

## Curriculum Vitae

### RICHARD L. DOTY

UNIVERSITY OF PENNSYLVANIA – PERELMAN SCHOOL OF MEDICINE

**Office Address:** Smell & Taste Center  
5 Ravdin Pavilion  
University of Pennsylvania Medical Center  
Philadelphia, Pennsylvania 19104  
[www.med.upenn.edu/stc](http://www.med.upenn.edu/stc)



**Place of Birth:** Boulder, Colorado USA

#### **Education:**

- 1962-1963 Whitworth College, Spokane, Washington
- 1963-1964 University of Denver, Denver, Colorado
- 1964-1966 B.S., Colorado State University (Psychology/Biology)
- 1966-1968 M.A., California State University, San Jose, California, in conjunction with the National Aeronautics and Space Administration (NASA), Moffett Field, California, (Experimental Psychology: Psychophysics)
- 1968-1971 Ph.D., Michigan State University, East Lansing, Michigan (Comparative Psychology/ Zoology)

#### **Honorary Degrees:**

- 1991 Master's Degree, University of Pennsylvania, Philadelphia, PA

#### **Postgraduate Training and Fellowship Appointments:**

- 1971-1973 Postdoctoral Fellow, Behavioral Endocrinology, University of California, Berkeley, California (Advisor: Dr. Frank A. Beach)
- 1973-1974 Postdoctoral Fellow, Monell Chemical Senses Center, Philadelphia, Pennsylvania

#### **Faculty Appointments:**

- 1971-1972 Instructor, Department of Psychology, California State University, San Francisco, California  
Instructor, Department of Psychology, University of San Francisco, San Francisco, California
- 1974-1976 Assistant Member, Monell Chemical Senses Center, Philadelphia, Pennsylvania
- 1976-1978 Associate Member and Head, Human Olfaction Section, Monell Chemical Senses Center, Philadelphia, Pennsylvania

- 1979-1980 Visiting Professor, University of Colorado at Colorado Springs, Colorado Springs, Colorado
- 1980-1989 Assistant Professor, Department of Otorhinolaryngology and Human Communication, School of Medicine, University of Pennsylvania
- 1989-1994 Associate Professor, Department of Otorhinolaryngology: Head and Neck Surgery, School of Medicine, University of Pennsylvania (Conversion to Tenure, 1991)
- 1994- 2025 Professor, Department of Otorhinolaryngology: Head and Neck Surgery, School of Medicine, University of Pennsylvania
- 2024-2026 Visiting Professor, Johns Hopkins School of Medicine, Baltimore, MD.

### **Hospital and Administrative Appointments:**

- 1980-2024 Director, Smell and Taste Center, Perelman School of Medicine, University of Pennsylvania

### **Licenses:**

DEA Registration RD0347802

### **Patents:**

- US Patent 6,557,394. Smell Test Device, Issue date: 5/16/2003  
US Patent 8,469,293. Digital Odor Generator, Issue date: 3/26/2013

### **Awards, Honors, and Membership in Honorary Societies:**

Psi Chi (1966); National Aeronautics and Space Administration Predoctoral Trainee (1967-1968); NIH Predoctoral Trainee (1969-1970); NIMH Pre-doctoral Research Fellowship (1970-1971); NIH Postdoctoral Research Fellowship (1973-1975); First Annual Psi Chi Faculty Award, University of Colorado (1979); Fellow, Philadelphia College of Physicians (1979); Lambda Chi Alpha's Hall of Fame (1996); James A. Shannon Award, National Institutes of Health (1996); International Biographical Centre, Cambridge, England, 2000 Outstanding Scientists of the 20<sup>th</sup> Century (1999); Olfactory Research Fund: Scientific Sense of Smell Award (2000); University of Pennsylvania's William Osler Patient-Oriented Research Award (2003); Society of Cosmetic Chemist's Service Award (2004); Association for Chemoreception Science's Max Mozell Award for Outstanding Achievement in the Chemical Senses (2005); Fellow, American Association for the Advancement of Science (2005); Distinguished Alumnus Award & Monfort Professor in Residence, Colorado State University (2007); Fellow, Royal College of Medicine (2008); Fellow, Association for Psychological Science (2009); Award for Best Review Article Published by *Oral Diseases*, 2010; Member of Honor, GEOG, Argentine Federation of Societies of Otolaryngology (2012); Honorary Visiting Professor, University of Roehampton, London (2014); Fellow, American Academy of Neurology (2017); Albert Nelson Marquis Lifetime Achievement Award (2017); ScholarGPS "Highly Ranked Scholar" (2024): Lifetime – Olfaction #1, Otolaryngology #5, Medicine #97; Research.com's 2024 Ranking of Best Scientists in the Field of Neuroscience: #299 (U.S.) and #514 (World); Sigma Xi, 2024.

## **Current Editorial Board Memberships:**

*Journal of Clinical Toxicology*

*World Journal of Otorhinolaryngology – Head and Neck Surgery*

## **Current and Past Memberships in Professional and Scientific Societies:**

American Association for the Advancement of Science (Lifetime Member)

American Academy of Neurology

American Psychological Association

Association for Chemoreception Sciences

Association for Psychological Science

European Chemoreception Research Organization

Institute of Neurological Sciences, University of Pennsylvania

Philadelphia College of Physicians & Surgeons

The John Morgan Society

Society for Neuroscience

## **Committees, Review Boards, and Organizational Offices since 1990:**

- 1991 Chairman, International Symposium on Chemical Signals in Vertebrates VI, Philadelphia, PA, June 16-22, 1991
- 1992 Chairman, Special Review Committee, "Transport of Substances in the Olfactory System" (RFA NIH-NIDCD-92-05), National Institute on Deafness and Other Communication Disorders, Bethesda, MD
- 1992 Alzheimer's Association of Greater Philadelphia (Member, Scientific Advisory Committee)
- 1994 International Organizing Committee, Chemical Signals in Vertebrates VII, University of Tubingen, Germany
- 1994 Advisory Board, Veterans Administration Environmental Hazards Research Center, University of Texas Health Science Center at San Antonio, Texas
- 1994 Member, Panel on Office of Naval Research Opportunities in Biology and Medicine, Naval Studies Board, National Research Council, Commission on Physical Sciences, Mathematics, and Applications, National Academy of Sciences, Washington, D.C.
- 1994 Member, Panel on Office of Orphan Products Development, Food and Drug Administration, Rockville, Maryland
- 1994 Member, Working Group, National Health and Nutrition Examination Survey IV (NHANES IV), National Institute on Deafness and Other Communication Disorders, Bethesda, MD.
- 1995 Member, Working Group, Toxin-Induced Loss of Tolerance, National Institute for Environmental Health Sciences Conference on Experimental Approaches to Chemical Sensitivity, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

- 1996 Member, Sensory Disorders and Language Study Section, National Institutes of Health, Bethesda, MD.
- 1996 Awards Committee, Association for Chemoreception Sciences.
- 1999 Chairman, Symposium on Advances in Brain Imaging and Electrophysiological Measurement of Human Olfactory Function in Health and Disease, National Institutes of Health, Bethesda, MD, in Sarasota, Florida, April 14, 1999.
- 1999 Chairman, "Committee to Evaluate Current Status of Measures of Chemical Irritation," American Chemistry Council, Washington, D.C., 1999-2003
- 2000 Member, Initial Review Board of the Medical and Scientific Advisory Council, Alzheimer's Disease and Related Disorders Association, Chicago, IL
- 2000 International Advisory Committee, GustOlf, Gothenborg, Sweden
- 2000 Scientific Committee, Chemical Signals in Vertebrates IX, Cracow, Poland, July 25-30, 2000.
- 2002 Member, Working Group on Epidemiology and Data Sources for Human Communication and Conditions, Diseases, and Disorders. National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Bethesda, MD.
- 2003 Member, Scientific Review Group, ZHD1 DSR-A 23 1, National Institute on Child Health and Human Development, National Institutes of Health, Bethesda, MD.
- 2003 Executive Committee, Training Grant, Training in the Neurobiology of Otorhinolaryngology (J.C. Saunders, PI), NIDCD.
- 2003 Executive Committee, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia
- 2003 External Examiner, McGill University, Office of Graduate and Postdoctoral Studies, Montreal, QC, Canada
- 2003 William Osler Patient Oriented Award Review Committee., University of Pennsylvania.
- 2004 Co-Organizer with Dr. Christopher Hawkes, Course on Smell and Taste; 56<sup>th</sup> Annual Meeting of the American Academy of Neurology, San Francisco, CA, April, 2004.
- 2005 Program Committee, Association for Chemoreception Sciences
- 2006 Advisor, "External Concept Clearance: A Quick Smell Test." National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Bethesda, MD. Oct 5, 2006.
- 2006 Consultant, "NIH Toolbox for the Assessment of Neurological and Behavioral Function" (RC Gershon, PI, Northwestern University)

- 2006 Member, Center of Excellence in Environmental Toxicology, University of Pennsylvania
- 2006 Member, Electorate Nominating Committee, American Association for the Advancement Science, Washington, D.C. (4-year term)
- 2007 Member, Advisory Board, Clinical Neurosciences Track Program, University of Pennsylvania School of Medicine.
- 2008 Opponent, Thesis Committee, Department of Psychology, Umea University, Umea, Sweden,
- 2009 Ad Hoc Member, NIH, Somatosensory and Chemosensory Study Section, October 6-7, 2009
- 2009 External Examiner, Northwestern University, Office of Faculty Affairs, Chicago, IL
- 2009 External Examiner, Pennsylvania State University, Office of the Dean, Hershey, PA
- 2010 Advisory Committee, National Health and Nutrition Examination Survey (NHANES), National Institute on Deafness and Other Communication Disorders
- 2010 External Examiner, University of Michigan, Office of the Dean, Ann Arbor, MI
- 2010 Co-Chair, Working Group: Other Non-Motor Features of Parkinson's Disease, Parkinson Study Group (PSG), Dallas, TX
- 2012- Chair, Working Group: Other Non-Motor Features of Parkinson's Disease, Parkinson Study  
2015 Group (PSG), Dallas, TX (2012), Montreal, Canada (2013), St. Louis, MO (2014), Ft. Myers, FL (2015)
- 2013 External Examiner, New York University, Office of Faculty Affairs, New York NY
- 2015 Thesis Committee, Department of Epidemiology and Biostatistics, School of Public Health, Drexel University, Philadelphia, PA
- 2019 Thesis Committee, Department of Epidemiology and Biostatistics, School of Public Health, Drexel University, Philadelphia, PA
- 2021 Thesis Committee, School of Public Health, University of Pennsylvania, Philadelphia, PA

**Editorial Consultant:**

*Acta Neurologica Belgica; Acta Neurologica Scandinavica; Acta Paediatrica; Acta Psychologica; Aging Research Reviews; Alzheimer's and Dementia; American Journal of Pathology; American Journal of Rhinology; American Journal of Industrial Medicine; American Journal of Physiology; American Midland Naturalist; Animal Behaviour; Annals of Neurology; Annual Review of Psychology; Appetite; Archives of Clinical Neuropsychology; Archives of Neurology; Archives of Otolaryngology - Head and Neck Surgery; Behavior Research Methods, Instruments; Behavioral Neuroscience; Behavioral Brain Research; Biological*

*Psychiatry; Biology of Reproduction; Bipolar Disorders; Brain; Brain Research; Cerebral Cortex; Chemical Senses; Chemosensory Perception, Cognitive & Behavioral Neurology; Developmental Psychobiology; Drug Safety; Ethology; Ethology and Sociobiology; Experimental Brain Research; Gerontology; European Journal of Oral Sciences; Experimental Gerontology; Experientia; Head & Neck; Frontiers in Neuroscience; Fundamental & Clinical Pharmacology; Hormones & Behavior; Human Brain Mapping; Infant Behavior & Development; International Journal of Clinical and Experimental Hypnosis; International Journal of Clinical Pharmacology; Italian Journal of Neurological Sciences; Journal of Allergy & Clinical Immunology; Journal of Alzheimer's Disease; Journal of the American Dental Association; Journal of Behavioral and Brain Science; Journal of Chemical Ecology; Journal of Comparative Neurology; Journal of Dental Research; Journal of Clinical Neuroscience; Journal of Experimental Biology; Journal of Food Science; Journal of Experimental Psychology; Journal of Gerontology; Journal of the International Neuropsychological Society; Journal of Mammalogy; Journal of Neuroscience; Journal of the Neurological Sciences; Journal of Neurology, Neurosurgery & Psychiatry; Laryngoscope; Maturitas; Memory & Cognition; Laterality: Asymmetries of Body, Brain and Cognition; Movement Disorders; Molecular Neurobiology; Movement Disorders; Nature; Naturwissenschaften; Neurocase; Neurochemical Research; Neurodegeneration; Neurodegenerative Diseases; Neuroparmacology; Neuropsychology; Neurology; Neuroscience and Biobehavioral Reviews; Neuropsychologia; Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontics; ORL; Parkinsonism & Related Disorders; Perception; Perceptual & Motor Skills; Perception & Psychophysics; Pharmacy World & Science; Physiology & Behavior; Progress in Neurobiology; Psychiatry Research; Psychological Bulletin; Psychological Reviews; Psychological Science; Psychology of Aging; Psychoneuroendocrinology; Schizophrenia Research; Science; Trends in Neurosciences.*

**General Consultant (Excludes Legal Consultations):**

WGBH-TV, Boston (NOVA Science Series, 1976); RIA Corporation (Italian Television Science Series, 1980); KYW-TV, Philadelphia (Clinical Science Series, 1981); NASA (Skylab Project, 1976); National Research Council (Advisory Committee, 1978); Industrial Acrylic Acid Study Committee (1981); National Science Foundation (1976-present); Franklin Institute (1982); American Cyanamid (1982); San Antonio Museum Association (1982); National Institutes of Health (1980-present); City of Philadelphia (1983); Union Carbide Corporation (1983-1986); U.S. Army Office of Research (1983-1985); Edelman Public Relations, Inc. (1983); National Council on Aging (1984); Rohm & Haas Company (1984-1990); Kal Kan (1985); E.R. Carpenter Company (1985); Israel Science Foundation (1985); Medical Research Council of Canada ((1999); National Geographic Magazine (1985); Television South (TVS; 1985); American Broadcasting Corporation (ABC) (1986); Pennwalt Corporation (1986); Pepsico (1985); National Institute of Aging (1985); Philadelphia Water Company (1986-1989); Xerox Corporation (1986); Philadelphia Gas Works (1987-1990); ASTM Task Group E-18.04.025 on Odor Thresholds (1989); Emerson Electric Company (1989); Mayo Clinic (1989-1990); Philadelphia Zoo (1989-1990); WGBH-TV, Boston (NOVA Science Series, 1990); National Academy of Sciences (1989); Federal Aviation Administration (1989-1991); National Center for Vision and Aging (1989); Phillips Petroleum Company (1990-1991); The Welcome Trust (1992); WGBH-TV, Boston (NOVA Science Series, 1991); National Institute on Aging (1994); National Institute on Deafness and Other Communication Disorders (1993-2000); Medical Research Council of Canada (1994-2000), Pfizer Pharmaceuticals (1994); International Flavors and Fragrances (1996); Sensonics, Inc. (1998-present); McNeil Consumer Products (1999); American Chemistry Council (2000); Mt. Sinai School of Medicine Educational Outreach Program -- *Defying Gravity: Enduring Life in Space* (2001); Scent Off Corporation (2003); Matrixx Initiatives (2004); Unilever (2004); National Museum of Health and Medicine (2005); Becton, Dickinson and Company (2006); Ono Pharmaceutical Co (2006); Sepracor Inc (2006); Toyota Motor Corporation (2006); Unilever (2006); ABC television (2007); CAA Television, Korea (2007);

Johnson & Johnson Consumer Products Division (2007); PBS Television (2008, 2012,); BBC (2009); Mars Inc (2010); Merck (2011, 2018, 2022); Western Medical Assessments (2011); Intelligent Beauty (2012); Pfizer, Inc. (2012); Acorda Therapeutics (2014); Johnson & Johnson (2015-present); Eisai Pharmaceuticals, 2017-2020; Septodont, Inc, 2020; Michael J. Fox Foundation, 2016-present; Destany Pharma, 2022; Satsuma Pharmaceuticals, 2022.

**Postdoctoral Fellows, Visiting Scientists & Special Project Students (since 1986 only):**

- 1986 Konrad Burdach, Ph.D., Department of Mass Communication, University of Munich, Federal Republic of Germany (Visiting Scientist).
- 1986 Daniel A. Deems, Ph.D., Department of Psychology, University of California, Los Angeles, California (Postdoctoral Fellow).
- 1986 Andrew Mester, M.D., Department of Otolaryngology, Semmelweis University, Budapest, Hungary (Postdoctoral Fellow).
- 1986 Victoria Moore-Gillon, B.Sc., F.R.C.S., Department of Otolaryngology, St. Georges Hospital, London, England (Visiting Scientist).
- 1988 Deborah Rosin, M.D., University of Pennsylvania, School of Medicine, Philadelphia, PA (Medical Student Research Program).
- 1988 John Till, M.S., Department of Biology, State University of New York, Brockport, New York (Completed thesis requirements).
- 1988 Rozell Moulton, M.A., Department of Psychology, American University, Washington, D.C. (Completed thesis requirements).
- 1988 Cheng Li, M.D., Department of Radiology, Chao-Yang Hospital, Dongdaquiao, Beijing, China (Postdoctoral Fellow).
- 1989 Shigeru Furuta, M.D., D.Sc., Department of Otolaryngology, Faculty of Medicine, Kagoshima University, Kagoshima, Japan (Postdoctoral Fellow).
- 1989 Cheryl A. Pfeiffer, Ph.D., Department of Psychology, Cornell University, Ithaca, New York (Postdoctoral Fellow)
- 1989 John D. Pierce, Ph.D., Department of Psychology, University of Florida, Gainesville, Florida (Postdoctoral Fellow)
- 1991 Jim Salata, M.D., University of Pennsylvania, School of Medicine, Philadelphia, PA (Medical Student Research Program).
- 1991 Toshi Matsuda, M.D., Department of Otorhinolaryngology, Nagoya City University Medical School, Nagoya, Japan (Postdoctoral Fellow)
- 1991 Igor Leonidovich Kratskin, M.D., Ph.D., I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry, Academy of Sciences of the USSR, Leningrad, USSR (Postdoctoral Fellow)
- 1991 William Turner, M.D., University of Pennsylvania, School of Medicine, Philadelphia, PA (Medical Student Research Program)
- 1992 Hun-Jong Dhong, M.D., Seoul National University Hospital, Seoul, Korea (Postdoctoral Fellow)
- 1992 Steven West, B.S., University of Pennsylvania, Philadelphia, PA (Medical Student Fellowship)
- 1992 Kevin Braat, M.D., University of Pennsylvania, Philadelphia, PA (Research Intern)
- 1992 Kee Pyon, Ph.D. Candidate, Department of Bioengineering, School of Engineering, University of Pennsylvania, Philadelphia, PA (Thesis Committee)
- 1993 Yasuyuki Kimura, M.D., Department of Otolaryngology, Kanazawa University, Kanazawa City, Japan (Postdoctoral Student)
- 1994 Shengzi Wang, M.D., Department of Otolaryngology, Shanghai Medical University, Shanghai, China (Postdoctoral Student)
- 1994 Maria Luisa Medina Amaya, M.D., University of Chihuahua, Chihuahua, Mexico

- 1994 David Yen, B.S., Medical Student, University of Pennsylvania, School of Medicine, Philadelphia (Medical Student Research Program).
- 1995 Steve Zrada, M.D., Hahnemann University, School of Medicine, Philadelphia (Medical Student Fellowship)
- 1997 Thomas Hummel, M.D, Ph.D., Department of Otorhinolaryngology, University of Dresden, Dresden, Germany (Visiting Scientist)
- 1997 Ayam Moustafa sayed El Madina, M.D., Department of Otolaryngology: Head and Neck Surgery, University of Alexandria, Cairo, Egypt (Visiting Scientist)
- 1998 Stephen Correia, M.A., Department of Psychology, University of Rhode Island, Kingston, RI (MA Thesis)
- 1998 Prayuth Tunsuriyawong, M.D., Department of Otorhinolaryngology, Siriraj Mahidol University, Bangkok, Thailand
- 2000 Anupam Mishra, M.B.B.S., Visiting Scientist, Aliganj, Lucknow, India
- 2001 Anthony Risser, Ph.D., Department of Psychology, University of Houston, Houston, TX.
- 2002 Suketu J. Patel, B.S., University of Pennsylvania, School of Dental Medicine, Dental Student Summer Research Program
- 2002 Michael J. Palma, B.S., University of Pennsylvania, School of Dental Medicine, Dental Student Summer Research Program.
- 2003 Danielle Kuchinkas, Univeristy of Pennsylvania, School of Engineering, Honors Program
- 2003 Jaclyn Wertheimer, B.S., University of Pennsylvania, School of Dental Medicine, Dental Student Summer Research Program.
- 2003 Serban Nicolaescu, B.S., University of Pennsylvania, School of Dental Medicine, Dental Student Summer Research Program.
- 2003 Eric Choudhury, B.S., University of Pennsylvania, School of Dental Medicine, Dental Student Summer Research Program.
- 2004 Ritvij Bowry, B.A., University of Notre Dame, Research Intern
- 2004 Alexis Hope Jackman, M.D., Physician-Scientist Training Fellowship Program, University of Pennsylvania, School of Medicine
- 2004 Windolyn D. Panganiban, M.D., St. Luke's Medical Center, Quezon City, Philippines, Visiting Scientist
- 2004 Logan Schneider, B.S., University of Florida, Gainesville, FL, Summer Research Program
- 2005 Eva Heuberger, Ph.D., Department of Pharmaceutical Chemistry, University of Vienna, Vienna, Austria, Visiting Scientist
- 2005 Andrew Fisher, University of Pennsylvania, School of Engineering and Applied Science, Summer Research Program
- 2005 Arti Kahl, BSC, BDS, Dental College & Hospital, Bihar India, Visiting Scientist
- 2005 Brian London, University of Pennsylvania, School of Arts and Sciences, Summer Research Program
- 2005 Behnam Nabet, University of Pennsylvania, School of Arts and Sciences, Summer Research Program
- 2005 Kenji Saito, Medical Student, Temple University School of Medicine, Philadelphia, Summer Intern
- 2006 Nida Habib, Medical Student, Summer Research Elective, Aga Khan University, Karachi, Pakistan
- 2006 Mohammad Shah, M.B.B.S., Khyber Medical College, Peshamar, Pakastan, Visiting Scholar
- 2006 Mohammad Izhar, M.B.B.S., Khyber Medical College, Peshamar, Pakastan, Visiting Scholar
- 2007 Leslie Cameron, Ph.D., Assistant Professor, Carthage College, Kenosha, WI, Visiting Scholar
- 2007 Rong-San Jiang, M.D., Chairman, Otolaryngology, Taichung Veterans General Hospital, Taichung, Taiwan, Visiting Scholar
- 2007 Mehreen Teizoon, Summer Research Elective, Aga Khan University, Karachi, Pakistan
- 2007 Özüm Saygi, Research Intern, Department of Psychology, Ohio Wesleyan University, Delaware, OH
- 2007 Aliya Arshad, M.B.B.S., Jawaharlal Nehru Medical College, Aligarh, UP, India, Visiting Scholar

2008 Megan Bernstein, BBB Independent Project & Summer Research Program  
 2008 Ben Crastnopol, Germantown Academy, Summer High School Research Program  
 2008 Jiwei He, Observership, GTMS Certificate Program, University of Pennsylvania  
 2008 Justin Herman, University of Pennsylvania, BBB Independent Project & Summer Research Program  
 2008 Kristen Kindzierski, University of Pennsylvania, Independent Project & Summer Research Program  
 2008 Chen (Chris) Li, M.D., Ph.D., Visiting Scholar, Taijing Neurological Institute, Taijing, China  
 2008 Hema Patel, Department of Biology, Dickinson College, Summer Research Program  
 2008 Rajini Sankaran, M.D., Department of Physical Medicine & Rehabilitation, University of  
 Saskatchewan, Saskatoon, Canada, Visiting Post-doctoral Scientist  
 2008 Natalie Stinton, B.S., School of Dental Medicine, Summer Research Program  
 2008 Robert Peterman, B.B., School of Dental Medicine, Summer Research Program  
 2008 Stefanie Fazzio, Roy & Diana Vagelos Program 2010, Summer Research Program  
 2008 Trisha Russo, La Salle University, Philadelphia, Summer Research Program  
 2008 Jon Treem, B.S., University of Pennsylvania Post-Bac Program, Summer Research Program  
 2008 Omer Hyat Khan, Research Elective, Aga Khan University, Karachi, Pakistan  
 2009 Muhammad Ali Atif, M.B.B.S., Khyber Medical College, Peshamar, Pakistan, Visiting Scholar  
 2009 Naureen Barkat, M.B.B.S., Khyber Medical College, Peshamar, Pakistan, Visiting Scholar  
 2009 Nevin Pia Angela Gunduz, University of Pennsylvania, Independent Project  
 2009 Nii Mensah, University of Pennsylvania, Independent Project & Summer Research Program  
 2009 Tom O'Hara, Germantown Academy, Summer High School Research Program  
 2009 Bryan Hozack, B.A., University of Pennsylvania Post-Bac Program, Summer Research Program  
 2009 Ajay Koti, University of Pennsylvania, Independent Project  
 2009 Jeff Landy, University of Pennsylvania, Independent Project & Summer Research Program  
 2009 Usama Mahmud, University of Pennsylvania School of Engineering, Research Elective  
 2009 Will Marra, B.S., University of Notre Dame, Summer Research Program  
 2009 Taiha Munir, M.B.B.S., Research Elective, Aga Khan University, Karachi, Pakistan  
 2009 Archana Nadig, B.S., Harvard University, School of Dental Medicine, Summer Research Elective  
 2009 Kannar Shah, BSC, BDS, Dental College & Hospital, Bihar India, Visiting Scientist  
 2009 Christina Shin, University of Pennsylvania, Independent Project & Summer Research Program  
 2009 Hussam Tallab, M.B.B.S., Khyber Medical College, Peshamar, Pakistan, Visiting Scholar  
 2009 Joseph Yang, B.S., School of Dental Medicine, Summer Research Program  
 2009 Salomón Waizel, M.D., Hospital ABC, Campus Santa Fe, Mexico City, Visiting Scholar  
 2009 Annie Weitberg, University of Pennsylvania, Independent Project & Summer Research Program  
 2010 Ahya Awais, Medical Student, Khyber Medical College, Peshamar, Pakistan, Visiting Scholar  
 2010 Emily Garfinkel, Independent Project and Summer Research Program  
 2010 Safee Ahmed, Medical Student, Khyber Medical College, Peshamar, Pakistan, Visiting Scholar  
 2010 Nevin Pia Angela Gunduz, University of Pennsylvania, Independent Project  
 2010 Julie Heidt, B.S., School of Dental Medicine, Summer Research Program  
 2010 Kathern Ma, B.S., School of Dental Medicine, Summer Research Program  
 2010 Marimar Medina, M.D., Ramon y Cajal University Hospital, Madrid, Spain, Research Rotation.  
 2010 Megan Metsger, University of Pennsylvania, Summer Research Program  
 2010 Tom O'Hara, University of Richmond, Summer Research Program  
 2010 Jing Ju Park, University of Pennsylvania, Summer Research Program  
 2010 Naum Pitovski, Furman University, Summer Research Program  
 2010 Nang San Hti Lar Seng, Whitman College, Summer Research Program  
 2010 Disha Shah, Arcadia University, Summer Research Program  
 2010 Hema Patel, Department of Biology, Dickinson College, Summer Research Program  
 2010 Johathan Silas, Ph.D., University of Roehampton, London, United Kingdom, Post-doctoral Fellow

2010 Hakan Tekeli, M.D., Kasimpasa Military Hospital, Istanbul, Turkey, Visiting Scholar  
2010 Elizabeth Tracey, University of Pennsylvania, Independent Project  
2010 Ling Zhou, B.S., Tufts University School of Medicine, Research Rotation  
2011 Loyal Antoury, University of Pennsylvania, Department of Biology, Senior Thesis  
2011 Cristen Cusumano, University of Pennsylvania, Biological Basis of Behavior, Senior Thesis  
2011 Alana Ferrari, University of Pennsylvania, Biological Basis of Behavior, Senior Thesis  
2011 Aaron Joseph Green, University of Pennsylvania, Independent Project  
2011 Samuel Lewis, University of Pennsylvania, Summer Research Program  
2011 Nicole Longosz, B.S., School of Dental Medicine, Summer Research Program  
2011 Stefan Pitovski, College of Charleston, Summer Research Program  
2011 Trevan Samp, B.S., School of Dental Medicine, Summer Research Program  
2011 Farah Siddgui, B.A., University of Pennsylvania School of Nursing, Master's Thesis  
2011 Daniela Turcinov, B.S., School of Dental Medicine, Summer Research Program  
2012 Kellie Cathey, University of Pennsylvania, Biological Basis of Behavior, Independent Project  
2012 Christopher Duncan-Lewis, Independent Project and Summer Research Program  
2012 Tarik Elmohd, B.S., School of Dental Medicine, Summer Research Program  
2012 Melissa Fang, University of Pennsylvania, Summer Research Program  
2012 Brian Fulton, University of Pennsylvania, Biological Basis of Behavior, Senior Thesis  
2012 Shifa Gandhi, University of Pennsylvania, Student Research Program  
2012 Hugh Hamilton, University of Pennsylvania, Summer Research Program  
2012 Mariam Mahbob, University of Pennsylvania, Summer Research Program  
2012 Helen Mo, University of Pennsylvania, Summer Research Program  
2012 Victoria Ng, University of Pennsylvania, Student Research Program  
2012 Fadi Raffoui, B.S., School of Dental Medicine, Summer Research Program  
2012 Krystyna Simon, University of Pennsylvania, Summer Research Program  
2012 Allen Sirolly, University of Pennsylvania, Student Research Program  
2012 Rosanna Sobota, University of Pennsylvania, Summer Research Program  
2012 Andy Tekriwal, University of Pennsylvania, Summer Research Program  
2012 Britney Vazquez, University of Pennsylvania, Summer Research Program  
2012 Danylko Villano, University of Pennsylvania, Independent Project, Summer Research Program  
2012 Margaret Wang, University of Pennsylvania, Summer Research Program  
2012 Maja Warrum, University of Pennsylvania, Summer Research Program  
2012 Zachariah Adam Henn, Earlham College, Research Internship  
2012 Ani Al Safadi, Earlham College, Research Internship  
2013 Austin Haley Berman, Pennsylvania Leadership Charter School, Research Project  
2013 Michael Nsoesie, Earlham College, Research Internship  
2013 Evan Beales, Hope College, Research Internship  
2013 Paige Ayotte, Alma College, Research Internship  
2013 Inna Chung, University of Pennsylvania, Senior Thesis  
2013 Laura Fabius, University of St. Andrews, Scotland, Research Internship  
2014 Nichole Byer, B.S., School of Dental Medicine, Summer Research Program  
2014 Andrea Giovanna Pineda, University of Pennsylvania, Student Research Program  
2014 Joseph R. Prado, University of Pennsylvania, Student Research Program  
2014 James Sharer, Pennsylvania State University, Summer Research Program  
2014 Merle D'Souza, B.A., Drexel University Practicum Research Program  
2014 Elaine Yingcheng Xu, B.S., Medical School Summer Research Program  
2015 Alberto Ayala, Kalamazoo College, Research Internship  
2015 Soohyun Cho, University of Pennsylvania, Student Research Program

2015 Tatiana Prosini Da Fonte, Brazil Scientific Mobility Summer Program  
 2015 Marco Aurélio Fornazieri, Clinica Olfact em Londrinia-PR, San Paolo, Brazil, Visiting Scholar  
 2015 Oliva J. Fox, University of Pennsylvania, Student Research Program  
 2015 Michael Gross, School of Dental Medicine, Summer Research Program  
 2015 Yang Hong, University of Pennsylvania, Student Research Program  
 2015 Ye Huang, University of Pennsylvania, Student Research Program  
 2015 Taehoon Kim, University of Pennsylvania, Student Research Program  
 2015 Sushant Koirala, University of Pennsylvania, Student Research Program  
 2015 Jinxia Jiang, University of Pennsylvania, Student Research Program  
 2015 Hyun Jung Lee, University of Pennsylvania, Student Research Program  
 2015 Michael R. MacGillivray, University of Pennsylvania, Medical Student Research Program  
 2015 Toru Mihama, University of Pennsylvania, Student Research Program  
 2015 Elena M. Schiavone, University of Pennsylvania, Student Research Program  
 2015 Briana J. Williams, University of Pennsylvania, Student Research Program  
 2015 Stephany Kiem, University of Pennsylvania, Student Research Program  
 2015 Nathan Wilson, University of Pennsylvania, Student Research Program  
 2016 Jonathan Chen, University of Pennsylvania, Student Research Program  
 2016 Laura Henry, University of Pennsylvania MD Candidate 2019, Student Research Program  
 2016 Britt Gilbert, University of Pennsylvania, Student Research Program  
 2016 Kim Good, Ph.D., Delhousie University, Visiting Scientist  
 2016 Joon Soo Lee, University of Pennsylvania, Student Research Program  
 2016 Sunny Lu, University of Pennsylvania, Student Research Program  
 2016 Luis Escarzaga Montalvo, University of Pennsylvania, Student Research Program  
 2016 Thuya Naing, University of Pennsylvania, Student Research Program  
 2016 Jane Overend, Academy of Notre Dame, Villanova, PA, Student Research Volunteer  
 2016 Megan Reish, Hope College, Research Internship  
 2016 Harrison Troché, University of Pennsylvania, Student Research Program  
 2016 Lisa He-Wu, University of Pennsylvania, Student Research Program  
 2017 Zach Abraham, University of Pennsylvania, Student Research Program  
 2017 So Hee Moon, B.S., School of Dental Medicine, Summer Research Program  
 2017 Karis Pikaart, Hope College, Research Internship  
 2017 Sofiya Patra, University of Pennsylvania Student Research Program  
 2017 Liuba Soldatova, M.D., University of Pennsylvania, Scholars Program  
 2017 Kaity Jaensch, Croton High School, Croton-on-Hudson, NY, Student Research Project  
 2017 Jing-Jie (Nathan) Wang, M.D., Taichung Veterans General Hospital, Visiting Scholar  
 2017 Vidisha Sharma, B.S., School of Dental Medicine, Summer Research Program  
 2017 Blake Wang, B.S., School of Dental Medicine, Summer Research Program  
 2017 Rachel Wilson, Solon High School, Solon, OH, Student Research Project  
 2017 Lucie Pham, University of Pennsylvania, Student Research Program  
 2017 Faith Mamaradlo, University of Pennsylvania, Student Research Program  
 2017 Flora Ho, University of Pennsylvania, Student Research Program  
 2017 Christina Miranda, University of Pennsylvania, Student Research Program  
 2017 Kelsey Majam, University of Pennsylvania, Student Research Program  
 2017 Brennan Rose, University of Pennsylvania, Student Research Program  
 2017 Tathagat Bhatia, University of Pennsylvania, Student Research Program  
 2017 Helen Li, Central High School, Philadelphia, Pennsylvania, Student Research Volunteer  
 2018 Nina-Simone Lobban, University of Pennsylvania, Student Research Program  
 2018 Julia Shia, Radnor High School, Student Research Volunteer

2018 Brooke Cope, University of Pennsylvania, Student Research Program  
2018 Rachel Beston, University of Pennsylvania, Student Research Program  
2018 Steeve Ndjila Ndohnwou, MPH, Drexel University, Student Research Program  
2019 Dane Kim, School of Dental Medicine, Summer Research Program  
2019 Emma Clarke, Conestoga High School, Student Research Volunteer  
2019 Arshadullah Shaik, Temple University, Student Research Program  
2019 Lealem Aderie, University of Pennsylvania, Student Research Program  
2019 Charisma Hasan, Harriton High School, Student Research Volunteer  
2019 Sharzad Shojaian, University of Pennsylvania, Student Research Program  
2020 Rayan Kubaha, University of Pennsylvania, CURF Research Program  
2021 Israel Ramos, Research Internship, Arcadia University Extension Program  
2022 Ronnell Zephaniah Bryant, Research Internship, Arcadia University Extension Program  
2022 William Patterson, Research Internship, University of Pennsylvania  
2023 Aritha On, Research Internship, University of Pennsylvania

### **Grant History:**

“Brainstem and Olfactory System Biomarkers of Early Parkinson’s Disease.” Michael J. Fox Foundation, ID 11805 Leon-Sarmiento, Doty (PIs) 1/1/16 - 3/31/18 (Direct Costs: \$499,939 – 33% effort)

“Olfactory Evoked Potentials and Developmental Neuropathology in Schizophrenia.” NIMH R01 MH 059852 Turetsky, Hahn (PIs) 4/1/11 - 1/31/16. Role: Investigator, 5% effort

“Trauma-Related Olfactory Cues in Posttraumatic Stress Disorder.” NIMH. 1 K01 MH090548 Cortese (PI) 12/06/10 – 11/30/15. Role: Mentor

“Sensory Dysfunction in Early Parkinson’s Disease.” USAMRAA W81XWH-09-1-0467, 2009-2014, Richard L. Doty, Principal Investigator (Direct Costs: \$2,679,408 – 50% effort)

“Olfactory Function in Schizophrenia: A Lifespan Analysis.” National Institute of Mental Health, 2008-2013, Paul Moberg, Principal Investigator, RO1 MH 63381, 5% effort.

“Longitudinal Assessment of Olfactory Dysfunction in Early Parkinson’s Disease.” Michael J. Fox Foundation, 2005-2008, Richard L. Doty, Co-Principal Investigator (Direct Costs: \$290,000; 5% effort)

“Olfactory ERPs and Frontal Limbic Pathology in Schizophrenia,” National Institute of Mental Health, 1999-2009, Bruce Turetsky, Principal Investigator, RO1 MH 59852, 5% effort.

“Influences of Eszopiclone on Taste Function,” Sepracor, Inc., 2006 – 2008, Richard L. Doty, Principal Investigator (Direct Costs: \$199,440; 10% effort)

“Influences of Nasally Instilled Heavy Metals on Olfactory and Limbic System Pathology,” CEET Pilot Program, 2007 – 2008, Richard L. Doty, Project Principal Investigator, 1 P30 ES013508 (Direct Costs: \$15,000; 5% effort)

"Postmenopausal Estrogen Influences on Olfaction," National Institute on Aging, 2000-2006, Richard L. Doty, Principal Investigator, RO1 AG17496 (Direct Costs: \$1,250,000; 27% effort).

"Olfaction in Epilepsy," National Institute on Deafness and Other Communication Disorders, 2000-2005, Richard L. Doty, Principal Investigator, RO1 DC04278 (Direct Costs: \$1,216,570; 50% effort).

"Olfaction in Multiple Sclerosis", National Institute on Deafness and Other Communication Disorders, 1997-2003, Richard L. Doty, Principal Investigator, RO1 DC 02974 (Direct Costs: \$841,188; 10% effort).

"University of Pennsylvania Clinical Smell and Taste Research Center", National Institute on Deafness and Other Communication Disorders, Richard L. Doty, Principal Investigator, PO 1 DC00161, 1980-1993  
Total direct costs: \$8,889,603 (1980-1983: \$898,660; 1983-1988: \$1,588,078; 1988-1993: \$3,064,213; 1993-2000: \$3,338,652).

"Symposium on Advances in Brain Imaging and Electrophysiological Measurement of Human Olfactory Function in Health and Disease," National Institutes of Health, Chairperson, 263-MD-817182, 1999: \$10,000.

"James A. Shannon's Director's Award," National Institute on Deafness and Other Communication Disorders, 1996-1998, Awardee, R55 DC 02974 (Direct Costs: \$80,000).

"Histopathology of the Olfactory System in Neurodegenerative Disorders" University of Pennsylvania Research Foundation, Principal Investigator (Direct Costs 1993-1994: \$7,000).

"Early Diagnosis of Alzheimer's Disease and Parkinsonism," National Institute on Aging, R.L. Doty, Principal Investigator, RO1 AG O8148, 1989-1992 (Direct Costs: \$599,363).

"Multimodal Sensory Function in Neurodegenerative Disorders", National Institute on Aging, Pilot Study Principal Investigator, Alzheimer's Disease Center, J. Trojanowski, Principal Investigator, 1992 (Direct Costs: \$15,000).

"Functional Studies of Olfaction in Alzheimer's Disease," Pilot Study Funding, National Institutes of Health and the Center for the Study of Aging, R.L. Doty, Principal Investigator, 1988-1989 (Direct Costs: \$4,500).

"The Nasal Cycle and its Relationship to REM/NREM, Body Movement, and Hemispheric Cerebral Activity During Sleep." Eleanor Dana Clinical Research Center for Sleep Disorders, R.L. Doty, Principal Investigator, 1988-1989 (Direct Costs: \$3,800).

"Investigation of Mechanisms Underlying Odor Recognition", U.S. Army Office of Research, R.L. Doty, Principal Investigator, DAAG29-81-K-0128, 1981-1983 (Direct Costs: \$188,320).

"A Psychophysical and Psychophysiological Analysis of Olfactory and Trigeminal Nasal Chemosensitivity in Normal, Chemically-Sensitive, and Anosmic Humans", Hoffman Fund, R.L. Doty, Principal Investigator, 1980-1983 (Direct Costs: \$83,000).

"Examination of animal olfactory discrimination of explosive vapors and vapor taggants using operant conditioning", The Aerospace Corporation, R.L. Doty, Co-Principal Investigator with David A. Marshall, 1979-1980 (Direct Costs: \$78,000).

"Dental and Organoleptic Evaluation of an Oral Rinse Product", School of Dental Medicine, University of Pennsylvania, R.L. Doty, Co-Principal Investigator with Irwin Ship and Samuel Yankell, 1979-1980 (Direct Costs: \$17,000).

"Hormonal Influences upon Human Nasal Chemoreception", NIH, R.L. Doty, Principal Investigator, RO1 NS 12239, 1975-1978 (Direct Costs: \$149,494).

"Odor Preferences in *Peromyscus*," Predoctoral Research Fellowship, NIH, R.L. Doty, Awardee, 1972-1973, 1-FO1-MH-49081

USPHS Traineeship, Department of Zoology, Michigan State University, J.A. King (PI), R.L. Doty, Awardee, NIH, 5-T01-MH-10611, 1971-1972

### **Academic Committees at the University of Pennsylvania:**

Advisory Board, Clinical Research Center, School of Dental Medicine (1981-1987)

Executive Committee, Training Grant, Training in the Neurobiology of Otorhinolaryngology (2005-2008)

Executive Committee, Department of Otorhinolaryngology: Head and Neck Surgery (2003-2019)

Library Committee (1985-1987)

Faculty Advisory Committee, Center for the Study of Aging (1988-1993)

Program Committee, David Mahoney Institute for Neurological Sciences (1987-1989)

International Programs Committee (1989-1990)

Teaching Evaluation Committee, University of Pennsylvania, Philadelphia (1998)

William Osler Patient-Oriented Research Awards Committee (2004-2007)

### **Bibliography:**

#### **Research Publications, Peer Reviewed:**

Doty, R.L.: The effect of duration of stimulus presentation upon the angular acceleration threshold. Journal of Experimental Psychology 80:317-321, 1969.

Doty, R.L.: The effect of visual movement upon the duration of tonic immobility in Bobwhite Quail. Psychonomic Science 16:48-49, 1969.

Donk, L.G., Vingoe, R.J., Hall, R.A., Doty, R.L.: The comparison of three suggestion techniques for increasing reading efficiency utilizing a counterbalanced research paradigm. International Journal of Clinical and Experimental Hypnosis 18:126-133, 1970.

Doty, R.L.: The effects of instructions on the middle category of a method of limits investigation of the "straight-up-and-down" position. Journal of Psychology 76:9-17, 1970.

Doty, R.L., Carter, C.S., Clemens, L.G.: Olfactory control of sexual behavior in male and early-androgenized female hamsters. Hormones and Behavior 2:325-333, 1971.

Doty, R.L.: Odor preferences for female *Peromyscus maniculatus bairdii* for male mouse odors of *P. m. bairdii* and *P. leucopus noveboracensis* as a function of estrous state. Journal of Comparative and Physiological Psychology 81:191-197, 1972.

- Doty, R.L., Kart, R.: A comparative and developmental analysis of the midventral sebaceous glands in 18 taxa of *Peromyscus*, with an examination of gonadal steroid influences in *P. maniculatus bairdii*. Journal of Mammalogy 53:83-99, 1972.
- Doty, R.L.: Reactions of deermice (*Peromyscus maniculatus*) and white-footed mice (*Peromyscus leucopus*) to homospecific and heterospecific urine odors. Journal of Comparative and Physiological Psychology 84: 296-303, 1973.
- Lydell, K., Doty, R.L.: Male rat odor preferences for female urine as a function of sexual experience, urine age, and urine source. Hormones and Behavior 3:202-212, 1973.
- Doty, R.L., Anisko, J.J.: Procaine hydrochloride olfactory block eliminates mating behavior in the male golden hamster. Physiology & Behavior 10:395-397, 1973.
- Doty, R.L., Dunbar, I.A.: Attraction of Beagles to conspecific urine, vaginal, and anal sac secretion odors. Physiology & Behavior 35: 729-731, 1974.
- Doty, R.L., Dunbar, I.A.: Color, odor, consistency and secretory rate of anal sac secretions from male, female and early-androgenized female Beagles. American Journal of Veterinary Research 12:825-833, 1974.
- Doty, R.L.: An examination of relationships between the pleasantness, intensity and concentration of 10 odorous stimuli. Perception & Psychophysics 17:492-496, 1975.
- Doty, R.L.: Intranasal trigeminal detection of chemical vapors by humans. Physiology & Behavior 14:492-496, 1975.
- Doty, R.L., Silverthorne, C.: Menstrual cycle: Influences upon volunteering behavior. Nature 254:139-140, 1975.
- Doty, R.L., Ford, M., Preti, G., Huggins, G.: Human vaginal odors change in pleasantness and intensity during the menstrual cycle. Science 190:1316-1318, 1975.
- Doty, R.L., Jafek, B., Orndorff, M., Lowry, L.D.: Factors influencing intranasal trigeminal detection of chemical vapors by humans. Transactions of the American Academy of Ophthalmology and Otolaryngology 82:261-262, 1976.
- Simenhoff, M.L., Burke, J.F., Saukkonen, J.J., Ordinario, A.T., Doty, R.L.: Biochemical profile of uremic breath. New England Journal of Medicine 297:132-135, 1977.
- Doty, R.L., Brugger, W.E., Jurs, P.C., Orndorff, M.A., Snyder, P.J., Lowry, L.D.: Intranasal trigeminal stimulation from odorous volatiles: Psychometric responses from anosmic and normal humans. Physiology & Behavior 20:175-185, 1978.
- Doty, R.L., Kligman, A., Leyden, J., Orndorff, M.M.: Communication of gender from human axillary odors: Relationship to perceived intensity and hedonicity. Behavioral Biology 23:373-380, 1978.

- Doty, R.L.: A procedure for combining menstrual cycle data. Journal of Clinical Endocrinology and Metabolism 48:912-918, 1979.
- Doty, R.L., Snyder, P., Huggins, G., Lowry, L.D.: Endocrine, cardiovascular, and psychological correlates of olfactory sensitivity changes during the human menstrual cycle. Journal of Comparative and Physiological Psychology 95:45-60, 1981.
- Kunka, M., Doty, R.L., Settle, R.G.: An examination of intertrial interval and gender influences on sucrose detection thresholds established by a modified staircase procedure. Perception 10:35-38, 1981.
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- Mirza, N., Doty, R.L., Kruger, H. Age-related influences on the nasal cycle. Laryngoscope 107: 62-66, 1997.
- Moberg, P.J. & Doty, R.L. Olfactory function in Huntington's disease patients and at-risk offspring. International Journal of Neuroscience 89: 133-139, 1997.
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"Measurement of the Sense of Smell in Health and Disease." Invited Presentation, NIDCD Communication Awareness Day, Capital Hill, Washington, D.C., October 18, 1995.

"Psychophysical Studies of Olfaction." Invited Presentation. Symposium on Olfactory Bio-Responses in Man. Erlangen/Nurnberg, Germany, December 5-10, 1995.

"Olfactory Deficits in Young and Elderly Patients with Schizophrenia." Invited Presentation, 24th Annual Meeting of the International Neuropsychological Society, Chicago, IL, February 15, 1996.

"Olfaction," Invited Presentation, Workshop on Nasal Polyposis: An Inflammatory Disease and its Treatment. Devos, Switzerland, March 1-2, 1996.

"Measurement of the Senses of Smell in Health and Disease, Invited Course Participant, Geriatric Neurology: Effect and Age and Disease, San Francisco, CA, March 24, 1996.

"A Test for Regional Evaluation of Taste Function," Presentation with Hans Kroger, Corinne Alexander, Daniel Deems & R. Gregg Settle. Association for Chemoreception Sciences XVIII, Sarasota, Florida, April 17-20, 1996.

"Influence of Age on Regional Taste Function," Presentation with Hans Kroger & Paul Shaman, Association for Chemoreception Sciences XVIII, Sarasota, Florida, April 17-20, 1996.

"Olfactory Dysfunction in Usher's Syndrome," Presentation, Association for Chemoreception Sciences XVIII, Sarasota, Florida, April 17-20, 1996.

"Relationship between the Human Taste Threshold to NaCl and the Duration of Stimulus Presentation," Presentation with R. Bagla & B. Klasky, Association for Chemoreception Sciences XVIII, Sarasota, Florida, April 17-20, 1996.

"Neuroimaging," Invited Discussant, 1996 Gordon Conference on the Chemical Senses, Salve Regina University, Newport, Rhode Island, August 18-23, 1996.

"Clinical and Health Aspects of Olfaction," Invited Speaker, Chemical Sense Symposium, University of Utrecht, Utrecht, Netherlands, October 22, 1996.

"Olfactory Evoked Regional Cerebral Blood Flow in Healthy Aging and Alzheimer Disease," Invited Presentation with D.A. Kareken, G. Hutchins, K. Caldemeyer & M.R. Farlow, Society for Neuroscience Annual Meeting, Washington, D.C., November 16-21, 1996.

"Olfaction," Invited Keynote Speech, Society of Flavor Chemists, Newark, N.Y., December 5, 1996.

"Psychophysical Methods," Invited Speaker, Chemical Industry Conference on Respiratory Tract Irritation and Olfaction. Chemical Manufacturers Association, Miami, Florida, February 3-7, 1997.

"Olfactory Assessment and Management," Invited Chairman, XVI World Congress of Otorhinolaryngology Head and Neck Surgery, Sidney, Australia, March 2-7, 1997.

"Olfaction," Invited Presentaton, International Symposium on Infection and Allergy of the Nose," Philadelphia, PA, June 5-8, 1997.

"Olfactory Function in Neurodegenerative Disorders," Invited Address, Kagoshim International Symposium, Otolaryngology in Near Future Based on Harmonization of Nature and Human Being, Kagoshima, Japan, March 12-15, 1997.

"Lateralized vs. Bilateral Measurement of Olfactory Thresholds: Comparison of Two Methods," Invited Presentation with A. Soiffer & T. Hummel, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Development of a Regional Taste Test using Isointense and Isoviscid Stimuli. Invited Presentation with H. Kroger & K. Hoffman, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Influence of Scopolamine Hydrobromide on Odor Detection Performance of Rats. Invited Presentation with R. Bagla, R. Misra & E. Mueller, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Longitudinal Change in Olfactory Function and Olfactory Cortex Plaque Numbers in Multiple Sclerosis. Invited Presentation with C. Li & D.M. Yousem, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Multiple Sclerosis: Influence of CNS Lesions on Odor Identification Ability. Invited Presentation with C. Li, L.J. Mannon & D.M. Yousem, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"NaCl Taste Thresholds: Relationship to Tongue Locus and Area of Stimulation. Invited Presentation with R. Bagla & M. Mogensen, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Olfactory Disorders," Invited Workshop with L. Bellussi & D. Leopold, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Olfactory Testing as an Aid in the Diagnosis of Parkinson's Disease: Development of Optimal Discrimination Criteria." Invited Presentation with S.M. Bromley, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"The Dopamine D-1 Agonist SKF 38393 Enhances Odor Detection Performance," Invited Presentation with W. Huang, R. Bagla, C. Li, C. Pfeiffer, G.M. Brosvic & J.M. Risser, Cottle International Rhinology Centennial/XVI ISIAN, Philadelphia, PA, June 5-8, 1997.

"Longitudinal Change in Olfactory Function and Olfactory Cortex Plaque Numbers in Multiple Sclerosis: A Pilot Study," Presentation with C. Li & D.M. Yousem, Association for Chemoreception Sciences/ISOT XII, San Diego, CA, July 7-12, 1997.

"Magnetic Resonance Imaging of Patients with Post-Traumatic Olfactory Deficits," Presentation with D.M. Yousem & R.J. Geckle, Association for Chemoreception Sciences/ISOT XII, San Diego, CA, July 7-12, 1997.

"Multiple Sclerosis: Influence of CNS Lesions on Odor Identification Ability," Presentation with C. Li, L.J. Mannon & D.M. Yousem, Association for Chemoreception Sciences/ISOT XII, San Diego, CA, July 7-12, 1997.

"Normative Data, Verification of Olfactory Bulb and Tract and Temporal Lobe Volumes," Presentation with R.J. Geckle & D.M. Yousem, Association for Chemoreception Sciences/ISOT XII, San Diego, CA, July 7-12, 1997.

"The Culture of Human Odor." Science and Society Seminar. Guest Speaker. New York University, New York City, November 21, 1997.

"The Influential World of Chemical Signals," Companion Animal Behaviour Therapy Study Group, Featured Speaker, The Council House, Victoria Square, Birmingham, Great Britain, April 1, 1998.

"Adverse influence of dexamethasone on anterograde labeling of primary afferents in the olfactory bulb of 3-methylindole-injected rats. Presentation with I.L. Kratskin & Y. Kimura. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 23, 1998.

"Cytoplasmic shrinkage of Purkinje cells in cerebella of patients with schizophrenia." Presentation with G.S. Smutzer & K.D. Tran. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 23, 1998.

"Do men and women respond differently to repeated olfactory or intranasal trigeminal stimuli?" Presentation with T. Hummel, A. Soiffer & O. Opatz. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 24, 1998.

"Trigeminal impact of odorants assessed with lateralized stimulation." Presentation with J. Berg, T. Hummel & G. Huang. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 24, 1998.

"Autobiographical memory in patients with right hemisphere damage: Olfactory and verbal probes." Presentation with P.J. Moberg, R.N. Mahr, S.E. Arnold & H. Riordan. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 25, 1998.

"17 $\beta$ -estradiol Mitigates Olfactory Dysfunction induced by 3-Methylindole. Presentation with H-J. Dhong. 20th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, April 24, 1998.

"The Sense of Smell in Health and Disease." Guest Speaker at Frontiers in Otolaryngology -- Head and Neck Surgery. The Garnett Passe and Rodney Williams Memorial Foundation. Sydney, Australia, July 11-12, 1998.

"Clinical Studies of Olfaction." Invited Speaker, School of Biomolecular and Biomedical Science, Griffith University, Brisbane, Australia, July 13, 1998.

"Studies of Olfaction in Neurodegenerative Diseases." Invited Speaker, Grand Rounds, Department of Neurology, Mt. Sinai Medical Center, New York City, October 12, 1998.

"Olfactory Assessment in Neuropsychology: Review and Methodological Considerations. Invited Presentation, National Academy of Neuropsychology, Washington, DC, November 6, 1998.

"Human Olfaction." Invited Presentation, Symposium on Contemporary Issues in Olfaction, Indian Academy of Sciences & National Centre for Biological Sciences, Tata Institute of Fundamental Research, Bangalore, India, November 29 - December 2, 1998.

"Olfaction." Invited Presentation, The Health Impact of Chemical Exposures during the Gulf War: A Research Planning Conference. Centers for Disease Control and Prevention. Atlanta, GA: February 28-March 2, 1999.

"Monorhinal Odor Identification and Detection Thresholds in Patients with Seasonal Affective Disorder." Presentation with T.T. Postolache et al. Association for Chemoreception Sciences, Sarasota, FL: April 17, 1999.

"Effects of Methimazole on a Complex Odor Discrimination Task." Presentation with L. Hastings. Association for Chemoreception Sciences, Sarasota, FL: April 18, 1999.

"Theoretical and Methodological Advances in Olfactory Research in the 80's and 90's. Challenges of the New Millennium. Keynote Speaker. Nordic Conference on Olfaction and Gustation. Gothenburg, Sweden, March 6-7, 2000.

"Sense of Smell". Invited Presentation at "The Evaluation of Drug Interventions in Rhinitis Symposium," Elbow Beach Hotel, Bermuda: March 23-26, 2000.

"Olfactory Psychophysics." Invited Speaker, "Chemistry of Taste Symposium," American Chemical Society, San Francisco, CA: March 26-31, 2000.

"Development of the Smell Threshold Test™ (STT): A Commercially-available Test of Odor Detection Threshold Sensitivity." Presentation. Association for Chemoreception Sciences, Sarasota, FL: April 29, 2000.

"Electrical Responses to Vanillin and Carbon Dioxide in Nasal Mucosa of Rats Injected with 3-methylindole." Presentation with Igor Kratskin. Association for Chemoreception Sciences, Sarasota, FL: April 29, 2000.

"Influences of Sex, Age, Smoking History, and Selected Diseases on a Standardized Test of Regional Taste Function. Presentation with T. Connelly. Association for Chemoreception Sciences, Sarasota, FL: April 28, 2000.

"Clinical Aspects of Olfaction and Gustation." Grand Rounds. Bergen County Medical Center. Paramus, NJ: May 23, 2000.

"Olfaction and its Dysfunction," Grand Rounds. Department of Otolaryngology. Mt.Sinai Medical Center, New York, NY: August 9, 2000.

"Quantitative Measurement of Olfaction," Invited presentation, The Nose 2000 ... and beyond. 9th Congress, American Rhinologic Society, Mayo Clinic, Washington, D.C. September 22, 2000.

"Olfactory Testing," Invited presentation, American Academy of Neuropsychology Annual Meeting, Orlando, FL: November 15-18, 2000.

"Practical Methods to Assess Sensory Irritation, Invited Speaker in workshop entitled "Evaluating Odorants and Sensory Irritants in the Workplace: Tools, Techniques and Standards", Society of Toxicology Annual Meeting, San Francisco, CA, March 27, 2001.

"Impairment of Odor Hedonics in Male Patients with Schizophrenia," Presentation with P. Moberg, B.I. Turetsky, et al. Association for Chemoreception Sciences, Sarasota, FL: April 26, 2001.

"Evidence for Left-Right Differences in Odor Discrimination, but not in Short-Term Odor Memory," Presentation with A.K. Haum, S. Mehra et al. Association for Chemoreception Sciences, Sarasota, FL: April 26, 2001.

"Smell of Marijuana as Probable Cause," Presentation with D. Marshall and L. Hastings. Association for Chemoreception Sciences, Sarasota, FL: April 26, 2001.

"NaCl Thresholds: Relationship to Anterior Tongue Locus, Area of Stimulation, and Number of Fungiform Papillae," Presentation with R. Bagla, M. Morgenson, et al. Association for Chemoreception Sciences, Sarasota, FL: April 27, 2001.

“PTC Tasters Outperform PTC Non-Tasters on a Test of Regional (CN VII and CN X) Taste Identification,” Presentation with T. Connelly, L. Hastings, et al, Association for Chemoreception Sciences, Sarasota, FL: April 27, 2001.

“Olfactory Function Correlates with Dopamine Transporter Uptake within the Basal Ganglia in Parkinson’s Disease and Multiple System Atrophy,” Presentation with C. Li, D.P. Mozley et al., Association for Chemoreception Sciences, Sarasota, FL: April 29, 2001.

“Studies of Olfactory Function in Parkinson’s Patients Receiving Electrotherapy for Control of Extraparamidal Symptoms,” Presentation with D. Deems, P. Kaplan et al., Association for Chemoreception Sciences, Sarasota, FL: April 29, 2001.

“Clinical Studies of Olfactory Dysfunction,” Invited presentation, Geriatric Psychiatry Lecture Series, Columbia University, New York State Psychiatric Institute, New York City, January 8, 2002.

“Olfaction and Taste,” Presentation with T. Connelly, D.R. Lynch, et al, Center for Smell and Taste, University of Florida, Gainesville, FL, January 24, 2002.

“Olfactory Dysfunction in Degenerative Ataxias,” Presentation with T. Connelly, D.R. Lynch, et al, Association for Chemoreception Sciences, Sarasota, FL, April 24, 2002.

“Evidence for Left:right Differences in Odor Discrimination, but not in Short-term Odor Memory,” Presentation with A.K. Halm, Association for Chemoreception Sciences, Sarasota, FL, April 24, 2002.

“Electrogustometric Thresholds: Relationship to Anterior Tongue Locus, Area of Stimulation, and Number of Fungiform Papillae,” Presentation with S.L. Miller and N. Mirza, Association for Chemoreception Sciences, Sarasota, FL, April 25, 2002.

“Understanding Olfaction from a Basic and Clinical Perspective,” Invited presentation, Olfaction Conference -- Aromachology: The Scientific Study of the Sense of Smell. Nassau Community College, Garden City, NY, May 9, 2002.

“Olfactory Dysfunction in Psychiatry and Neurology,” Invited presentation, American Psychiatric Association, Philadelphia, PA, May 21, 2002.

“Methods for Rapid and Accurate Quantitative Assessment of Olfactory Function,” Invited presentation, International Symposium and Exhibition on Natural Gas Technologies Conference. Orlando, FL: September 30, 2002.

“Olfaction in Neurodegenerative Diseases,” Invited presentation, The Australasian Association for ChemoSensory Science (AACSS), Heron Island, Queensland, Australia, December 11, 2002.

“Olfactory Dysfunction in Neurodegenerative Disorders,” Invited presentation, Neuroscience Seminar Series, Milton S. Hershey Medical Center, Hershey, PA, January 16, 2003

“Meta-Analysis of Olfactory Dysfunction in Alzheimer’s, Parkinson’s and Huntington’s Diseases. Invited presentation with P.J. Moberg, K. Balderston, D.R. Roalf, B. I. Turetsky, J.E. Duda & M. B. Stern. 31st Annual International Neuropsychological Society Conference, Honolulu, Hawaii, February 5-8, 2003.

“The Forgotten Cranial Nerve: Studies of Olfactory Function in Neuropsychology.” Invited presentation with P.J. Moberg, D. Karen, L. Harper Mozley & S.J. Kaness. 31st Annual International Neuropsychological Society Conference, Honolulu, Hawaii, February 5-8, 2003.

“Olfactory Anatomy and Psychophysical Techniques.” Invited presentation. 31st Annual International Neuropsychological Society Conference, Honolulu, Hawaii, February 5-8, 2003.

“Aging and Changes in Cortical Processing of Olfactory Perception.” Invited presentation with D. Kareken, D. Mosnik and G. Hutchins, 31st Annual International Neuropsychological Society Conference, Honolulu, Hawaii, February 5-8, 2003.

“Scent of a Disorder: Olfactory Function in Schizophrenia.” Invited presentation with P. J. Moberg, B. I. Turetsky, S. E. Arnold, and R. E. Gur, 31st Annual International Neuropsychological Society Conference, Honolulu, Hawaii, February 5-8, 2003.

“Disorders of Smell and Taste: Evaluation and Treatment Strategies.” Invited lecture, The Penn International Rhinology Course, Advances in Management of Sino-nasal Disease, Ritz Carlton Hotel, Philadelphia, Pennsylvania, March 14, 2003.

“Smell and Taste,” Invited lecture, Section on Biological Rhythms, National Institute of Mental Health, Bethesda, MD, March 19, 2003.

“The Sense of Smell,” Invited Keynote Speaker, National Museum of Health and Medicine, Sense of Smell Day, Washington, DC, March 29, 2003.

“Olfactory Assessment of Cuban American Adults using the University of Pennsylvania Smell Identification Test,” Presentation with D.J. Lee, B.L. Lam, O. Gomez-Marin and D. Jane. Association for Chemoreception Sciences, Sarasota, FL, April 11, 2003.

“Odor-induced fMRI Brain Activation in the Healthy Elderly and AD Patients,” Presentation with M. Tabert, M. Albers, E. Zarahn, D. Zimora, T. Lorig, D. Small, and D. Devanand. Association for Chemoreception Sciences, Sarasota, FL, April 11, 2003.

“Development of a Precision Olfactometer,” Presentation with L. Hastings. Association for Chemoreception Sciences, Sarasota, FL, April 12, 2003.

“Influences of Ethanol Ingestion on Olfactory Function: Specific to Ethanol Odor,” Poster presentation with S.J. Patel and A. Bollhoefer, Association for Chemoreception Sciences, Sarasota, FL, April 12, 2003.

“Taste and Smell Disorders,” Invited presentation, Big Sky Medical Conference, Interhospital CME Program, Billings, Montana, March 13, 2004.

“Taste and Smell in Alzheimer’s Disease,” Invited presentation, Creighton University School of Medicine, Omaha, Nebraska, April 2, 2004.

“Influences of age and sex on a microencapsulated odor memory test.” Presentation with E. Choudhury and P. Moberg. Association for Chemoreception Sciences, Sarasota, FL, April 22, 2004.

“Olfaction and neurodegenerative disorders.” Invited symposium, Association for Chemoreception Sciences, Sarasota, FL, April 23, 2004.

“Olfactory dysfunction in multiple sclerosis. Invited presentation. Association for Chemoreception Sciences, Sarasota, FL, April 23, 2004.

“Olfactory dysfunction in degenerative ataxias.” Presentation with T. Connelly, J.M. Farmer, D.R. Lynch, and I.A. Tourbier. Association for Chemoreception Sciences, Sarasota, FL, April 24, 2004.

“Estrogen replacement therapy: Does it affect smell function in post-menopausal women. Presentation with J.K. Neff and C. Knipe. Association for Chemoreception Sciences, Sarasota, FL, April 24, 2004.

“Olfactory dysfunction occurs in transgenic mice overexpressing human tau protein. Presentation with J. Macknin, K. Kerr, M. Higuchi, V. Lee and J. Trojanowski. Association for Chemoreception Sciences, Sarasota, FL, April 25, 2004.

“Influences of antihypertensive and antihyperlipidemic drugs on the senses of taste and smell: An overview. Presentation with K.L. Kerr, S. Philip and K. Reddy. Association for Chemoreception Sciences, Sarasota, FL, April 25, 2004.

“Measurement of olfaction,” Invited presentation, American Academy of Neurology, San Francisco, CA, April 29, 2004.

“Quantitative clinical olfactory testing,” Invited lecture, 14th International Symposium on Olfaction and Taste (ISOT 2004), Kyoto, Japan, July 9, 2004.

“Clinical studies of olfaction and taste,” Invited lecture, Kanazawa University, Kanazawa, Japan, July 12, 2004.

“Smell and taste disorders,” Invited lecture, Kobe ENT Association, Kobe, Japan, July 13, 2004.

“Clinical studies of olfaction and taste,” ECRO Special Guest Speaker, 12th Annual Workshop on Chemical Signals in Vertebrates, Wittersdane Hall, Imperial College at Wye, Ashford, Kent, England, July 21, 2004.

“Sense of smell,” Keynote speaker, Society of Cosmetic Chemists, West Orange, NJ, October 6, 2004.

“Olfaction and beyond,” Biology Department Seminar Series, Temple University, Philadelphia, PA, October 11, 2004.

“Psychological and medical measures of chemical irritation and annoyance in working and living environments,” Invited presentation, DFG Workshop on Evaluation of Chemosensory Effects due to Occupational Exposures,” Cologne, Germany, November 15, 2004.

“Olfaction,” Invited workshop participant, “Sensory Change Due to Ageing and Its Consequences for Cognitive Function and Behaviour. Unilever Corporate Research, Amsterdam, The Netherlands, December 20, 2004.

“Episodic odor memory: influences of sex, handedness, and side of nose. Presentation with K-L. Kerr. Association for Chemoreception Sciences, Sarasota, FL, April 14, 2005.

“Postmenopausal hormone replacement: Do estrogen and progesterone differentially affect smell function?” Presentation with D.J. Armstrong, J. Neff, M.D. Sammel, I.A. Tourbier, D. Evans, P.J. Moberg, and S. Sondheimer. Association for Chemoreception Sciences, Sarasota, FL, April 14, 2005.

“Objective assessment of terbinafine-induced taste loss. Presentation with B.R. Haxel and S.E. Barbash. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“A 10-item identification scale for the detection of early Alzheimer’s disease. Presentation with M.H. Tabert, X. Liu, M. Serby, M.W. Albers and D.P. Devanand. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“Assessment of strategies for optimizing Parkinson’s disease detection using UPSIT item analysis.” Presentation with S.E. Barbash and P.J. Moberg. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“Long-term changes in olfactory function in patients with chemosensory disturbances evaluated at the University of Pennsylvania Smell and Taste Center from 1980 to 2004.” Presentation with B.T. London, B. White, A. Fisher, B. Nabet, D. Klaitz, K-L. Kerr, Z. Iqbal, I.A. Tourbier, and J.K. Neff. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“The influence of pharmaco-resistant temporal lobe epilepsy and temporal lobe resection on olfaction.” Presentation with J.K. Neff, K. Owzar, D.R. Roalf, A. Sharan, S. Michael, M.S. Korczykowski, G. Baltuch, J.A. French, N. Mirza, P.J. Moberg, and B. Turetsky. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“Relationships among three tests of human olfactory function in a clinical setting.” Presentation with I.A. Tourbier and P.J. Moberg. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“Sensitivity and specificity of the 3-item Quick Smell Identification Test (Q-SIT). Presentation with A.H. Jackman, J.K. Neff, I.A. Tourbier, S. Barbash and D. Armstrong. Association for Chemoreception Sciences, Sarasota, FL, April 15, 2005.

“Mammalian Pheromones, Audiomones, Visuomones and Snarks,” Invited lecture, Chemical Signals in Vertebrates, British Workshop XIII, Withersdane Hall, Imperial College at Wye, Kent, England, July 19-20, 2005.

“An In-Depth Examination of Olfactory and Taste Responses to Odorants,” Invited lecture, Natural Gas and LP Odorization Conference and Exhibition, Chicago, IL, July 25-27, 2005.

“Olfactory dysfunction as an early index of ‘pre-motor’ Parkinson’s disease. Symposium participant. Association for Chemoreception Sciences, Sarasota, FL, April 28, 2006.

“San Francisco/Bay Bridge Welders Study: Olfactory Function,” Presentation with M.B. Antunes & R. Bowler. Association for Chemoreception Sciences, Sarasota, FL, April 29, 2006.

“Odors and Social Perception,” Invited lecture, the Boston Club, Nancy Lurie Marks Family Foundation, Boston, MA, June 15, 2006.

“Smell, Life Cycle, and Diseases,” Chair, 17<sup>th</sup> Congress of the European Chemoreception Research Organization (ECRO 2006), Granada, Spain, September 6, 2006.

“Olfaction in Welders,” Invited lecture with M.B. Anunes, K. Saito, D. Smith, R. Gwiazda, H.A. Roels, S. Nakagawa, M. Drezig, E. Diamond, R. Park & R. Bowler, 17<sup>th</sup> Congress of the European Chemoreception Research Organization (ECRO 2006), Granada, Spain, September 6, 2006.

“Clinical Aspects of Smell,” Guest lecture, Chemical Signals in Vertebrates, British Workshop, Withersdane Hall, Imperial College at Wye, Kent, England, September 14, 2006.

“San Francisco/Oakland Bay Bridge Welder Study: Olfactory Function,” Invited lecture, International Neuropsychological Society, Portland, Oregon, February 7-10, 2007.

“Tools to Evaluate Smell,” Guest lecturer, American Academy of Allergy, Asthma and Immunology, Workshop on Olfactory Abnormalities and How They Relate to Respiratory Disease, American Academy of Allergy & Immunology Annual Meeting, San Diego, CA, Feb 23-27, 2007.

“Drug Influences on Chemosensory Function,” Guest lecturer, Sepracor, Inc., Marlborough, MA, May 3, 2007.

“The Human Sense of Smell,” Guest lecturer, Safety and Health Round Table, Southern Gas Association, Colorado Springs, Colorado, June 27, 2007.

“Physiology of Smell and Aging,” Guest lecturer, Chemical Signals in Vertebrates, British Workshop, Withersdane Hall, Imperial College at Wye, Kent, England, July 24, 2007.

“Tests of Olfaction: What’s Most Useful?” Guest Round Table Moderator, XII International Society of Rhinology World Congress, Venice, Italy, December 8, 2007.

“Olfaction in Parkinson’s Disease,” Invited lecture, Plenary Session, XVIIth WFN World Congress on Parkinson’s Disease and Related Disorders. Amsterdam, Netherlands, December 10, 2007.

“Non-motor Symptoms of Parkinson’s Disease,” Invited lecture and workshop participant, XVIIth WFN World Congress on Parkinson’s Disease and Related Disorders. Amsterdam, Netherlands, December 12, 2007.

“Smell and Taste Disorders,” Invited lecture and commissioned training program, Chinese University of Hong Kong, February 18-20, 2008.

“Olfaction in Parkinson’s Disease,” Invited lecture, Tianjin Neurological Institute, Tianjin, China, February 25, 2008.

“Irritants & Odorants: Health effects in allergic and non-allergic patients,” Invited workshop, American Academy of Allergy, Asthma and Immunology Annual Meeting, Philadelphia, PA, March 16, 2008.

“Olfaction,” Invited Lecture, School of Public Health, Harvard University, March 21, 2008.

“The Olfactory Loss of Parkinson’s Disease,” Invited presentation, Movement Disorders Society International Congress, Chicago, IL, June 26, 2008.

“Genetic and Environmental Contributions to Cognitive and Olfactory Function in the Oldest of the Elderly,” Presentation with I. Peterson, I.A. Toubier & K. Christensen. International Symposium on Olfaction and Taste, San Francisco, CA, July 22, 2008.

“Do Environmental Agents Enter the Brain via the Olfactory Mucosa to Induce Neurodegenerative Diseases?”, Symposium Organizer. International Symposium on Olfaction and Taste, San Francisco, CA, July 23, 2008.

Do Mammalian Pheromones Really Exist?”, Guest lecturer, Chemical Signals in Vertebrates, British Workshop, Withersdane Hall, Imperial College at Wye, Kent, England, September 16, 2008.

“Olfaction and Neurodegenerative Diseases,” Invited lecture, Department of Psychology, Umeå University, Umeå, Sweden, October 9, 2008.

Thesis Opponent, Ph.D. Dissertation of Jonas K. Olofsson, Umeå University, Umeå, Sweden, October 10, 2008.

“Olfaction and Neurodegenerative Diseases,” Invited lecture, Department of Psychology, University of Stockholm, Stockholm, Sweden, October 13, 2008.

“San Francisco/Oakland Bay Bridge Welder’s Study: Olfactory Function,” Invited lecture, 6<sup>th</sup> International Congress on Mental Dysfunctions & Other Non-Motor Features in Parkinson’s disease and Related Disorders. Dresden, Germany, October 17, 2008.

“Olfactory Dysfunction in Parkinson’s Disease: A Review.” Invited Lecture, 6<sup>th</sup> International Congress on Mental Dysfunctions & Other Non-Motor Features in Parkinson’s disease and Related Disorders. Dresden, Germany, October 19, 2008.

“Olfactory Dysfunction.” Invited Lecture, Department of Neurology Grand Rounds, State University of New York, Downstate Medical Center, Brooklyn, NY, December 12, 2008.

“Clinical Aspects of Smell and Taste.” Invited Lecture, Department of Otorhinolaryngology. Montefiore Medical Center, Bronx, NY, December 22, 2008.

“Objective Evaluation of Nasal Function.” Invited Chair, Mini-Seminar, Rhinology World Congress, Philadelphia, PA, April 16, 2009

“Common Methods of Measuring Olfactory Function.” Invited Lecture, Mini-Seminar, Rhinology World Congress, Philadelphia, PA, April 18, 2009.

“Olfaction and Psychiatry,” Invited Lecturer, Department of Psychiatry, Mt. Sinai Medical Center, New York, NY, March 27, 2010.

“Olfaction and Cognition in Parkinson’s Disease: Cholinergic Involvement,” Invited Lecture, Parkinson Study Group, Irving, Texas, May 13, 2010.

“A Critical Early Warning System: The Sense of Smell,” Invited Lecture, Natural Gas Odorization Conference and Exhibition, Houston, Texas, May 25, 2010.

Invited Faculty Member, Symposium on “Men, Women and Stress.” Columbia University, New York, NY, September 25, 2010.

“Neurology of Olfaction,” Invited Lecture, Department of Neuroscience, Hospital ABC, Campus Santa Fe, Mexico City, Mexico, October 21, 2010.

“Olfaction,” Invited Lecture, School of Psychology and Psychiatry, Monash University, Melbourne, Australia, December 1, 2010.

“Olfaction in Neurological Diseases,” Plenary Presentation, Australasian Association for Chemosensory Science, Brisbane, Australia, December 3, 2010.

“Chemosensory Disorders,” Invited Lecture, American Academy of Oral Medicine, San Juan, Puerto Rico, April 9, 2011.

“Clinical Studies of Olfaction,” Invited Lecture, Merck Research Labs, West Point, PA, August 12, 2011.

“Smell Dysfunction in Neurodegenerative Diseases,” Invited Lecture, Lundbeck Symposium: Parkinson’s Disease and Early Diagnostic Issues – How and Why? Copenhagen, Denmark, October 7, 2011.

“Clinical Studies of Olfaction and Taste,” Invited Lecture, Hershey Medical Center, Hershey, PA, February 1, 2012.

“A Chemosensory Component of the 2012 National Health and Nutrition Examination Survey (NHANES): Adults Ages 40+ Years.” With VB Duffy et al. Association for Chemoreception Sciences, Huntington Beach, CA, April 26, 2012.

“Sensory Changes in Parkinson’s Disease,” Invited Platform Lecture, Association for Chemoreception Sciences, Huntington Beach, CA, April 27, 2012.

“Olfactory Dysfunction in Parkinson’s Disease: Dopamine is not the Whole Story,” Featured Symposium Speaker, 26<sup>th</sup> Annual Parkinson Study Group Symposium, Irving, TX, May 11, 2012.

“Pre-Motor Sensory Dysfunction in Parkinson’s Disease.” Invited Lecture, Symposium on Parkinson's Disease Models, Biomarkers and Biochemical Pathways. Rockville, MD, June 29, 2012.

“Olfaction in Neurology,” Invited Lecture, South Carolina Neurological Association Annual Meeting, Asheville, NC, October 12-13, 2012.

“Parkinson’s Disease Update,” Parkinson Study Group, World Parkinson’s Disease Congress, Montreal, Quebec, September 30, 2013.

“Clinical Studies of Olfaction,” Invited Lecture, Center for the Study of Smell and Taste, University of Florida, Gainesville, FL, October 16, 2013

“Olfactory Dysfunction in Chagas’ Disease,” with Fidias Leon-Sarmiento, American Academy of Neurology Annual Meeting, Philadelphia, PA, April 29, 2014

“Influences of Temporal Lobe Epilepsy and Temporal Lobe Resection on Olfactory Function,” American Academy of Neurology Annual Meeting, Philadelphia, PA, May 1, 2014

“Gustatory Dysfunction in Multiple Sclerosis”, American Academy of Neurology Annual Meeting, Philadelphia, PA American Academy of Neurology Annual Meeting, Philadelphia, PA, May 1, 2014

“Abnormal Near Field Potentials of Brainstem Origin in Parkinson’s Disease,” with Fidias Leon-Sarmiento, American Academy of Neurology Annual Meeting, Philadelphia, PA, May 1, 2014

“Olfaction and Neurodegeneration,” Invited Lecture, University College of London Institute of Neurology, Queen Square, London, United Kingdom, July 16, 2014

“Multimodal Study of Parkinson’s Disease,” Invited Lecture, Royal London Hospital, London, United Kingdom, July 17, 2014

“Olfactory Dysfunction in Neurodegenerative Diseases,” Invited Lecture, Grand Rounds, Department of Neurology, University of Maryland, Baltimore, MD, October 22, 2014.

“Clinical Studies of Olfactory Function,” Invited Lecture, University of Roehampton, London, United Kingdom, October 27, 2014.

“Olfactory Function in Neurological Diseases,” Keynote Speaker, Clinical Chemosensation 2014, International Meeting of the Committee on Olfaction and Gustation of the German Society of Otorhinolaryngology, Head and Neck Surgery, Dresden, Germany, November 21, 2014.

“Olfaction – Predictor of Age-related Alterations in Cognitive Function,” Invited Speaker, Mind, Brain and Behavior Workshop, Harvard University, Cambridge, Massachusetts, May 15, 2015.

“Olfaction and Neurodegenerative Disease,” Invited Presentation, University of Stockholm, Stockholm, Sweden, August 27, 2015.

“A New Brainstem Biomarker of Early Parkinson’s Disease.” Invited Speaker, Parkinson Study Group, Ft. Myers, FL, September 11, 2015.

“Quantitative Assessment of Drug-Induced Smell and Taste Dysfunction,” Invited Speaker, Safety Pharmacology Society Meeting, Prague, Czech Republic, September 30, 2015.

“Neurological Diseases and Olfactory Function,” Invited Inaugural Speaker, Hoffman Lecture Series, Harvard University, Cambridge, Massachusetts, October 9, 2015.

“Taste Function in Early Stage Treated and Untreated Parkinson’s Disease,” Association for Chemoreception Sciences, Bonita, Springs, FL, April 23, 2016.

“Introduction to Cyrano”, Invited Discussant, Rubin Theater, New York, N.Y., April 27, 2016.

“The Sense of Smell in Health and Disease,” Keynote Speaker, 2<sup>nd</sup> World Congress on Olfaction and Issues, Digital Olfaction Society, Politecnico di Milano, Milan, Italy, May 23, 2016.

“Olfactory Dysfunction in PD and other Neurological Diseases: The Search for a Common Pathological Substrate” Neurological Disorders Summit, Baltimore, MD, September 8, 2016.

“Olfactory Dysfunction in Parkinson’s and Other Neurological Diseases. Identification of a Common Pathological Substrate? 4<sup>th</sup> World Parkinson Congress, Portland, Oregon, September 22, 2016.

“Olfactory Dysfunction in Neurological Diseases: Identification of a Common Pathological Substrate?”, Invited keynote lecturer, 11<sup>th</sup> International Congress on Non-Motor Dysfunctions in Parkinson’s Disease and Related Disorders, Ljubljana, Slovenia, October 7, 2016.

“Smell & Taste Dysfunction: Prognosis and Management,” Grand Rounds, Mercy Fitzgerald Hospital, Darby, PA, November 30, 2016.

“Olfactory Dysfunction: Prognosis and Management.” Grand Rounds, Department of Otolaryngology, Vanderbilt University Medical Center, Nashville, Tennessee, December 16, 2016.

“Assessment of Smell and Taste Function,” Invited Lecture, Department of Nutrition, Harvard University, Cambridge, Massachusetts, January 23, 2017.

“Olfactory dysfunction in neurological diseases: Is there a common pathological substrate?” Association for Chemoreception Sciences, Bonita Springs, FL, April 27, 2017.

“The Pediatric Smell Wheel: An odor identification test for children.” 12<sup>th</sup> Pangborn Sensory Science Symposium, Providence, RI, August 23, 2017

“Human Olfaction in Health and Disease,” Invited Lecturer, 4<sup>th</sup> Congress of the Romanian Rhinologic Society, Sinaia, Romania, September 7, 2017.

“Smell and Taste Dysfunction: Measurement and Management,” Invited Lecture, Center for Smell and Taste, University of Florida, Gainesville, Florida, October 19, 2017.

“Clinical Studies of Olfactory Function,” Invited Lecture. Sensory Science and Metabolism Unit, National Institutes of Health, Bethesda, MD, March 9, 2018.

“Cholinergic Modulation of Olfactory Function in Health and Disease”, Symposium Chair and Organizer, Association for Chemoreception Sciences, Bonita Springs, Florida, April 20, 2018

“Putative Involvement of Acetylcholine in Modulation of Olfactory Function among a Wide range of Neurological Disorders,” Association for Chemoreception Sciences, Bonita Springs, Florida, April 20, 2018

“Psychometric Functions in Children”, Presentation with Leslie Cameron, Association for Chemoreception Sciences, Bonita Springs, Florida, April 20, 2018

“Measuring Olfactory Thresholds”, Invited Presentation, Brain, Nerve & Spine LLC, New York, New York, May 21, 2018

“Chemical Hypersensitivity”, Invited Presentation, Department of Environmental Health, Harvard T.H. Chan School of Public Health, Boston, MA, June 18, 2018

“Measurement of Olfaction and Taste in the Clinic”, Invited Presentation, Department of Otorhinolaryngology, Beijing Anzhen Hospital, Beijing, China, August 18, 2018

“Clinical Studies of Olfaction and Gustation at the University of Pennsylvania Smell and Taste Center”, Invited Presentation, Department of Otorhinolaryngology, Beijing Anzhen Hospital, Beijing, China, August 18, 2018

“Treatments for Olfaction and Gustation”, Invited Presentation, Department of Otorhinolaryngology, Beijing Anzhen Hospital, Beijing, China, August 19, 2018

“Clinical Aspects of Taste and Smell Function”, Invited Presentation, Department of Neurology, Tianjin Union Medical Center, Tianjin, China, August 22, 2018

“Chemical Intolerance: Olfactory Correlates”, Invited Presentation, Hoffman Foundation, Harvard T.H. Chan School of Public Health, Dallas, Texas, March 27, 2019.

“Psychometric Functions in Odor Detection”, Association for Chemoreception Sciences, Bonita Springs, Florida, April 15, 2019

“Olfaction and Parkinson’s Disease,” Invited Presentation, American Academy of Neurology, Philadelphia, Pennsylvania, May 8, 2019.

“University of Pennsylvania Smell and Taste Center: Recent Research and Future Directions,” Invited Presentation, Department of Otorhinolaryngology, Beijing Anzhen Hospital, Beijing, China, August 27, 2019.

“The Human Olfactory System and its Functional Measurement,” Invited Presentation, Seventh National Congress of Chinese ENT Doctor’s Association. Guangzhou, China, August 30, 2019.

“Neurotransmitter and Neuromodulator Influences on Odor Discriminability and Memory,” Invited Presentation, XXIXth Annual Meeting of the European Chemoreception Research Organization, Trieste, Italy, September 13, 2019.

“Clinical Validation of the Olfactory Detection Threshold Module of the Snap & Sniff® Olfactory Test System.” Invited Poster Presentation, XXIXth Annual Meeting of the European Chemoreception Research Organization, Trieste, Italy, September 11-14, 2019.

“Olfactory Dysfunction from Acute Upper Respiratory Infections: Relationship to Season of Onset”, Invited Poster Presentation, XXIXth Annual Meeting of the European Chemoreception Research Organization, Trieste, Italy, September 11-14, 2019.

“Waterless Empirical Taste Test (WETT®); Clinical Validation.” 18<sup>th</sup> International Symposium on Olfaction and Taste (ISOT XVIII) and the 51<sup>st</sup> Association for Chemoreception Sciences Annual Meeting, August 5, 2020 (virtual meeting).

“A Culture-Specific Revision of the University of Pennsylvania Smell Identification Test for the Persian Speaking Population. Invited presentation with Shima Moein & A.H. Dehghand, 18<sup>th</sup> International Symposium on Olfaction and Taste (ISOT XVIII) and the 51<sup>st</sup> Association for Chemoreception Sciences Annual Meeting, August 5, 2020 (virtual meeting).

“Chemosensory Dysfunction in COVID-19: Behavioral and Neurobiological Factors. Symposium Organizer with Shima Moein. Association for Chemoreception Sciences, April 20, 2021 (virtual meeting).

“Machine Learning: A Path Toward Optimized Smell Tests for Screening COVID-19. Invited Presentation. Association for Chemoreception Sciences, April 20, 2021 (virtual meeting).

“Smell Test for Screening COVID-19”. Invited Presentation with Shima Moein. Association for Chemoreception Sciences, April 21, 2021 (virtual meeting).

“Positive Long-Term Effects of Third Molar Extraction on Taste Function.” Poster session with Dane Kim, ECRO XXXI – 2021, Cascais, Portugal, September 13-16, 2021.

“Optimizing COVID-19 Smell Tests by Machine Learning.” Poster session with Shima Moein and colleagues. ECRO XXXI – 2021, Cascais, Portugal, September 13-16, 2021.

“Towards Universal Smell-Testing in Health Care,” Invited Panel Member, Virtual Round Table Discussion, Global Consortium for Chemosensory Research, September 30, 2021.

“Can People Discriminate Between Everyday Odors in the Absence of Contextual Cues? Poster Session with Cameron, E.L., Association for Chemoreception Sciences, April 22, 2022.

“Cross-Cultural Comparison of Waterless Empirical Taste Test (WETT<sup>®</sup>) Scores: Chinese vs. American Subjects.” Poster Session with Chen, J. Xiaoyong, R., Yan, H., Zhao, B., Chen, J., Zhu, K., Lyu, H., Li, Z. Association for Chemoreception Sciences, April 22, 2022.

“Comparison of Unipolar and Bipolar Electrogustometric Threshold Measures for Clinical Applications.” Poster Session with Matsuda, T. Association for Chemoreception Sciences, April 22, 2022.

“Taste Dysfunction in COVID-19: Specificity for Umami?” Invited Presentation with S. Moein. Association for Chemoreception Sciences, April 21, 2022.

“The Science of Taste and Smell.” Invited Address. Doty, R.L. Professional Organization of Iranian Americans (POOIA). Atlanta, GA., May 7, 2022.

“The Olfactory System: More than a Warning System for Leaking Nature Gas. Keynote speaker. Natural Gas Odorization Conference, Houston, TX, August 30, 2022.

“The Science of Taste and Smell: Parkinson’s Disease and other Clinical Conditions.” Invited Presentation, Doty, R.L. Wayne State University, Detroit, Michigan, March 22, 2023

“The Science of Taste and Smell: Clinical Implications.” Invited Presentation, Department of Epidemiology & Biostatistics, Michigan State University, East Lansing, Michigan, March 23, 2023.

“The Eight-Item NHANES Pocket Smell Test: Normative Data.” Poster session with Moein, S., On, A. Association for Chemoreception Sciences, Bonita Springs, Florida, April 20, 2023.

“Long-term Effects of COVID-19 on Quantitative Measures of Taste and Smell. Poster session with R. Sharetts, A. On, R. Khan, S. Moein. Association for Chemoreception Sciences, Bonita Springs, Florida, April 20, 2023.

Doty, R.L. Nature and Health: The Olfactory Pathway. Invited participant. Exploratory Working Group. June 11-14, 2023, Asilomar, CA. Organized by Harvard University and the University of Washington.

Doty, R.L. Lecture. Academic Seminar Series. Second Affiliated Hospital of Ix’an Jiatong University, Xi’an, China, June 16, 2023.

“The 8-item NHANES Pocket Smell Test: Normative Data.” Poster presentation. European Chemoreception Organization (ECRO XXXII), Nijmegen, Netherlands, September 23, 2023.

“Chemical Hypersensitivity: Objective Evaluation of Patients Indicates Hyposmia.” S. Moein, R. Khan, AAO-HNSF Annual Meeting, Nashville, TN October 1, 2023.

Doty, R.L. Keynote Speaker. Chemosensory Testing: Challenges and Opportunities. Symposium: Towards Universal Chemosensory Testing. Philadelphia, PA., November 7, 2023.

Doty, R.L. Need for Smell and Taste Centers: Perspectives from the Past. Invited lecture: NIDCD, Bethesda, MD, May 29, 2024.

Doty, R.L. The sense of smell – the underappreciated sensory system. Invited lecture: Johns Hopkins Medicine – A Woman’s Journey. Baltimore, MD, November 23, 2024.

Doty, R.L. GLP-1 receptor agonists significantly impair taste function. Poster presentation. Association for Chemosensory Research XLVI, Bonita Springs, FL April 25, 2024.

Doty, R.L. GLP-1 receptor agonists significantly impair taste function. Invited speaker. Society for the Study of Ingestive Behavior, Oxford, UK, July 30, 2025.

Doty, R.L. GLP-1 receptor agonists significantly impair taste function. Invited speaker. 16th Pangborn Sensory Science Symposium: Connecting Senses and Minds. Philadelphia, PA, August 19, 2025

Doty, R.L. The Sense of Smell: COVID-19 and Other Adverse Influences on the Ability to Smell Warning Agents Added to Natural Gas. Natural Gas Odorization Conference, Houston, TX, August 26, 2025

Doty, R.L. GLP-1 receptor agonists significantly impair taste function. Invited speaker. European Chemoreception Organization (ECRO), Bilbao Spain, September 15, 2025.

### **Local Lectures by Invitation (since 1995 only):**

"Olfaction: Clinical Studies", John Morgan Society, University of Pennsylvania, March 29, 1995.

"Olfaction: Anatomy, Physiology, and Pathophysiology", Grand Rounds, Department of Neurology, Pennsylvania Hospital, Philadelphia, PA, September 7, 1995.

"Olfactory Testing", Resident Lecture Series, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania, October 5, 1995.

"Olfaction and Neurodegenerative Disorders", Seminar Series, Mahoney Institute of Neurological Sciences, University of Pennsylvania, Philadelphia, PA, October 19, 1995.

"Olfaction." Invited Presentation, Department of Medicine: Section on Allergy and Immunology, University of Pennsylvania Medical Center, May 3, 1996.

"Alzheimer's Disease and Loss of Smell. Research Initiatives at the University of Pennsylvania Medical Center," Invited Presentation, Health Care Center of Cherry Hill, N.J., June 11, 1996.

"Alzheimer's Disease and Loss of Smell. Research Initiatives at the University of Pennsylvania Medical Center," Invited Presentation, Leader Nursing and Rehabilitation Center, Wilmington, Delaware, June 18, 1996.

"Clinical Aspects of Smell and Taste." Grand Rounds. Department of Gastroenterology. University of Pennsylvania Medical Center, Philadelphia, March 6, 1998.

"Olfaction and Neurological Diseases." Grand Rounds. Department of Neurology, University of Pennsylvania Medical Center, Philadelphia, March 12, 1998.

"17 $\beta$ -estradiol Mitigates Olfactory Dysfunction induced by 3-Methylindole. Invited Presentation. 1998 Conference on Aging, Ralston House Wellness Center, Philadelphia, May 13, 1998.

"Olfaction and Gustation." Grand Rounds. Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, September 21, 1998.

"Practicum on Olfactory Testing." Summer Lecture Series, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, October 8, 1998.

"Clinical Studies of Olfaction." Grand Rounds. Department of Psychiatry, University of Pennsylvania Medical Center, Philadelphia, October 21, 1998.

"Olfaction." Grand Rounds. Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, April 8, 1999.

"Olfaction." PGY-2 Grand Rounds. Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, August 1, 2000.

"Clinical Aspects of Smell and Taste." Invited seminar presentation. Monell Chemical Senses Center, Philadelphia, Pennsylvania, February 26, 2002.

“Testing the Sense of Smell.” Invited lecture, Department of Psychiatry, University of Pennsylvania Medical Center, Philadelphia, September 13, 2002

"Olfaction." PGY-2 Grand Rounds. Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, October 20, 2002.

“Olfaction in Neurological Diseases,” Invited Presentation, College of Physicians, Section on Neurology, Philadelphia, November 19, 2002.

“Olfaction and Taste,” Invited lecture, School of Dental Medicine, University of Pennsylvania, Philadelphia, April 28, 2003.

“Disorders of Taste and Smell: Clinical Case Studies,” Invited lecture, The Penn International Rhinology Course: Advances in Management of Sino-nasal Disease, Philadelphia, PA, March 12 & 13, 2004.

“Clinical Aspects of Taste and Smell,” Invited lecture, School of Dental Medicine, Philadelphia, PA, May 3, 2004.

“Clinical Studies of Olfaction,” Invited lecture, Grand Rounds, Department of Neurosurgery, School of Medicine, Philadelphia, PA, September 16, 2004.

“Olfaction,” Invited lecture, Grand Rounds, Department of Otolaryngology: Head and Neck Surgery, School of Medicine, Philadelphia, PA, October 21, 2004.

“Disorders of Taste and Smell: Clinical Case Studies,” Invited lecture, The Penn International Rhinology Course: Advances in Management of Sino-nasal Disease, Philadelphia, PA, March 11-12, 2005.

“Testing the Sense of Smell.” Invited lecture, Department of Psychiatry, University of Pennsylvania Medical Center, Philadelphia, March 25, 2005.

“Clinical Aspects of Taste and Smell,” Invited lecture, Dental Medicine, Philadelphia, PA, May 2, 2005.

“Episodic odor memory: influences of sex, handedness, and side of nose. Presentation with K-L. Kerr. 21<sup>st</sup> Annual Neuroscience Retreat, Bryn Mawr, PA, April 20, 2005.

“Objective assessment of terbinafine-induced taste loss. Presentation with B.R. Haxel and S.E. Barbash. Institute on Aging Annual Retreat and Poster Session, June 8, 2005.

“Postmenopausal hormone replacement: Do estrogen and progesterone differentially affect smell function? Presentation with D.J. Armstrong, J. Neff, M.D. Sammel, I.A. Tourbier, D. Evans, P.J. Moberg, and S. Sondheimer. Institute on Aging Annual Retreat and Poster Session, June 8, 2005.

“Sex differences in Olfactory Perception.” Invited lecture, Department of Psychiatry, University of Pennsylvania Medical Center, Philadelphia, October 7, 2005.

“Clinical Olfaction.” Invited lecture, Drexel University College of Medicine, Philadelphia, PA, April 18, 2006.

“Clinical Aspects of Taste and Smell,” Invited lecture, School of Dental Medicine, Philadelphia, PA, May 1, 2006.

“Clinical Aspects of Olfaction,” PGY 2 Resident Lecture, Department of Otolaryngology: Head and Neck Surgery, School of Medicine, Philadelphia, PA, Sept 19, 2006.

“Clinical Aspects of Taste and Smell,” Invited Lecture, School of Dental Medicine, Philadelphia, PA, April 16, 2007.

“Clinical Aspects of Olfaction,” PGY 2 Resident Lecture, Department of Otolaryngology: Head and Neck Surgery, University of Pennsylvania School of Medicine, Philadelphia, PA, August 14, 2007.

“Influence of Olfactory System Damage on Expression of Alzheimer’s Disease-related Neuropathology,” Center for Excellence in Environmental Toxicology, University of Pennsylvania, School of Medicine, January 30, 2008.

“Clinical Aspects of Taste and Smell,” Invited Lecture, School of Dental Medicine, Philadelphia, PA, April 28, 2008.

“Clinical Olfaction,” Department of Otolaryngology, Grand Rounds, Drexel University College of Medicine, Philadelphia, PA, April 6, 2009.

“Clinical Studies of Olfaction,” Invited Lecture, Clinical Neuroscience Training Program (CNST), University of Pennsylvania School of Medicine, June 12, 2009.

“Smell and Taste Preceptorial,” Invited Lecture, Wharton School, University of Pennsylvania, November 18, 2009.

“Clinical Aspects of Taste and Smell,” Invited Lecture, School of Dental Medicine, Philadelphia, PA, April 19, 2010.

“Pheromones,” Invited Lecture, Department of Psychiatry, University of Pennsylvania School of Medicine, September 24, 2010.

“Olfactory Dysfunction in Parkinsonism: A New Perspective,” Invited Lecture, Department of Neurology, School of Medicine, University of Pennsylvania, Philadelphia, PA, October 14, 2010.

“Evaluation and Treatment of Taste and Smell Disorders,” Grand Rounds, Drexel University College of Medicine, Philadelphia, PA, April 4, 2011.

“Clinical Aspects of Taste and Smell,” Invited Lecture, School of Dental Medicine, Philadelphia, PA, April 25, 2011.

“Smell in the Elderly,” Invited Lecture, Philadelphia Science Festival, Warrick Hotel, April 25, 2011.

“Smell and Taste Lecture,” PGY 2 Residents, Department of Otorhinolaryngology: Head & Neck Surgery, School of Medicine, University of Pennsylvania, Philadelphia, PA, October 11, 2011.

“Clinical Aspects of Taste and Smell,” Invited Lecture, School of Dental Medicine, Philadelphia, PA, April 19, 2012.

“Sensory Disorders in Neurodegenerative Diseases,” Grand Rounds, Department of Neurology, Lankenau Medical Center, Philadelphia, PA, June 8, 2012

“Clinical Studies of Olfaction,” Invited Lecture, Clinical Neuroscience Training Program (CNST), University of Pennsylvania School of Medicine, October 26, 2012

“Olfactory Dysfunction in Neurodegenerative Diseases,” Department of Neurology Grand Rounds, Drexel University College of Medicine, Philadelphia, PA, December 21, 2012.

“Olfactory Dysfunction Neurodegenerative Diseases,” Invited Lecture, Clinical Neuroscience Training Program (CNST), University of Pennsylvania School of Medicine, November 8, 2013.

“Clinical Aspects of Olfaction,” Grand Rounds, Department of Otorhinolaryngology: Head and Neck Surgery, Perelman School of Medicine, University of Pennsylvania, February 20, 2014.

“Olfaction,” Invited Lecture, Department of Medicine, Allergy and Immunology, Perelman School of Medicine, University of Pennsylvania, February 21, 2014.

“Chemical Senses,” Invited Lecture, School of Dental Medicine, University of Pennsylvania, Neurodent Society, June 19, 2014.

“Olfaction and Head Trauma,” Invited Lecture, Penn Center for Brain Injury and Repair (CBIR), Radnor, Pennsylvania, December 15, 2014.

“Evaluation and Treatment of Taste and Smell Disorders,” Invited Lecture, Drexel University College of Medicine, March 30, 2015.

“Loss of the Sense of Smell is an Early Predictor of Alzheimer’s and Parkinson’s Disease,” Invited Lecture, Philadelphia Community College, March 3, 2016.

Panel Member, Mind Your Brain @ Penn Medicine 2017, Department of Neurosurgery, Smilow Research Center, Perelman School of Medicine, March 24, 2017.

“Evaluation and Treatment of Taste and Smell Disorders,” Invited Lecture, Drexel University College of Medicine, April 17, 2017.

“Parkinson’s Disease Biomarkers: Comparison of a Novel Brainstem Response to Olfactory Tests and Dopamine Transporter Imaging,” Invited Lecture, Parkinson’s Disease and Movement Disorders Center, Department of Neurology, Perelman School of Medicine, October 23, 2017.

“Managing Chemosensory Problems”, Invited Grand Rounds, Department of Otorhinolaryngology: Head and Neck Surgery, July 16, 2018.

“Olfactory Dysfunction”. Invited Grand Rounds Lecture, Department of Medicine, Allergy and Immunology, Perelman School of Medicine, University of Pennsylvania, October 5, 2018.

“Olfactory Testing in the US (and Elsewhere)”. Invited Lecture at “Symposium: Identifying Treatments for Taste and smell Disorders.” Sponsored by the Monell Chemical Senses Center, the University of Florida Center for Smell and Taste, and the Rocky Mountain Taste and Smell Center of the University of Colorado School of Medicine. November 14, 2018 (video presentation)

“Olfaction: Clinical Implications”, Clinical Neuroscience Training Program, University of Pennsylvania, January 25, 2019.

“Evaluation and Treatment of Taste and Smell Disorders,” Invited Lecture, Drexel University College of Medicine, April 1, 2019.

“Smell and Taste: Clinical Considerations,” Invited Lecture, Department of Biology, Temple University, March 16, 2022.

“The Science of Taste and Smell: Parkinson’s Disease and Other Clinical Conditions.” Invited Lecture, Clinical Neurosciences Training Program, March 17, 2023.

“Taste and Smell: No Longer the Neglected Senses,” Invited Lecture, Frontiers of Science Seminar Series, School of Dental Medicine, University of Pennsylvania, May 18, 2023.

“Chemosensory Testing: Challenges and Opportunities. Invited Keynote Address, Symposium: Universal Chemosensory Testing: Challenges and Opportunities Symposium, Philadelphia, PA, November 7, 2023.

“The Sense of Smell: A Sensitive Marker of Brain Health”, Invited Lecture, 2025 Brain Injury Conference, Mind Your Brain @ Penn Medicine 2025. March 22, 2025.