

Curriculum Vitae
James Tahara Handa, MD

DEMOGRAPHIC INFORMATION

Current Appointment:

Associate Chief, Retina Division
Vice-Chair, Department of Ophthalmology, Quality Assurance and Quality Improvement
Thomas Orton Jones Fellow (inaugural recipient)
Associate Professor
Wilmer Eye Institute, Department of Ophthalmology
Johns Hopkins University School of Medicine
Baltimore, MD
07/01-present

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Education and Training (in chronological order):

Degrees/Year/Institution/Discipline

Undergraduate: Degree: A.B. 1981
Brown University, Providence, RI
Discipline: Biology

Doctorate: Degree: M.D. 1986
University of Pennsylvania School of Medicine, Philadelphia, PA
Discipline: Medicine

Internship: 1986-87
The Graduate Hospital, Philadelphia, PA
Discipline: Internal medicine

Residency: 1987-90
The Wills Eye Hospital, Philadelphia, PA
Discipline: Ophthalmology

Fellowship: 1990-92
Duke University Eye Center, Durham, NC
Discipline: Vitreoretinal diseases

1993
University of Southern California
Children's Hospital of Los Angeles, Los Angeles, CA
Discipline: Intraocular Oncology

Professional Experience (in chronological order):

Positions/Institutions/Dates

Chemistry Instructor as the Mailliard Teaching Fellow
The Taft School, Watertown, CT
8/81–8/82

Clinical Instructor and Research Associate, Vitreoretinal Service
Duke University Eye Center, Durham, NC
7/92-6/93

Assistant Professor in Residence of Ophthalmology
Vitreoretinal and Ocular Oncology Service
University of California, Davis Medical Center
University of California, Davis, Sacramento, CA
7/93-6/99

Associate Professor in Residence of Ophthalmology, Level I
Vitreoretinal and Ocular Oncology Service
University of California, Davis Medical Center
University of California, Davis, Sacramento, CA
7/99-6/01

Associate Professor
Retina Division
Wilmer Eye Institute
Johns Hopkins School of Medicine
Baltimore, MD
7/01-present

RESEARCH ACTIVITIES

Publications

Peer-reviewed scientific articles

1. **Handa JT**, Henry J, Krupin T, Keates E: Extracapsular Cataract Extraction With Posterior Chamber Lens Implantation in Patients with Glaucoma. Arch. Ophthalmol 1987; 105: 765-769.
2. Potter W, Nelson L, **Handa JT**: Hemihang-Back Recession. Description of the Technique and Review of the Literature. Ophthalmic Surg. 1990; 21: 711-715.
3. Berkowitz BA, **Handa JT**, Wilson CA: Perfluorocarbon temperature measurements using ¹⁹F NMR. NMR in Biomed. 1992; 5: 65-68.
4. Wilson CA, Berkowitz BA, Sato Y, Ando N, **Handa JT**, de Juan E: Treatment with intravitreal steroid reduces blood-retinal barrier breakdown due to retinal photocoagulation. Arch Ophthalmol. 1992; 110: 1155-1159.
5. **Handa JT**, Murad S, Jaffe GJ: Minoxidil inhibits ocular cell growth and lysyl hydroxylase activity. Invest Ophthalmol Vis Sci. 1993; 34: 567-575.
6. **Handa JT**, Houston LL, Jaffe GJ: Monensin enhances the antiproliferative effect of immunotoxin in vitro. Current Eye Res. 1993; 12: 45-53.
7. **Handa JT**, Houston LL, Jaffe GJ: The antiproliferative effect of a transferrin toxin on human RPE cells and rabbit fibroblasts. Invest Ophthalmol Vis Sci. 1993; 34: 3419-3428.
8. **Handa JT**, Murad S, Jaffe GJ: Hydroxy derivatives of minoxidil inhibit the proliferation and lysyl hydroxylase activity of cultured human RPE cells. Invest Ophthalmol Vis Sci.

- 1994; 35:463-469. Handa JT, Jaffe GJ: Lightning maculopathy. A case report. *Retina*. 1994; 14: 169-172.
9. Goins KM, Ortiz JR, Fulcher SFA, **Handa JT**, Jaffe GJ, Foulks GN, Cobo LM: Inhibition of proliferating lens epithelium with antitransferrin receptor immunotoxin. *J Cataract Refract Surg*. 1994; 20: 513-516.
 10. **Handa JT**. The role of vitrectomy in rhegmatogenous retinal detachment. *Seminars of Ophthalmology*. 1995; 10: 9-16.
 11. **Handa JT**, Berkowitz BA, Wilson CA, Ando N, Sen H, Jaffe GJ: Hypoxia precedes the development of experimental preretinal neovascularization. *Graefes Arch Clin Exp Ophthalmol*; 1996; 234: 43-46.
 12. **Handa JT**, Keithahn MA, Jaffe GJ: Transferrin-Ricin A chain toxin prevents the development of experimental proliferative vitreoretinopathy. *Exp Eye Res*. 1996; 62: 689-696.
 13. **Handa JT**, Pearson PA, Jaffe GJ: Clearance of antitransferrin receptor immunotoxin from the rabbit eye. *Curr Eye Res*. 1996; 15: 1039-1044.
 14. Vander JF, **Handa J**, McNamara JA, Trese MT, Spencer R, Repka MX, Rubsamen P, Li H, Morse LS, Tasman WS: Early Treatment of Posterior Retinopathy of Prematurity: A Controlled Trial. *Ophthalmology*. 1997; 104: 1731-1736.
 15. **Handa JT**, Reiser KM, Matsunaga H, Hjelmeland LM: The advanced glycation endproduct pentosidine induces the expression of PDGF-B in human retinal pigment epithelial cells. *Exp Cell Res*. 1998; 66: 411-419
 16. Chang A, Morse LS, **Handa JT**, Morales RB, Tucker R, Hjelmeland L, Yannuzzi LA: Histologic localization of Indocyanine Green dye in aging primate and human ocular tissues with clinical angiographic correlation. *Ophthalmology*. 1998; 105: 1060-1068.
 17. Matsunaga H, **Handa JT**, Aotaki-Keen A, Sherwood SW, West MD, Hjelmeland LM: β -Galactosidase histochemistry and telomere loss in senescent retinal pigment epithelial cells. *Invest Ophthalmol Vis Sci*. 1999; 40: 197-202.
 18. **Handa JT**, Verzijl N, Matsunaga H, Aotaki-Keen A, Luttj DA, te Koppele JM, Miyata T, Hjelmeland LM: Increase of the advanced glycation endproduct pentosidine in Bruch's membranes with age. *Invest Ophthalmol Vis Sci*. 1999; 40: 775-779.
 19. Mishima K, **Handa JT**, Aotaki-Keen A, Luttj DA, Morse LS, Hjelmeland LM: Senescence Associated β -Galactosidase Histochemistry for the Primate Posterior Pole. *Invest Ophthalmol Vis Sci*. 1999; 40: 1590-1593.
 20. Farboud B, Aotaki-Keen A, Miyata T, Hjelmeland LM, **Handa JT**. Development of a Polyclonal Antibody with Broad Epitope Specificity for Advanced Glycation Endproducts and Its Use for the Detection of AGEs in Aging Human Bruch's Membrane and Choroid. *Mol Vis*. 1999; 5:11: <http://www.molvis.org/molvis/v5/p11/>
 21. Canzano JC, **Handa JT**. Utility of Pupillary Dilatation for Detecting Leukocoria in Patients with Retinoblastoma. *Pediatrics*. 1999; 104(4): e44.
 22. Matsunaga H, **Handa JT**, Gelfman CM, Hjelmeland LM: The mRNA Phenotype of Human RPE Cells at Replicative Senescence. *Mol Vis*. 1999; 5: 39. <http://www.molvis.org/molvis/v5/p39/>
 23. Hong S-B, Kwang-Won L, **Handa JT**, Joo C-K. Effect of advanced glycation end products on lens epithelial cells in vitro. *Biophys Biochem Res Commun*. 2000; 275: 53-59.
 24. Honda, S, Hjelmeland, LM, **Handa JT**. The use of hyperoxia to induce chronic mild oxidative stress in RPE cells in vitro. *Mol Vis*. 2001; 7: 63-70 <http://www.molvis.org/molvis/v7/a10/>.
 25. Miyamura N, Mishima K, Honda S, Aotaki-Keen AE, Morse LS, **Handa JT**, Hjelmeland LM. Age-related and Topographic variation of insulin-like growth factor binding protein 2 expression in the human RPE. *Invest Ophthalmol Vis Sci*. 2001; 42: 1626-1630.

26. Honda S, Weigel A, Hjelmeland LM, **Handa JT**. Senescence of retinal pigment epithelial cells induced by cryopreservation accompanied with telomere shortening. *Biophys Biochem Res Commun*. 2001; 282: 493-498.
27. Honda S, Hjelmeland LM, **Handa JT**. Oxidative stress induced single strand breaks in chromosomal telomeres of human retinal pigment epithelial cells in vitro. *Invest Ophthalmol Vis Sci*. 2001; 42: 2139-2144.
28. Boylan S, Honda S, Hjelmeland LM **Handa JT**. An optimized protocol for first strand cDNA synthesis from laser capture microdissected tissue. *Lab Invest*. 2001; 81: 1167-1169.
29. Alizadeh M, Wada M, Gelfman CM, **Handa JT**, Hjelmeland LM. Downregulation of differentiation specific gene expression by oxidative stress in ARPE-19 cells. *Invest Ophthalmol Vis Sci*. 2001; 42: 2706-2713.
30. Wada M, Gelfman CM, Honda S, Matsunaga H, Alizadeh M, Morse LS, **Handa JT**, Hjelmeland LM. Density dependent expression of FGF-2 in response to oxidative stress in RPE cells in vitro. *Curr Eye Res*. 2001; 23: 226-231.
31. Honda S, Farboud B, Hjelmeland LM, **Handa JT**. Induction of an aging mRNA retinal pigment epithelial cell phenotype by matrix-containing advanced glycation endproducts in vitro. *Invest Ophthalmol Vis Sci*. 2001; 42: 2419-2425.
32. Rasmussen H, Chu KW, Campochiaro P, Gehlbach PL, Haller JA, **Handa JT**, Nguyen QD, Sung JU. Clinical protocol. An open-label, phase I, single administration, dose-escalation study of ADGVPEDF.11D (ADPEDF) in neovascular age-related macular degeneration (AMD). *Human Gene Ther*. 2001; 12: 2029-2032.
33. Honda S, Hjelmeland LM, **Handa JT**. Senescence-associated beta-galactosidase activity in human retinal pigment epithelial cells exposed to mild hyperoxia in vitro. *Br J Ophthalmol*. 2002; 86: 159-162.
34. Weigel AL, **Handa JT**, Hjelmeland LM. Microarray Analysis of H₂O₂, HNE, or tBH Treated ARPE-19 Cells. *Free Radical Biol Med*. 2002; 33: 1419-1432.
35. Chen L, Miyamura N, Ninomiya Y, **Handa JT**. Distribution of the Collagen IV isoforms in human Bruch's Membrane. *Br J Ophthalmol*. 2003; 87: 212-215.
36. Alizadeh M, Miyamura N, **Handa JT**, Hjelmeland LM. Human RPE cells express the FGFR2IIIc and FGFR3IIIc splice variants and FGF9 as a potential high affinity ligand. *Exp Eye Res*. 2003; 76: 249-256.
37. Miyamura N, Ogawa T, Boylan S, Morse LS, **Handa JT**, Hjelmeland LM. Topographic and age-dependent expression of heme-1 and catalase in the human retinal pigment epithelium. *Invest Ophthalmol Vis Sci*. 2004; 45:1562-1565.
38. Tian J, Ishibashi K, **Handa JT**. The expression of native and cultured RPE grown on different matrices. *Physiologic Genomics*. 2004;17: 170-182.
39. Ida H, Ishibashi K, Reiser KM, Hjelmeland LM, **Handa JT**. Aging of the RPE-Bruch's Membrane-Choriocapillaris Complex in the D-Galactose Treated Mouse. *Invest Ophthalmol Vis Sci*. 2004; 45(7):2348-54..
40. Honda S, Hirai T, **Handa JT**, Okuno T, Saito I. The expression of cell cycle related proteins in a rapidly growing uveal malignant melanoma. *Retina*, 2004; 24(4): 646-9.
41. Ishibashi K, Tian J, **Handa JT**. The mRNA Phenotype of Morphologically Normal Macular and Peripheral Retinal Pigment Epithelial Cells is Similar in Older Human Eyes. *Invest Ophthalmol. Vis Sci*. 2004; 45(9): 3291-301.
42. Apte RJ, Schachat AP, Dibernardo C, **Handa JT**. Retinal Vascular Occlusion with Overlying Vitreous Hemorrhage Masquerading as a Tumor. *Arch Ophthalmol*. 2005; 123(2):272-4.
43. Apte RJ, Al-Abdulla NA, Green WR, Schachat AP, DeJong MR, Dibernardo C, **Handa JT**. Systemic Non-hodgkin B-Cell Lymphoma Presenting as a Vanishing Choroidal Mass. *Arch Ophthalmol*. 2005; 123(1):105-9.

44. Wu T, **Handa JT**, Gottsch JD. Light Induced-oxidative Stress in Choroidal Endothelial Cells. *Invest Ophthalmol. Vis Sci.* 2005; 46(4):1117-23.
45. Lai MM, Lai JC, Lee W-H, Huang JJ, Patel S, Ying HS, Melia M, Haller JA, **Handa JT**. Comparison of Retrobulbar and Sub-Tenon's Injection of Local Anesthetic in Vitreoretinal Surgery. *Ophthalmology.* 2005; 112(4):574-9.
46. Oshima Y, Oshima S, Nambu H, Kachi S, Takahashi K, Umeda N, Shen J, Dong A, Apte RS, Duh E, Hackett SF, Okoye G, Ishibashi K, **Handa J**, Melia M, Wiegand S, Yancopoulos G, Zack DJ, Campochiaro PA. Different effects of angiopoietin-2 in different vascular beds in the eye: new vessels are most sensitive. *FASEB J.* 2005 Mar 31; [Epub ahead of print].
47. Leung L, **Handa JT**. Treatment of primary rhegmatogenous retinal detachment. *Clinical Update. American Academy of Ophthalmology.* 2005. www.aao.org/vp/edu/retina/v1m3
48. Tian J, Ishibashi K, Honda S, Boylan SA, Hjelmeland LM, **Handa JT**. The Expression of Native and Cultured Human Retinal Pigment Epithelial Cells Grown in Different Culture Conditions. *Br J Ophthalmol.* 2005; 89(11):1510-7.
49. Barak A, Hauser D, Yipp P, Morse L, Leigh B, Kubo D, Goldberg Z, Earle J, **Handa JT**. A Phase I trial of stereotactic external beam radiation for subfoveal choroidal neovascular membranes in age-related macular degeneration. *Br J. Radiol.* 2005; 78(933):827-31.
50. Tian J, Ishibashi K, Ishibashi K, Reiser K, Grebe R, Biswal S, Gehlbach P, **Handa JT**. Advanced Glycation Endproduct-Induced Aging of the Retinal Pigment Epithelium and Choroid: A Comprehensive Transcriptional Aging Response . *Proc Natl Acad Sci USA.* 2005; 102(33):11846-51.
51. Lai MM, **Handa JT**, Local anesthetic in vitreoretinal surgery: author reply. *Ophthalmology.* 2005; 112(11):2052.
52. Yamada Y, Ishibashi K, Ishibashi K, Bhutto IA, Tian J, Luttly GA, **Handa JT**. The Expression of Advanced Glycation Endproduct Receptors in RPE Cells Associated with Basal Deposits in Human Maculas. *Exp Eye Res.* 2006; 82(5):840-8.
53. Leung L, Hyland JC, Young A, Goldberg MF, **Handa JT**. A Novel Mutation in Intron 11 of the COL2A1 Gene in a Patient with Type I Stickler Syndrome. *Retina.* 2006; 26(1): 106-9.
54. Botelho PJ, Congdon NG, **Handa JT**, Akpek EK. Keratoprosthesis in High-risk Pediatric Corneal Transplantation:First 2 Cases. *Arch Ophthalmol.* 2006; 124:1356-7.
55. Do DV, Cho M, Nguyen QD, Shah SM, **Handa JT**, Campochiaro PA, Zimmer-Galler I, Sung JU, Haller JA. The Impact Of Optical Coherence Tomography On Surgical Decision Making In Epiretinal Membrane And Vitreomacular Traction. *Trans Am Ophthalmol Soc.* 2006 Dec;104:161-166.
56. **Handa JT**. New Molecular Histopathologic Insights Into the Pathogenesis of Age-related Macular Degeneration. *Int Ophthalmol Clin.* 2007 Winter;47(1):15-50.
57. 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 Feb 21, [Epub ahead of print]
58. Do DV, Cho M, Nguyen QD, Shah SM, **Handa JT**, Campochiaro PA, Zimmer-Galler I, Sung JU, Haller JA. Impact of optical coherence tomography on surgical decision making for epiretinal membranes and vitreomacular traction. *Retina.* 2007 Jun;27(5):552-6.
59. Sodhi, A, Leung L-S, Do DV, Gower ES, Schein OD, **Handa JT**. Recent Trends in the Management of Rhegmatogenous Retinal Detachment. *Survey Ophthalmol.* 2007 (in press)
60. Adyanthaya RS, Ying HS, **Handa JT**, Repka MX. Macular Retinal Detachment in Hallerman-Streiff Syndrome. *Arch Ophthalmol.* 2007 (In press).

Peer Reviewed Bioengineering Publications (Role: Investigator)

NOTE: The following papers were oral presentations. The following meetings have a 5-30% acceptance rate due to 3 reviews of full papers before acceptance.

1. Lin H, Dewan M, Marayong P, **Handa J**, Hager GD. Vision-Based Human-Machine Collaborative System for Ophthalmic Micro-Surgery. Medicine Meets Virtual Reality, 2006.
2. Seshamani S, Riviere C, **Handa JT**, Lobes L, Hager GD, "Visual Measurement of Microsurgical Motion with Application to Robotic Augmentation," IEEE 32nd Northeast Bioengineering. Conference Proceedings, pages 39-40, 2006
3. Iordachita I , Kapoor A, Mitchell B, Kazanzides P, Hager G, **Handa J**, and Taylor R. Steady-Hand Manipulator for Retinal Surgery. Miccai Medical Robotics Workshop, Copenhagen, Denmark, Oct 5, 2006.
4. Mitchell B, Koo J, Iordachita I, Kazanzides P, Kapoor A, **Handa J**, Taylor R, and Hager G. Development and Application of a New Steady-Hand Manipulator for Retinal Surgery, IEEE International Conference on Robotics and Automation, Rome, Italy, Apr 10-14, 2006.

Collaborative Study Publications (Role: Investigator)

1. Early Treatment For Retinopathy Of Prematurity Cooperative Group. Revised indications for the treatment of retinopathy of prematurity: results of the early treatment for retinopathy of prematurity randomized trial. Arch Ophthalmol. 2003 Dec;121(12):1684-94.
2. Hardy RJ, Palmer EA, Dobson V, Summers CG, Phelps DL, Quinn GE, Good WV, Tung B; Cryotherapy for Retinopathy of Prematurity Cooperative Group. Risk analysis of prethreshold retinopathy of prematurity. Arch Ophthalmol. 2003 Dec;121(12):1697-701.
3. Campochiaro PA and the C99-PKC412-003 Study Group. Reduction of Macular Edema by Oral Administration of the Kinase Inhibitor PKC412. Invest Ophthalmol Vis Sci. 2004; 45: 937-942.
4. Good WV on behalf of the Early Treatment for Retinopathy of Prematurity Cooperative Group. Final results of the Early Treatment for Retinopathy of Prematurity (ETROP) Randomized Trial. Trans Am Ophthalmol Soc 2004;102:233-250
5. Early Treatment for Retinopathy of Prematurity Cooperative Group. Multicenter trial of early treatment for retinopathy of prematurity: study design. Controlled Clinical Trials 2004; 25:311-325.
6. Davitt BV, Dobson V, Good WV, Hardy RJ, Quinn, GE, Siatkowski RM, Summers CG, Tung T. for the Early Treatment for Retinopathy of Prematurity Cooperative Group. Prevalence of Myopia at 9 Months in Infants with High-Risk Prethreshold Retinopathy of Prematurity. Ophthalmology 2005;112:1564-1568.
7. Early Treatment for Retinopathy of Prematurity Cooperative Group. The Incidence and Course of Retinopathy of Prematurity: Findings From the Early Treatment for Retinopathy of Prematurity Study. Pediatrics 2005;116;15-23.
8. VanderVeen DK, Coat DK, Dobson V, Fredrick D, Gordon RA, HardyRJ, Neely DE, Palmer EA Steid SM, Tung B, Good WV, for the Early Treatment for Retinopathy of Prematurity Cooperative Group. Prevalence and Course of Strabismus in the First Year of Life for Infants With Prethreshold Retinopathy of Prematurity. Findings From the Early Treatment for Retinopathy of Prematurity Study. Arch Ophthalmol. 2006;124:766-773.
9. Early Treatment for Retinopathy of Prematurity Cooperative Group. The Early Treatment for Retinopathy Of Prematurity. Study: structural findings at age 2 years. Br.

- J. Ophthalmol. 2006;90;1378-1382; originally published online 16 Aug 2006; doi:10.1136/bjo.2006.098582.
10. Nguyen QD, Shah SM, Hafiz G, Quinlan E, Sung J, Chu K, Cedarbaum JM, Campochiaro PA, CLEAR-AMD 1 Study Group. A Phase I Trial of an IV-Administered Vascular Endothelial Growth Factor Trap for Treatment in Patients with Choroidal Neovascularization due to Age-Related Macular Degeneration. Ophthalmology. 2006 Jul 27; [Epub ahead of print]

Non-peer reviewed articles-None.

Editorials, Reviews (If invited, list below under "Recognition")

Book Chapters, Monographs-None

Books

1. 1989 Co author: In Friedberg M, Rapuano C (Eds.): Wills Eye Hospital: Office and Emergency Room Diagnosis and Treatment of Eye Diseases, Philadelphia. J.B. Lippincott.

Other Media-None

Inventions, Patents, Copyrights (pending, awarded): None

Extramural Sponsorship (current, pending, previous):

Current.

1. "Advanced Glycation Endproduct mediated cholesterol deposition in Bruch's membrane of ApoB100+/+LDLR-/- Mice". 4/1/05-3/31/07. American Health Assistance Foundation Macular Degeneration Research. Total direct cost: \$99,545. Current year direct cost: \$49,772.50. Principal Investigator. Percent effort 10% (0% salary)
2. "Image Guidance for Active Handheld Microsurgical Tools" Aug 1, 2006-July 30, 2008. NIH. R21 EY016359. \$275,000 total direct. Initial direct: \$150,000. Investigator. 5% effort.
3. "Local Statin Administration for the Treatment of Age-related Macular Degeneration". 11/1/06-10/31/08. QLT Award. Total Direct cost: \$889,393. Current year direct cost: \$503,905. Principal Investigator. Percent effort 35%.
4. "Does Lipofuscin Induce Lipoprotein Secretion by the RPE?" July 1, 2006-June 30, 2008. Lincy Foundation. Total direct cost: \$80,000. Current year direct cost: \$40,000. Role: Principal Investigator. Percent effort 5% (0% salary).
5. "Role of Non-steroidal anti-inflammatory agents in reducing experimental uveitis" 7/1/07-6/30/07. Macula Society Award. Total direct: \$10,000. Role: Principal Investigator. Percent effort 1% (0% salary)

Pending

1. "AGE-induced Phenotype of the Retinal Pigment Epithelium." 7/1/01-5/31/06. National Eye Institute. 1R01 EY14005. Total direct cost: \$1,200,000. Current year direct cost: \$250,000. Role: Principal Investigator. Percent effort: 50%. In re-review.
2. "A Microsurgical Assistant System". December 1, 2007-November 30, 2012. NIH. Bioengineering Research Partnerships. Total direct cost: \$3,747,658. December 1, 2007-November 30, 2012. Current direct cost: \$749,728. PI Russell Taylor; Role: Investigator: Percent effort 5%

Previous

1. "The role of nonenzymatic glycation in age-related macular degeneration". 1994-95. Bob Hope Fight For Sight Grant-in-Aid. Direct cost: \$10,475. Role: Principal investigator; Percent effort: 10%.
3. "The Role of Anemia of Prematurity and Fetal Hemoglobin on Retinopathy of Prematurity." 1998-99. Children's Miracle Network Research Grant, Sacramento, CA. Total direct cost: \$15,000. Role: Principal Investigator. Percent effort: 5%.
4. "Induction of Senescence in RPE cells by AGEs". 1998-00. UC Davis Health System Research Award. Total direct cost: \$116,138. Role: Principal Investigator. Percent effort: 10%.
5. "The effect of nonenzymatic glycation on RPE cell polarity".1995-2001 (Includes no cost extension). National Eye Institute. K11 Physician Scientist Award. EY00344. Total direct cost: \$413,100. Current year direct cost: \$81,500; Role: Principal Investigator. Percent effort: 75%.
6. "The role of AGEs on RPE senescence". 1998-present. Research to Prevent Blindness Manpower Award. Total Direct cost: \$20,000. Role: Principal Investigator. Percent effort: 10%.
7. 1999-04. National Eye Institute. Core Grant. Identification number: P30 EY 12576. Total direct cost: \$1,272,254. Current year cost: \$296,274. Role: Core investigator. Percent effort: 5%. Principal Investigator: Leo Chalupa, Ph.D.
8. "AGE-induced aging of Bruch's membrane". 7/1/02. Research to Prevent Blindness. Lew Wasserman Award. Total direct cost: \$55,000. Current year direct cost: \$55,000. Principal Investigator. Percent effort 10%.
9. "AGEs in Basal Deposit formation". 1/1/05-12/31/06. Research to Prevent Blindness. Clinician Scientist Award. Total direct cost: \$55,000. Current year direct cost: \$55,000. Principal Investigator. Percent effort 10%.
10. "Uncovering a Novel Indication for Atorvastatin: Delaying the Progression of Age-related Macular Degeneration". The Pfizer Atorvastatin Research Award. 7/1/05-6/30/07. Total direct cost: \$100,000. Current year direct cost: \$50,000. Investigator. 5% (0% salary).

Clinical Trials

Investigator for Trials on Age-related Macular Degeneration

1. An Open Label, Phase I single administration, dose escalation study of Ad PEDF.11D in Neovascular Age-related Macular Degeneration. GenVec, Inc.
2. Combretastatin. An open label pilot (phase I/II) dose escalation safety and tolerability study of Combretastatin A4 Phosphate in patients with Neovascular Age-related Macular Degeneration. FFB/OxiGene
3. A phase III multicenter, randomized double-masked sham injection-controlled study of the efficacy and safety of rhuFab V2 (Ranibizumab) in subjects with minimally classic or occult subfoveal neovascular age related macular degeneration. Genentech, Inc.
4. Phase I open label pilot dose escalation safety study of siRNA (VEGFR2) intravitreal injection in patients with Neovascular Age-related Macular Degeneration. Sirna, Inc.
5. VEGF-T. Phase I trial of intravenous VEGF-trap for Neovascular Age-related Macular Degeneration. Regeneron, Inc.
6. Supplemental Oxygen. A phase I/II trial of supplemental oxygen for Neovascular Age-related Macular Degeneration.

Investigator for Trials on Vein Occlusions

1. SCORE (standard care vs Triamcinolone Acetonide intravitreal injections). Treatment for CRVO, BRVO, or Hemi-RVO. NEI
2. Oculex III. Steroid treatment of CRVO and BRVO.

Investigator for Trials on Diabetic Macular Edema

1. Celebrex/Laser Tx for DME.
2. Supplemental oxygen for DME
3. VEGF-T for DME. Regeneron, Inc.
4. DRCR, Intravitreal steroid study to treat DME. NEI
5. Avastin (Monoclonal anti-VEGF) to treat DME. Lucentis, Inc.
6. Oculex III. Phase III trial to treat DME.

Contracts-None

Other-None

EDUCATIONAL ACTIVITIES

Teaching:

Classroom Instruction. (course title, dates, role)

IMD401. Introduction to Physical Diagnosis (UCD Ophthalmology Section), 1999-2000. Role: Instructor of Record.

Cellular and Molecular Biology of Photoreceptors in Health and Disease. Department of Neuroscience and Ophthalmology Course. Johns Hopkins School of Medicine. 2006
Role: Lecturer.

Clinical instruction. (service, dates, role)

Vitreoretinal and Ocular Oncology Service, Department of Ophthalmology, UC Davis, 1993-2001. Role: Supervise and teach Medical Students, Ophthalmology and Family Medicine Residents, Vitreoretinal Fellows in clinic, operating room, and formal lecture series.

Retina Division, Department of Ophthalmology, Wilmer Eye Institute, 2001-present. Role: Supervise and teach Medical Students, Ophthalmology Residents, Vitreoretinal Fellows in clinic, operating room, and formal lecture series.

Retina Division Surgical Teaching Conference, Wilmer Eye Institute, 2005-present. Role: Course Director of the conference which meets every other week.

CME instruction (Course title, dates, role)

UC Davis "Practical Ophthalmology". April, 1993. Role: gave lecture entitled "Ocular Manifestations of AIDS".

UC Davis "Practical Ophthalmology". September, 1993. Role: gave lecture entitled "Ocular Manifestations of AIDS".

UC Davis Annual Symposium. May 1994. Role: gave lectures entitled 1.) Early Laser Photocoagulation for Zone 1 ROP; 2.) The effect of Pentoxifylline on the Progression of Diabetic Retinopathy; 3.) Detection of malignant melanoma cells from uveal melanoma in peripheral blood using polymerase chain reaction.

UC Davis Annual Symposium. May 1995. Role: gave lecture entitled "Common Retinal Problems Confronting the Comprehensive Ophthalmologist".

UC Davis "Practical Ophthalmology for the Primary Care Physician". May 1995. Role: gave lecture entitled AIDS and the Eye.

Vail Vitrectomy Meeting. February 1996. Role: gave lecture entitled "Laser photocoagulation of Zone 1 Retinopathy of Prematurity."

Nantucket Retina Society Meeting. July 1996. Role: gave lecture entitled "Treatment of Subfoveal CNVM with Prednisone and Laser."

12th Annual Meredith Morgan Symposium. Berkeley School of Optometry, Berkeley, CA. 1997. Role: gave lecture entitled "Surgical Management of Retinal Breaks and Retinal Detachment."

- UC Davis Annual Ophthalmology Symposium. 1998. Role: gave lecture entitled "Management of Intraoperative Complications during Cataract Surgery: A Vitreoretinal Surgeon's Perspective."
- 14th Annual Clinical Concepts Symposium. Wilmer Ophthalmological Institute. 2001. Role: gave lecture entitled "New approaches to determining the cause of age-related macular degeneration".
- Age-related Macular Degeneration in 2002: From Prevention to Treatment. Wilmer Ophthalmological Institute. 2002. Role: gave lecture entitled "New insights into the causes of early age-related macular degeneration".
- Wilmer Retinal Vascular Disease Symposium. Wilmer Eye Institute. 2002. New Techniques in Vitreous Surgery in the Management of Retinal Vascular Disease
- The Johns Hopkins Center for Clinical Trials. Monitoring Treatment Effectiveness and Safety in Clinical Trials. 2003. role: gave lecture entitled "Collaborative Ocular Melanoma Study. Clinician's Perspective."
- Age-related Macular Degeneration in 2004: From Prevention to Treatment and Bench to Bedside. Wilmer Eye Institute. 2004. Current Models of Non-neovascular AMD in the Laboratory Setting.
- Update on Intraocular Tumors. 2005. 35th Annual Retina Division Conference. Glacier National Park, Montana.
- American Academy of Ophthalmology Editor's Choices. Discussion of 15 Year outcomes following Threshold Retinopathy of Prematurity, Final Results from the Multicenter Trial of Cryotherapy. 2005. AAO meeting, Chicago, Illinois.
- Wilmer Admissions to CMSC. August 17, 2006. Department of Pediatrics Morbidity and Mortality Conference. Johns Hopkins University School of Medicine, Baltimore, MD.
- Endophthalmitis. Technician Grand Rounds, Department of Ophthalmology, Johns Hopkins University School of Medicine, October 19, 2006.
- Advances in Pars Plana Vitrectomy. 19th Annual Current Concepts in Ophthalmology, Johns Hopkins University School of Medicine, December 7, 2006.
- Strategies for Future Prevention in AMD from Lab Models. Macula 2007, Johns Hopkins School of Medicine, January 13, 2007.

Mentoring (pre- and post-doctoral):

Advisees (provide: name, dates, degree, present position, awards/grants/degrees received under your direction.)

Pre-doctoral Advisees

1. Carlton Yuen, 1998-99, UCD Medical student, 5th pathway research year. Degree: MD in 5/01. Present position: 4th year medical student. Awards: 1998 Morton Levitt Award.
2. Benhom Farhoud, 1998-1999, UCD Graduate Research Assistant, level 2. Degree: none. Present position: PhD student, UC Davis, Department of Microbiology. Awards: none.

Post-doctoral advisees

1. Harsha Sen, M.D., 1992-93, Vitreoretinal fellow, present position: Assistant Professor, Department of Ophthalmology, Vitreoretinal Service, University of Kentucky, Lexington, KY. Awards: none.
2. Dean Elliott, M.D., 1992-93, Vitreoretinal fellow, present position: Assistant Professor, Department of Ophthalmology, Vitreoretinal Service, Henry Ford Hospital, Detroit, MI. Awards: none.
3. Alexander Eaton, M.D., 1992-93, Vitreoretinal fellow, present position: private practice (Vitreoretinal Diseases), Fort Myers, FL. Awards: none.

4. Henry Burnett, M.D., 1993-94, Vitreoretinal fellow, present position: private practice (Vitreoretinal Diseases), Winston Salem, NC. Awards: none.
5. Craig Fern, M.D., 1993-95, Vitreoretinal fellow, present position: private practice (Vitreoretinal Diseases), Westchester and New York City, NY. Awards: none.
6. Mari Ann Keithahn, M.D., 1995-96, Vitreoretinal fellow, present position: private practice (Vitreoretinal Diseases), Columbia, MO. Awards: none.
7. Andrew Chang, M.D., 1996-97, Vitreoretinal fellow, present position: Assistant Professor, Department of Ophthalmology, University of Sydney, Sydney, Australia. Awards: none.
8. Hiroshi Matsunaga, M.D., Ph.D., 1997-99, Research fellow, present position: Assistant Professor, Department of Ophthalmology, Kansai University, Osaka, Japan. Awards: none.
9. Brian Reed, M.D., 1997-98, Vitreoretinal fellow, present position: Vitreoretinal Surgeon, Brooke Army Medical Center, Fort Sam Houston, TX. Awards: none.
10. Kazuaki Mishima, M.D., 1997-99, Research fellow, present position: Assistant Professor, Department of Ophthalmology, Hiroshima National University, Hiroshima, Japan. Awards: none.
11. Mitsumasa Wada, M.D., 1998-2000, Research fellow, present position Assistant Professor, Kansai University, Osaka, Japan. Awards: none.
12. James Palmer, M.D., 1998, Oncology fellow, present position: private practice, San Francisco, CA. Awards: none.
13. Adiel Barak, M.D., 1999-00, Vitreoretinal fellow, present position: Assistant Professor, Department of Ophthalmology, Tel Aviv University, Tel Aviv, Israel. Awards: none.
14. Shigeru Honda, M.D., Ph.D., 1998-2000, Research fellow, will be Assistant Professor, Department of Ophthalmology, Kobe University, Kobe, Japan.
15. Noritake Miyamura, M.D., 1999-2001, Research fellow, will be Assistant Professor, Department of Ophthalmology, Hiroshima National University, Hiroshima, Japan. Awards: none.
16. John Canzano, M.D., 1999, Ophthalmology resident. Degree: Residency. Present position: Vitreoretinal Fellow, University of Southern California. Award: UCD Resident Research Award.
17. Lin Chen, M.D., Ph.D., 2000, Ophthalmology resident. Present Position: 3rd year resident. Award: ARVO Travel Award for project: Distribution of collagen IV isoforms in the human posterior fundus.
18. Denise Kayser, M.D., 2000, Ophthalmology resident. Present position: 3rd year resident. Award: UCD Resident Research Award. Now a Vitreoretinal fellow at University of Iowa.
19. Byron Ladd, M.D., 2001, Vitreoretinal fellow, present position: Private practice
20. Eugene Ng, M.D., 2001, Vitreoretinal fellow, present position: Harvard Business School
21. Sharon Solomon, M.D., 2001, Vitreoretinal fellow, present position: Asst Professor, Wilmer Eye Institute
22. Edward Quinlan, M.D., 2001, Vitreoretinal fellow, present position: Asst Professor, Wilmer Eye Institute
23. Nine Yepez, M.D., 2001, Vitreoretinal fellow, present position: private practice
24. David DiLoreto, MD, PhD, 2002-2003, Vitreoretinal fellow, present position: Assistant Professor, University of Rochester, Rochester, NY
25. Rajendra Apte, MD, PhD, 2002-2003, Vitreoretinal fellow, present position: Assistant Professor, Washington University, St. Louis, MO
26. Neal Adams, MD, 2002-2003, Vitreoretinal fellow, present position: Assistant Professor, Wilmer Eye Institute
27. Itay Chowers, MD, 2002-2003, Vitreoretinal fellow, present position: Assistant Professor, Hadassah University, Department of Ophthalmology, Jerusalem, Israel

28. Eyal Margolit, MD, PhD, 2002-2003, Vitreoretinal fellow, present position: Assistant Professor, University of Nebraska, Department of Ophthalmology, Lincoln, Nebraska
29. Kazuki Ishibashi, MD, PhD, 2002-2004, Post-doctoral research fellow. Position: Assistant Professor, Kobe University, Department of Ophthalmology, Kobe, Japan
30. Justin Brown, MD, 2003-2005, Vitreoretinal fellow, present position: Private Practice, Charlotte, NC
31. Wen Hsiang Lee, MD, 2003 - 2005, Vitreoretinal fellow, present position: Assistant Professor, Bascom Palmer Eye Institute, University Of Miami, Miami, FL
32. Diana Do, MD, 2003 - 2005, Vitreoretinal fellow, present position: Assistant Professor, Wilmer Eye Institute
33. Kazuko Ishibashi, MD, 2003-2004, Post-doctoral research fellow. Position: Assistant Professor, Kobe University, Department of Ophthalmology, Kobe, Japan.
34. Eric Tourville, MD, 2004 - 2006, Vitreoretinal fellow. Present position: Asst Professor, Centre Hospitalier Universite Laval, Quebec, Canada
35. Egbert Saavedra, MD, 2004 -2006, Vitreoretinal fellow, present position: Private Practice, Tucson, AZ
36. Brian Kim, MD, 2004-2006, Vitreoretinal Fellow, Present Position: Private Practice, Burlington, VT
37. Yuko Yamada, MD, 2004-2006, Post-doctoral research fellow. Position: Assistant Professor, Kobe University, Department of Ophthalmology, Kobe, Japan
38. Joanna Oda, MD. 2005 - 2007, Vitreoretinal fellow
39. Heather Casparis, MD, 2005 -2007, Vitreoretinal fellow
40. Sayjal Patel, MD, 2005 -2007, Vitreoretinal fellow
41. Margaret Chang, MD, 2006 -2008, Vitreoretinal fellow
42. Andrew Symons, MD, 2006 -2008, Vitreoretinal fellow
43. Henry Wiley, MD, 2006 - 2008, Vitreoretinal fellow
44. Masashi Fujihara, MD, PhD, 2006-2008, Post-doctoral research fellow.
45. Norihiro Nagai, M.D., 2006-2008, Bausch and Lomb Japan Post-doctoral Fellowship Award

Thesis committees: VK Gullipalli. Institute of Ophthalmology and Visual Science, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark, New Jersey, USA. 2005

Training grant participation: none

Editorial Activities:

Editorial Board appointments

Guest Editor, Invest Oph Vis Sci., Guest Editor, Current Eye Research Editorial Board member, Vision and Aging

Journal peer review activities: Peer reviewer for Acta Ophthalmologica Scandinavica, Am J Ophthalmol, Arch Ophthalmol, Biochimica et Biophysica Acta, British J Ophthalmol, Cornea, Current Eye Research, Diabetes, Diabetes and its Complications, Exp Cell Res, Exp Eye Res, Invest Ophthalmol Vis Sci, Retina, Ophthalmology, Molecular Biology of the Cell, Proc Natl Acad Sci., Physiological Genomics, Survey of Ophthalmology

Book reviewer: Am J Ophthalmol, Ophthalmic Surg

CLINICAL ACTIVITIES:

Certification:

UPIN#: E23229

Tax ID#: 520595110

Medical, other state/government licensure (date, identification #)

DEA Registration Certificate: 10/08/98-present. Identification #: BH2276877.

Maryland, 2001-present. Identification #: D0057248

Maryland Controlled Substances license. Identification #: M48939

California, 1991 - present. Identification #: G 072097.

Nevada, 1994 - 95. Identification #: 7223.

North Carolina, 1990 - 94. Identification #: 38967.

Pennsylvania, 1987 - 90. Identification #: MD-040837-E.

Boards, other specialty certification (date, identification #):

National Board of Medical Examiners Certification: July 1, 1987. Certificate # 319571.

American Board of Ophthalmology, 1991. Diplomate.

American Board of Ophthalmology, 1992. Fellow, Member # 059614

Service Responsibilities (specialty-role, time commitment):

Specialty: Vitreoretinal Diseases and Intraocular Oncology. Role: Medical and surgical treatment of vitreoretinal diseases and intraocular oncology, Time commitment: 40%.

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments (committees, dates):

Admissions Committee interviewer, School of Medicine (UCD), 1995-2001.

Ad Hoc Appointment and Promotion Committee (UCD), observer, 1997.

Faculty Advisor for Medical Students (UCD), 1998-2001.

Member, Research Committee, Wilmer Eye Institute

Member, CPAC, Wilmer Eye Institute, 2002-present

Member, Medical Student Education Committee, Wilmer Eye Institute, 2002-present.

Member, ORMS Physician Committee, Johns Hopkins Medical Institutes, 2002-present.

Member, Blue Ribbon Panel, Wilmer Eye Institute, 2003-present. Investigates Operating room efficiency.

Member, Space Allocation Committee, 2004.

Chair, Committee on Evaluation of K-grant Progress, 2004-present.

Member, Neuro-Ophthalmology Search Committee, 2005-2006.

Associate Division Chief, Retina Service, Wilmer Eye Institute, 2005-present.

Vice Chair, Department of Ophthalmology, Quality Assurance and Quality Improvement, Wilmer Eye Institute, 2006-present

Member, Clinical Quality Improvement Committee, The Johns Hopkins Hospital, 2006-present

Member, "Wilmer 2010" Steering Committee and Implementation Team, 2006-present

Member, "Wilmer Digital Steering Committee", 2007-present.

Member, Pediatric Ophthalmology Search Committee, 2007-present

Professional Societies (membership, committees, dates, role):

Association for Research in Vision and Ophthalmology, 1985-present. Role: member; Member #33085

American Medical Association-1986-present. Role: member.

American Academy of Ophthalmology- 1988-present. Role: member.

Alta California Ophthalmologic Society-1993-present. Role: member.

California Ophthalmologic Society-1999-present. Role: member.

International Congress of Eye Research-2000-present. Role: member.
Retina Society-2002-present. Role: member.
Macula Society-2002-present. Role: member.

Conference Organizer, Session Chair (sponsor, date, role):

International Congress on Ocular Neovascularization, Kyoto Japan. 1997. Role: Chair of session on Age-related Macular Degeneration.
Special Interest Group (SIG). Update on age-related macular degeneration. Chairman. ARVO, Ft. Lauderdale, FL. 2002.
Special Interest Group (SIG). Update on age-related macular degeneration. Chairman. ARVO, Ft. Lauderdale, FL. 2003.

Advisory Committees, Review Groups (sponsor, date, role):

International Committee on the Classification of Intraocular Retinoblastoma, Toronto, Canada. 1994. Role: member.
Expert Legal Witness. 1995-present. Role: Expert legal consultation in medicolegal malpractice cases.
California Department of Corporations. Health Plan Division. 1998-present. Role: review cases involving claims against HMOs.
Special Reviewer. 1996-02. VISC Study Section, National Eye Institute. Role: reviewer for RO-1 grants.
Reviewer for Medical Research Council Grants, London, UK. 2000. Role: reviewer for MRC grants.
Reviewer for Juvenile Diabetes Research Foundation, site visit, Schepens Eye Institute, Boston, MA. 2002-2003. Role: reviewer for JDRF Center grant
Advisory Board Member for Center for Computer-Integrated Surgical Systems and Technology. A National Science Foundation Engineering Research Center. Johns Hopkins University. 2003. Role: provide clinical direction for imaging and robotic designs.
Reviewer for Raine Medical Research Foundation, Nedlands, Australia. 2003
Retina Expert Advisory Meeting. 2004. Dallas, TX. Role: to provide a discussion on classification and treatment of wet age-related macular degeneration. (29 retina experts from around the world)
Ad hoc reviewer, Board of Scientific Counselors, National Eye Institute. 2005. Role: reviewed intramural researchers at the National Eye Institute.
Ad hoc reviewer, Health Research Board, Ireland. 2005. Role: reviewed extramural research proposal.
Member, American Academy of Ophthalmology Research Selection Committee (Selection of retina courses for the AAO meeting, 2007), 2006
Member, Macula Society Research Committee, 2006.
Member, Alcon Retina Advisory Council (RAC), 2006 –
NEI Study Section Cell Biology IRG, October 26, 2006. Role: Reviewer

Consultantships (organization/agency, date, role):

Elon Pharmaceuticals, South San Francisco, CA, 2000-present. Role: Advise regarding advanced glycation endproduct (AGE) formation and anti-AGE antibody synthesis.
Lexicon Genetics, The Woodlands, TX, 2000-present. Role: Ophthalmologic advisor regarding ocular phenotyping of knockout mice.
Alcon, Inc. Fort Worth, TX, 2006-present. Role: Vitreoretinal surgery advisor regarding novel surgical system development.

RECOGNITION

Awards, honors (title, date, description, sponsor):

Sigma Xi Honor Society. 1981. Brown University.
Oliver Memorial Prize in Ophthalmology. 1986. Best medical student research project.
University of Pennsylvania School of Medicine.
Alpha Omega Alpha Honor Society. 1986. University of Pennsylvania School of
Medicine.
Chief Resident. 1989. Wills Eye Hospital. Philadelphia, PA.
ARVO Travel Fellowship. 1992. Recognition for Research project. Association for
Research in Vision and Ophthalmology.
James and Virginia Hornaday Award. 1992. Outstanding Fellow, Duke Eye Center.
Named to "Best Doctors in America, Pacific Region". 1995.
Named to "Top Doctors in Sacramento". 1996.
Named to "Best Doctors in America". 1998.
Named to "Best Doctors in Baltimore". Baltimore Magazine, 2002.
Guide to America's Top Ophthalmologists, 2004
Inaugural Thomas Orton Jones Fellowship in Age-related Macular Degeneration, 2005.
Named to "Best Doctors in America", 2005-2006.
Named to "America's Top Doctors for Cancer, 2nd Edition, 2006

Invited Talks, Panels (title, date, venue, sponsor):

A New Classification for Retinoblastoma. 1994. International Committee on the Classification of
Intraocular Retinoblastoma, ICER meeting. Toronto, Canada.
Retinoblastoma: its diagnosis and a novel treatment approach. 1994. Visiting Professor
Rounds. Department of Ophthalmology, University of Minnesota, Minneapolis, MN.
Laser photocoagulation of Zone 1 Retinopathy of Prematurity. 1996. Vail Vitrectomy Meeting.
Intraocular Tumors. 1996. Sacramento Valley Optometric Society Meeting, Sacramento, CA.
An Unusual Eye Tumor. 1996. Pulse Segment, KXTV Channel 10, Sacramento, CA.
The ocular complications of diabetic retinopathy. 1996. Belau National Hospital Grand Rounds,
Republic of Palau, Micronesia.
The diagnosis and treatment of cataract. 1996. Belau National Hospital Grand Rounds,
Republic of Palau, Micronesia.
Age-related Macular Degeneration. 1996. Simmons College, Boston, MA.
Treatment of Subfoveal CNVM with Prednisone and Laser. 1996. Nantucket Retina Society
Meeting.
Diagnosis and Treatment of Cataract. 1997. Belau National Hospital Grand Rounds, Republic of
Palau, Micronesia.
Diagnosis and Treatment of Diabetic Retinopathy. 1997. Belau National Hospital Grand
Rounds, Republic of Palau, Micronesia.
Surgical Management of Retinal Breaks and Retinal Detachment. 12th Annual Meredith Morgan
Symposium. 1997. Berkeley School of Optometry, Berkeley, CA.
Pentosidine induces PDGF-B chain expression in ARPE-19 RPE cells. 1997. 5th International
Symposium on Ocular Circulation and Neovascularization. Kyoto, Japan.
The role of nonenzymatic glycation and senescence in aging. 1997. Visiting Professor Rounds,
Kyoto University, Kyoto, Japan.
Guide to interpretation of fluorescein angiography. 1998. Invited speaker. Berkeley School of
Optometry, Berkeley, CA.
Management of Diabetic Retinopathy. 1998. Belau National Hospital. Visiting Professor Rounds,
Republic of Palau, Micronesia.

- Diagnosis and Treatment of the Red Eye. 1998. Belau National Hospital. Visiting Professor Rounds, Republic of Palau, Micronesia.
- New Directions in Macular Degeneration Research. 1998. Macular Degeneration Society. Sacramento, CA.
- Diagnosis of Diabetic Retinopathy for the Primary Care Doctor. Belau National Hospital. 1999. Visiting Professor Rounds, Republic of Palau, Micronesia.
- Care of the Age-related Cataract in Palau. 1999. Belau National Hospital. Visiting Professor Rounds, Republic of Palau, Micronesia.
- New Approaches in the Treatment of Retinoblastoma. 1999. 40th Annual Conference of the California Transcribers and Educators of the Visually Handicapped. Sacramento, CA.
- Intraoperative and Postoperative Management of the Pediatric Retinal Surgery Patient. 20th Annual California Perianesthesia Nurses Meeting. 1999. Pleasanton, CA.
- Giving back to the Community. Palau. A Tropical Island Fighting Diabetic Eye Disease. 1999. 6th Annual Asian Pacific American Medical Student Association National Conference. San Francisco, CA.
- Distribution of collagen IV isoforms in the posterior fundus. 2000. Vail Vitrectomy meeting.
- Diagnosis and Management of the Red Eye. 2000. Belau National Hospital. Visiting Professor Rounds, Republic of Palau, Micronesia.
- The pathogenesis of diabetic retinopathy and age-related macular degeneration as it relates to CTGF expression and fibrosis. 2000. Fibrogen, Inc. South San Francisco, CA.
- New theories to the pathogenesis of age-related macular degeneration. 2000. Invited Speaker, Wilmer Eye Institute, Johns Hopkins School of Medicine, Baltimore, MD
- Do AGEs induce aging of the RPE? 2000. Invited speaker to Neurosciences Lecture Series, Johns Hopkins School of Medicine, Baltimore, MD.
- Microarray Analysis of an mRNA phenotype induced by AGE-matrix. 2000. Invited Speaker, International Congress of Eye Research meeting, Santa Fe, NM
- The role of advanced glycation endproducts in diabetic retinopathy and age-related macular degeneration. 2000. Elon Pharmaceuticals, South San Francisco, CA.
- The use of laser capture microdissection and microarray analysis to determine an mRNA phenotype of the retinal pigment epithelium in Age-related macular degeneration. 2001. Lexicon Genetics, The Woodlands, TX.
- Novel approaches to the cause of Age-related macular degeneration. 2001. Wilmer Advisory Council. Baltimore, MD.
- Gene expression profiles of human RPE in vitro and in vivo by microarray analysis. 2001. Western Eye Regional Conference, Lake Tahoe, CA.
- New insight into the pathogenesis of age-related macular degeneration. 2001. 14th Annual Wilmer Current Concepts Meeting, Baltimore, MD.
- Determining an aging mRNA phenotype of the retinal pigment epithelium by microarray analysis. 2002. National Institute of Dentistry and Craniofacial Research, Bethesda, MD.
- The transition of the RPE from aging to Age-related macular degeneration. 2003. Visiting Professor. University of Iowa, Iowa City, IA.
- Understanding the transition from aging to Age-related macular degeneration. 2003. Visiting Professor. University of Pennsylvania, Philadelphia, PA
- The future of fine needle biopsy to guide the treatment of choroidal melanoma. 2003. Visiting Professor. University of Pennsylvania, Philadelphia, PA
- The role of advanced glycation endproducts in RPE aging. 2004. Visiting Professor. University of Medicine and Dentistry of New Jersey, Newark, NJ
- AMD. Many Treatments, but what are the options? 2004. Visiting Professor. University of South Florida. Tampa, FL
- Management of Posterior Capsular Rupture: The Retinal Surgeon's Perspective. 2004. Visiting Professor. University of South Florida. Tampa FL.

Case Presentations of Retina Problems. 2004. Visiting Professor. University of South Florida. Tampa, FL

Update on Management of Uveal Melanoma. 2005. 35th Anniversary, Retina Division Wilmer Eye Institute, Glacier National Park, Montana

New insights into AMD. Maryland Ophthalmological Society, 2005. Baltimore, MD.

AGEs and Aging Bruch's Membrane. Tackling Early AMD: Devising New Strategies to Prevent Visual Loss. 2005. Sonoma, California.

The impact of AGEs in Bruch's membrane with aging and early AMD. 2005. National Eye Institute, NIH, Bethesda, MD.

Managing Retinal Manifestations in the Marfan Syndrome. July 6, 2006. National Marfan Foundation Ophthalmologic Research and Clinical Management Workshop, Philadelphia, PA.

Diagnosis and Management of Ocular Melanoma. October 13, 2006. Grand Rounds, Department of Dermatology, Johns Hopkins University School of Medicine, Baltimore, MD

Aging of the Retinal Pigment Epithelium. May 18, 2007. 24th Annual Wilmer Nursing Conference, Johns Hopkins University, Baltimore, MD

OTHER PROFESSIONAL ACCOMPLISHMENTS

Goodwill Ophthalmology Mission, Republic of Palau, Micronesia, 1994-present. Management of diabetic retinopathy, cataracts, pterygium, and other ophthalmologic diseases. Contracted by the Republic of Palau, Ministry of Health.

Last revised: 7/18/2007