

Abraham Jacob, MD
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

2011-Present	#35.084212
2012-2017	Arizona State Medical License #44630 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
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<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
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<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
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<u>Medical Director</u>	Ear & Hearing at The Center for Neurosciences 2450 E. River Road; Tucson, AZ 85718 3/2017 – present
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<u>Medical Director</u>	Otology/Neurotology Services - Tucson Medical Center 3/2017 – present
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<u>Medical Director</u>	Adult Audiology - Tucson Medical Center 11/2021 – present
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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
2014	American Board of Otolaryngology Guest Examiner
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 – 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
2019	Achievement Award – Otology & Neurotology Education Committee 2019-2020 – American Academy of Otolaryngology
2020	Achievement Award – Otology & Neurotology Education Committee 2020-2021 – American Academy of Otolaryngology
2020	Invited to 3-member Audit Committee of the American Neurotology Society
2020	Honor Award – American Academy of Otolaryngology
2021	Achievement Award – Hearing Committee 2021-2022 – American Academy of Otolaryngology
2021	Invited to 3-member Audit Committee of the American Neurotology Society
2022	Invited as Experienced Examiner – American Board of Otolaryngology
2022	Invited to 3-member Audit Committee of the American Neurotology Society
2023	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

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 Otology/Neurotology Milestones
2014-2015	Advisory Panel Member for Culture Integration of Banner and University of Arizona Health Network
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-present	Member, Otology & Neurotology Education Committee, American Academy of Otolaryngology
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
2017-present	Medical Director at Tucson Medical Center for Otology & Neurotology
2018	Co-Director; American Academy of Otolaryngology Endoscopic Ear Surgery Workshop
2018	Invited Interviewer: Expert Interview Series (American Academy of Otolaryngology)
2019 - present	Designated Campus Colleague – University of Arizona
2020 - Present	Center for Neurosciences Land & Building Committee
2021 - Present	Center for Neurosciences Program Development Committee
2022	Invited as Experienced Board Examiner for The American Board of Otolaryngology and Neurotology/Cranial Base Surgery Board
2022-present	Medical Director at Tucson Medical Center for Adult Audiology

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 Degree 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
 Jillian Bushor 2021. UA Audiology Graduate Student
 Maggie Schefer 2021. 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 99 th 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
 3. 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)
- 7/2019 Neuroscience Symposium, August 2019: Hearing Loss & Dementia: the risk, the link, and the treatment, Tucson, 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 Translabyrinthine 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.
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52. Bourn S, Goldstein MR, Jacob A. Hearing Preservation in Elderly Cochlear Implant Recipients. *Otol Neurotol*. 2020 Jun;41(5):618-624. doi: 10.1097/MAO.0000000000002596. PMID: 32080030.
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Engenders High Patient Satisfaction. Otol Neurotol. 2021 Sep 1;42(8):1142-1148. doi: 10.1097/MAO.0000000000003164. PMID: 34398107.

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BOOK CHAPTERS

1. Haughey B and Jacob A. Otolaryngology. Chapter in The Washington Manual of Surgery. 3rd Edition. Klinginsmith, 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 Otolology. 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. 2023

CLINICAL TRIALS (CURRENT AND PAST)

1. The Ohio State University. "Melatonin: Can It Stop the Ringing?" Completed 2011.
2. Cochlear Corporation. "Safety and Efficacy of the Cochlear™ Nucleus® CI422 Cochlear Implant in Adults." PI. Completed 2015.
3. Advanced Bionics. "Cognitive Decline, Aging and Cochlear Implants". PI. Completed 2017.

4. Cochlear Americas. “Randomized Controlled Trial of Immediate Versus Delayed Cochlear Implantation (Hearing Loss in Older Adults).” PI. Completed 2019.
5. Astellas Pharma Global Development. “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).” 2020. Withdrew from study due to equipment issues.
6. Cochlear Americas. “A Post-Market Interventional Cohort Study Evaluating the Clinical Efficacy of the Osia 2 System in the US Market. 2020-2021.
7. Frequency Therapeutics. A Phase 2, Prospective, Randomized, Double-Blind, Placebo-Controlled, Single-Dose, Multicenter Study to Evaluate the Efficacy of FX-322 Administered by Intratympanic Injection in Adults with Acquired Sensorineural Hearing Loss. 2022.

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://healthconnect.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)
 38. American Cochlear Implant Alliance (ACIA) 2020: Decentralized network maintains high-quality and patient satisfaction. A two-year retrospective chart review from a high-volume cochlear implant center. March 202, Orlando, FL. Conference cancelled due to COVID-19. Recorded for CI2020 Online Program May 2020.
 39. American Cochlear Implant Alliance (ACIA) 2020: Maximizing the Possibilities for Every Patient (early Osia experience). March 202, Orlando, FL. Conference cancelled due to COVID-19. Recorded for CI2020 Online Program May 2020.
 40. TMC Senior Services Neurology Series, September 2021: Hearing Loss & Dementia: the risk, the link, and the treatment, Tucson, AZ.

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)
18. American Academy of Otolaryngology Annual Meeting On-Demand Presentation. Developing a Cochlear Implant Programming Network of Private Practice Audiologists. Abraham Jacob, MD., Stephanie S. Bourn, AuD., Michele Fusco, and Cristi A. Moore, AuD. (October 2021)
19. American Academy of Otolaryngology Annual Meeting On-Demand Presentation. Practical Efforts in Expanding Access to Cochlear Implantation. Abraham Jacob, MD., Samuel A. Spear, MD., Darius Kohan, MD., and Jacob B. Hunter, MD. (October 2021)
20. Combined Otolaryngology Spring Meetings. Boston, MA. Add-on Flexible Sensor Arrays for Real-time Monitoring of Cochlear Implant Electrode Insertion. Jay W. Reddy, Ph.D.; Mohsen Tabrizi, Ph.D; Douglas A. Chen, MD; Abraham Jacob, MD; Maysam Chamanzar, Ph.D . (May 2023)
21. American Cochlear Implant Alliance 2023 Meeting. Dallas, TX. Using aided word-recognition testing post-hearing aid fitting to identify hidden

cochlear implant candidates. Mary Rose Goldstein Au.D, Stephanie Bourn Au.D, Alissa Knickerbocker Au.D., and Abraham Jacob MD. (June 2023)

22. American Cochlear Implant Alliance 2023 Meeting. Dallas, TX. New Cochlear Implant Candidacy Protocol for Patients with Asymmetric Sensorineural Hearing Loss. Alissa Knickerbocker Au.D, Stephanie Bourn Au.D, Mary Rose Goldstein Au.D, and Abraham Jacob MD. (June 2023)

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 Translabrynthine 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)
 13. 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.
 14. The 2012 Children's Tumor Foundation/NF Conference (6/2012). New Orleans, Louisiana.

- a. 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.
 - b. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. American Otolological 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.
21. 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
 22. 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.
 23. 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.
 24. 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.
 25. American Neurotology Society; COSM 2019. Hearing preservation in Elderly Cochlear Implant Recipients. Bourn, Stephanie, Goldstein, Mary Rose, Jacob, Abraham and Sanders, Holden. Austin, TX.
 26. 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
 27. 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

28. Triological Society; COSM 2020. Cochlear Implant Outcomes in the Very Elderly. Sarah Morris, Stephanie Bourn, Juliana DeZolt, Mary Rose Goldstein, Abraham Jacob

29. American Cochlear Implant Alliance 2023 Meeting. Dallas, TX. Cochlear Implant Outcomes in the Very, Very Elderly. Stephanie Bourn Au.D, Mary Rose Goldstein Au.D, Alissa Knickerbocker, Au.D., Abraham Jacob MD,

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
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"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

MEDICAL – LEGAL CONSULTING IN THE PAST 4 YEARS

Donny D. Johnson v. Walgreens

2019 – 2020

The United States District Court for the District of New Mexico

Retained for the **Defense** by Modrall, Sperling, Roehl, Harris, & Sisk, P.A. (Albuquerque, NM)

Records review, Discussion with Defense Counsel; Written Expert Report; In-Person Deposition and In-Person Expert Testimony at Trial 2020.

Stokes v. SJHMC

2020 (dismissed)

Risk management case for St. Joseph Medical Center in Phoenix, AZ

Retained for the **Defense** by Campbell, Yost, Clare, & Norell (Phoenix, AZ)

Records review; Discussion with Defense Counsel

Jeffrey A. Meyer v. Steward Medical Group, etc.

2021 – ongoing

Superior Court of Arizona (Maricopa County)

Retained for the **Defense** by The Checkett Law Firm, PLLC (Phoenix, AZ)

Records review; Discussion with Defense Counsel; in-person deposition 9/23/2022

Tasha M. Salyer v. Michael Joseph Disher, MD and Ear Clinic of Indiana, LLC.

2021 (settled)

State of Indiana Allen County Superior Court 2

Retained for the **Defense** by Rothberg, Logan, & Warsco, LLP. (Fort Wayne, IN)

Records review; Discussion with Defense Counsel, Written Expert Report; Video Deposition

Rimona Agami & Ilan Agami v. Douglas Alan Drake, Nextcare, etc.
2019 - 2023

Superior Court of Arizona (Maricopa County)
Retained for the **Plaintiff** by Holden & Armer, P.C. (Phoenix, AZ)
Records review; Discussion with Plaintiff's Counsel; Written Expert Report; in-Person Deposition. Trial testimony March 23, 2023.

3M CAEV2 Earplug Cases 2021 - ongoing

Remi Bald Eagle v. 3M Company et al.

United States District Court for the Northern District of Florida Pensacola Division
Retained by **Plaintiff** (The Gori Law Firm)
Records review, Discussion with Plaintiff Counsel; Written Expert Report; and Video Deposition on 6/17/2022

Gregory Vincent Cing v. 3M Company et al.

United States District Court for the Northern District of Florida Pensacola Division
Retained by **Plaintiff** (The Gori Law Firm)
Records review, discussion with Plaintiff Counsel; Written Expert Report; and Video Deposition on 10/21/2022

Don Shiko v. 3M Company et al.

United States District Court for the Northern District of Florida Pensacola Division
Retained by **Plaintiff** (The Gori Law Firm)
Records review, discussion with Plaintiff Counsel; Written Expert Report; and Video Deposition on 10/28/2022

Finkelstein v. Prudential 2022 - ongoing

United States District Court for the District of Arizona
Retained by **Defense** (Carlton Fields; West Palm Beach, FL)
Records review, discussion with Defense Counsel; Written Expert Report; in-person deposition 4/2023

Casselman v. Marathon Oil 2022 - ongoing

Retained by the **Defense** (Klein, Thomas & Lee (Phoenix, AZ) 12/2/22 for Records review; Discussion with Defense Counsel and Marathon Oil in-house counsel; IME; Expert Report.