013 Temporal Bone Trauma
Presented at ENT in the Desert 2013 (Tucson, AZ)
- 3/2013 Acoustic Neuroma: Medical Management
Presented at ENT in the Desert 2013 (Tucson, AZ)
- 7/2013 Auditory Physiology
Otolaryngology Didactic Conference
University of Arizona
- 7/2013 Evaluation and Management of Temporal Bone Trauma
Otolaryngology Didactic Conference
University of Arizona
- 08/2013 UA Hearing Conservation Program
Otolaryngology Grand Rounds
University of Arizona
- 10/2013 Implantable Hearing Devices
Presented at the Innovations in Hearing Balance Workshop
University of Arizona Department of Speech, Language, and Hearing
Science
- 12/2013 Implantable Hearing Devices
Neurosurgery Didactic Conference
The University of Arizona
- 2/2014 Implantable Devices III - Middle Ear Implants
Presented at ENT in the Desert 2014 (Tucson, AZ)
- 2/2014 Vestibular Schwannoma - Translational Research Updates
Presented at ENT in the Desert 2014 (Tucson, AZ)
- 2/2014 Dizziness Panel Member
Presented at ENT in the Desert 2014 (Tucson, AZ)
- 06/2014 Implantable Hearing Devices
Family Medicine Didactic Conference
The University of Arizona
- 07/2014 Chronic Ear Surgery
99th Annual Anatomy & Histopathology of the Head, Neck and Temporal
Bone Course
Indiana University School of Medicine (Indianapolis, IN)

- 08/2014 Skull Base Approaches
Neurosurgery Didactic Conference
The University of Arizona
- 12/2014 Surgery for the Chronic Ear
Otolaryngology Didactic Conference
The University of Arizona
- 12/2014 Medical/Surgical Aspects of Cochlear Implant Surgery
CI Audiology Group
The University of Arizona Health Network
- 2/2015 Update on Implantable Devices
Presented at ENT in the Desert 2015 (Tucson, AZ)
- 2/2015 Otology Dizziness Panel Member
Presented at ENT in the Desert 2015 (Tucson, AZ)
- 05/2015 Mastoidectomy/Facial Recess
UT Southwestern Temporal Bone Course
UT Southwestern Medical School (Dallas, TX)
- 06/2015 Developing a High Throughput Zebrafish Model for Drug
Development Targeting Hearing Loss
2015 Ogura Lectureship and Resident Research Day.
Washington University in St. Louis
- 9/2015 Building a Better Zebrafish Model for Drug Development Targeting
Hearing Loss
University of Arizona Cancer Center
Collaborative Cancer Center Grand Rounds
- 9/2015 Otolaryngology Subspecialties - Otology/Neurotology
UA College of Medicine ENT Interest Group
- 11/2015 Hearing Loss, Cochlear Implants, and Cognitive Function
El Dorado Audiology Conference
- 11/2015 Hearing Loss, Cochlear Implants, and Cognitive Function
Living Well with Hearing Loss Conference
- 12/7/2015 Building a Better Zebrafish Model for Drug Development Targeting
Hearing Loss
Speech, Language, Hearing Colloquium
- 02/2016 Middle Ear Implants

- Presented at ENT in the Desert 2016 (Tucson, AZ)
- 2/2016 Otology Dizziness Panel Member
Presented at ENT in the Desert 2015 (Tucson, AZ)
- 4/15/16 Hearing Loss, Cognitive Decline and Cochlear Implants
9th Annual Spring Geriatrics Mental Health and Aging Conference
Arizona Geriatrics Society Meeting
- 7/78/2016 Building a Better Zebrafish Model for Drug Development Targeting
Hearing Loss
Neuroscience Grand Rounds
University of Arizona
- 5/2017 1. The Petrous Apex
2. Building a Better Zebrafish Model for Drug Development
Targeting Hearing Loss
3. Introducing Endoscopic Ear Surgery to Your Practice
University of Michigan Temporal Bone Course – Invited Faculty
Ann Arbor, Michigan
- 5/2017 1. Endoscopic Tympanoplasty
2. Building a Better Zebrafish Model for Drug Development
Targeting Hearing Loss
3. Introducing Endoscopic Ear Surgery to Your Practice
Vanderbilt University Endoscopic Ear Surgery Course – Invited
Faculty
Nashville, TN
- 7/2017 1. Endoscopic Ear Surgery
2. Building a Better Zebrafish Model for Drug Development
Targeting Hearing Loss
Petrous Apex Lesions
Hearing Health Providers of America Annual Meeting
Phoenix, AZ
- 11/17 1. Surgical Alternatives to Use of Conventional Hearing Aids
2. From Concept to Product – Building a Better Zebrafish Model for
Drug Development Targeting Hearing Loss
Surgery Grand Rounds Presentation
Virginia Tech Carilion School of Medicine and Research Institute
(Roanoke, VA)
- 1/2018 Surgical Alternatives to Use of Conventional Hearing Aids
El Dorado Audiology Annual Hearing Symposium
Tucson, AZ

- 7/2019 Surgical Alternatives to the Use of Hearing Aids
Hearing Healthcare Providers of Arizona meeting (Phoenix, AZ)
- 10/2019 Endoscopic Ear Surgery: A New Learning Curve in Otology
Arizona Society of Otolaryngology – Head and Neck Surgery
(Phoenix, AZ)

PUBLICATIONS/CREATIVE ACTIVITY

PEER REVIEWED PUBLICATIONS

1. Sysk EA, Bradford CR, Jacob A, Yian CH, Staton KM, Tang G, Harris MO, Carey TE, Lancaster WD, and Gregoirre L. “Human papillomavirus infection in ‘young’ vs. ‘old’ patients with squamous cell carcinoma of the head and neck,” *Head Neck* 2000. Oct; 22(7): 649-57
2. Jacob A, Faddis BT, and Chole RA, “Chronic Bacterial Rhinosinusitis: Description of a Mouse Model.” *Arch Otolaryngol Head Neck Surg* 2001; Jun; 127(6): 657-64
3. Jacob A, Faddis BT, and Chole RA, “MeroGel® hyaluronic acid sinonasal implants: osteogenic implications.” *Laryngoscope* 2002; Jan; 112(1): 37-42
4. Goebel JA and Jacob A. Use of Mimix™ Hydroxyapatite Bone Cement for Difficult Ossicular Reconstruction.” *Otolaryngol – Head and Neck Surg* 2005 May; 132(5):727-34.
5. Chang LS, Akhmametyeva EM, Mihaylova M, Luo H, Tae S, Neff BA, Jacob A, Welling DB. Dissecting the molecular pathways in vestibular schwannoma tumorigenesis. *Recent Res Devel Genes & Genomes* 2005; 1:1-33.
6. Jacob A, Kneile J, and Welling DB. Angiofibrolipoma of the Ear Canal. *Laryngoscope* 2005 Aug; 115: 1461-1462.
7. Jacob A, Brightman RP, Welling DB. Bilateral cerebellopontine angle metastatic melanoma: A case report. *Ear Nose Throat J* 2007 Jul; 86(7): 388-90.
8. Jacob A and Chole RA. Survey anatomy of the paranasal sinuses in the normal mouse. *Laryngoscope* 2006 Apr; 116 (4):558-63.

9. Husein OF, Jacob A, Massick DD, Welling, DB. Recurrence of isolated multiple myeloma in the skull base: a case report and review of the literature. *Ear Nose Throat J* 2007 Sep; 86(9): 555-60
10. Chang LS, Jacob A, Lorenz M, Rock J, Akhmametyeva EM, Mihai G, Schmalbrock P, Chaudhury AR, Lopez R, Yamate J, John MR, Wickert H, Neff BA, Dodson EE, Welling DB. Growth of Benign and Malignant Schwannoma Xenografts in SCID Mice. *Laryngoscope* 2006 Nov; 116: 2018 – 2026 (Erratum Published Dec 2006 indicating that my name was accidentally transposed by the publisher)
11. Jacob A, Morris TJ, Welling, DB. Leaving a Lasting Impression: Ear Molds as Middle Ear Foreign Bodies. *Ann Otol Rhinol Laryngol* 2006; 115(12):912-916.
12. Jacob, A, Bortman, JS, Robinson LL, Yu L, Dodson EE, Welling DB. Does Packing the Eustachian Tube Impact CSF Rhinorrhea Rates in Translabrynthine Vestibular Schwannoma Resections? *Otol Neurotol* 2007 Oct; 28(7): 934-8.
13. Jacob, A, Robinson LL, Bortman, JS, Yu L, Dodson EE, Welling DB. Nerve of Origin, Tumor Size, Hearing Preservation, and Facial Nerve Outcomes in 359 Vestibular Schwannoma Resections at a Tertiary Care Academic Center. *Laryngoscope* 2007 Dec; 117(12): 2087-2092.
14. Otto B, Jacob A, Welling DB. Chondromyxoid Fibroma of the Temporal Bone: Case Report and Review of the Literature. *Ann Otol Rhinol Laryngol* 2007 Dec; 116(12):922-7
15. Jacob A, Lee TX, Neff BA, Miller S, Ratner, N, Welling DB, Chang LS. PI3-kinase/AKT Pathway Activation in Human Vestibular Schwannoma. *Otol Neurotol* 2008 Jan; 29: 58-68.
16. Kris R. Jatana; Abraham Jacob; H. Wayne Slone; A. Ray-Chaudhury; D. Bradley Welling. Spinal Myxopapillary Ependymoma Metastatic to Bilateral Internal Auditory Canals. *Ann Otol Rhinol, Laryngol* 2008 Feb; 117(2): 98-102.
17. Lee T, Packer MD, Huang J, Akhmametyeva EM, Kulp S, Chen CS, Jacob A, Welling DB, and Chang LS. Growth Inhibitory and Anti-Tumour Activities of OSU-03012, a Novel PDK-1 Inhibitor, on Vestibular Schwannoma and Malignant Schwannoma Cells. *European J of Cancer* 2009 45:1709-1720.
18. Evans DG, Kalamarides M, Hunter-Schaedle K, Blakeley J, Allen J, Babovic-Vuskanovic D, Belzberg A, Bollag G, Chen R, DiTomaso E,

- Golfinos J, Harris G, Jacob A, Kalpana G, Karajannis M, Korf B, Kurzrock R, Law M, McClatchey A, Packer R, Roehm P, Rubenstein A, Slattery W 3rd, Tonsgard JH, Welling DB, Widemann B, Yohay K and Giovannini M. Consensus Recommendations to Accelerate Clinical Trials for Neurofibromatosis Type 2. *Clin Cancer Res* 2009 Aug; 15:5032-5039.
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 21. Bowe SN and Jacob A. Round Window Perfusion Dynamics: Implications for Intracochlear Therapy. *Current Opinion in Otolaryngol Head & Neck Surg* 2010 Oct; 15:377-385.
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48. Melania E. Mercado-Pimentel, Ph.D., Craig Miller, MD., Daniela N. Rolph, Edrick F. Villalobos, BS., Allison M. Dunn, BS., Prithvi M. Mohan, Suzu Igarashi, BS. Xiangdin Zang, MD., Macken Yrun-Duffy, Neal K. Patel, Cecilia M. Reid, Ross H. Francis, B.S., Adelina Isabella Lane, Swaroop Muruges, Abraham Jacob, M.D. Inhibiting p21-Activated Kinase Induces Cell Death in Vestibular Schwannoma and Meningioma via Mitotic Catastrophe." *Otol Neurotol* 2017 Jan;38(1):139-146
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56. Knickerbocker A, Bourn S, Goldstein MR, and Jacob A. Cochlear Implantation and the COVID-19 Pandemic: Impact of Social Distancing on an Older Cohort of Recent Implantees. *Otology & Neurotology.* 2020. *Submitted.*

BOOK CHAPTERS

1. Haughey B and Jacob A. Otolaryngology. Chapter in The Washington Manual of Surgery. 3rd Edition. Klingensmith, M.E., et al Eds. Philadelphia: Lippincott Williams & Wilkins, 2005.
2. Chole RA, Brody HA, and Jacob A. “Surgery of the Mastoid and Petrosa” in Bailey’s Head and Neck Surgery – Otolaryngology. 3rd Edition. Byron J. Bailey and Karen H. Calhoun editors. Philadelphia: Lippincott Williams and Wilkins. 2006.
3. Jacob A and Welling, DB, “Evaluation of the Cranial Nerves” in Clinical Otology. 3rd edition. Gordon B. Hughes and Miles L. Pensak editors. New York: Thieme Medical Publishers. 2007.
4. Chole RA, Brody HA, and Jacob A. “Surgery of the Mastoid and Petrosa” in Bailey’s Head and Neck Surgery – Otolaryngology. 5th Edition. Jonas T. Johnson and Clark A. Rosen, editors. Philadelphia: Lippincott Williams and Wilkins. 2014.
5. Jacob A and Khan R. Neurotology Manifestations of Stroke. Glasscock-Shambaugh - Surgery of the Ear. 7th. Edition. Submitted. 2017

CLINICAL TRIALS (CURRENT AND PAST)

1. Cochlear Corporation. “Safety and Efficacy of the Cochlear™ Nucleus® CI422 Cochlear Implant in Adults.” PI. Completed 2015.
2. The Ohio State University. “Melatonin: Can It Stop the Ringing?” Completed 2011.
3. Advanced Bionics. “Cognitive Decline, Aging and Cochlear Implants”. PI. In Progress. Completed 2017.
4. A Phase 1/2, Randomized, Placebo-controlled Study to Assess the Safety, Tolerability, Efficacy, and Pharmacokinetics of ASP0598 Otic Solution Following Topical application into the Ear in Subjects with Chronic Tympanic Membrane Perforation (CTMP). Astellas Pharma Global Development. 2020 Departed from Participation.
5. A Post-Market Interventional Cohort Study Evaluating the Clinical Efficacy of the Osia 2 System in the US Market. Cochlear Americas. 2020-2021

MEDIA

1. Expert Otologist. 5/2007. Aural Rehabilitation: Hearing Aids, Cochlear Implants, and BAHA, OSU MedBreak. Channel 4 News [TV].
2. Expert Otologist. 5/2007. Factors predicting the response of melatonin on tinnitus. Channel 10. [TV].
3. Expert Otologist. 7/2007. ONN story on tinnitus and ear care. [TV].
4. 9/2012. New Gains for Hearing Loss. Tucson Lifestyle. [Magazine].
5. 11/2012. UA Cancer Center surgeon assists patients suffering from chemotherapy-related hearing loss. The University of Arizona Cancer Center. [Press release].
6. 12/2012. Hearing Conservation Program. Act Against Cancer Show on 104.1 FM. Tucson, AZ. [Radio].
7. 12/2012. Arizona Woman Implanted with Invisible Hearing Aid at UAMC – A First in the Southwest. The University of Arizona Medical Center. [Press release].

8. 12/2012. Esteem Implantable Hearing System. 92.3 KTAR FM. Phoenix, AZ. [Radio].
9. 12/2012. Esteem Implantable Hearing System. 1330 KJLL AM. Arizona News Radio. Phoenix, AZ. [Radio].
10. 12/24/2012. New ear implants going in at UMC. Arizona Daily Star. Tucson, AZ. [Newspaper].
11. 1/24/2013. Cutting-edge implantable hearing aid helps Scottsdale woman hear. azfamily.com. Phoenix, AZ. [Website for 3TV News].
12. 6/2013. Ear Center. Healthbreak News Segment. KOLD Channel 13. Tucson, AZ. [Television].
13. 2013. Say What? The Invisible Hearing Aid. Ivanhoe Broadcasting. Tucson, AZ. [Television]. Note: Ivanhoe Broadcasting is a company based in Florida that produces short medical TV news segments and sells them to smaller television stations around the country that are looking for medical news – this story will air across the country.
14. 10/2013. Chemotherapy-Induced Hearing Loss and Hearing Conservation Program. That Cancer Show. WPTF 680 AM. Raleigh, NC. [Radio].
15. 3/2014. Interview. Phil Haldeman. The Arizona Republic. The Esteem Totally Implantable Hearing Implant.
16. 03/2015. Expert Advice on the Best Ways to Preserve Ear Health. Living Well Arizona. Arizona Republic. Phoenix, AZ [Newspaper].
17. 05/2015. Interview. UA Researchers Seek to Find if Better Hearing Halts or Reverses Slide into Senility. 104.1 KQTH. Tucson, AZ. [Radio].
18. 05/2015. UA Study to Focus on Hearing Loss. UANews.org. Tucson, AZ [University of Arizona News Website].
19. 07/2015. Keeping Your Ears Safe from Rock Concerts and Chainsaws (and Everything in Between. Banner Health Blog. <http://healtheconnect.bannerhealth.com/2015/07/keeping-your-ears-safe-from-rock-concerts-chainsaws-and-everything-in-between/>
20. 4/2017. Live TV Interview with Heather Rowe. Tucson News Now KOLD News 13. Ear & Hearing | Center for Neurosciences.

- 21.6/2017. Phone Interview - Cochlear Implants. Tucson Medical Center. Living with Hearing Loss.
- 22.7/2019. Center for Neurosciences Commercial
- 23.3/2020. Cochlear Americas – Interview with Dr. Jacob on the Initial Osia System Experience
- 24.3/2020. Cochlear Americas – Interview with Dr. Jacob on Aural Rehabilitation

SCHOLARLY PRESENTATIONS

ORAL PRESENTATIONS – BY INVITATION

1. Otolaryngology Grand Rounds, UCSF Medical Center. “Sinonasal Inflammation in the Murine Model.” February 2003. Invited presentation.
2. OSU Dept. of Radiology High Field MRI Symposium. “Use of MRI for Non-Invasive Evaluation of Schwannoma Xenografts in SCID Mice: A Pilot Study.” Invited podium presentation. (March 2005)
3. Otolaryngology Grand Rounds, The University of Utah Health Sciences Center. “Human Vestibular Schwannoma: Developing an Animal Model.” August 2005. Invited presentation.
4. Otolaryngology Grand Rounds, The University of Minnesota. “Human Vestibular Schwannoma: Developing an Animal Model”. September 2005. Invited presentation.
5. Otology Conference, The University of Minnesota. “Use of Mimix™ Hydroxyapatite Bone Cement for Difficult Ossicular Chain Reconstruction.” September 2005. Invited presentation.
6. Otolaryngology Grand Rounds, The University of Mississippi. “Human Vestibular Schwannoma: Developing an Animal Model.” October 2005. Invited presentation.
7. American Neurotology Society Spring Meeting, Nicholas Torok Vestibular Award Presentation. Orlando, Florida. “PI3-kinase/AKT Pathway Activation in Human Vestibular Schwannoma.” Invited podium presentation. (May 2007)

8. Children's Tumor Foundation Podium Presentation. "Preclinical Drug Development: The Ohio State University and The Research Institute at Nationwide Children's Hospital." Bonita Springs, FL. (June 2008)
9. Cochlear Americas Hearing Aid Seminar. "Baha: Osteointegrating Hearing Prosthesis."
Invited presentation. Columbus, OH. (May 2009)
10. Children's Tumor Foundation Workshop. "NF2: State of the Clinical Trial." Invited Panelist. Las Vegas, NV. (May 4 – 5, 2010)
11. Ogura Lectureship and Resident Research Day. St. Louis, Missouri. "Preclinical Drug Development Targeting NF2-Associated Tumors." Invited presentation. Washington University School of Medicine. St. Louis, MO. (June 2010)
12. HEME ONC Weekly Scientific Conference. University of Arizona. "Hearing Conservation Program." Invited presentation. (December 2011)
13. Adult Loss of Hearing Association. "Q/A Session to Introduce New CI Program at University Medical Center and Discuss Procedural Management of Meniere's Disease."
Invited presentation. Tucson, AZ. (January 2012)
14. Sanofi Seminar. Sanofi Aventis. "UA Hearing Conservation Program."
Invited presentation. (August 2012)
15. Green Valley Rotary Club. "Implantable Hearing Devices." Invited presentation. Green Valley, AZ. (November 2012)
16. Sun City Oro Valley Community. "Hearing Loss and Surgical Implantable Devices." Invited presentation. Oro Valley, AZ. (January 2013)
17. American Otology Society Spring Meeting. Orlando, Florida. "Inhibited p21-Activated Kinase as Treatment for Vestibular Schwannomas and Meningiomas." Invited podium presentation. Presented by Craig Miller. (April 2013)
18. Adult Loss of Hearing Association. "Hearing Rehabilitation: Middle Ear Implants and UA Hearing Conservation Program: Preventing/Treating Chemotherapy-Induced Hearing Loss." Invited presentation. Tucson, AZ. (May 2013)
19. Quail Creek Resort Community. "Implantable Hearing Devices." Invited presentation. Green Valley, AZ. (November 2013)

20. XIII Hearing and Structure Preservation Workshop (Tokyo, Japan). A Novel High Throughput Ototoxicity Assay in Zebrafish (*Danio Rerio*): Platform for Drug Development Targeting Hearing Loss. (October 2014)
21. The Ear Foundation of Arizona 9th Annual Seminar. "Implantable Hearing Technologies." Invited presentation. Phoenix, AZ. (October 2014)
22. Adult Loss of Hearing Association. "Modern Options for the Rehabilitation of Hearing Loss." Tucson, AZ. (November 2014)
23. Combined Otolaryngology Spring Meeting. "Inner Ear Therapy, NF2, Vertigo Dizziness." Moderator. Boston, MA. (April 2015)
24. Combined Otolaryngology Spring Meeting. "Otology Session." Moderator. Boston, MA. (April 2015)
25. UT Southwestern Temporal Bone Course. "Mastoidectomy/Facial Recess." Invited Lecturer. Dallas, TX (May 2015)
26. Washington University in St. Louis Ogura Lectureship and Resident Research Day. "Developing a High Throughput Zebrafish Model for Drug Development Targeting Hearing Loss." St. Louis, MO. (June 2015)
27. MedEL 14th Hearing and Structure Preservation Workshop (Vanderbilt; Nashville, TN). Building a Better Zebrafish Model for Drug Development Targeting Hearing Loss. (October 2015)
28. Arizona Geriatrics Society 9th Annual Spring Geriatrics Mental Health and Aging Conference. "Hearing Loss, Cognitive Decline, and Cochlear Implants." Tucson, AZ (April 2016)
29. Olympus Americas National Sales Meeting 2016. "Otology/Neurotology." Orlando, FL (April 2016)
30. Nationwide Children's Hospital Research Institute Invited Seminar. Building a Better Zebrafish Model Targeting Drug Development Against Hearing Loss. Columbus, Ohio (July 2016)
31. The University of Michigan. Invited faculty for Annual Temporal Bone Course. Lectures - The Petrous Apex; Building a Better Zebrafish Model for Drug Development Targeting Hearing Loss; Introducing Endoscopic Ear Surgery to Your Practice. Ann Arbor, Michigan (May 2017)
32. Vanderbilt University. Invited faculty for Annual Endoscopic Ear Surgery Course. Lectures - Endoscopic Tympanoplasty; Building a Better

- Zebrafish Model for Drug Development Targeting Hearing Loss; Introducing Endoscopic Ear Surgery to Your Practice. Nashville, TN (May 2017)
33. American Academy of Otolaryngology Endoscopic Ear Surgery Workshop. OR considerations in Introducing Ear Surgery to Your Practice. Chicago, IL. (September 2017).
 34. Tucson Medical Center Senior Services Program. Survey of Ear & Hearing. Tucson, AZ. (October 2017)
 35. St. Phillips Health Cabinet Lecture. Survey of Ear & Hearing. Tucson, AZ. (October 2017)
 36. El Dorado Audiology Hearing Symposium. Alternatives to Use of Conventional Hearing Aids (January 2018)
 37. The Arizona Society of Otolaryngology – Head & Neck Surgery 2019 Fall Conference. Endoscopic Ear Surgery: A New Learning Curve in Otology. Phoenix, AZ (October 2019)

ORAL PRESENTATIONS – BY SUBMISSION

1. Joseph Ogura Research Forum, Washington University School of Medicine in St. Louis. “Chronic Bacterial Rhinosinusitis: Developing a Mouse Model.” Podium Presentation. (June 2000)
2. Joseph Ogura Research Forum, Washington University School of Medicine in St. Louis. “Merogel® Sinonasal Implants: Osteogenic Potential?” Podium Presentation. (June 2001)
3. Joseph Ogura Research Forum, Washington University School of Medicine in St. Louis. “The Normal Survey Anatomy of the Mouse Paranasal Sinuses”. Podium Presentation. (June 2002)
4. Thirteenth Annual Ohio State University Department of Otolaryngology William H. Saunders Symposium. Columbus, Ohio. “Human Vestibular Schwannoma: Developing an Animal Model.” Podium Presentation. (June 2005)
5. Fourteenth Annual Ohio State University Department of Otolaryngology William H. Saunders Symposium. Columbus, Ohio. “Use of Mimix™ Hydroxyapatite Bone Cement for Difficult Ossicular Chain Reconstruction.” Podium Presentation (June 2006)

6. American Academy of Otolaryngology - Head and Neck Surgery Foundation Annual Meeting. San Diego, CA. "HDAC-42 as a Potential Radiosensitizer for Human Schwannomas". Justin Wheeler, Janet Oblinger (Presenter), Matthew Bush, Samuel Kulp, Ching-Shih Chen, D. Bradley Welling, Long-Sheng Chang, and Abraham Jacob. (October 2009).
7. American Academy of Otolaryngology - Head and Neck Surgery Foundation Annual Meeting. San Diego, CA. "Novel Inhibitors of Vestibular Schwannomas and Meningiomas" Matthew Bush (Presenter), Janet Oblinger, Samuel Kulp, Ching-Shih Chen, Abraham Jacob, Long-Sheng Chang and D. Bradley Welling. (October 2009)
8. Combined Otolaryngology Spring Meetings. Las Vegas, Nevada. "Melatonin: Can It Stop the Ringing?" Oplatek, Agnes (presenter), Welling DB, Dodson EE, Dome C, Wolfe K and Jacob A. (May 2010)
9. The 2010 Children's Tumor Foundation Annual NF Conference. Baltimore, MD. "HDAC42 and OSU-03012, Novel Small-Molecule Inhibitors for the Treatment of Vestibular Schwannomas." Janet Oblinger (Presenter), Matt Bush, Samuel Kulp, Ching-Shih Chen, D. Bradley Welling, Long-Sheng Chang, Abraham Jacob. (June 2010)
10. The 2011 Children's Tumor Foundation/NF Conference. Jackson Hole, Wyoming. AR-42 and AR-12 Potently Inhibit the Growth of NF2-deficient Human Meningiomas. Burns, S.S. (presenter), E.M. Akhmametyeva, J.L. Oblinger, M.L. Bush, J. Huang, V. Senner, M. Giovannini, C.-S. Chen, A. Jacob, D.B. Welling, and L.-S. Chang. (June 2011)
11. 28th Politzer Society Meeting. Athens, Greece. AR42: A Novel Histone Deacetylase Inhibitor with High Clinical-Translational Potential as Treatment for NF2-Associated Tumors. Podium Presentation for Politzer Prize Session. Politzer Prize for best scientific submission. (September 2011)
12. Combined Otolaryngology Spring Meetings. Orlando, FL. "Inhibited p21-Activated Kinase as Treatment for Vestibular Schwannomas and Meningiomas." Miller C (presenter), Igarashi S, Dunn AM, Liu X, Woodworth KA, Niihori M, Chen CS, Jacob A. (April 2013)
13. Combined Otolaryngology Spring Meetings. Las Vegas, NV. "The Submental Island Flap for Reconstruction of Temporal Bone Defects." Miller C (presenter), Erman AB, Gernon TJ, Jacob A. (May 2014)
14. American Academy of Otolaryngology - Head & Neck Surgery Annual Meeting. Orlando Florida. "A Novel High-Throughput Ototoxicity Assay in

Zebrafish: Platform for Drug Development Targeting Hearing Loss.”
Niihori M, Platto T, Igarashi S, Tran P, Jacob A. (Sept 2014)

15. American Neurotology Society; COSM Chicago, IL. Inhibiting p21-Activated Kinase Induces Cell Death in Vestibular Schwannoma and Meningioma via Mitotic Catastrophe. Melania E. Mercado-Pimentel, Ph.D., Edrick F. Villalobos, Prithvi M. Mohan, Cecilia M. Reid, Ross H. Francis, B.S., Abraham Jacob, M.D. (May 2016)
16. Triological Society Combined Sections Meeting. New Orleans, LA. Endoscopic Ear Surgery Panel – Pro/Con. Drs. Rivas, Jacob, Lustig, and Hoffer. (January 2017)
17. The Southwest Symposium on Image Analysis and Interpretation (SSIAI). Las Vegas, NV. Performance of Supervised Classifiers for Damage Scoring of Zebrafish Neuromasts. Rohit C. Philip, Sree Ramya S. P. Malladi, Maki Niihori, Abraham Jacob, and Jeffrey J. Rodriguez. (April 2018)

POSTER PRESENTATIONS

1. Association for Research in Otolaryngology Mid-Winter Meeting (2/2001). St. Petersburg Beach, Florida. “Chronic Sinusitis: A Mouse Model” (Abraham Jacob, Brian Faddis, Richard A. Chole)
2. Comprehensive Cancer Center Meeting, The Ohio State University Medical Center (3/2005). Columbus, Ohio. “Growth Measurement of Vestibular Schwannoma Xenografts in SCID Mice Using Magnetic Resonance Imaging (MRI)” (Long-Sheng Chang, Mark Lorenz, Jonathan Rock, Elena M. Akhmametyeva, Abraham Jacob, Brian A. Neff, Petra Schmalbrock, Abhik R. Chaudhury, and D. Bradley Welling)
3. CTF International Consortium for the Molecular Biology of NF1, NF2, and Schwannomatosis (6/2005). New York, New York. Growth Measurement of Vestibular Schwannoma Xenografts in SCID Mice Using Magnetic Resonance Imaging (MRI)” (Long-Sheng Chang, Mark Lorenz, Jonathan Rock, Elena M. Akhmametyeva, Abraham Jacob, Brian A. Neff, Petra Schmalbrock, Abhik R. Chaudhury, and D. Bradley Welling)
4. Triologic Middle/Western Section Meeting (2/2006). San Diego, CA. Magnetic Resonance Imaging Non-invasively quantifies schwannoma xenografts in SCID Mice (Long-Sheng Chang, Abraham Jacob, Mark Lorenz, Jonathan Rock, Elena M. Akhmametyeva, Georgeta Mihai, Brian A. Neff, Petra Schmalbrock, Jyoyi Yamate, Markus R. John, Hannes Wickert, Edward Dodson, and D. Bradley Welling)

5. Children's Tumor Foundation Neurofibromatosis Meeting (6/2006). Aspen, Colorado. Magnetic Resonance Imaging Non-invasively quantifies schwannoma xenografts in SCID Mice (Long-Sheng Chang, Abraham Jacob, Mark Lorenz, Jonathan Rock, Elena M. Akhmametyeva, Georgeta Mihai, Brian A. Neff, Petra Schmalbrock, Jyoyi Yamate, Markus R. John, Hannes Wickert, Edward Dodson, and D. Bradley Welling)
6. Triological Society Middle Section Meeting (2/2007). Marco Island, Florida.
 - a. Nerve of Origin, Tumor Size, Hearing Preservation, and Facial Nerve Outcomes in 359 Vestibular Schwannoma Resections at a Tertiary Care Academic Center (Jacob, A, Robinson LL, Bortman, JS, Yu L, Dodson EE, Welling DB)
 - b. Does Packing the Eustachian Tube Impact CSF Rhinorrhea Rates in Translabyrinthine Vestibular Schwannoma Resections? (Jacob, A, Bortman, JS, Robinson LL, Yu L, Dodson EE, Welling DB)
 - c. Spinal Myxopapillary Ependymoma Metastatic to Bilateral Internal Auditory Canals (Kris R. Jatana; Abraham Jacob; H. Wayne Slone; A. Ray-Chaudhury; D. Bradley Welling)
 - d. Revision Stapedectomy: 2006 Update (Rastatter J, Jacob A, Fettman NA, Kalan AS, Welling DB)
7. Children's Tumor Foundation Neurofibromatosis Meeting (6/2007). Park City, UT. OSU03012 and (S)-HDAC-42, Two Novel Inhibitors of the PI3K/AKT Pathway, Are Potential Therapeutic Agents for Vestibular Schwannomas (Tina Lee, Abraham Jacob, Mark Packer, Chin-Shih Chen, D. Bradley Welling and Long-Sheng Chang)
8. OSU Comprehensive Cancer Center Research Day (3/2008). Columbus, Ohio. Growth Inhibitory and Anti-Tumor Activities of OSU-03012, a Novel PDK1 Inhibitor, on Vestibular Schwannoma and Malignant Schwannoma Cells (Tina X. Lee, Mark Packer, Elena M. Akhmametyeva, Jie Huang, Abraham Jacob, Samuel K. Kulp, Ching-Shih Chen, D. Bradley Welling, and Long-Sheng Chang)
9. 8th Annual OSU Medical Center Research Day (04/02/2009). Columbus, Ohio.
 - a. Efficacy of HDAC and Radiation Combination Therapy on Human Schwannoma Tumor Cells (Justin Wheeler, Janet Oblinger, Matthew Bush, Samuel Kulp, Ching-Shih Chen, D. Bradley Welling, Long-Sheng Chang, and Abraham Jacob)
 - b. The Effects of OSU-03012 on the Cell Cycle and the Expression of Key Cell Cycle Regulatory Proteins in Schwannoma Cells. (Matthew Bush, Sarah Burns, Samuel Kulp, Ching-Shih Chen, Abraham Jacob, D. Bradley Welling and Long-Sheng Chang)

- c. Mutation Analysis and In Vitro HDAC Inhibitor Treatment of Benign Human Meningioma Cells. (Matthew Bush, Sarah Burns, Samuel Kulp, Ching-Shih Chen, Abraham Jacob, D. Bradley Welling and Long-Sheng Chang)
10. Children's Tumor Foundation Neurofibromatosis Meeting (6/2009). New York, New York.
 - a. Preclinical Evaluation of HDAC Inhibitors and an EGFR Inhibitor on Human Vestibular Schwannoma and Meningioma (Matthew Bush, Janet Oblinger, Sarah Burns, Samuel Kulp, Ching-Shih Chen, Volker Senner, Abraham Jacob, D. Bradley Welling and Long-Sheng Chang)
 - b. OSU-03012 and HDAC-42: Novel Small Molecule Inhibitors of the AKT Pathway for the Treatment of Vestibular Schwannoma and Malignant Schwannoma (Janet Oblinger, Tina Lee, Mark Packer, Jie Huang, Elena Akhmametyeva, Matthew Bush, Samuel Kulp, Ching-Shih Chen, Marco Giovannini, D. Bradley Welling, Long-Sheng Chang, and Abraham Jacob).
 11. OSU Comprehensive Cancer Center Research Day (2/2010). Columbus, Ohio.
 - a. HDAC42 and OSU-03012: Novel Small Molecule Inhibitors for the Treatment of Vestibular Schwannoma (Oblinger JL, Lee TX, Packer M, Huang J, Bush ML, Kulp SK, Chen C-S, Welling DB, Jacob A and Chang L-S.)
 - b. Treatment of Vestibular Schwannoma Cells with ErbB inhibitors. (Bush ML, Oblinger J, Davletova S, Chang L-S, Welling DB and Jacob A.)
 - c. Establishment of Quantifiable Intracranial Allograft and Xenograft Models for NF2-Deficient Schwannomas and Meningiomas. (Sarah S. Burns, Elena M. Akhmametyeva, Matthew L. Bush, Jie Huang, Janet L. Oblinger, Marco Giovannini, Chin-Shih Chen, Volker Senner, Abraham Jacob, D. Bradley Welling, and Long-Sheng Chang)
 12. OSUMC Research Day (4/2011). Columbus, Ohio.
 - a. AR42, A Novel Histone Deacetylase Inhibitor, as a Potential Therapy for Vestibular Schwannomas and Meningiomas. (Oblinger J, Bush ML, Brendel V, Santarelli G, Huang J, Akhmametyeva EM, Burns SS, Wheeler J, Davis J, Chaudhury AR, Kulp S, Chen C-S, Yates CW, Chang L-S, Welling DB and Jacob A.)
 - b. Treatment of Vestibular Schwannoma Cells with ErbB Inhibitors (Matthew L. Bush, Janet L. Oblinger, Sarah S. Burns, Sholpan Davletova, Long-Sheng Chang, D. Bradley Welling, and Abraham Jacob)
 1. The 2011 Children's Tumor Foundation/NF Conference (6/2011). Jackson Hole, Wyoming.
 - a. The Growth Inhibitory Effect of AR42, A Novel Histone Deacetylase Inhibitor, on Vestibular Schwannomas. Bush, M.L., J.L. Oblinger, V. Brendel, G. Santarelli, J. Huang, E.M. Akhmametyeva, S.S. Burns, J.

- Wheeler, J. Davis, C.W. Yates, A. Ray-Chaudhury, S. Kulp, C.-S. Chen, L.-S. Chang, D.B. Welling, A. Jacob.
- b. The Use of Magnetic Resonance Spectroscopy (MRS) in Monitoring Vestibular Schwannoma Growth and Treatment Effect. Bush, M.L., A. Bratasz, V. Brendel, A. Manning, J.L. Oblinger, L.-S. Chang, D.B. Welling, A. Jacob, K. Powell.
2. The 2012 Children’s Tumor Foundation/NF Conference (6/2012). New Orleans, Louisiana.
 - c. AR-42, a Pan-Histone Deacetylase Inhibitor (HDACi), Causes G2 Arrest in Meningioma Cells while Arresting Normal Meningeal Cells at G1 and Potently Inhibits Tumor Growth in a Quantifiable NF2-deficient Benign Meningioma Model. Burns, S.S., E.M. Akhmametyeva, J.L. Oblinger, J. Huang, M.L. Bush, V. Senner, C-S. Chen, A. Jacob, D.B. Welling, and L-S. Chang.
 - d. The Integrin-Linked Kinase – A Novel Therapeutic Target for NF2-Associated Tumors. Behbahani, M., Igarashi, S., Miller, C., Chen, C-S., Hsu, E-C., Kulp, S.K., and Jacob, A.
 3. The 2013 Children’s Tumor Foundation/NF Conference (6/2013). Monterey Bay, California. Inhibited p21-Activated Kinase as Treatment for Vestibular Schwannomas and Meningiomas. Miller C, Igarashi S, Dunn AM, Liu X, Woodworth KA, Niihori M, Chen CS, Jacob A.
 4. Combined Otolaryngology Spring Meetings/AOS (05/2014). Las Vegas, Nevada.
 - a. The Impact of Cochlear Implantation on Cognition in Older Adults: A Systematic Review of Clinical Evidence. Miller G, Miller C, Marrone N, Howe C, Fain M, Jacob A.
 - b. Vestibular Schwannoma Cells are Viable 3-Years after Stereotactic Radiation Therapy: A Case Report with Implications for Patient Counseling. Platto T, Igarashi S, Khan R, Jacob A.
 5. Combined Sections Meeting of the Triological Society (1/2015). Coronado Island, CA. Medicinal Honey as Treatment for Skin Reactions Associated with Bone Anchored Hearing Implant Surgery. Faucett E and Jacob A.
 6. The Triological Society Combined Sections Meeting (1/2016). A Rare Case of Recurrent Osteoid Osteoma of the Temporal Bone with Concomitant Cholesteatoma. Jacob A, Faucett E, Reghunathan S.
 7. The Triological Society 2016; COSM Chicago, IL, May 20-21, 2016.
 - a. The First Case of Recurrent Carcinoid Tumor of the External Auditory Canal. McCrary HC, Faucett EA, Jacob A.
 - b. Self-Renewing Zebrafish Lateral Line Hair Cells Do not Regain Full Function after Ototoxic Insult: Implications for Drug Discovery Efforts

Aimed at Screening Small Molecules with Tissue Regenerative Capacity. Maki Niihori, Ross H. Francis, Ryan A. Ringle, Sobia F. Zehri, Kelsey R. Coyle, and Abraham Jacob.

8. American Otological Society 2016; COSM Chicago, IL May 20-21, 2016.
 - a. Partnering with Community Audiologists for Decentralized Cochlear Implant Programming Maintains Quality and Enhances Patient Satisfaction: A Hub and Spoke Model. Faucett EA, McCrary HC, Reghunathan S., Hutchison RG, Jacob A.
 - b. High-Throughput Assay of Zebrafish Swimming Behavior for Drug Development Targeting Hearing Loss. Douglas W. Todd BS, Rohit C. Philip MS, Maki Niihori PhD, Jeffrey J. Rodriguez PhD, and Abraham Jacob MD.
 - c. Older Individuals Meeting Cochlear Implant Candidacy Criteria In Noise but Not In Quiet: Are Such Patients Improved by Surgery? Jordan A. Mudery B.S., Ross Francis B.A., B.S., Hilary McCrary M.P.H., Abraham Jacob M.D.
9. American Rhinologic Society; COSM Chicago, IL May 2016. Multifocal Inverting Papilloma of the Sinonasal Cavity and Temporal Bone. Christopher Le MD, Jonnae Barry MD, Zahra Aly MD, Rihan Khan MD, Abraham Jacob MD, Eugene H Chang MD, Alexander G Chiu MD
10. American Neurotology Society; COSM Chicago, IL May 2016. The Oncomir Mir-21 Facilitates AKT Pathway Activation in Vestibular Schwannomas and Meningiomas. Melania E. Mercado-Pimentel, Ph.D., Edrick F. Villalobos, Daniela N. Rolph, Macken Yrun-Duffy, Abraham Jacob, M.D.
11. 21st Annual Undergraduate Research Opportunities Consortium Poster Session; The University of Arizona (August 2016). Identifying New Nuclear Protein Interactions of the Tumor Suppressor, Merlin, in Vestibular Schwannoma. Karen A Beltran, Beatriz Smith, Edrick F Villalobos BA, Melania E Mercado-Pimentel MA, PhD, Abraham Jacob, MD.
12. 2018 IEEE Southwest Symp. on Image Analysis and Interpretation (SSIAI 2018). Rohit C. Philip, Sree Ramya S. P. Malladi, Maki Hiihori, Abraham Jacob, and Jeffrey J. Rodriguez, "Performance of Supervised Classifiers for Damage Scoring of Zebrafish Neuromasts." Las Vegas, NV.
13. American Neurotology Society; COSM 2019. Hearing preservation in Elderly Cochlear Implant Recipients. Bourn, Stephanie, Goldstein, Mary Rose, Jacob, Abraham and Sanders, Holden. Austin, TX.
14. American Neurotology Society; COSM 2020. Utilizing the Speech Perception (SP) Gap as a Tool to Guide Aural Rehabilitation. Juliana A.

DeZolt, BS; Mary Rose Goldstein, AuD; Sarah A. Morris, BS; Stephanie S. Bourn, AuD; and Abraham Jacob, MD

15. American Academy of Audiology Meeting 2020. Changing Paradigms of Objective Hearing Aid Validation: Speech Perception Gaps in Older Hearing Aid Users. Juliana A. DeZolt, BS; Mary Rose Goldstein, AuD; Sarah A. Morris, BS; Stephanie S. Bourn, AuD; and Abraham Jacob, MD
16. Triological Society; COSM 2020. Cochlear Implant Outcomes in the Very Elderly. Sarah Morris, Stephanie Bourn, Juliana DeZolt, Mary Rose Goldstein, Abraham Jacob

PATENT APPLICATIONS

US Patent Application Number - 62/038,69. Filed – 08/14/2014

Title - SYSTEMS AND METHODS FOR SCREENING OTOTOXIC, OTOPROTECTIVE, AND OTOREGENERATIVE COMPOUNDS USING AQUATIC MODELS

UA Investigator Ref: UA15-008. UA Tech Launch Ref: UAZ-34027/US-1/PRO

International Patent Application No.: PCT/US2015/045634. Filed: 18-Aug-2015

Title - SYSTEMS AND METHODS FOR SCREENING OTOTOXIC, OTOPROTECTIVE, AND OTOREGENERATIVE COMPOUNDS USING AQUATIC MODELS

UA Investigator Ref: UA15-008. UA Tech Launch Ref: Our File: UAZ-34027/WO-1/ORD

GRANTS AND CONTRACTS (DIRECT COSTS)

Advanced Bionics Research Grant (Industry) \$50,000
Cognitive Decline, Aging, and Cochlear Implants
Principal Investigator – Jacob, A
January 2015 – January 2017

Cochlear Americas Research Grant (Industry) \$80,000
Zebrafish Ototoxicity Assay
Principal Investigator – Jacob, A
February 2015 – June 2017

1K08 DC009644-01 \$1,161,160

"Preclinical Testing of a Novel PDK1 Inhibitor for Treating Vestibular

Schwannomas"

NIDCD/NIH

Principal Investigator - Jacob, A

Mentors- Welling, DB, Chang, LS

August 1, 2009 – July 31, 2014

GRT00014844

\$25,000

"In Vitro and In Vivo Response to HDAC Inhibitors by Vestibular Schwannomas"

AAO-HNSF: AHRF Wiley H. Harrison Clinical Otology Grant

Principal Investigator- Bush, ML

Mentors- Welling, DB, Chang, LS, Jacob, A

July 1, 2009 - December 31, 2010

GRT00011359

\$40,000

"Combination EGFR and AKT Pathway Inhibition for Treating Schwannoma"

The Triological Society Career Development Award

Principal Investigator-Jacob, A

Collaborators - Welling, DB, Chang, LS, Hansen, M

August 15, 2008 – August 14, 2009

CTF Drug Discovery Initiative Award

\$27,500

Grant ID 2007-05-002

"Preclinical Testing of a Novel AKT inhibitor OSU-03012 Using a VS Xenograft Model"

Principal Investigator-Jacob, A

Co-Investigator - Welling, DB

May 1, 2007 - March 31, 2009

Davis/Bremer Medical Research Grant

\$50,000

"Preclinical In Vitro and In Vivo Testing of a Novel AKT Inhibitor OSU-03012 for the Treatment of Vestibular Schwannoma

Principal Investigator-Jacob, A

Co-Investigator-Welling, DB

April 1, 2007 – March 31, 2008

NIH/NIDCD R03

\$50,000

DC04890-01A1

"Nitric Oxide and Chronic Rhinosinusitis: A Mouse Model"

Principal Investigator-Jacob, A

2001 – 2002

FIRST TO MARKET/CONTROLLED MARKET RESEASE

1. UA - Cochlear Americas Controlled Market Release Baha Attract 2014
2. UA - Cochlear Americas Controlled Market Release Cochlear Nucleus Profile 2015
3. Center for Neurosciences – Cochlear Americas Controlled Market Release of the Osia Bone Anchored Hearing Implant 2020