

Albert S. Jun, M.D., Ph.D.
 Wilmer Eye Institute, Woods 474
 The Johns Hopkins Medical Institutions
 600 N. Wolfe St., Baltimore, Maryland 21287
 Tel: (410) 955-5494 Fax: (410) 502-3526

Current Position: Assistant Professor of Ophthalmology

Education:

1986-1990 A.B. Harvard University, Cambridge, MA
 Concentration: Biochemistry

1990-1997 M.D. Emory University School of Medicine, Atlanta, GA
 Ph.D. Emory University Graduate School of Arts and Sciences, Atlanta, GA

Post-Graduate Training:

1997-1998 Internal Medicine Internship, The Johns Hopkins University/Sinai Hospital of Baltimore

1998-2001 Ophthalmology Residency, Wilmer Eye Institute

2001-2002 Cornea and External Disease Fellowship, Moorfields Eye Hospital, London, United Kingdom

2002 Corneal Gene Therapy Research Fellowship, Imperial College School of Medicine, London, United Kingdom

2002-2003 Maumenee Clinician-Scientist Fellowship, Wilmer Eye Institute, The Johns Hopkins Medical Institutions

Appointments:

2001-2002 Assistant, Cornea and External Disease Service, Wilmer Eye Institute

2002-2004 Instructor, Cornea and External Disease Service, Wilmer Eye Institute

2003-2004 Assistant Chief of Service and Associate Director of Ocular Trauma, Wilmer Eye Institute

2004-present Assistant Professor of Ophthalmology, Cornea and External Disease Service, Wilmer Eye Institute, The Johns Hopkins Medical Institutions

Awards and Honors:

1990 A.B. *cum laude* in Biochemistry, Harvard University

1990-1997 Pre-doctoral Fellowship, Medical Scientist Training Program, Emory University School of Medicine

1997 Lange Achievement Award, Emory University School of Medicine

1999 A. Edward Maumenee Research Grant Award, Wilmer Eye Institute. Project Title: "Identification of Genes Expressed in Human Corneas Using Microarray Technology"

2000 Eye Bank Association of America Research Grant Award. Project Title: "Identification of Genes Associated with Corneal Graft Failure"

2000 Walter J. Stark Research Grant Award, Wilmer Eye Institute. Project Title: "Identification of Genes Associated with Corneal Graft Failure Using DNA Microarray Technology"

- 2001 Finalist, Association of University Professors of Ophthalmology/Research to Prevent Blindness Resident and Fellow Research Forum
- 2001 Pepose Association for Research in Vision and Ophthalmology Annual Meeting Travel Grant Award, Wilmer Eye Institute
- 2002-2003 Fellow, Society of Heed Fellows, Heed Ophthalmic Foundation.
- 2004 Women's Board of the Johns Hopkins Hospital Grant Award. Project Title: "Clinical Confocal Microscopy for the Evaluation of Corneal Diseases."

Board Certification:

2003-present Diplomate, American Board of Ophthalmology

Professional Societies and Activities:

- 1998-present Member, American Academy of Ophthalmology
- 1998-present Member, Association for Research in Vision and Ophthalmology
- 2000-2003 Member, American Society of Cataract and Refractive Surgery (ASCRS)
- 2000-2002 Member, ASCRS Young Physicians and Residents Special Interest Group
- 2000-2002 Founder and Curator, CorneaNet, The Cornea Information Network, www.corneanet.net.
- 2004-present Member, American Society of Matrix Biology

Teaching and Mentoring Activities:

- 2002-present Faculty Lecturer, Wilmer Institute's Current Concepts in Ophthalmology Continuing Medical Education Course, Baltimore, Maryland
- 2002-present Faculty Lecturer, Wilmer Residents Lecture Series. Introduction to Cornea and External Disease, Disorders of Corneal Size and Shape, Lamellar Corneal Transplant, Phacoemulsification
- 2004-present Course Director, Required and Elective Medical Student Ophthalmology Clerkships, The Johns Hopkins University School of Medicine

Editorial and Scientific Review Activities:

- Reviewer, American Journal of Ophthalmology
- Reviewer, British Journal of Ophthalmology
- Reviewer, Cornea
- Reviewer, Experimental Eye Research
- Reviewer, Investigative Ophthalmology and Visual Science
- Reviewer, Journal of the Peripheral Nervous System
- Reviewer, Ophthalmic Epidemiology
- Reviewer, Stem Cells
- 2003-2004 Assistant Editor, Contemporary Ophthalmology

Invited Lectures/Presentations:

- 2005 Duke Eye Center, Duke University, Durham, NC
- 2005 Institute of Ophthalmology, University College London, London, UK
- 2005 Moorfields Eye Hospital, London, UK
- 2005 Oxford Biomedica plc, Oxford, UK
- 2005 Scheie Eye Institute, University of Pennsylvania, Philadelphia, PA
- 2005 39th Annual Congress of the Turkish Ophthalmological Society, Antalya, Turkey
- 2006 Resident and Faculty Retreat, Heed Ophthalmic Foundation, Airlie, VA
- 2007 Course Director, Endothelial Keratoplasty Workshop, Current Concepts in Ophthalmology – a Global Forum for Ophthalmic Innovators, Baltimore, MD
- 2007 Resident and Faculty Retreat, Heed Ophthalmic Foundation, Chicago, IL

Peer-Reviewed 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. 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.
 3. 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.
 4. 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.
 5. Trounce IA, Kim YL, **Jun AS**, Wallace DC. Assessment of mitochondrial oxidative phosphorylation in patient muscle biopsies, lymphoblasts, and transmitochondrial cybrid cell lines. *Methods in Enzymology.* 1996;264:484-509.
 6. **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.
 7. Melov S, Coskun P, Patel M, Tuinstra R, Cottrell B, **Jun AS**, Zastawny TH, Dizdaroglu M, Goodman SI, Huang T-T, Mizioro H, Epstein CJ, Wallace DC. Mitochondrial disease in superoxide dismutase 2 mutant mice. *Proc natl Acad Sci.* 1999;96:846-851.
 8. **Jun AS**, Bridges WZ, Pieramici DJ. Clear cornea cataract wound dehiscence during pneumatic retinopathy: a report of two cases. *Arch Ophthalmol.* 2000;118:847-848.
 9. 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.
 10. **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.
 11. 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.
 12. **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.
 13. 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.
 14. JD Gottsch, GD Seitzman, EH Margulies, AL Bowers, AJ Michels, S Saha, **AS Jun**, WJ Stark, SH Liu. Gene Expression in donor corneal endothelium. *Arch Ophthalmol* (2003) 121:252-258.
 15. **Jun AS**, Larkin DF. Prospects for Corneal Gene Therapy. *Eye.* 2003;17:906-911.
 16. Garibaldi DC, Schein OD, **Jun AS**. Features of the iridocorneal endothelial syndrome on confocal

- microscopy. *Cornea*. 2005;24:349-351.
17. Reyes JM, Herretes S, Pirouzmanesh A, Wang D-A, Elisseff 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.
 18. 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.
 19. Chang MA, Rizen M, **Jun A**. Bilateral endogenous endophthalmitis in a patient with hemoglobin SC disease. *Can J Ophthalmol*. 2005;40:768-771.
 20. 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.
 21. Ansari H, Garibaldi DC, **Jun AS**. Anesthetic Abuse Keratopathy as a Manifestation of Ocular Munchausen's Syndrome. *Clin Experiment Ophthalmol*. 2006;34:81-83.
 22. Suh LH, Sweeney DA, **Jun AS**. 33 year old man with a white pupil. *Clin Infect Dis*. 2006;43:1043-4.
 23. **Jun AS**, Chakravarti S, Edelhauser HF, Kimos M. Aging changes of mouse corneal endothelium and Descemet membrane. *Exp Eye Res*. 2006;83:890-6.
 24. 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.
 25. 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;*In press*.
 26. 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;*In press*.
 27. Hindman HB, Patel SB, **Jun AS**. Rationale for adjunctive topical corticosteroids in bacterial keratitis. How do we end the debate? *Arch Ophthalmol*. 2007;*In press*.
 28. 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;*In press*.
 29. 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;*In press*.
 30. Rose L, Briceno CA, Stark WJ, Gloria DG, **Jun AS**. Assessment of eye bank prepared posterior lamellar corneal tissue for endothelial keratoplasty. *Ophthalmology*. 2007;*In press*.
- Walker BM, Hindman HB, Ebrahimi KB, Green WR, Eberhart CG, Garcia I, Jun AS. Epithelial downgrowth following Descemet's stripping automated endothelial keratoplasty. *Submitted*.
- Hindman HB, D'Anna SA, McCally RL, Kim A, Jun AS. Biomechanical, optical, and topographic evaluation of rabbit corneas following circular Descemetorhexis. *Submitted*.

Reviews and Book Chapters:

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. Trounce IA, Kim YL, **Jun AS**, Wallace DC. Assessment of mitochondrial oxidative phosphorylation in patient muscle biopsies, lymphoblasts, and transmitochondrial cybrid cell lines. *Methods in Enzymology*. 1996;264:484-509.
3. Ansari H, Qureshi JA, Rafiei N, **Jun AS**. Dystrophies of the corneal epithelium, Bowman layer, and stroma. *Contemporary Ophthalmology* (2005) 4:1-12.
4. Bhykovskaya I, **Jun AS**. Pterygium Surgery. In *Manual of Resident Surgery*. American Academy of Ophthalmology. JP Dunn and P Langer, eds. (2007) *In press*.
5. **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. (2007) *In press*.
6. Suh LH, Emerson MV, **Jun AS**. Fuchs' Endothelial Dystrophy. In *Essentials in Ophthalmology – Cornea and External Eye Disease*. Springer. T Reinhard, DF Larkin, eds. (2007) *In press*.

Abstracts:

MD Brown, YL Kim, AS Jun, MF Cabell, BH Graham, DC Wallace. Complete mitochondrial DNA sequence analysis of Alzheimer's and Parkinson's disease patients. American Society of Human Genetics (ASHG) Annual Meeting (1993)

DC Wallace, MD Brown, AS Jun. A mitochondrial DNA mutation at np 14459 of the ND6 gene associated with Leber's hereditary optic neuropathy and dystonia. Human Gene Mapping Workshop (1993)

MD Brown, AS Jun, DC Wallace. Maternally inherited Leber's optic neuropathy and dystonia associated with a mitochondrial DNA ND6 mutation at np 14459. American Academy of Neurology Annual Meeting (1994)

AS Jun, MD Brown, DC Wallace. A mitochondrial DNA mutation at np 14459 of the ND6 gene associated with Leber's hereditary optic neuropathy and dystonia. Georgia Coalition on Molecular Medicine Annual Meeting (1994)

AS Jun, IA Trounce, MD Brown, JM Shoffner, YL Kim, DC Wallace. Marked complex I deficiency in patients harboring the np 14459 ND6 mitochondrial DNA mutation associated with Leber's hereditary optic neuropathy and dystonia. ASHG Annual Meeting (1994)

AS Jun, IA Trounce, MD Brown, JM Shoffner, DC Wallace. Cytoplasmic transfer of a complex I defect associated with the mitochondrial DNA (mtDNA)-encoded ND6 np 14459 mutation causing Leber hereditary optic neuropathy and dystonia. Slide presentation, ASHG Annual Meeting (1995)

MD Brown, AS Jun, JM Shoffner, DC Wallace. Complex I defect assigned to the Leber's hereditary optic neuropathy (LHON) plus dystonia mitochondrial DNA (mtDNA) mutation at nucleotide pair (np) 14459 through cybrid transfer. Slide presentation, American Academy of Neurology Annual Meeting (1995)

MD Brown, IA Trounce, AS Jun, A Panov, DC Wallace. Biochemical analyses of the 3460, 11778, and 14484 Leber's hereditary optic neuropathy (LHON) mtDNA mutations in patient lymphoblasts and transmitochondrial cybrids. ASHG Annual Meeting (1996)

AS Jun, ER Steuer, MW Wu, E Ceballos, HE Grossniklaus, PS Sternberg, Jr. Characterization of cultured

human RPE grown on a thin collagen substrate. Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting (1997)

AS Jun, MD Brown, IA Trounce, JC Allen, DC Wallace. Mitochondrial DNA (MtDNA) mutations causing Leber Hereditary Optic Neuropathy (LHON) are associated with distinct biochemical phenotypes. ARVO Annual Meeting (1999)

AS Jun, S Liu, JD Gottsch. Identification of genes expressed in human corneas using microarray technology. Slide presentation, Third International Meeting on Cornea, External Disease, and Eyebanking (2000)

AS Jun, SH Liu, WJ Stark, JD Gottsch. DNA microarray analysis of human, donor corneas. Association of University Professors of Ophthalmology/Research to Prevent Blindness Resident and Fellow Research Forum (2001)

AS Jun, SH Liu, D Van Do, WJ Stark, and JD Gottsch. Microarray analysis of gene expression in human, donor corneas. ARVO Annual Meeting (2001)

DV Do, EK Akpek, AS Jun, D Goodman, WR Green, JD Gottsch. Clinical and ultrastructural features of a novel, hereditary, anterior segment dysgenesis. ARVO Annual Meeting (2001)

DV Do, AS Jun, KW Broman, EK Akpek, WJ Stark, JD Gottsch. Endothelial dystrophy, iris hypoplasia, congenital cataract, and stromal thinning (EDICT) syndrome maps to chromosome 15q15-25. ARVO Annual Meeting (2002)

Liu SH, Bowers AL, Michels AJ, **Jun AS**, Gottsch JD. Differentially expressed genes in human corneal endothelium using suppression subtractive hybridization. Invest Ophthalmol Vis Sci. 2003;44: E-abstract 850.

Hyon J, Joo M, Hose S, **Jun A**, Sinha D, O'Brien, TP. Role of neuronal growth promoting factors on nerve regeneration following LASIK. Invest Ophthalmol Vis Sci. 2003;44: E-abstract 2591.

Emerson GG, **Jun AS**, Stark WJ, Sheehan S, Gottsch JD. Early onset of Fuchs' endothelial dystrophy in children of two affected parents. Invest Ophthalmol Vis Sci. 2003;44: E-abstract 3861.

Oboh AM, Lai H, Weilke F, Rafeia J, **Jun AS**, Stark WJ, Gottsch JD. Correlation of visual acuity with pachymetry in patients with Fuchs' endothelial dystrophy. Invest Ophthalmol Vis Sci. 2003;44: E-abstract 4742.

Jun AS, Larkin DFP, George AJT, McClure MO. Gene transfer to human corneal endothelium using equine infectious anemia virus. Invest Ophthalmol Vis Sci. 2003;44: E-abstract 4749.

Suh LH, Paul J, Maumenee IH, **Jun AS**, Chakravarti S. Lumican mutation analysis of patients with cornea plana. Invest Ophthalmol Vis Sci. 2004;45: E-abstract 1524.

Schumacher MJ, Wu F, **Jun A**, Roberts L, Savino L, Chakravarti S. Distinctive gene expression profiles of mouse cornea and discovery of novel cornea genes. Invest Ophthalmol Vis Sci. 2005;46: E-abstract 1203.

Gottsch JD, Sundin O, Liu S, **Jun AS**, Broman KW, Stark WJ, Vito ECL, Thompson JM, Magovern M. Inheritance of a novel COL8A2 mutation defines a distinct subtype of Fuchs' corneal dystrophy. Invest Ophthalmol Vis Sci. 2005;46: E-abstract 4714.

Wang D, Reyes J, Herretes S, Pirouzmanesh A, **Jun A**, McDonnell P, Chuck R, Behrens A, Elisseeff J. Novel biological tissue adhesives for corneal surgery and repair. Invest Ophthalmol Vis Sci. 2005;46: E-abstract 4797.

Reyes JG, Herretes S, Pirouzmanesh A, Wang D-A, Elisseeff J, **Jun A**, McDonnell PJ, Chuck RS, Behrens A. A modified chondroitin sulfate aldehyde adhesive for sealing corneal incisions. Invest Ophthalmol Vis Sci. 2005;46: E-abstract 4798.

Suh LH, Zhang C, Naylor S, Binley K, Behrens A, Chuck RS, Stark WJ, Chakravarti S, **Jun AS**. Genetic modification of in vitro primary cultured human corneal endothelial cells with equine infectious anemia virus (EIAV). Invest Ophthalmol Vis Sci. 2006;47: E-abstract 1591.

Jun AS, Chakravarti S, Edelhauser HF, Kimos M. Aging changes of mouse corneal endothelium and Descemet's membrane. Invest Ophthalmol Vis Sci. 2006;47: E-abstract 4388.

Oster SF, Suh LH, Chakravarti S, **Jun AS**. Assessment for markers of vascular and lymphatic endothelial proliferation in human primary cultured corneal endothelial cells. Invest Ophthalmol Vis Sci. 2006;47: E-abstract 4913.

K Binley, O Kan, S Iqball, M Esapa, M Picard, S Naylor, AS Jun, R Ali, P Gouras, R Allikmets, PA Campochiaro. The development of EIAV-based lentiviral gene therapies for neovascular AMD and other ocular diseases. European Society of Gene Therapy Annual Meeting (2006)

S Naylor, K Binley, O Kan, S Iqball, S Sims, **A Jun**, P Gouras, R Allikmets, P Campochiaro. The development of EIAV-based lentiviral gene therapies for neovascular AMD and other ocular diseases. Invest Ophthalmol Vis Sci. 2007;48: E-abstract 1686.

HB Hindman, RL McCally, E Myrowitz, MA Terry, WJ Stark, RS Weinberg, **AS Jun**. Evaluation of deep lamellar endothelial keratoplasty (DLEK) surgery using scatterometry and wavefront analyses. Invest Ophthalmol Vis Sci. 2007;46: E-abstract 4708.