

March 2018

**Curriculum Vitae—Andrew J.W. Huang, M.D., M.P.H.**

**Citizenship:** Naturalized U.S. Citizen

**Address:** (Office) Department of Ophthalmology and Visual Sciences  
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**Present Position:** Professor of Ophthalmology and Visual Sciences  
Director of Cornea Lab  
Washington University School of Medicine  
St. Louis, Missouri

**Education:**

Graduate

1974-81 MD, National Taiwan University School of Medicine, Taipei, Taiwan  
1981-82 MPH, Johns Hopkins University School of Hygiene and Public Health,  
Baltimore, Maryland

Postdoctoral Training

1981-82 Research Fellow, Department of Dermatology, Johns Hopkins University  
School of Medicine, Baltimore, Maryland  
1982-84 Postdoctoral Fellow, Division of Biophysics, Johns Hopkins University  
School of Hygiene and Public Health, Baltimore, Maryland  
1984-86 Research Fellow, Department of Ophthalmology, Harvard Medical  
School,  
Research Associate, Eye Research Institute of Retina Foundation,  
Boston, Massachusetts  
1986-87 Research Fellow, Department of Ophthalmology, Bascom Palmer Eye  
Institute, University of Miami, Miami, Florida  
1987-90 Resident in Ophthalmology, Bascom Palmer Eye Institute, University of  
Miami, Miami, Florida  
1990-91 Clinical Fellow in Cornea and External Disease, Bascom Palmer Eye  
Institute, University of Miami, Miami, Florida

**Academic Positions/Employment:**

1991-97 Assistant Professor of Ophthalmology  
Bascom Palmer Eye Institute, University of Miami, Miami, Florida  
1997-00 Associate Professor of Ophthalmology  
Bascom Palmer Eye Institute, University of Miami, Miami, Florida  
2000-05 Associate Professor of Ophthalmology with Tenure  
University of Minnesota, Minneapolis, Minnesota  
2005-07 Professor of Ophthalmology with Tenure

- University of Minnesota, Minneapolis, Minnesota
- 2000-07 Lyon's Chair of Ophthalmology
- University of Minnesota, Minneapolis, Minnesota
- 2007- Professor of Ophthalmology & Visual Sciences with Tenure  
Director of Cornea Laboratory
- 2008- Washington University School of Medicine, St. Louis, Missouri  
Member of Division of Biology and Biomedical Science, Faculty of  
Molecular Cell Biology  
Washington University School of Medicine, St. Louis, Missouri

**Hospital Appointments:**

- 1991-97 Associate Staff, Anne Bates Leach Eye Hospital, Miami, Florida
- 1997-00 Active Staff, Anne Bates Leach Eye Hospital, Miami, Florida
- 2000-07 Attending Staff, Fairview University Medical Center, Minneapolis, Minnesota
- 2000-07 Attending Surgeon, Phillips Eye Institute, Minneapolis, Minnesota
- 2007- Active Staff, Barnes-Jewish Hospital, St. Louis, Missouri

**Academic Administrative Appointments:**Bascom Palmer Eye Institute and the University of Miami, Miami, Florida:

- 1990-2000 Infection Control Committee, Bascom Palmer Eye Institute
- 1991-2000 Quality Assurance Committee, Bascom Palmer Eye Institute
- 1997-2000 Medical Student Admission Committee, University of Miami School of  
Medicine
- 1997-2000 Medical Board, Bascom Palmer Eye Institute
- 1999-2000 Residency Selection Committee, Bascom Palmer Eye Institute

Department of Ophthalmology, University of Minnesota, Minneapolis, Minnesota:

- 2000-07 Director, Cornea and Refractive Surgery
- 2000-07 Director, Cornea Fellowship
- 2000-07 Associate Medical Director, Minnesota Lions Eye Bank

Department of Ophthalmology and Visual Sciences, Washington University in St. Louis

- 2007- Associate Medical Director, Eye Bank of Mid-America Transplantation  
Services, St. Louis, MO
- 2007- Residency Selection Committee
- 2012- Clinical Research Committee

**National Scientific Committees:**

- 1999 FDA Orphan Drug Grant Review Committee
- 2002, 2003 Scientific Review Group, National Eye Institute Special Emphasis Panel
- 2000- Member, Grant Review Committee  
Fight for Sight, Prevent Blindness America
- 2001-2004 FDA Ophthalmic Devices Panel, Consultant
- 2004-2009 FDA Ophthalmic Devices Panel, **Medical Devices Advisory Committee  
Member**

- 2006-2018 Associate Examiner of Oral Board Exam, American Board of Ophthalmology
- 2007 Scientific Review Group, National Eye Institute Small Business Innovation Research (SBIR) ZRG1 BDCN-F 12 B
- 2009 Scientific Review Group, National Eye Institute Small Business Innovation Research (SBIR) ZRG1 ETTN-E 12 B, ZRG1 ETTN-E 95 S
- 2009 Scientific Review Group, National Eye Institute Challenge Grants Panel #12 ZRG1 ETTN-A 58 R
- 2010 FDA Ophthalmic Devices Panel, Medical Devices Advisory Committee Ad Hoc Member
- 2010 Scientific Review Group, National Eye Institute Small Business Innovation Research (SBIR) ZRG1 ETTN-E 12, ZRG1 ETTN-E 95
- 2010 Scientific Review Group, National Eye Institute Special Emphasis Panel ZEY1 VSN03
- 2010 Scientific Review Group, National Eye Institute Anterior Eye Diseases (AED) Study Section (Oct)
- 2011 Scientific Review Group, National Eye Institute Sensory Technologies Small Business ZRG1 ETTN E-12
- 2011 Scientific Review Group, National Eye Institute Special Emphasis Panel ZEY1 VSN02
- 2011 Scientific Review Group, National Eye Institute Anterior Eye Diseases (AED) Study Section (Feb, Oct)
- 2012 Center for Scientific Review, Special Emphasis Panel ZRG1 NRCS-G (08)
- 2012 Center for Scientific Review, Special Emphasis Panel ZRG1 BDCN-C (02) S - Neurobiology/Neurochemistry in Psychiatric Disorders
- 2013, 2014 FDA Ophthalmic Devices Panel, Consultant
- 2012-2018 **Study Section Member** of the Diseases and Pathophysiology of the Visual System (DPVS), NIH Center for Scientific Review
- 2014-2019 FDA Ophthalmic Devices Panel, **Medical Devices Advisory Committee Member**
- 2016 Center for Scientific Review, Special Emphasis Panel ZRG1 BDCN-J (91) S
- 2017 Center for Scientific Review, Special Emphasis Panel ZRG1 BDCN-J (81)
- 2018 Center for Scientific Review, Special Emphasis Panel ZRG1 BDCN-N (55) R  
PAR Panel: Fogarty Global Brain Disorders

**Consulting Positions:**

- 2002 Member, Speakers' Bureau, Allergan (Irvine, CA) and Alcon (Ft. Worth, TX)
- 2005 Consultant, Lantibio and Rx Development Resources, Tampa, Florida
- 2006- External Reviewer for Quality Control of Impression Cytology, BioTissue, Miami, FL
- 2008 Consultant and Safety Advisor for NCI DSEK tissue inserters, Fischer Surgicals, St. Louis, MO

**Editorial Responsibilities**Editorial Boards:

- 1996-2001 Co-editor, Cornea and External Disease Section (Book 8),  
Basic and Clinical Science Course, American Academy of Ophthalmology
- 2001 Editorial Board Guest Member, Investigative Ophthalmology and Visual  
Sciences
- 2005-09 Editorial Board Member, Graefe's Archives for Clinical and Experimental  
Ophthalmology
- 2007- Board Member, International Ocular Surface Society
- 2012-16 Editorial Board Member, F1000 Research
- 2012- Editorial Board Member, Investigative Ophthalmology and Visual Sciences
- 2015- Editorial Board Member, Current Eye Research
- 2016- Executive Editor, American Journal of Ophthalmology

Scientific Reviewer For: American Journal of Ophthalmology  
Archives of Ophthalmology  
British Journal of Ophthalmology  
Cornea  
Current Eye Research  
Experimental Eye Research  
Eye  
Graefe's Archives for Clinical and Experimental Ophthalmology  
Investigative Ophthalmology and Visual Science  
Molecular Vision  
Ophthalmology  
PLoS

American Academy of Ophthalmology:

- 1996-2001 Co-editor, Cornea and External Disease Section (Book 8),  
Basic and Clinical Science Course
- 2002 Reviewer, External Disease & Cornea (a multimedia program)
- 2002 Reviewer, Corneal Dystrophies and Degenerations

**Board Certification:**

- 1991 Diplomat, American Board of Ophthalmology

**Medical Licensure:**

- 1989 State of Florida (ME 054917)      2007 State of Missouri (24440)
- 1992 State of California (A052029)      2007 State of Illinois (036.119197)
- 2000 State of Minnesota (42658)

**Honors and Awards:**

- 1974-81 Dean's List and Book Coupon Scholarship, National Taiwan University
- 1981 Best Intern Award, National Taiwan University Hospital
- 1982 Graduation with Honors, School of Hygiene and Public Health,  
Johns Hopkins University, Baltimore, Maryland
- 1986 NEI-ARVO Travel Fellowship
- 1986 Pharmacia Travel Fellowship

- 1992, 2000 Professor of the Year, Bascom Palmer Eye Institute  
 1997 **Honor Award**, American Academy of Ophthalmology  
 2000 Lyon Professor of Ophthalmology, University of Minnesota, Minneapolis  
 2001, 2007 Best Faculty Teaching Award, Department of Ophthalmology,  
 University of Minnesota, Minneapolis  
 2004 Medical Faculty Award, ORBIS International, New York, New York  
 2006 Gold Medal, Eye Advance 2006, Mumbai, India  
 2008 Inducted Member, **American Ophthalmological Society (AOS)**  
 2009 US FDA Advisory Committee Service Award, Ophthalmic Devices Panel  
 2010 **Senior Achievement Award**, American Academy of Ophthalmology  
 2012 **Silver Fellow (FARVO)**, Association for Research in Vision and  
 Ophthalmology  
 2018 Professor of the Year, Research Faculty, DOVS, Washington University

### **Professional Societies and Organizations:**

- Fellow, American Academy of Ophthalmology (AAO)  
 American Ophthalmological Society (AOS)  
 American Medical Association (AMA)  
 Association for Research in Vision and Ophthalmology (ARVO)  
 Chinese American Ophthalmologists Society (CAOS)  
 Chinese American Professional Association of Minnesota (Board Director, 2000-2002)

### **Research Support:**

- 1987-88 Principal Investigator, Grant-in-aid 0A87-023. Fight for Sight, Inc.  
 Photothrombosis of Corneal Neovascularization by Treatment with Argon  
 Laser and Intravenous Rose Bengal. (30% effort)  
 1988 Principal Investigator, Contract grant, Pharmaceutical Development  
 Associates of New England.  
 Clinical Efficacy of Topical Tretinoin for Dry Eye Disorders. (10% effort)  
 1991-92 Co-Investigator, Contract grant K-206, Sandoz Pharmaceuticals Corporation.  
 Clinical Trial of Sandimmune 1% Ophthalmic Ointment for  
 Keratoconjunctivitis Sicca. (P.I.-S.C. Pflugfelder). (5% effort)  
 1991-92 Principal Investigator, Contract grants 91-44 and 91-51, Alcon Laboratories,  
 Inc.  
 Efficacy and Safety Evaluation of Lodoxamide 0.1 % Ophthalmic Solution  
 versus Placebo in Vernal Keratoconjunctivitis. (10% effort)  
 1993-96 Principal Investigator, Orphan Products Development Grant FD-R-0008264-1.  
 Photothrombotic Treatment for Corneal Neovascularization. (20% effort)  
 2002-03 Principal Investigator, Minnesota Medical Foundation  
 Structural and Functional Analyses of Keratoepithelin. (20% effort)  
 2003-05 Principal Investigator, University of Minnesota Faculty Grant-in-Aid.  
 Molecular Therapy for Myocilin-Related Glaucoma. CUFS 1003-640-5966.  
 (10% effort)  
 2003-04 Principal Investigator, Fight for Sight Grant-in-Aid GA03009  
 Molecular Therapy for Myocilin-Related Glaucoma. CUFS 1752-640-6145.  
 (10% effort)

- 2003-04 Principal Investigator, the Glaucoma Foundation  
Molecular Therapy for Myocilin-Related Glaucoma. CUFS 1746-640-6147.  
(10% effort)
- 2003-04 Principal Investigator, Eye Bank Association of America.  
Molecular Therapy for BIGH3-Related Corneal Dystrophies. CUFS 1746-  
640-6149. (5% effort)
- 2005-07 Principal Investigator, NEI/NIH R03-EY016088**  
Suppression of Myocilin by siRNA. CUFS 1697-640-6169. (20% effort)
- 2005 Unrestricted educational grant, Allergan Pharmaceutical, Inc.  
Ocular Surface Symposium, University of Minnesota
- 2006 Principal Investigator, Minnesota Medical Foundation #3631-9238-06  
siRNA for Treating Myocilin-Related Glaucoma. CUFS 1748-640-6179. (10%  
effort)
- 2006 Instrument Grant, Minnesota Medical Foundation #3630-9227-06  
Nucleofector for Transfecting Primary Cultured Ocular Cells. CUFS 1748-  
640-6177.
- 2006 Principal Investigator, Contract Grant Moli 1901DE-002, Rx Development  
Resources, Inc.  
A Phase 2 Multicenter, Randomized, Double-Masked, Placebo-Controlled,  
Parallel-Group, Dose Ranging Study of Moli1901 Ophthalmic Solution in  
Subjects with Moderate to Severe Dry Eye Syndrome. CUFS 1743-640-9023  
(5% effort)
- 2006 Unrestricted educational grant, Allergan Pharmaceutical, Inc.  
Ocular Inflammation Symposium, University of Minnesota
- 2006 Co-Investigator, A Phase 3, Randomized, Double-Blind, Placebo-Controlled  
Trial of Recombinant Human Keratinocyte Growth Factor (fHuKGF) for  
Reduction of Mucositis in Patients with Hematologic Malignancies  
Undergoing Total Body Irradiation (TBI) and High Dose Chemotherapy with  
Autologous Peripheral Blood Progenitor Cell (PBPC) Transplantation.  
A Long-Term Follow-Up Study in Patients with Hematologic Malignancies  
Previously Enrolled in Amgen-Sponsored Clinical Trial Using rHuKGF. (PI:  
Blazar, Bruce)
- 2006-11 Co-Investigator, Core Grant for Vision Research 2P30EY011374-11  
(PI: Newman, Eric A.)
- 2007-09 Co-Principal Investigator, NEI/NIH R21-EY017852 (Co-PI: Yuan,  
Ching)**  
Treatment of BIGH-3 related Corneal Dystrophies with Meptides.  
CUFS 1697-640-6193. (5% effort)
- 2008-13 Principal Investigator, NEI/NIH R01-EY017609**  
Abnormal BIGH3 Aggregations in Corneal Dystrophies. (40% effort)
- 2009-10 Research to Prevent Blindness Physician-Scientist Award
- 2012-15 Ophthalmic Principal Investigator, Amgen Protocol (Denosumab) 20080560,  
A Double-Blind, Placebo-Controlled Study to evaluate New or Worsening  
Lens Opacifications in Subjects with Non-metastatic Prostate Cancer  
Receiving Denosumab for Bone Loss due to Androgen-Deprivation Therapy.  
(Protocol #:201110129, Urology PI: R. Sherb Figenschau)

**Patents:**

05/1992	FDA IND #38,895, Investigational New Drug of Intravenous Rose Bengal
04/1996	US Trademark #74503065, Oblique Keratotomy (OK)
07/1997	US Patent #5,652,209, Secretory Products of Human Lacrimal Gland Acinar Epithelia for Tear Replacement
11/2000	US Patent #6,153,607, Non-preserved Topical Corticosteroid for Treatment of Dry Eye
04/2010	US Patent #7,700,575, Methods of Treating Ocular Conditions

**Teaching and Mentoring:**Thesis and Dissertation Advising:

2004	Vrushali Gosavi, MD; MS thesis, University of Minnesota
2007	Rachel Crabb; PhD thesis, University of Minnesota

Clinical Cornea Fellows, University of Minnesota (2000-2007):

Scott Uttley, M.D.	Deval Reshma Paranjpe, M.D.
Craig Skolnick, M.D.	Joseph Iuorno, M.D.
Alan Verm, M.D.	Gary Chung, M.D.
Mark Lobanoff, M.D.	Matthew Dahlgren, M.D.
Tac Lee, M.D.	Arvinder Dhaliwal, M.D.
Michael Boehm, M.D.	Anne Kilby, M.D.
Christopher Newton, M.D.	Regina Sun, M.D.

Research Cornea Fellows, University of Minnesota (2000-2007):

Maria Christina Peres Bernardino, M.D.  
 Paula Marcia Fonseca Souza, M.D.  
 Mei-Chuan Yang, M.D.  
 Yu Sawada, M.D., Ph.D.  
 Ching Yuan, Ph.D.

Medical Student Summer Research Projects, University of Minnesota (2000-2007):

Christopher Boehlke	Lyndon Lee
Shawn Ronan	Adam Gess
Erin Leverentz	Hung Le
Stuart Cameron	Justin Miles

Clinical Cornea Fellows, Washington University (2007- ):

Sean Edelstein, M.D.	Vanni Virasch, M.D.
Matthew Albright, M.D.	Matthew Council, M.D.
Jorge Rivera, M.D.	Loren Seery, M.D.
Justin Aaker, M.D.	Jeannie Baqai, M.D.
Priya Shetty, M.D.	Jennifer Bogucki, M.D.
Sonya Bamba, M.D.	Augustine Hong, M.D.
Adam Dao, M.D.	Adam Prickett, M.D.
Asim Farooq, M.D.	Bradley Shoss, M.D.
Catherine Reppa, M.D.	Zackery Seagrave, M.D.
Fouad El Sayyad, M.D.	Jesse Himebaugh, M.D.

Research Cornea Fellows, Washington University (2010- ):

Yu-Ping Han, M.D.                      Miyuki Kubota, MD, PhD

Supervisor, Medical Student Summer Research Projects, Washington University (2009-2011):

Austin Sim

**Peer-Reviewed Publications (\*corresponding author):**

1. Tseng SCG, Jarvinen MI, Nelson WG, **Huang AJW**, Woodcock-Mitchell J, Sun TT. Correlation of specific keratin antigens with different types of epithelial differentiation: Monoclonal antibody studies. *Cell* 30:361-372, 1982. (**Role:** Isolated keratins from various tissues for comparison.)
2. Tseng SCG, Hatchell D, Tierney N, **Huang AJW**, Sun TT. Expression of specific keratin markers by rabbit corneal, conjunctival, and esophageal epithelia during vitamin A deficiency. *J Cell Biol* 99:2279-2286, 1984. PubMed PMID: 6209290; PubMed Central PMCID: PMC2113571. (**Role:** Isolated ocular surface epithelia from vitamin A-deficient rabbits and performed immunoblotting.)
3. Sun TT, Tseng SCG, **Huang AJW**, Cooper D, Schemer A, Lynch MH, Weiss R, Eichner R. Monoclonal antibody studies of mammalian epithelial keratins: A review. *Ann NY Acad Sci* 455:307-329, 1985. PubMed PMID: 2417518. (**Role:** Summarized the keratin results of the ocular surface epithelia.)
4. Tseng SCG, **Huang AJW**, Sutter D. Purification and partial characterization of rabbit ocular mucin. *Invest Ophthalmol Vis Sci* 28:1473~1482, 1987. PubMed PMID: 3623833. (**Role:** Collected rabbit surface mucins and partook in protein sequence analysis.)
5. **Huang AJW**, Tseng SCG. Development of monoclonal antibodies to rabbit ocular mucin. *Invest Ophthalmol Vis Sci* 28:1483-1491, 1987. PubMed PMID: 3623834. (**Role:** Developed the monoclonal antibody to rabbit ocular surface mucin from hybridoma production to antibody characterization. Wrote the paper.)
6. **Huang AJW**, Tseng SCG, Kenyon KR. Morphogenesis of conjunctival goblet cells in the rat. *Invest Ophthalmol Vis Sci* 29:969-975, 1988. PubMed PMID: 3372169. (**Role:** Collected and analyzed flat-mount rat conjunctiva to quantify goblet cells. Wrote the paper.)
7. **Huang AJW**, Watson BD, Hernandez E, Tseng SCG. Photothrombosis of corneal neovascularization by intravenous rose bengal and argon laser irradiation. *Arch Ophthalmol* 106:680-685, 1988. PubMed PMID: 2451909. (**Role:** Created rabbit neovascularization and conducted occlusion of corneal vessels. Wrote the paper.)
8. **Huang AJW**, Watson BD, Hernandez E, Tseng SCG. Induction of conjunctival transdifferentiation by photothrombotic occlusion of corneal neovascularization. *Ophthalmology* 95:228-235, 1988. PubMed PMID: 2459642. (**Role:** Conducted the entire body of research. Wrote the paper.)
9. Gilbard JP, **Huang AJW**, Belldegrun R, Lee JS, Rossi SR, Gray KL. Open-label crossover study of vitamin A ointment as a treatment for keratoconjunctivitis sicca. *Ophthalmology* 96:244-246, 1989. PubMed PMID: 2704543. (**Role:** Participated in the clinical examination and impression cytology analysis of this clinical trial.)



10. **Huang AJW**, Beldegrun R, Hanninen LA, Tseng SCG, Kenyon KR, Refojo MF. Effects of hypertonic solutions on conjunctival epithelium and mucin discharge. *Cornea*, 8:15-20, 1989. PubMed PMID: 2924583. (**Role:** Conducted the entire research project and analysis. Wrote the paper.)
11. **Huang AJW**, Tseng SCG, Kenyon RK. Pharmacologic therapy for ocular surface diseases. *Ophthalmol Clin of North America*, 2:39-50, 1989. (**Role:** Conducted the entire literature review. Wrote the paper.)
12. **Huang AJW**, Tseng SCG, Kenyon KR. Paracellular permeability of corneal and conjunctival epithelia. *Invest Ophthalmol Vis Sci*, 30:684-689, 1989. PubMed PMID: 2703309. (**Role:** Conducted the entire literature review. Wrote the paper.)
13. **Huang AJW**, Tseng SCG, Kenyon KR. Alteration of epithelial paracellular permeability during corneal epithelial wound healing. *Invest Ophthalmol Vis Sci* 31:429-435, 1990. PubMed PMID: 1690686. (**Role:** Conducted the entire literature review. Wrote the paper.)
14. Pflugfelder SC, **Huang AJW**, Schuchovski PT, Pereira IC, Tseng SCG. Conjunctival cytological features of primary Sjogren's syndrome. *Ophthalmology* 97:985-991, 1990. PubMed PMID: 1698273. (**Role:** Collected impression cytology specimens and assisted in the interpretation.)
15. Pflugfelder SC, **Huang AJW**, Crouse C. Epstein-Barr virus keratitis following a chemical facial peel. *Am J Ophthalmol* 110:571-573, 1990. PubMed PMID: 2173408. (**Role:** Assisted in clinical care and collection of impression cytology specimens.)
16. Tseng SCG, Chen JJY, **Huang AJW**, Kruse FE, Maskin SL, Tsai UF. Classification conjunctival surgeries for corneal disease based on stem cell concept. *Ophthalmol Clin of North America*, 32:595-610, 1990. (**Role:** Assisted in formulating the concept of limbal stem cells, and contributed to the research data.)
17. **Huang AJW**, Tseng SCG. Corneal epithelial wound healing in the absence of limbus. *Invest Ophthalmol Vis Sci* 32:96-105, 1991. PubMed PMID: 1702774. (**Role:** Conducted the entire research project and wrote the paper.)
18. **Huang AJW**, Tseng SCG, Kenyon KR. Change of paracellular permeability of ocular surface epithelium by vitamin A deficiency. *Invest Ophthalmol Vis Sci* 32:633-639, 1991. PubMed PMID: 1900498. (**Role:** Conducted the entire research project. Wrote the paper.)
19. **Huang AJW**, Tseng SCG, Kenyon KR. Letters to the Editor. In reply regarding paracellular permeability of ocular surface epithelia. *Invest Ophthalmol Vis Sci* 32:2163-2165, 1991. (**Role:** Conducted the entire research project and wrote the paper.)
20. Simon MW, Miller D, Pflugfelder SC. Murchinson FJ, **Huang AJW**, Atherton SS. Comparison of immunocytology to tissue culture for diagnosis of presumed herpes virus dendritic epithelial keratitis. *Ophthalmology* 99:1408-1413, 1992. PubMed PMID: 1328982. (**Role:** Assisted in the analysis of impression cytology.)
21. Culbertson WW, **Huang AJW**, Mandelbaum SH, Pflugfelder SC, Boozalis GT, Miller D. Effective treatment of phlyctenular keratoconjunctivitis with oral tetracycline. *Ophthalmology* 100:1358-1366, 1993. PubMed PMID: 8371924. (**Role:** Contributed to most of the patient care and the concept of the therapy.)
22. Sellitti TP, **Huang AJW\***, Schiffman J, Davis JL. Association of herpes zoster ophthalmicus with acquired immunodeficiency syndrome and acute retinal necrosis. *Am J Ophthalmol* 116:297-301, 1993. PubMed PMID: 8357053. (**Role:** Sponsored the paper as the senior author. Supervised data collection and the manuscript.)

23. Hummer J, Gass JDM, **Huang AJW\***. Conjunctival Kaposi's sarcoma treated with Interferon alpha-2a. *Am J Ophthalmol* 116:502-503, 1993. PubMed PMID: 8213983. (**Role:** Provided the original concept of using interferon for ocular Kaposi and supervised patient care.)
24. Santos CI, **Huang AJW**, Foster CS, Friedlander M, McCulley JP. Efficacy of Iodoxamide 0.1% ophthalmic solution in resolving corneal epitheliopathy with vernal keratoconjunctivitis. *Am J Ophthalmol* 117:488-497, 1994. PubMed PMID: 8154531. (**Role:** Assisted in conducting the clinical trial and preparation of the entire manuscript.)
25. Tu EY, Culbertson WW, Pflugfelder SC, **Huang AJW**, Chodosh JC. Therapy of non-necrotizing anterior scleritis with subconjunctival corticosteroid injection. *Ophthalmology* 102:718-724, 1995. PubMed PMID: 7777270. (**Role:** Contributed patient care to this trial and developed the concepts of steroid use.)
26. Jager MJ, Chodosh J, **Huang AJW**, Alfonso EC, Culbertson WW, Forster RK. *Aspergillus niger* as an unusual cause of scleritis and endophthalmitis. *Br J Ophthalmol* 78:584-586, 1995. PubMed PMID: 7918276. (**Role:** Faculty supervisor of manuscript preparation and patient care.)
27. Gupta A, Monroy D, Ji Z, Yoshino K, **Huang AJW**, Pflugfelder SCP. Transforming growth factor beta-1 and beta-2 in human tear fluid. *Curr Eye Res* 15:605-614, 1996. PubMed PMID: 8670763. (**Role:** Assisted in the collection of tear specimens and manuscript preparation.)
28. **Huang AJW\***, Li CH, Bourguignon LYW, Chen YW. Co-expression of BCL-2 and CD44s in basal layers of human ocular surface epithelia. *Lacrimal Gland, Tear Film and Dry Eye Symposium 2. Adv Exp Med Biol* 438:527-531, 1998. PubMed PMID: 9634932. (**Role:** Conducted the entire research project. Wrote the paper.)
29. Ford J, **Huang AJW**, Pflugfelder SCP, Forster RK, Alfonso EA, Miller D. Nontuberculous mycobacterial keratitis in south Florida. *Ophthalmology* 105:1652-1658, 1998. PubMed PMID: 9754173. (**Role:** Supervised data collection and manuscript preparation.)
30. Alexandrakis G, **Huang AJW\***, Miller D. Amebic keratitis due to *Vahlkampfia* infection following corneal trauma. *Arch Ophthalmol* 116:950, 1998. PubMed PMID: 9682714. (**Role:** Senior faculty supervisor of data collection and manuscript preparation.)
31. Liu Z, **Huang AJW**, Pflugfelder SC. Evaluation of corneal thickness and topography in normal eyes using the Orbscan corneal topography system. *Br J Ophthalmol* 83:774-778, 1999. PubMed PMID: 10381661. (**Role:** Assisted in data analysis and manuscript preparation.)
32. Wichiensin P, McDonough RL, **Huang AJW\***, Flynn HW. Tissue adhesive in the management of leaking pars plana sclerotomy causing hypotony and choroidal detachment. *Arch Ophthalmol* 119:135-137, 2001. PubMed PMID: 11146741. (**Role:** Supervising faculty for patient care and manuscript preparation.)
33. Solomon A, Karp CL, Miller D, Dubovy SR, **Huang AJW**, Culbertson WW. Mycobacterium interface keratitis after laser in situ keratomileusis. *Ophthalmology* 108:2201-2208, 2001. PubMed PMID: 11733259. (**Role:** Contributed to patient care and data collection.)
34. Kobayashi A, Shirao Y, Takata Y, Wajima R, Nonomura A, **Huang AJW**. Adult-onset limbal juvenile xanthogranuloma. *Arch Ophthalmol* 120:96-97, 2002. PubMed PMID: 11786069. (**Role:** Contributed to patient care and manuscript preparation.)

35. Alfonso EC, Batatt L, Kim M, Vroman D, Rosas A, Culbertson W, **Huang A**, Pflugfelder S, Tseng S, Forster R, Karp C, Yoo S. Infections following refractive surgeries: risk factors, prevention and review of cases. *Ann. Inst. Barraquer, (Barc)* 31, 3:391-397, 2002. (**Role:** Contributed to data collection.)
36. Souza PMF, Holland EJ, **Huang AJW\***. Bilateral herpetic keratoconjunctivitis. *Ophthalmology* 110:493-496, 2003. PubMed PMID: 12623810. (**Role:** Supervised data collection and manuscript preparation. Provided patient care.)
37. Karp CL, Tuli SS, Yoo SH, Vroman DT, Alfonso EC, **Huang AJW**, Pflugfelder SC, Culbertson WW. Infectious keratitis after LASIK. *Ophthalmology* 110:503-510, 2003. PubMed PMID: 12623812. (**Role:** Contributed to patient care and data collection.)
38. Sawada Y, Fischer JL, Verm AM, Harrison AR, Yuan C, **Huang AJW\***. Detection by impression cytology of conjunctival intraepithelial invasion from eyelid sebaceous cell carcinoma. *Ophthalmology* 110:2045-2050, 2003. PubMed PMID: 14522786. (**Role:** Sole interpreter of impression cytology. Supervised data collection and wrote the paper.)
39. Kobayashi A, Wajima R, Sugiyama K, Nonomura A, **Huang AJW**. Idiopathic limbal squamous metaplasia. *Arch Ophthalmol* 121:1473-1475, 2003. PubMed PMID: 14557187. (**Role:** Consulted on patient care and manuscript preparation.)
40. Wall V, Yen MT, Yang MC, **Huang AJW**, and Pflugfelder SC. Management of the late ocular sequelae of Stevens-Johnson syndrome. PubMed PMID: 17075650. *Ocul Surf* 1:192-201, 2003. (**Role:** Contributed to the description of surgical procedures.)
41. Sawada Y, Yuan C, **Huang AJW\***. Impression cytology in the diagnosis of acanthamoeba keratitis with surface involvement. *Am J Ophthalmol* 137:323-328, 2004. PubMed PMID: 14962424. (**Role:** Interpreted impression cytology. Collected the data and wrote the paper.)
42. Yuan C, Reuland JM, Lee L, **Huang AJW\***. Optimized expression and refolding of human keratoprotein in BL21(DE3). *Protein Expr Purif* 35:39-45, 2004. PubMed PMID: 15039064. (**Role:** Directed laboratory research and supervised manuscript preparation.)
43. Yuan C, Yang MC, Zins EJ, Boehlke CS, **Huang AJW\***. Identification of the promoter region of *βIGH3* gene. *Mol Vis* 10:351-360, 2004. PubMed PMID: 15162097. (**Role:** Supervised the laboratory research and manuscript preparation.)
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27. Schuchovski PS, Pflugfelder SC, **Huang AJW**, Pereira IC, Tseng SCG. Cytologic features of immune-mediated aqueous tear deficiency and blepharitis. XXV Brazilian Congress of Ophthalmology and XVII Pan-American Congress of Ophthalmology Sep 3-6, 1989.
28. **Huang AJW**, Tseng SCG. Phenotypic alterations of conjunctival flaps on corneal surface by photothrombosis. *Invest Ophthalmol Vis Sci* 31(ARVO Suppl): 468, 1990.
29. Simon MW, Miller D, Pflugfelder SC, Murchinson SF, **Huang AJW**, Atherton SS. Immunohistochemical identification of herpes virus antigens in impression cytology of dendritic keratitis. *Invest Ophthalmol Vis Sci* 32(ARVO Suppl): 805, 1991.
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31. **Huang AJW**, Tseng SCG, Hernandez E. Inhibition of corneal vascularization by lamellar keratoplasty in limbal deficient corneas. *Invest Ophthalmol Vis Sci* 32(ARVO Suppl): 844, 1991.
32. **Huang AJW**, Hernandez E. Modulation of corneal vascularization by traumatized basement membrane. *Invest Ophthalmol Vis Sci* 33(ARVO Suppl): 892, 1992.
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36. Santo CI, **Huang AJW**, Hartwich-Young R, Drake M, Von Tress M, Turner FD. Efficacy of Alomide (Iodoxamide 0.1% ophthalmic solution) in resolving corneal epitheliopathy in vernal keratoconjunctivitis (VKC). *Invest Ophthalmol Vis Sci* 34(4): 1492, 1993.
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43. **Huang AJW**. Recognition and treatment of acute retinal necrosis. *Ophthalmology* 101(9A): 72, 1994.
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70. Cox CA, Flynn JT, Sawada Y, **Huang AJW**. Impression cytology used to diagnose benign hereditary intraepithelial dyskeratosis. *Invest Ophthalmol* 43(S): 128, 2002.
71. Sawada Y, Yuan C, **Huang AJW**. Lipid supplements support the growth of corneal and epidermal epithelial cells in serum-free culture system. *Invest Ophthalmol* 43(S): 6, 2002.
72. **Huang AJW**. Pseudopterygium: Idiopathic limbal deficiency. 7<sup>th</sup> International Ocular Surface Society. Proceeding: 12, 2002
73. **Huang AJW**, Skolnick CA. Lamellar sclerokeratoplasty for ocular surface reconstruction. The 2<sup>nd</sup> Global Chinese Ophthalmic Conference. Abstract Book: 29, 2002.
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81. **Huang AJW**, Patel DA, Harocopos GJ, Chang SH, Thang DH. Sub-epithelial TGFBI deposits in Avellino corneal dystrophy. ARVO Program CD, 2009.
82. Chang SH, Patel DA, Harocopos GJ, Thang DH, **Huang AJW**. Secondary hyalinosis and amyloidosis in macular corneal dystrophy. ARVO Program CD, 2009.
83. Patel DA, Vora SC, **Huang AJW**. Mutation-dependent TGFBI aggregation in corneal stromal dystrophies. ARVO Program CD, 2009.
84. **Huang AJW**, Han Y-P, Shui Y-B, Bai F, Siegfried CJ, Beebe DC. Impact of corneal endothelial dysfunctions on oxygen levels in human eyes. Invest Ophthalmol Vis Sci 2011; 52(14):6457.
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86. **Huang AJW**. Molecular therapy for TGFBIp-related dystrophies. ISER XX Biennial Meeting, 2012.
87. **Huang AJW**, Liu, C-Y, Zhang Y, Liu H. An inducible transgenic mouse model of TGFBI-related corneal stromal dystrophy. Invest Ophthalmol Vis Sci 2013; 54(15):4739.
88. Kubota M, Siegfried CJ, Shui YB, Bai F, **Huang AJ**, Beebe DC. Oxygen metabolism in primary human lens epithelial cells. Invest Ophthalmol Vis Sci 2013; 54(15):5749.
89. Bamba S, Hong A, **Huang AJ**, Lubniewski A. Descemet's Membrane Dissection for Endothelial Keratoplasty Using the Lubniewski Micro Needle. Invest Ophthalmol Vis Sci 2014; 55(13):875.
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91. Beebe DC, **Huang AJW**, Siegfried CJ, Shui Y-B, Bai F. The magnitude of the uveo-scleral inflow pathway in the human eye: evidence from patients with corneal endothelial dystrophy. ISER XXI Biennial Meeting, 2014.
92. Siegfried CJ, Shui YB, **Huang AJ**, Bai F, Beebe DC. Aqueous humor ascorbate and total reactive antioxidant potential: correlation with intraocular pO<sub>2</sub> in vivo. Invest Ophthalmol Vis Sci 2015; 56(7):4414.
93. Huang C-C, Yang W, Jiang H, Davidson S, **Huang AJW**, Liu Q. Anatomical and Functional Dichotomy of Ocular Itch and Pain. Annual Meeting of International Ocular Surface Society, 2017.
94. Siegfried CJ, Shui Y-B, Liu Y, **Huang AJ**, Kaufman PL. Aqueous humor biomarker of oxidative damage and antioxidant status: Correlations with oxygen and racial differences. Invest Ophthalmol Vis Sci 2017.
95. Reneker LW, Shui Y-B, Liu Y, Wang LL, **Huang AJW**. FGF-signaling in Meibomian Gland (MG) Homeostasis of Adult Mice. Invest Ophthalmol Vis Sci 2017.
96. Reneker LW, Yang X, Wang L, **Huang AJW**. A Mouse Model of Meibomian Gland Dysfunction and Regeneration. Gordon Research Conference on Cornea and Ocular Surface, 2018.

97. Reneker LW, Irlmeier RT, Shui Y-B, Liu Y, **Huang AJW**. Protein Markers in Human Meibomian Glands: Implications on Pathogenic Mechanisms of Meibomian Gland Dysfunction (MGD). Invest Ophthalmol Vis Sci 2018.

**Invited Editorial Comments:**

1. Rivera J, **Huang A**. Review on "Predictors of mortality within 90 days of cataract surgery. Ophthalmology 2010; 117:1894-9." f1000.com, Apr 07, 2011.
2. Bogucki J, Sheybani A, **Huang A**. Review on "Endothelial cell loss and visual outcome of deep anterior lamellar keratoplasty versus penetrating keratoplasty: a randomized multicenter clinical trial. Ophthalmology 2011; 118 2:302-9." f1000.com, May 19, 2011.
3. Sheybani A, Bogucki J, **Huang A**. Review on "Long-term results of deep anterior lamellar keratoplasty for the treatment of keratoconus. Am J Ophthalmol 2011; 151 5:760-7." f1000.com, May 25, 2011.
4. **Huang AJW**. Oral mucosa transplantation for ocular surface reconstruction. Ocular Surgery News. vol. 29(13):3, July 10, 2011.
5. Krader CG. Scleral contact lens aids rehabilitation. (reviewed by **Huang AJW**) Ophthalmology Times vol. 37(6):63-67, March 15, 2012.

**Other Scientific Presentations:**

1. An in vitro perfusion study of rabbit corneal and conjunctival permeability. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May 6, 1985.
2. Modulation of paracellular permeability during corneal epithelial wound healing. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May 3, 1986.
3. Modulation of paracellular permeability of ocular surface epithelium by retinoids. International Society of Eye Research Meeting. Nagoya, Japan, Oct.1, 1986.
4. Induction of conjunctival transdifferentiation by photothrombosis with rose bengal and argon laser. American Society for Laser Medicine and Surgery, Seventh Meeting. San Francisco, CA: April 15, 1987.
5. Induction of conjunctival transdifferentiation by photothrombosis. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May 5, 1987.
6. Clinical features and management of atypical mycobacterial keratitis. Annual meeting of American Academy of Ophthalmology, Las Vegas, NV, Oct. 15, 1988.
7. Phenotypic alterations of conjunctival flaps on corneal surface by photothrombosis. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May, 1990.
8. Inhibition of corneal vascularization by lamellar keratoplasty in limbal deficient corneas. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May 1, 1991.
9. Modulation of corneal vascularization by conjunctival epithelium. Annual meeting of Association of Research in Vision and Ophthalmology. Sarasota, FL, May 4, 1993.

10. Diagnosis and treatment of Acanthamoeba keratitis. Annual meeting of American Academy of Ophthalmology, Chicago, IL, Nov. 20, 1993.
11. Comparisons between oblique keratotomy a radial keratotomy. First International Symposium of Ophthalmology, Bordeaux, France, Sept. 10, 1993.
12. Recognition and treatment of acute retinal necrosis. Annual meeting of American Academy of Ophthalmology, San Francisco, CA, Nov. 5, 1994.
13. Expression of matrix metalloproteinases (MMPs) in vascularized and transdifferentiated rabbit corneal epithelia. Annual meeting of Association of Research in Vision and Ophthalmology. Ft. Lauderdale, FL, April 30, 2001.
14. Pseudopterygium: Idiopathic limbal deficiency. 7<sup>th</sup> International Ocular Surface Society. Ft. Lauderdale, May 4, 2002.
15. Single nucleotide polymorphism in the BIGH3 gene promoter in patients with presumed corneal lattice dystrophy. Annual meeting of Association of Research in Vision and Ophthalmology. Ft. Lauderdale, FL, May 4, 2006.

#### **Invited Lectures and Presentations:**

- 1991 Visiting Professor, National Taiwan University Hospital, Department of Ophthalmology, Taipei, Taiwan  
Visiting Professor, Chung-Gung Memorial Hospital, Department of Ophthalmology, Taipei, Taiwan
- 1992 Invited Speaker, VII Congreso Nacional de Oftalmologia en Guatemala, Guatemala City, Guatemala
- 1993 Invited speaker, II Congreso de Oftalmologia en Colombia, Girardot, Colombia.
- 1994 Visiting Professor, Project Orbis and Qingdao Medical College, Qingdao, People's Republic of China
- 1995 Visiting Professor, Project Orbis and Shantou Medical College, Shantou, People's Republic of China
- 1995 Invited speaker, I Conclave Nacional Omniquirugico Ano, San Salvador, El Salvador
- 1996 Invited speaker, World Congress on the Cornea IV, Orlando, Florida
- 1996 Invited speaker, Nacional Congreso de Oftalmologia en El Salvador, San Salvador, El Salvador
- 1996 Visiting Professor, National Taiwan University Hospital, Department of Ophthalmology, Taipei, Taiwan
- 1997 Invited speaker, Annual Meeting of Contact Lens Association of Ophthalmologists, Las Vegas, Nevada
- 1997 Session Moderator, Annual Meeting of Association of Research for Vision and Ophthalmology, Ft. Lauderdale, Florida
- 1998 Visiting Professor, Mongolia Medical University, Ulan Bator, Republic of Mongolia
- 1998 Visiting Professor, Medical University of Chungqing, Sichuan, People's Republic of China



- 1999 Visiting Professor, University of Yangon Medical College, Yangon, Myanmar
- 2000 Visiting Professor, Project Orbis and Qingdao Medical College, Qingdao, People's Republic of China
- 2001 Session Moderator, Annual Meeting of Association of Research for Vision and Ophthalmology, Ft. Lauderdale, Florida
- 2001 Moderator, Annual Meeting of Association of Research for Vision and Ophthalmology, Ft. Lauderdale, Florida
- 2002 Visiting Professor, Kellogg Eye Center, University of Michigan, Ann Arbor, Michigan
- 2003 Visiting Professor, Columbia University, New York, New York
- 2004 Visiting Professor, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, Massachusetts
- 2004 Visiting Professor, William Beaumont Hospital, Royal Oak, Michigan
- 2005 Session Moderator and Invited Speaker, Cullen Symposium on Cornea and Ocular Surface Inflammation, Houston, Texas
- 2005 Visiting Professor, Venu Eye Institute and Research Center, New Delhi, India
- 2005 Program Director, Ocular Surface Symposium, University of Minnesota, Minneapolis, Minnesota
- 2006 Course Director, Ocular Inflammation Symposium, University of Minnesota, Minneapolis, Minnesota
- 2006 Gold Medal, Eye Advance 2006, Mumbai, India
- 2007 Visiting Professor, Hinduja Hospital and Research Foundation, Mumbai, India
- 2007 Course Director, Cornea Conference, Phillips Eye Institute, Minneapolis, Minnesota
- 2008 Visiting Professor, Jules Stein Eye Institute, University of California, Los Angeles
- 2009 Invited Speaker, 3<sup>rd</sup> Annual Innovations in Ophthalmology, the Cleveland Clinic Cole Eye Institute, Key Largo, Florida
- 2009 Session Moderator, Annual Meeting of Association of Research for Vision and Ophthalmology, Ft. Lauderdale, Florida
- 2009 Invited Speaker, Current Concepts in Ophthalmology, Instituto Barraquer, Barcelona, Spain
- 2010 Invited Speaker, Korean Dry Eye Symposium, Seoul, Korea
- 2010 Invited Speaker, Minnesota Academy of Ophthalmology, St. Paul, Minnesota
- 2011 Invited Course Instructor /Speaker, Asia Pacific Academy of Ophthalmology Annual Conference, Sydney, Australia
- 2011 Invited Speaker, Cornea Symposium, Illinois Eye and Ear Infirmary, University of Illinois at Chicago, Chicago, Illinois
- 2011 Invited Speaker, Cornea Subspecialty Day; Annual meeting of American Academy of Ophthalmology, Orlando, Florida
- 2012 Invited Speaker on Cornea and Ocular Surface Disease, 50<sup>th</sup> Anniversary Symposium, Bascom Palmer Eye Institute, University of Miami, Miami, Florida
- 2012 Invited Speaker of Symposium of TGFBI-related Corneal Dystrophy, International Society for Eye Research, Berlin, Germany

- 2013 Visiting Professor of Dry Eye Grand Rounds, Wilmer Eye Institute, Johns Hopkins University, Baltimore, Maryland
- 2013 Invited Speaker, Pan-American Academy of Ophthalmology/Congress of Brazilian Ophthalmology, Rio de Janeiro, Brazil
- 2014 Visiting Professor, Massachusetts Eye and Ear Infirmary/Schepens Eye Research Institute, Harvard Medical School, Boston, Massachusetts
- 2014 Visiting Professor, Department of Ophthalmology, State University of New York (SUNY) Downstate, Bronx, New York
- 2014 Invited Speaker, World Ophthalmology Congress, Tokyo, Japan
- 2014 Keynote Speaker, Cornea Symposium, Phillips Eye Institute, Minneapolis, Minnesota
- 2014 Keynote Speaker, 24<sup>th</sup> Iranian Congress of Ophthalmology, Tehran, Iran
- 2015 Visiting Professor, University of Kentucky, Lexington, Kentucky
- 2015 Guest Speaker, Pittsburgh Ophthalmology Society  
Visiting Professor, University of Pittsburgh, Pittsburgh, Pennsylvania
- 2016 Invited Speaker, Asia Pacific Academy of Ophthalmology Annual Conference, Taipei, Taiwan
- 2016 Poster Session Moderator, Corneal Extracellular matrix and biomechanics. Annual Meeting of Association of Research for Vision and Ophthalmology, Seattle, WA.
- 2016 Member of Cornea Content Outline Revision Committee of American Board of Ophthalmology, Philadelphia, PA and Portland, ME.
- 2016 Session moderator, 55<sup>th</sup> Annual Meeting of Eye Bank Association of America, St. Louis, MO

#### **Extramural Invited Presentations:**

- 1991 Conjunctival epithelial differentiation. National Taiwan University Hospital, Taipei, Taiwan
- 1992 Photothrombosis and management of corneal neovascularization. Cornea & External Disease Course, Bascom Palmer Eye Institute, Miami, Florida  
Unusual presentation of adolescent phlyctenular keratoconjunctivitis. Grand Rounds, Bascom Palmer Eye Institute, Miami, Florida  
Ophthalmic manifestation of systemic diseases. Ninth Annual Review Course of Internal Medicine, University of Miami, Department of Medicine  
VII Congreso Nacional de Oftalmología en Guatemala, Guatemala City, Guatemala.
  1. Management of cicatricial conjunctivitis
  2. AIDS-related external diseases
  3. Management of sterile corneal ulcer
  4. Management of unusual infectious keratitis
 Problem-solving in external diseases and Course Director, Trade Secrets Course, Bascom Palmer Eye Institute, Miami, Florida
- 1993 Sjogren's syndrome and dry eyes. 23<sup>rd</sup> Annual Miami Winter Meeting of American Dental Association, Miami, Florida

- Ocular manifestations of systemic disease. Tenth Annual Review Course of Internal Medicine, University of Miami, Department of Medicine
- Ocular manifestations of systemic diseases. 21<sup>st</sup> Annual Conference of American Academy of Physician Assistants
- Recent advances in ocular surface diseases. XIX Congreso Panamericano de Oftalmologia, Caracas, Venezuela
- II Congreso de Oftalmologia en Colombia, Girardot, Colombia
1. Anterior segment trauma
  2. Penetrating keratoplasty
- 1994 Ocular manifestations of systemic disease. 11<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine
- 1995 I Conclave Nacional Ommiquisurgio Ano, San Salvador, El Salvador
1. Keratoplastia. indicaciones y tecnicas quirurgicas.refractiva
  2. Controversia. excimer laser vrs. KR complicaciones
- Clinical management of corneal vascularization. Trade Secrets, Bascom Palmer Eye Institute
- Ocular manifestations of systemic disease. 12<sup>th</sup> Annual Review Course for Certification in Internal Medicine, University of Miami, Department of Medicine, Miami, Florida
- Modulation of corneal vascularization by conjunctivalization World Congress on the Cornea IV. Orlando, FL
- Ocular manifestations of systemic disease. 13<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine
- 1997 Pathogenesis of corneal vascularization. Annual Meeting of Contact Lens Association of Ophthalmologists. Las Vegas, Nevada
- Microsporidial keratitis. Bascom Palmer Trade Secrets Course: Ocular Disease in AIDS
- Indications and management of corneal transplattation. IX Congresso Internacional da ABBO e Transplante de Cornea, Brazilian Congress of Ophthalmology. Rio de Janeiro
- Anterior Segment Trauma. Annual Safety Workshop of Miami-Dade Fire Rescue Department, Miami, Florida
- Ocular manifestations of systemic disease. 24<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine, Miami, Florida
- 1998 Ocular manifestations of systemic disease. 25<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine
- Corneal Graft Failure on Ocular Surface Disorders. XXVIIIth International Congress of Ophthalmology. Amsterdam, the Netherlands
- New diagnostic modalities for ocular surface diseases. XXth Curso Interamericano. Miami, Florida
- 1999 Ocular manifestations of systemic disease. 26<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine
- 2000 Ocular manifestations of systemic disease. 27<sup>th</sup> Annual Board Review Course in Internal Medicine, University of Miami, Department of Medicine
- Recent advances in Ocular surface reconstruction. Qingdao Medical College, Qingdao, China

- 2002     Immunosuppression for ocular surface reconstruction. 40<sup>th</sup> Anniversary of Bascom Palmer Eye Institute, Miami, Florida  
Lamellar sclerokeratoplasty for ocular surface reconstruction. Eye Meeting of the Twin Cities. Minneapolis, Minnesota  
Recent advance in lamellar keratoplasty. The 2<sup>nd</sup> Global Chinese Ophthalmic Conference. Taipei, Taiwan  
Kellogg Eye Center Visiting Professor Lectures. Ann Arbor, Michigan
1. Recent advance in lamellar keratoplasty
  2. Lamellar sclerokeratoplasty for ocular surface reconstruction
- Advanced Keratoplasty Techniques. Joint Meeting of American Academy of Ophthalmology and Pan-American Association of Ophthalmology, Orlando, Florida
- 2003     Columbia University Visiting Professor Lectures. New York, New York
1. Recent advance in ocular surface disease
  2. Recent advance in lamellar keratoplasty
- Topical alpha-interferon therapy for recurrent corneal and conjunctival intraepithelial neoplasia. Eye Meeting of the Twin Cities. Minneapolis, Minnesota  
Annual Meeting of American Academy of Ophthalmology, Anaheim, California
1. Lab Instructor for Advanced Keratoplasty Techniques
  2. Lab Instructor for Microsurgical Suturing Techniques
- 2004     Massachusetts Eye and Ear Infirmary, Harvard Medical School, Visiting Professor, Boston, Massachusetts
1. Corneal Grand Rounds
  2. Recent advance in ocular surface reconstruction and lamellar keratoplasty
- Impression cytology of unusual ocular surface diseases. Eye Meeting of the Twin Cities. Minneapolis, Minnesota  
Update of dry eye. City-Wide Rheumatology Conference, Minneapolis, Minnesota  
Joint Meeting of American Academy of Ophthalmology and Society of European Ophthalmology, New Orleans, Louisiana
1. Discussant of "Objective optical quality comparison between penetrating keratoplasty and deep anterior lamellar keratoplasty"
  2. Lab Instructor for Microsurgical Suturing Techniques
  3. Lab Instructor for Advanced Keratoplasty Techniques
- William Beaumont Hospital, Royal Oak, MI, Visiting Professor, Royal Oak, Michigan
1. Grand Rounds
  2. Recent advance in ocular surface reconstruction and lamellar keratoplasty
- 2005     Corneal angiogenesis. Cullen Symposium on Cornea and Ocular Surface Inflammation, Houston, Texas  
Venu Eye Institute and Research Center, New Delhi, India
1. Treatment of ocular surface diseases with topical interferon alfa-2b
  2. Ocular surface reconstruction with amniotic membrane
- Annual meeting of American Academy of Ophthalmology, Chicago, Illinois
1. Lab Instructor for Microsurgical Suturing Techniques
  2. Lab Instructor for Advanced Keratoplasty Techniques
- 2006     Recent advances of ocular surface reconstruction. Christian Ophthalmology Society, 30th annual meeting, Cleveland, Ohio

Vith International Congress on Advances in Ophthalmology, Mumbai, India

1. Diagnosis of and management of sterile corneal ulcer
2. Diagnosis of unusual ocular surface diseases by impression cytology
3. Use of topical interferon for ocular surface diseases
4. Corneal angiogenesis
5. Recent advances in ocular surface reconstruction
6. Cicatricial conjunctivitis

Annual Meeting of American Academy of Ophthalmology, Las Vegas, Nevada

1. Lab Instructor for Microsurgical Suturing Techniques
2. Lab Instructor for Advanced Keratoplasty

2007 Management of dry eye. City-Wide Rheumatology Conference, Minneapolis, Minnesota

Ocular surface reconstruction. Visiting Professor, Hinduja Hospital and Research Foundation, Mumbai, India

Recent advances in ocular surface reconstruction, Visiting Professor, Duke University, Durham, North Carolina

Recent advances in ocular surface reconstruction, Invited Speaker, St. Luke Hospital, St. Louis, Missouri

Annual meeting of American Academy of Ophthalmology, New Orleans, Louisiana

1. Lab Instructor for Microsurgical Suturing Techniques
2. Lab Instructor for Advanced Keratoplasty

2008 Recent advances in lamellar keratoplasty. Ophthalmology Update Course, Washington University, St. Louis, Missouri

Dry eye update. Guest Speaker, Allergan, St. Louis, Missouri

Recent advances in lamellar keratoplasty. International Ophthalmology Conference, Ho Chi Minh City, Vietnam

Cicatricial conjunctivitis, Visiting Professor, Jules Stein Eye Institute, University of California, Los Angeles, California

Annual meeting of American Academy of Ophthalmology, Atlanta, Georgia

1. Lab Instructor for Microsurgical Suturing Techniques
2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease

2009 3<sup>rd</sup> Annual Innovations in Ophthalmology, Cleveland Clinic, Cole Eye Institute, Key Largo, Florida

1. Current concepts of cicatricial conjunctivitis
2. Recent advances in ocular surface diseases
3. Update on the management of sterile corneal ulcers
4. Management of corneal neovascularization

Current Concepts in Ophthalmology, Instituto Barraquer, Barcelona, Spain

1. Recent advances in ocular surface reconstruction
2. Recent advances in lamellar keratoplasty

Annual meeting of American Academy of Ophthalmology, San Francisco, California

1. Lab Instructor for Microsurgical Suturing Techniques
2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease

2010 Advances in lamellar keratoplasty. Ophthalmology Update Course, Washington University, St. Louis, Missouri

Korean Dry Eye Symposium, Seoul, Korea

1. Practical guidelines for diagnosis and treatment of dry eye
  2. 2007 DEWS (Dry Eye Workshop) and Update
- Annual meeting of American Academy of Ophthalmology, Chicago, Illinois
1. Lab Instructor for Microsurgical Suturing Techniques
  2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease
- Cicatricial conjunctivitis: role of mucosa in suppression of fibrosis and inflammation. Minnesota Academy of Ophthalmology, St. Paul, Minnesota
- 2011 Recent advances in Descemet's stripping endothelial keratoplasty. Asia Pacific Academy of Ophthalmology Annual Conference, Sydney, Australia
- Cornea Symposium, University of Illinois at Chicago, Chicago, Illinois
1. Recent advances in ocular surface diseases
  2. Molecular therapy for corneal stromal dystrophy
- Annual meeting of American Academy of Ophthalmology, Orlando, FL
1. Cornea Subspecialty Day; Scleral Contact Lens
  2. Lab Instructor for Microsurgical Suturing Techniques
  3. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease
- 2012 Recent advances in ocular surface reconstruction. Ophthalmic Personnel Update VIII, Washington University, St. Louis, Missouri
- Molecular therapy for corneal stromal dystrophies. 50<sup>th</sup> Anniversary Symposium, Bascom Palmer Eye Institute, University of Miami, Miami, Florida
- Recent advances in ocular surface reconstruction. Fall Update Course, Washington University, St. Louis, Missouri
- Annual meeting of American Academy of Ophthalmology, Chicago, IL
1. Lab Instructor for Microsurgical Suturing Techniques
  2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease
- 2013 Recent concepts of ocular surface reconstruction. Dry Eye Grand Rounds, Wilmer Eye Institute, Johns Hopkins University, Baltimore, Maryland
- Cataract surgery and implications on intraocular oxygen. Cataract Surgery in the Era of New Technological Advances, Pan-American Academy of Ophthalmology/Congress of Brazilian Ophthalmology, Rio de Janeiro, Brazil
- Annual meeting of American Academy of Ophthalmology, New Orleans, LA
1. Academy Learning Lounge: Ocular Surface Diseases
  2. Lab Instructor for Microsurgical Suturing Techniques
  3. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease
- 2014 Molecular therapy for TGFBIp-related corneal dystrophies (Corneal Visiting Professor Lecture) and Recent advances in ocular surface reconstruction (Resident Corneal Lecture). Massachusetts Eye and Ear Infirmary/Schepens Eye Research Institute, Harvard Medical School, Boston, MA
- Molecular therapy for TGFBIp-related corneal dystrophies. State University of New York (SUNY) Downstate, Bronx, NY
- World Ophthalmology Congress, Tokyo, Japan
1. Use of Viscoelastic agent in DSAEK
  2. Novel molecular therapies for TGFBIp-related corneal dystrophies.
- Cornea Symposium, Phillips Eye Institute, Minneapolis, Minnesota
1. DSEK light and DSEK tight
  2. Conjunctival malignant melanoma
  3. Anterior segment reconstruction

- Annual meeting of American Academy of Ophthalmology, Chicago, IL
1. Lab Instructor for Microsurgical Suturing Techniques
  2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease
- 24<sup>th</sup> Iranian Congress of Ophthalmology, Tehran, Iran
1. Recent advances in ocular surface reconstruction
  2. Cicatricial conjunctivitis
  3. Conjunctival malignant melanoma
  4. Anterior segment reconstruction
- 2015 University of Kentucky Translational Minisymposium Series, Lexington, KY
1. Novel molecular therapies for TGFBIp-related corneal dystrophies
  2. Newer therapeutic strategies for cicatricial conjunctivitis
  3. Case presentation: Hereditary Benign Intraepithelial Keratosis
- 2015 University of Pittsburgh University Grand Rounds; Refractory Pterygium
- 2015 Pittsburgh Ophthalmology Society
1. Recent advances in ocular surface reconstruction
  2. Anterior segment reconstruction
- 2016 Asia Pacific Academy of Ophthalmology Annual Conference, Taipei, Taiwan
1. Management of conjunctival melanoma
  2. Cicatricial conjunctivitis: newer therapeutic strategies
- 2016 55<sup>th</sup> Annual Meeting of Eye Bank Association of America, St. Louis, MO
- Medical Director's Dilemmas
- Annual meeting of American Academy of Ophthalmology, Chicago, IL
1. Lab Instructor for Microsurgical Suturing Techniques
  2. Lab Instructor for Surgery for Severe Corneal and Ocular Surface Disease