

CURRICULUM VITAE FOR ACADEMIC PROMOTION

The Johns Hopkins University School of Medicine

(Signature) _____

January 2012
(Date of this version)

(Typed Name) Albert S. Jun, MD, PhD

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointment

Associate Professor of Ophthalmology

The Johns Hopkins University School of Medicine, February 2009-present

Active Staff, Full-time

The Johns Hopkins Hospital, July 2003-present

Courtesy Staff

The Johns Hopkins Bayview Medical Center, July 2002-present

Personal Data

Wilmer/Smith 5011, Wilmer Eye Institute

The Johns Hopkins Medical Institutions

400 N. Broadway, Baltimore, Maryland 21231

Tel: (410) 955-5494 Fax: (410) 502-3526

E-mail: aljun@jhmi.edu

EDUCATION AND TRAINING

AB Harvard University, Cambridge, MA

Concentration: Biochemistry

MD Emory University School of Medicine, Atlanta, GA

PhD Emory University Graduate School of Arts and Sciences, Atlanta, GA

Concentration: Genetics and Molecular Biology

Internal Medicine Internship, The Johns Hopkins University/Sinai Hospital of Baltimore

Ophthalmology Residency, The Johns Hopkins Medical Institutions

Cornea and External Disease Fellowship, Moorfields Eye Hospital, London, United Kingdom

Corneal Gene Therapy Research Fellowship, Imperial College School of Medicine, London, United Kingdom

Maumenee Clinician-Scientist Fellowship, The Johns Hopkins Medical Institutions

PROFESSIONAL EXPERIENCE

Assistant, Wilmer Eye Institute

Instructor, Wilmer Eye Institute

Assistant Chief of Service and Associate Director of Ocular Trauma, Wilmer Eye Institute

Assistant Professor of Ophthalmology, Wilmer Eye Institute

Associate Professor of Ophthalmology, Wilmer Eye Institute

Vice Chair for Education, Wilmer Eye Institute

RESEARCH ACTIVITIES

Publications

1. **Jun AS**, Brown MD, Wallace DC. A mitochondrial DNA mutation at np 14459 of the ND6 gene associated with maternally inherited Leber hereditary optic neuropathy and dystonia. *Proc natl Acad Sci* 1994;91:6206-6210.
2. Shoffner JM, Brown MD, Stugard CE, **Jun AS**, Pollok S, Haas RH, Kaufman AE, Koontz DA, Kim Y, Graham JR, Smith E, Dixon D, Wallace DC. Leber's hereditary optic neuropathy plus dystonia is caused by a mitochondrial DNA point mutation. *Ann Neurol* 1995;38:163-169.
3. Brown MD, Shoffner JM, Kim YL, **Jun AS**, Graham BH, Cabell MF, Gurley DS, Wallace DC. Mitochondrial DNA sequence analysis of four Alzheimer's and Parkinson's disease patients. *Am J Med Genet* 1995;61:283-289.
4. **Jun AS**, Trounce IA, Brown MD, Shoffner JM, Wallace DC. Use of transmitochondrial cybrids to assign a complex I defect to the mitochondrial DNA-encoded NADH dehydrogenase subunit 6 gene mutation at nucleotide pair 14459 that causes Leber hereditary optic neuropathy and dystonia. *Mol Cell Biol* 1996;16:771-777.
5. Melov S, Coskun P, Patel M, Tuinstra R, Cottrell B, **Jun AS**, Zastawny TH, Dizdaroglu M, Goodman SI, Huang T-T, Miziorko H, Epstein CJ, Wallace DC. Mitochondrial disease in superoxide dismutase 2 mutant mice. *Proc natl Acad Sci* 1999;96:846-851.
6. Brown MD, Trounce IA, **Jun AS**, Allen JC, Wallace DC. Functional analysis of lymphoblast and cybrid mitochondria containing the 3460, 11778, or 14484 Leber's hereditary optic neuropathy mitochondrial DNA mutation. *J Biol Chem* 2000;275:39831-39836.
7. **Jun AS**, Liu S, Koo E, Van Do D, Stark WJ, Gottsch JD. Microarray analysis of gene expression in human donor corneas. *Arch Ophthalmol* 2001;119:1629-1634.

8. Akpek EK, **Jun AS**, Goodman D, Green WR, Gottsch JD. Clinical and ultrastructural features of a novel, autosomal dominant, anterior segment dysgenesis. *Ophthalmology* 2002;109:513-519.
9. **Jun AS**, Broman KW, Do DV, Akpek EK, Stark WJ, Gottsch JD. Endothelial Dystrophy, Iris Hypoplasia, Congenital Cataract, and Stromal Thinning (EDICT) Syndrome Maps to Chromosome 15q22.1-q25.3. *Am J Ophthalmol* 2002;134:172-176.
10. Gottsch JD, Bowers AL, Margulies EH, Seitzman GD, Kim SW, Saha S, **Jun AS**, Stark WJ, Liu SH. Serial analysis of gene expression in the corneal endothelium of Fuchs' dystrophy. *Invest Ophthalmol Vis Sci* 2003;44:594-599.
11. Gottsch JD, Seitzman GD, Margulies EH, Bowers AL, Michels AJ, Saha S, **Jun AS**, Stark WJ, Liu SH. Gene Expression in donor corneal endothelium. *Arch Ophthalmol* 2003;121:252-258.
12. Garibaldi DC, Schein OD, **Jun AS**. Features of the iridocorneal endothelial syndrome on confocal microscopy. *Cornea* 2005;24:349-351.
13. Reyes JM, Herretes S, Pirouzmanesh A, Wang D-A, Elisseeff JH, **Jun A**, McDonnell PJ, RS Chuck, A Behrens. A modified chondroitin sulfate aldehyde adhesive for sealing corneal incisions. *Invest Ophthalmol Vis Sci* 2005;46:1247-1250.
14. Gottsch JD, Sundin OH, Liu SH, **Jun AS**, Broman KW, Stark WJ, Vito ECL, Narang A, Thompson JM, Magovern M. Inheritance of a novel COL8A2 mutation defines a distinct subtype of Fuchs corneal dystrophy. *Invest Ophthalmol Vis Sci* 2005;46:1934-1939.
15. Sundin OH, **Jun AS**, Broman KW, Liu SH, Sheehan SE, Vito ECL, Stark WJ, Gottsch JD. Linkage of late-onset Fuchs corneal dystrophy to a novel locus at 13ptel-13q12.13. *Invest Ophthalmol Vis Sci* 2006;47:140-145.
16. **Jun AS**, Chakravarti S, Edelhauser HF, Kimos M. Aging changes of mouse corneal endothelium and Descemet membrane. *Exp Eye Res* 2006;83:890-6.
17. Henry C, Navarro V, **Jun A**, Annaberdyev S. Measuring the “fifth vital sign” in cataract surgery patients—is it necessary? *Insight* 2006;31:7-9.
18. Wang Z, Handa JT, Green WR, Stark WJ, Weinberg RS, **Jun AS**. Advanced glycation end products and receptors in Fuchs' dystrophy corneas undergoing Descemet's stripping with endothelial keratoplasty. *Ophthalmology* 2007;114:1453-60.
19. Hindman HB, McCally RL, Myrowitz E, Terry MA, Stark WJ, Weinberg RS, **Jun AS**. Evaluation of deep lamellar endothelial keratoplasty surgery using scatterometry and wavefront analyses. *Ophthalmology* 2007;114:2006-12.
20. Suh LH, Zhang C, Chuck RS, Stark WJ, Naylor S, Binley K, Chakravarti S, **Jun AS**. Cryopreservation and lentiviral mediated genetic modification of human primary cultured corneal endothelial cells. *Invest Ophthalmol Vis Sci* 2007;48:3056-61.

21. Rose L, Briceno CA, Stark WJ, Gloria DG, **Jun AS**. Assessment of eye bank prepared posterior lamellar corneal tissue for endothelial keratoplasty. *Ophthalmology* 2008;115:279-86.
22. Wu F, Lee S, Schumacher M, **Jun A**, Chakravarti S. Differential gene expression patterns of the developing and adult cornea compared to the lens and tendon. *Exp Eye Res* 2008;87:214-25.
23. Oster SF, Ebrahimi KB, Eberhart CG, Schein OD, Stark WJ, **Jun AS**. A clinicopathologic series of primary graft failure after Descemet's stripping and endothelial keratoplasty (DSAEK). *Ophthalmology* 2009;116:609-14.
24. Kelliher C, Engler C, Speck C, Ward D, Farazdaghi S, **Jun AS**. A comprehensive analysis of eye bank-prepared posterior lamellar corneal tissue for use in endothelial keratoplasty. *Cornea* 2009;28:966-70.
25. Shin YJ, Nishi Y, Engler C, Kang J, Hashmi S, **Jun A**, Gehlbach P, Chuck R. The effect of phacoemulsification energy on the redox state of cultured human corneal endothelial cells. *Arch Ophthalmol* 2009;127:435-41.
26. Engler C, Kelliher C, Speck CL, **Jun AS**. Assessment of attachment factors for primary cultured human corneal endothelial cells. *Cornea* 2009;28:1050-4.
27. Engler C, Kelliher C, Wahlin K, Speck C, and **Jun AS**. Comparison of non-viral methods to genetically modify and enrich populations of primary human corneal endothelial cells. *Mol Vis* 2009;15:629-37.
28. Lee JS, Desai NR, Schmidt GW, **Jun AS**, Schein OD, Stark WJ, Eghrari AO, Gottsch JD. Secondary angle closure caused by air migrating behind the pupil in Descemet stripping endothelial keratoplasty. *Cornea* 2009;28:652-6.
29. Engler C, Kelliher C, Spitze AR, Speck C, Eberhart CG, **Jun AS**. Unfolded Protein Response in Fuchs Endothelial Corneal Dystrophy: a Unifying Pathogenic Pathway? *Am J Ophthalmol* 2010;149:194-202.
30. Sikder S, McCally RL, Engler C, Ward D, **Jun AS**. Evaluation of irradiated corneas using scatterometry and light and electron microscopy. *Cornea* 2011;30:503-7.
31. Sikder S, Ward D, **Jun AS**. A surgical technique for donor tissue harvesting for Descemet membrane endothelial keratoplasty. *Cornea* 2011;30:91-4.
32. Nishi Y, Engler C, Na DR, Kashiwabuchi RT, Shin YJ, Cano M, **Jun AS**, Chuck RS. Evaluation of phacoemulsification induced oxidative stress and damage of cultured human corneal endothelial cells in different solutions using redox fluorometry microscopy. *Acta Ophthalmol* 2011;88:e323-7.

33. Hindman HB, McCally RL, Kim A, D'Anna SE, Eberhart CG, **Jun AS**. Evaluation of the effects of circular Descemet's membrane incision on the biomechanical, topographic, and optical properties of rabbit corneas. *Clin Experiment Ophthalmol* 2011;39:691-9.
34. **Jun AS**, Cope L, Feng X, Meng H, Hamad A, Chakravarti S. Cytokine changes in the tear fluid of keratoconus patients. *PLoS One* 2011;6:e16437.
35. Engler C, Chakravarti S, Doyle J, Eberhart CG, Kelliher C, Meng H, **Jun AS**. TGF- β signaling pathway activation in keratoconus corneas. *Am J Ophthalmol* 2011;151:752-9.
36. Lee BS, Stark WJ, **Jun AS**. Descemet-stripping Automated Endothelial Keratoplasty: A Successful Alternative to Repeat Penetrating Keratoplasty. *Clin Experiment Ophthalmol* 2011; 39:195-200.
37. Kelliher C, Chakravarti S, Vij N, Mazur S, Stahl PJ, Engler C, Matthaei M, Yu SM, **Jun AS**. A cellular model for the investigation of Fuchs endothelial corneal dystrophy. *Exp Eye Res*. Epub 2011 Oct 18.
38. Engler C, Kelliher C, Chang SD, Meng H, **Jun AS**. Cryopreservation and long-term culture of transformed murine corneal endothelial cells. *Graefes Arch Clin Exp Ophthalmol*. Epub 2011 Sep 1.
39. **Jun AS**, Meng H, Ramanan N, Matthaei M, Chakravarti S, Bonshek R, Black GCM, Grebe R, Kimos M. An alpha 2 collagen VIII transgenic knock-in model of Fuchs endothelial corneal dystrophy shows early endothelial cell unfolded protein response and apoptosis. *Hum Mol Genet*. Epub 2011 Oct 20.
40. Kim EC, Bonfadini G, **Jun AS**. "Iris-assisted," open-sky, continuous curvilinear capsulorhexis technique for combined cataract extraction and corneal transplantation. Submitted.
41. Matthaei M, Meng H, Bhutto I, Xu Q, Hanes J, **Jun AS**. Systematic assessment of microneedle injection into mouse cornea. Submitted.
42. Scott S-G, **Jun AS**, Chakravarti S. Corneal Keratocyte Plasticity and Phenotype-Specific Markers. *Exp Eye Res*. In press.

Inventions, Patents, Copyrights

9/04/10 Cornea Reshaping. (Pending, PCT/US10/47989)

Extramural Funding

9/10-8/15 Role of unfolded protein response and COL8A2 in Fuchs corneal dystrophy, 1R01EY019874, National Eye Institute, Total Direct Costs: \$1,250,000, PI: AS Jun, MD, PhD, 50% effort.

- 7/09-6/10 Role of unfolded protein response and alpha 2 collagen VIII mutations in Fuchs endothelial corneal dystrophy, Dolly Green Special Scholar Award, Research to Prevent Blindness, Total Direct Costs: \$25,000, PI: AS Jun, MD, PhD. No salary support, funds used for technician salary and supplies.
- 7/04-6/09 Role of Alpha 2 collagen VIII in Fuchs Corneal Dystrophy, 1KO8EY015523, National Eye Institute, Total Direct Costs: \$875,242, PI: AS Jun, MD, PhD, 80% effort.
- 1/05-12/08 Role of Alpha 2 collagen VIII in Fuchs Corneal Dystrophy, Career Development Award, Research to Prevent Blindness, Total Direct Costs: \$200,000, PI: AS Jun, MD, PhD. No salary support, funds used for technician salary and supplies.
- 9/06-8/09 Phenotypic and Genotypic Analysis of Keratoconus, Grant from the Openshaw Keratoconus Research Fund, Total Direct Costs: \$800,000, PI: AS Jun, MD, PhD, 10% effort.
- 7/00-6/01 Identification of Genes Associated with Corneal Graft Failure, Grant from the Eyebank Association of America, Total Direct Costs: \$10,000, PI: AS Jun, MD, PhD. No salary support, funds used for services and supplies.

Intramural Funding

- 2009 Wilmer Bridge Fund Award, Total Direct Costs: \$50,000, PI: AS Jun, MD, PhD.
- 2007 Inaugural Wilmer Scholars Research Fund Award, Total Direct Costs: \$100,000, PI: AS Jun, MD, PhD. Awarded to the most promising Wilmer assistant professor.
- 2004 Clinical Confocal Microscopy for the Evaluation of Corneal Diseases, Grant from the Women's Board of the Johns Hopkins Hospital, Total Direct Costs: \$46,000, PI: AS Jun, MD, PhD. No salary support, funds used for the purchase of an *in vivo* corneal confocal microscope.

EDUCATIONAL ACTIVITIES

Publications

Peer Reviewed Publications (Expert Opinion)

1. Hindman HB, Patel SB, **Jun AS**. Rationale for adjunctive topical corticosteroids in bacterial keratitis. *Arch Ophthalmol* 2009;127:97-102.
2. Rose L, Kelliher C, **Jun AS**. Endothelial keratoplasty; historical perspectives, current techniques, future directions. *Can J Ophthalmol* 2009;44:401-5.
3. **Jun AS**. Guest Editorial: 100 years of Fuchs dystrophy. *Ophthalmology* 2010;117:859-60.

Invited Review Articles

1. Wallace DC, Shoffner JM, Trounce IA, Brown MD, Ballinger SW, Corral-Debrinski M, Horton TM, **Jun AS**, Lott MT. Mitochondrial DNA mutations in human degenerative diseases and aging. *Biochem Biophys Acta* 1995;1271:141-151.
2. **Jun AS**, Larkin DF. Prospects for Corneal Gene Therapy. *Eye* 2003;17:906-911.
3. Ansari H, Qureshi JA, Rafiei N, **Jun AS**. Dystrophies of the corneal epithelium, Bowman layer, and stroma. *Contemporary Ophthalmology* 2005;4:1-12.

Case Reports/Letters to the Editor

1. **Jun AS**, Bridges WZ, Pieramici DJ. Clear cornea cataract wound dehiscence during pneumatic retinopexy: a report of two cases. *Arch Ophthalmol* 2000;118:847-848.
2. Chang MA, Rizen M, **Jun AS**. Bilateral endogenous endophthalmitis in a patient with hemoglobin SC disease. *Can J Ophthalmol* 2005;40:768-771.
3. Suh LH, Sweeney DA, **Jun AS**. 33 year old man with a white pupil. *Clin Infect Dis* 2006;43:1043-1044.
4. Ansari H, Garibaldi DC, **Jun AS**. Anesthetic Abuse Keratopathy as a Manifestation of Ocular Munchausen's Syndrome. *Clin Experiment Ophthalmol* 2006;34:81-83.
5. Kedhar SR, Belair M-L, **Jun A**, Sulkowski M, Thorne JE. Necrotizing Scleritis and Peripheral Ulcerative Keratitis associated with Hepatitis C Virus-Related Cryoglobulinemia. *Arch Ophthalmol* 2007;125:852-3.
6. Walker BM, Hindman HB, Ebrahimi KB, Green WR, Eberhart CG, Garcia I, **Jun AS**. Epithelial downgrowth following Descemet's stripping automated endothelial keratoplasty. *Arch Ophthalmol* 2008;126:278-80.
7. Ebrahimi KB, Oster SF, Green WR, Grebe R, Schein OD, **Jun AS**. Calcareous degeneration of host-donor interface after Descemet's membrane stripping with automated endothelial keratoplasty (DSAEK). *Cornea* 2009;28:342-4.
8. Ebrahimi KB, Green WR, Grebe R, **Jun AS**. Acanthamoeba sclerokeratitis. *Graefes Arch Clin Exp Ophthalmol* 2009;247:283-6.
9. Ebrahimi KB, Oster SF, Green WR, **Jun AS**. Donor corneal stroma and host-interface vascularization after Descemet's membrane stripping with automated endothelial keratoplasty (DSAEK). *Acta Ophthalmol* 2010; 88:e7-8.
10. Hongyok T, Kim A, **Jun AS**, Ladas JG, Chuck RS. Phototherapeutic keratectomy with mitomycin C after Descemet's stripping automated endothelial keratoplasty. *Br J Ophthalmol* 2010;94:377-8.

11. Lee BS, Viridi AS, Hammersmith KM, **Jun AS**. Guttae in the donor after Descemet-stripping automated endothelial keratoplasty. *Graefes Arch Clin Exp Ophthalmol* 2010; 248:1523-5.
12. Kim EC, **Jun AS**, Kim MS, Jee D. Mooren's ulcer occurring at the donor site after contralateral conjunctivolimbic autograft for recurrent pterygium. Submitted.

Book Chapters and Monographs

1. Trounce IA, Kim YL, **Jun AS**, Wallace DC. Assessment of mitochondrial oxidative phosphorylation in patient muscle biopsies, lymphoblasts, and trans-mitochondrial cybrid cell lines. *Methods in Enzymology* 1996;264:484-509.
2. **Jun AS**, Vito ECL, Haller JA, Stark WJ. Epithelial downgrowth, pearl tumors, and fibrous ingrowth. In *Corneal Surgery: Theory, Technique, and Tissue*. Mosby-Yearbook. FS Brightbill, PJ McDonnell, CNJ McGhee, eds. 2008.
3. Suh LH, Emerson MV, **Jun AS**. Fuchs' Endothelial Dystrophy. In *Essentials in Ophthalmology – Cornea and External Eye Disease*. Springer. T Reinhard, DF Larkin, eds. 2008.
4. Bhykovskaya I, **Jun AS**. Pterygium Surgery. In *Manual of Resident Surgery*. American Academy of Ophthalmology. JP Dunn and P Langer, eds. 2009.
5. **Jun AS**. Episcleritis. In *Curbside Consultation in Cornea*. Slack Inc. F Price, E Letko, eds. 2010.

Other Media

2000-2002 Founder and Curator, CorneaNet, The Cornea Information Network, www.corneanet.net. This website is a searchable database of global corneal gene expression.

Teaching

Classroom Instruction

2002-2004	Clinical Elective in Ophthalmology, Lecturer, "Penetrating Keratoplasty," and Corneal Surgery Wet-lab Organizer, JHUSOM
2003-present	Wilmer Resident Orientation, Lecturer, "Introduction to Cornea and External Disease"
2003-2009	Basic Ophthalmology Clerkship, Lecturer, "Red Eye, Cataract, and Refractive Surgery," JHUSOM
2004	Year 2 Clinical Skills Course, Lecturer, "The Eye," JHUSOM
2004-2005	Wilmer Resident Lecture Series, Lecturer, "Hereditary Corneal Dystrophies," "Disorders of Corneal Size, Shape, and Thickness"
2006	Wilmer Resident Lecture Series, Lecturer, "Phaco Harangue"
2009-present	Wilmer Resident Lecture Series, Lecturer, "Introduction to External Disease, Cornea, and Corneal Imaging" (2 hours)
2009-2010	Wilmer Resident Lecture Series, Lecturer, "Anterior Segment Dysgeneses"
2009	Wilmer Resident Cataract Surgery Course, Preceptor.

- 2010 Wilmer Resident Lecture Series, Lecturer, "Lamellar Keratoplasty"
 2010-present Year 1 Genes to Society Course, Lecturer, "Optics and Anterior Segment,"
 JHUSOM

Clinical Instruction

- 2003-2004 Assistant Chief of Service, Residency Service Attending Ophthalmologist (In-patient/Out-patient Clinic and Surgery, Wilmer Emergency Room).
 Conducted ward rounds 7 days per week for 1 year, surgical attending for over 500 resident cases.
- 2003-2010 Basic Ophthalmology Clerkship Clinic Preceptor
 2004-present Elective Ophthalmology Clerkship Clinic Preceptor
 2004-present Wilmer cornea fellowship clinic and surgical attending. Supervised 5 fellows per year in cornea and anterior segment patient management.
 2009-2010 Wilmer resident surgical attending. Supervised 200+ anterior segment cases with residents as primary surgeon.

CME Instruction (Lecturer)

- 2002 Ophthalmology for the Primary Care Physician, "Conjunctivitis," Baltimore, MD
 2002 Current Concepts in Ophthalmology, "Posterior Lamellar Endothelial Keratoplasty," Baltimore, MD
 2003 Wilmer Residents Association Annual Meeting, "Genetic Manipulation of Human Corneal Endothelium," Baltimore, MD
 2004 Current Concepts in Ophthalmology, "Lamellar Keratoplasty," Baltimore, MD
 2004 Korean American Medical Association Scientific Meeting, "Update on Cataract and Refractive Surgery," Easton, MD
 2004 Wilmer Residents Association Annual Meeting, "Deep Lamellar Endothelial Keratoplasty," Baltimore, MD
 2005 Wilmer Nursing Conference, "Toxic Anterior Segment Syndrome," Baltimore, MD
 2005 Wilmer Residents Association Annual Meeting, "Non-invasive imaging of corneal infections," Baltimore, MD
 2005 Current Concepts in Ophthalmology, "Prevention of Posterior Capsule Opacification" and "New Techniques in Endothelial Keratoplasty," Baltimore, MD
 2006 Current Concepts in Ophthalmology, "My Epilift/PRK Experience: Physician as Patient" and "Advances in Endothelial Keratoplasty," Baltimore, MD
 2007 Current Concepts in Ophthalmology, "Update on Endothelial Keratoplasty," Baltimore, MD
 2008 Continuing Physician Education Course, "Challenging Cornea Cases," Alcon Laboratories, Fort Worth, TX
 2008 Current Concepts in Ophthalmology, "Corneal Ectasia Screening Using the Pentacam™" and "Expanded Anterior Segment Applications of the Pentacam™," Vail, CO
 2008 Fuchs Corneal Dystrophy Symposium sponsored by Tissue Banks International and Wilmer Eye Institute, "What are the Cellular Causes of Fuchs Dystrophy?," "How to Avoid Dislocations in DSEK," "Assessment of

- Corneal Clarity After Endothelial Keratoplasty,” and “Future Therapies for Fuchs dystrophy,” Baltimore, MD
- 2009 Current Concepts in Ophthalmology, “Assessment of corneal clarity after endothelial keratoplasty,” “Descemet stripping endothelial keratoplasty,” and “Genetics and pathophysiology of Fuchs dystrophy,” Vail, CO
- 2009 Maryland Optometric Society Annual Meeting, “Etiology of keratoconus: a review of the evidence,” Baltimore, MD
- 2010 Fuchs Corneal Dystrophy Symposium, “Cellular pathophysiology of Fuchs dystrophy,” “Optical Assessment of DSAEK corneas,” and “Future Therapies for Fuchs dystrophy,” Baltimore, MD
- 2010 Maryland Society of Eye Physicians and Surgeons Annual Meeting, “Update on endothelial keratoplasty,” Baltimore, MD
- 2011 Current Concepts in Ophthalmology, “Reproducibility of Pentacam™ corneal modeling in keratoconus” and “Fuchs dystrophy: past, present, and future,” Vail, CO
- 2011 Current Concepts in Ophthalmology, “DMEK: the next frontier in endothelial keratoplasty” and “Optimization of IOL calculations after combined DSEK and cataract/IOL surgery,” Baltimore, MD

CME Instruction (Organizer)

- 2007 Organizer/Director, Endothelial Keratoplasty Workshop, offered as part of Current Concepts in Ophthalmology: a Forum for Global Ophthalmic Innovators. Baltimore, MD. Workshop attended by 45 U.S. and international ophthalmologists.
- 2008 Co-chair, Fuchs Corneal Dystrophy Symposium, Baltimore, MD
- 2009-present Course Director, Wilmer Residents Association Annual Meeting, Baltimore, MD
- 2010 Co-chair, Fuchs Corneal Dystrophy Symposium, Baltimore, MD

Workshops

- 2006 Inaugural Heed Ophthalmic Foundation Resident and Faculty Retreat, Panelist. A two day retreat for 20 ophthalmology residents and faculty members from the U.S. and Canada intended to foster career mentorship and guidance for promising academic ophthalmologists. Airlie, VA
- 2007 Second Annual Heed Ophthalmic Foundation Resident and Faculty Retreat, Panelist, Chicago, IL
- 2008 Descemet’s Stripping Endothelial Keratoplasty Training Workshop, sponsored by Tissue Banks International and Wilmer Eye Institute. Co-organizer/Instructor, Baltimore, MD
- 2008 Third Annual Heed Ophthalmic Foundation Resident and Faculty Retreat, Panelist, Denver, CO
- 2009 Descemet’s Stripping Endothelial Keratoplasty Training Workshop, sponsored by Tissue Banks International and Wilmer Eye Institute. Co-organizer/Instructor, Baltimore, MD
- 2011 Pentacam™ Workshop as part of Current Concepts in Ophthalmology. Organizer/Instructor, Vail, CO

CLINICAL ACTIVITIES

Certification

Medical Licensure

5/02-present Maryland Medical License #D58677

Board Certification

10/03-present Diplomate, American Board of Ophthalmology

Clinical Service Responsibilities

Clinical Attending and Assistant Chief of Service, Wilmer Ophthalmology Residency

Cornea Service Attending (Clinic and Operating Room)

Extramural Funding

Phenotypic and Genotypic Analysis of Keratoconus, Grant from the Openshaw Keratoconus Research Fund, (See Research Activities, Extramural Funding)

ORGANIZATIONAL ACTIVITIES

Editorial Activities

Editorial Board

2003-2004 Assistant Editor, Contemporary Ophthalmology (CME review journal)

Journal Peer Review Activities

2002-present Investigative Ophthalmology and Visual Science

2003-2004 American Journal of Ophthalmology

2003-present Cornea

2005-present Experimental Eye Research

2006 British Journal of Ophthalmology

2006 Journal of the Peripheral Nervous System

2006 Stem Cells

2007 Ophthalmic Epidemiology

2008-present Ophthalmology

2008-present Molecular Vision

2009 Journal of Genetics

2010 PLoS ONE

2011 Ocular Immunology and Inflammation

2011 Archives of Ophthalmology

Review Groups/Study Sections

2008 Cole Foundation (American College of Surgeons), Grant Reviewer

2008 Cochrane Eyes and Vision Group, Protocol Reviewer

2009-present Tissue Banks International Medical and Scientific Advisory Committee, Member

2010 Wellcome Trust (UK)/Department of Biotechnology India Alliance Early Career Fellowship, Grant Reviewer

Professional Societies

1998-present Member, American Academy of Ophthalmology
1998-present Member, Association for Research in Vision and Ophthalmology
2000-2002 Member, American Society of Cataract and Refractive Surgery Young Physicians and Residents Special Interest Group
2000-2003 Member, American Society of Cataract and Refractive Surgery
2004-present Member, American Society of Matrix Biology

RECOGNITION

Awards and Honors

Honors Thesis *magna cum laude* in Biochemistry, Harvard University

A.B. *cum laude* in Biochemistry, Harvard University

Pre-doctoral Fellowship, NIH Medical Scientist Training Program, Emory University School of Medicine

Lange Achievement Award, Emory University School of Medicine

A. Edward Maumenee Research Grant Award, Wilmer Eye Institute. Project Title: "Identification of Genes Expressed in Human Corneas Using Microarray Technology"

Walter J. Stark Research Grant Award, Wilmer Eye Institute. Project Title: "Identification of Genes Associated with Corneal Graft Failure Using DNA Microarray Technology"

Finalist, Association of University Professors of Ophthalmology/Research to Prevent Blindness Resident and Fellow Research Forum. One of five ophthalmology residents and fellows chosen nationwide to participate.

Pepose Association for Research in Vision and Ophthalmology Annual Meeting Travel Grant Award, Wilmer Eye Institute

Fellow, Society of Heed Fellows, Heed Ophthalmic Foundation. Recognized as the most distinguished among 14 Fellows inducted in 2002.

Inaugural Wilmer Scholar Award. Selected by Wilmer Full Professors as the most promising Wilmer Assistant Professor. Award included a \$100,000 research grant.

Neil Miller, MD, Medical Student Teaching Award, JHUSOM

Invited Talks

2000 "Identification of genes expressed in human corneas using microarray technology," Third International Meeting on Cornea, External Disease, and Eyebanking, Istanbul, Turkey
2004 "Advances in cataract surgery," Bausch and Lomb Scientific Symposium, Baltimore, MD

- 2005 Visiting Professor, “Fuchs’ corneal dystrophy: past perspectives, emerging concepts, future directions” and “Nuts and bolts of the NIH K grant application process,” Duke Eye Center, Durham, NC
- 2005 “Fuchs’ corneal dystrophy: past perspectives, emerging concepts, future directions,” Institute of Ophthalmology, University College London, London, UK
- 2005 “Fuchs’ corneal dystrophy: when to transplant?,” Moorfields Eye Hospital Bicentenary Scientific Meeting, London, UK
- 2005 “Fuchs’ corneal dystrophy: past perspectives, emerging concepts, future directions,” Oxford Biomedica plc, Oxford, UK
- 2005 “Fuchs’ corneal dystrophy: past perspectives, emerging concepts, future directions,” Ophthalmology Grand Rounds, Scheie Eye Institute, University of Pennsylvania, Philadelphia, PA
- 2005 Visiting Professor, “New techniques in lamellar keratoplasty,” Scheie Eye Institute, University of Pennsylvania, Philadelphia, PA
- 2005 “Fuchs’ corneal dystrophy: past perspectives, emerging concepts, future directions,” “Update on posterior capsule opacification,” and “Update on cataract prevention,” 39th Annual Congress of the Turkish Ophthalmological Society, Antalya, Turkey
- 2006 “Descemet’s stripping endothelial keratoplasty,” Chesapeake Society of Ophthalmic Registered Nurses Annual Meeting, Baltimore, MD
- 2007 “Alternate Approaches to Corneal Transplant,” Wilmer Nursing Conference, Baltimore, MD
- 2007 “Lamellar Keratoplasty,” Eye-Q Vision Annual CME Series, Fresno, CA. Presented 3 hour lecture on the history, techniques, and future directions of lamellar keratoplasty.
- 2008 Bill Anderson Memorial lecture, “New uses of corneal tissue,” American Association of Tissue Banking Annual Meeting, Savannah, GA
- 2008 Visiting Professor, “Fuchs corneal dystrophy: past perspectives, emerging concepts, future directions” and “Challenging corneal cases,” Department of Ophthalmology, University of Alberta, Edmonton, Canada
- 2008 “Combined surgery including phacoemulsification in Descemet stripping endothelial keratoplasty” and “Surgical treatment and gene therapy for Fuchs endothelial dystrophy,” World Ophthalmology Congress, Hong Kong, China
- 2008 “Keratoconus research project.” Allergan, Inc., Irvine, CA
- 2008 “Keratoconus and Fuchs dystrophy,” Advanced Medical Optics, Inc., Santa Ana, CA
- 2009 “Keratoconus Pathogenesis,” 5th Annual Association for Research in Vision and Ophthalmology (ARVO)/Pfizer Ophthalmics Research Institute, Ft. Lauderdale, FL
- 2009 “100 years of Fuchs dystrophy,” Yale Cataract and Cornea Conference, Westbrook, CT
- 2009 “How to avoid dislocations in DSEK,” Modern Technologies and Techniques for Young Ophthalmologists to Know Symposium, American Academy of Ophthalmology Annual Meeting, San Francisco, CA
- 2009 Visiting Professor, “100 years of Fuchs dystrophy: progress and potential” and “Lamellar Keratoplasty,” New York Eye and Ear Infirmary, New York, NY

- 2010 Wilmer Annual Nursing Conference, “Use of Morcher Iris Diaphragm IOL For Traumatic Aniridia,” Baltimore, MD
- 2010 “In vivo and in vitro analysis of alpha 2 collagen VIII mutations causing Fuchs endothelial corneal dystrophy,” Biology and Pathobiology of the Cornea Gordon Research Conference, Ventura, CA
- 2010 “Characterization of corneal endothelium and Descemet membrane in transgenic knock-in mice containing the L450W and Q455K alpha 2 collagen VIII mutations causing Fuchs endothelial corneal dystrophy,” Novel Gene Targeted Mutations Affecting Structure and Functions of the Cornea Symposium, ARVO Annual Meeting, Ft. Lauderdale, FL
- 2010 Keynote Speaker, “Cell culture and mouse model of Fuchs dystrophy,” Asia Cornea Society Biennial Scientific Meeting, Kyoto, Japan
- 2011 “Descemet membrane endothelial keratoplasty,” Wilmer Annual Nursing Conference, Baltimore, MD
- 2011 “Characterization of alpha 2 collagen VIII mutant knock-in mice with Fuchs corneal dystrophy,” Asia-ARVO Annual Meeting, Singapore
- 2011 Visiting Professor, “100 years of Fuchs dystrophy” and “Lamellar keratoplasty,” National Taiwan University, Taipei, Taiwan
- 2011 Visiting Professor, “Lamellar keratoplasty,” Chinese University of Hong Kong
- 2011 Visiting Professor, “Lamellar keratoplasty” and “100 years of Fuchs dystrophy,” Georgetown University, Washington, DC
- 2011 “Update on endothelial keratoplasty,” Chesapeake Society of Ophthalmic Registered Nurses Annual Meeting, Baltimore, MD
- 2011 “Fuchs dystrophy: genetics, onset, and future,” Pediatric Keratoplasty Association Annual Meeting, Ft. Lauderdale, FL
- 2011 “Cell culture and mouse models of Fuchs dystrophy: insights into cellular pathogenesis,” Improving Therapy of Dysfunctional Corneal Endothelium Special Interest Group, ARVO Annual Meeting, Ft. Lauderdale, FL
- 2011 “Descemet membrane endothelial keratoplasty,” 28th Annual Wilmer Nursing Conference, Baltimore, MD
- 2011 International Keynote Speaker, “Keratoconus: causes, cures, and unanswered questions,” Homburg Keratoconus Symposium, Homburg, Germany.
- 2011 Visiting Professor, “A century of Fuchs dystrophy,” University of Salzburg, Austria
- 2011 Visiting Professor, “A century of Fuchs dystrophy” and “Corneal dystrophies,” University of Graz, Austria
- 2011 “Pre-operative evaluation and the future of non-surgical therapy,” Corneal Dystrophy Foundation Biennial Symposium, Portland, OR (One of three internationally renowned invited speakers)

OTHER PROFESSIONAL ACCOMPLISHMENTS