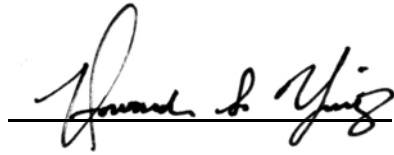


CURRICULUM VITAE FOR ACADEMIC PROMOTION

The Johns Hopkins University School of Medicine

(Signature)

February 27, 2011

Revision Date

Howard Shann-Cherng Ying**DEMOGRAPHIC AND PERSONAL INFORMATION****Current Appointments**

Assistant Professor of Ophthalmology
 Wilmer Eye Institute Retina Division/Pediatric Ophthalmology and Strabismus
 The Johns Hopkins University School of Medicine
 Baltimore, MD

Joint Appointment and Visiting Scientist
 Applied Physics Laboratory
 The Johns Hopkins University
 Laurel, MD

Personal Data

Business Address: 600 North Wolfe St, Maumenee 723, Baltimore, MD 21287
 Phone: (410) 502-2367
 Fax: (410) 614-8577
 Email: hying1@jhmi.edu

EDUCATION AND TRAINING (in chronological order)

Year	Degree/Certificate	Institution	Discipline
1986 - 1990	B.S.	The Johns Hopkins University Whiting School of Engineering Baltimore, MD	Biomedical Engineering
1990 - 1998	M.D.	Washington University School of Medicine St. Louis, MO	Medicine
1990-1998	Ph.D.	Washington University School of Medicine, St. Louis, MO	Neurosciences
1998-1999	Internship	Barnes-Jewish Hospital, Washington University, St. Louis, MO	Internal Medicine
1999 - 2002	Residency	Doheny Eye Institute at the University of Southern California, Los Angeles, CA	Ophthalmology

2002 - 2004	Fellowship	Wilmer Eye Institute at the Johns Hopkins University Baltimore, MD	Retinal Vascular Center and Vitreoretinal Disease
2004 – 2005	Preceptorship	Wilmer Eye Institute at the Johns Hopkins University Baltimore, MD	Pediatric Ophthalmology and Strabismus
2005 - 2007	Graduate studies	Bloomberg School of Public Health at the Johns Hopkins University Baltimore, MD	Epidemiology and Biostatistics

PROFESSIONAL EXPERIENCE (in chronological order)

Dates	Positions	Institution
2002-2004	Advanced Specialty Training Program Assistant in Ophthalmology	Johns Hopkins University School of Medicine Baltimore, MD
2004 – present	Assistant Professor, Department of Ophthalmology	Johns Hopkins University School of Medicine Baltimore, MD

RESEARCH ACTIVITIES

Publications

Peer-reviewed Original Science Research

Full-length publications

- 1 M.F. Chen, L.T. Chen, **H.S. Ying**, H.W. Boyce, Jr. (1990) Effect of DL-buthionine-S,R-sulfoximine on 1,2-dimethylhydrazine-induced colonic tumors in rats. *Cancer Letters* 49(3):237-42.
- 2 B.J. Gwag, J. Koh, J.A. DeMaro, **H.S. Ying**, M.F. Jacquin, D.W. Choi. (1997) Slowly-triggered excitotoxicity occurs by necrosis in cortical cultures. *Neuroscience* 77(2):393-401.
- 3 Z.S. Farhangrazi, **H.S. Ying**, G. Bu, L.L. Dugan, A.M. Fagan, D.W. Choi, D.M. Holtzman. (1997) High density lipoprotein decreases b-amyloid toxicity in cortical cell culture. *NeuroReport* 8(5):1127-1130.
- 4 S.P. Yu, B.J. Gwag, S.L. Sensi, Z.S. Farhangrazi, L.M.T. Canzoniero, **H.S. Ying**, L.L. Dugan, D.W. Choi. (1997) Enhancement of delayed rectifier current in cortical neurons undergoing apoptosis. *Science* 278(5335):114-117.
- 5 F.J. Gottron, **H.S. Ying**, D.W. Choi. (1997) Inhibition of caspase-like proteases selectively reduces the apoptosis component of oxygen-glucose deprivation-induced cortical neuronal death. *Molecular & Cellular Neuroscience* 9(3):159-169.
- 6 S.L. Sensi, L.M.T. Canzoniero, S.P. Yu, **H.S. Ying**, J.Y. Koh, G.A. Kerchner, D.W. Choi. (1997) Measurement of intracellular free zinc in living cortical neurons: routes of entry. *Journal of Neuroscience* 17(24):9554-9564.
- 7 **H.S. Ying**, J. Weishaupt, M. Grabb, L.M.T. Canzoniero, S.L. Sensi, C.T. Sheline, H. Monyer, D.W. Choi. (1997) Sublethal oxygen-glucose deprivation alters hippocampal neuronal AMPA receptor expression and vulnerability to kainate-induced death. *Journal of Neuroscience* 17(24):9536-9544.

- 8 T.Q. Duong, J.J. Ackerman, **H.S. Ying**, J.J. Neil. (1998) Evaluation of extra- and intracellular apparent diffusion in normal and globally-ischemic rat brain via ¹⁹F NMR. *Magnetic Resonance in Medicine* 40(1):1-13.
- 9 J.W. McDonald, T. Bhattacharyya, S.L. Sensi, D. Lobner, **H.S. Ying**, L.M. Canzoniero, D.W. Choi. (1998) Extracellular acidity potentiates AMPA receptor-mediated cortical neuronal death. *Journal of Neuroscience* 18(16):6290-6299.
- 10 S.P. Yu, Z.S. Farhangrazi, **H.S. Ying**, C-H. Yeh, D.W. Choi. (1998) Enhancement of outward potassium current participates in b-amyloid peptide-induced cortical neuronal death. *Neurobiology of Disease* 5(2):81-88.
- 11 **H.S. Ying** and D.W. Choi. (1998) Alterations in glutamate receptor expression in cultured neurons: implications for excitotoxic vulnerability. Ph.D. thesis, Neurosciences Program, Washington University.
- 12 D. Lobner, L.M. Canzoniero, P. Manzerra, F. Gottron, **H. Ying**, M. Tian, L.L. Dugan, G.A. Kerchner, C.T. Sheline, S.J. Korsmeyer, D.W. Choi. (2000) Zinc-induced neuronal death in cortical neurons. *Cellular and Molecular Biology* 46(4):797-806.
- 13 **H.S. Ying**, F.J. Gottron, and D.W. Choi. (2001) Assays in primary cultures to assess cell viability. In *Current Protocols in Neuroscience*. J.N. Crawley, C. Gerfen, R. McKay, M. Rogawski, D. Sibley, P. Skolnick Eds. May; Chapter 7: Unit 7.18.
- 14 C.T. Sheline, **H.S. Ying**, C.S. Ling, L.M.T. Canzoniero, D.W. Choi. (2002) Depolarization-induced ⁶⁵Zn²⁺ influx into cultured cortical neurons. *Neurobiology of Disease* 10(1):41-53.
- 15 Z. Wu, **H.S. Ying**, S. Yiu, J. Irvine, R.E. Smith. (2002) Fungal keratitis caused by *Scedosporium apiospermum*: report of two cases and review of the literature. *Cornea* 21(5):519-523.
- 16 C.T. Sheline, T. Takata, **H. Ying**, L.M.T. Canzoniero, A. Yang, S.P. Yu, D.W. Choi. (2004) Potassium attenuates zinc-induced death of cultured cortical astrocytes. *Glia* 46(1):18-27.
- 17 M.M. Lai, J.C. Lai, W.H. Lee, J.J. Huang, S. Patel, **H.S. Ying**, M. Melia, J.A. Haller, J.T. Handa. (2005) Comparison of retrobulbar and sub-Tenon's capsule injection of local anesthetic in vitreoretinal surgery. *Ophthalmology* 112(4):574-579.
- 18 J.I. Lim, C. Spee, M. Hangai, J. Rocha, **H.S. Ying**, S. Ryan, D. Hinton. (2005) Neuropilin-1 expression by endothelial cells and retinal pigment epithelial cells in choroidal neovascular membranes. *American Journal of Ophthalmology* 140(6):1044-1050.
- 19 N.G. Ghazi, C. Dibernardo, **H.S. Ying**, K. Mori, P. Gehlbach. (2006) Optical coherence tomography of enucleated human eye specimens with histological correlation: evaluation of the origin of the outer "red line". *American Journal of Ophthalmology* 141(4):719-726.
- 20 N.G. Ghazi, C. Dibernardo, **H.S. Ying**, K. Mori, P. Gehlbach. (2006) Optical coherence tomography of peripheral retinal lesions in enucleated human eye specimens with histological correlation. *American Journal of Ophthalmology* 141(4):740-742.
- 21 **H.S. Ying**, J.A. Haller, and J.D. Gottsch. (2007) Combined phacoemulsification, intraocular lens implantation, and pars plana vitrectomy for eyes with coexisting cataract and vitreoretinal pathology. In *Vitreoretinal Surgical Techniques*, 2nd ed. Eds. Peyman, Meffert, and Conway. Informa Healthcare: London.
- 22 Tian J, Shan X, Zee DS, **Ying H**, Tamargo RJ, Quaia C, Optican LM, Walker MF. (2007) Acute superior oblique palsy in monkeys: III. Relationship to Listing's Law. *Invest Ophthalmol Vis Sci.*; 48(6):2621-2625.
- 23 Shan, X, Tian, J, **Ying, H**, Quaia, C, Optican, L, Walker, M, Tamargo, R., Zee, D.S. (2007) Acute SOP in monkeys: II. Changes in Dynamic Properties during Vertical Saccades. *Invest Ophthalmol Vis Sci.* 48(6):2612-2620.
- 24 Shan, X, Tian, J, **Ying, H**, Quaia, C, Optican, L, Walker, M, Tamargo, R., Zee, D.S. (2007) Acute SOP in monkeys: I. Changes in Static Eye Alignment. *Invest Ophthalmol Vis Sci.* 48(6):2602-2611.
- 25 **H.S. Ying** and P. Gehlbach. (2007) Intraocular foreign body: nonmagnetic, chemically

- inert. In *Current Ocular Therapy*, 6th ed. Eds. Roy, Fraunfelder, and Fraunfelder.
- 26 **Ying, H.S.**, Darbandi, B., Shan, X., Barker, P., Miller, N.R., Zee, D.S. (2008) Quantitative eye movement recordings in a patient with bilateral superior oblique palsy after Harada-Ito procedure. *Strabismus* 15(3):137-147.
 - 27 **H.S. Ying** and A.P. Schachat. (2008) Choroidal and Retinal Metastasis. In *Atlas of Posterior Segment Pathology*, Eds Hwang, Kaiser, and Traboulsi. In press.
 - 28 R.S. Adyanthaya, **H.S. Ying**, J.T. Handa, and M.X. Repka. (2008) Macular retinal detachment in Hallerman-Streiff syndrome. *Archives of Ophthalmology* 126(2):271-273.
 - 29 Ramey, N, **Ying, H**, Müllenbroich, M, Irsch, K, Guyton, D. (2008) A Novel Haploscopic Viewing Apparatus with a Three Axis Eye Tracker. *J AAPOS*. 12(5):498-503.
 - 30 X. Shan, J. Tian, **H. S. Ying**, M. F. Walker, D. Guyton, C. Quaia, L. M. Optican, R. J. Tamargo, D. S. Zee. (2008) The effect of acute superior oblique palsy on torsional optokinetic nystagmus in monkeys. *Invest Ophthalmol Vis Sci*. 49(4):1421-1428.
 - 31 **H.S. Ying**, K. Fackelmann, A. Messoudi, X. Tang, J.A. Büttner-Ennever, and A. K. E. Horn. (2008) Neuronal signaling expression profiles of motoneurons supplying multiply- or singly-innervated extraocular muscle fibers in monkey. *Progress in Brain Research* 171:13-16.
 - 32 P.A. Campochiaro, G. Hafiz, S.M. Shah, Q.D. Nguyen, **H. Ying**, D.V. Do, E. Quinlan, I. Zimmer-Galler, J.A. Haller, S. Solomon, J.U. Sung, Y. Hadi, K.A. Janjua, N. Jawed, D.F. Choy and J.R. Arron. (2008) Ranibizumab for Macular Edema Due to Retinal Vein Occlusions: Implication of VEGF as a Critical Stimulator. *Molecular Therapy* 16(4):791-799.
 - 33 **H.S. Ying**, R.A. Symonds, K. Louie, J.T. Handa, S.D. Solomon, P.L. Gehlbach. (2008) Accidental Nd:YAG Laser-induced Choroidal Neovascularization. In press, *Lasers in Surgery and Medicine* 40(4):240-242.
 - 34 Walker MF, Tian J, Shan X, Tamargo RJ, **Ying H**, Zee DS. (2008) Lesions of the cerebellar nodulus and uvula in monkeys: effect on otolith-ocular reflexes. *Prog Brain Res*. 171:167-172.
 - 35 Quaia C, Shan X, Tian J, **Ying H**, Optican LM, Walker M, Tamargo R, Zee DS. (2008) Acute superior oblique palsy in the monkey: effects of viewing conditions on ocular alignment and modelling of the ocular motor plant. *Prog Brain Res*. 171:47-52.
 - 36 Walker MF, Tian J, Shan X, Tamargo RJ, **Ying H**, Zee DS. (2008) Lesions of the Cerebellar Nodulus and Uvula Impair Downward Pursuit. *J Neurophysiol*. 100(4):1813-1823.
 - 37 Tian J, Shan X, **Ying HS**, Walker MF, Tamargo RJ, Zee DS. (2008) The effect of acute superior oblique palsy on vertical pursuit in monkeys. *Invest Ophthalmol Vis Sci*. 49(9):3927-3932.
 - 38 Irsch K, Ramey NA, Kurz A, Guyton DL, **Ying H**. (2009) Video-Based Head Movement Compensation for Novel Haploscopic Eye Tracking Apparatus. *Invest Ophthalmol Vis Sci*. 50(3):1152-1157
 - 39 Nguyen QD, Shah SM, Heier JS, Do DV, Lim J, Boyer D, Abraham P, Campochiaro PA; READ-2 Study Group (includes **Ying H**). (2009) Primary End Point (Six Months) Results of the Ranibizumab for Edema of the mAcula in diabetes (READ-2) study. *Ophthalmology* 116(11):2175-2181.
 - 40 Walker MF, Tian J, Shan X, **Ying H**, Tamargo RJ, Zee DS. (2009) Enhancement of the bias component of downbeat nystagmus after lesions of the nodulus and uvula. *Ann N Y Acad Sci*. 1164:482-485.
 - 41 Quaia C, **Ying HS**, Nichols AM, Optican LM. (2009) The viscoelastic properties of passive eye muscle in primates. I: static forces and step responses. *PLoS One*. 4(4):e4850.
 - 42 Quaia C, **Ying HS**, Optican LM. (2009) The viscoelastic properties of passive eye muscle in primates. II: testing the quasi-linear theory. *PLoS One*. 4(8):e6480.
 - 43 Demer JL, Poukens V, **Ying H**, Shan X, Tian J, Zee DS. (2010) Effects of Intracranial Trochlear Neurectomy On the Structure of the Primate Superior Oblique Muscle. *Invest*

- Ophthalmol Vis Sci.* 51(7):3485-3493.
- 44 Astratov VN, Darafsheh A, Kerr MD, Allen KW, Fried NM, Antoszyk AN, and **Ying HS**. (2010) Photonic nanojets for laser surgery. *SPIE Newsroom* 12 March 2010. DOI: 10.1117/2.1201002.002578.
 - 45 Quaia C, **Ying HS**, Optican LM. (2010) The viscoelastic properties of passive eye muscle in primates. III: a nonlinear, time-dependent model. *PLoS One.* 5(3): e9595.
 - 46 Campochiaro PA, Hafiz G, Channa R, Shah SM, Nguyen QD, **Ying H**, Do DV, Zimmer-Galler I, Solomon S, Sung JU, Syed B. (2010) Antagonism of Vascular Endothelial Growth Factor for Macular Edema Due to Retinal Vein Occlusions; Two Year Outcomes. *Ophthalmology [in press]*.
 - 47 Campochiaro PA, Hafiz G, Shah SM, Bloom S, Brown DM, Busquets M, Ciulla T, Feiner L, Sabates N, Billman K, Kapik B, Green K, Kane F; Famous Study Group (includes **Ying H**). (2010) Sustained ocular delivery of fluocinolone acetonide by an intravitreal insert. *Ophthalmology.* 117(7):1393-1399.e3.
 - 48 McLeod DS, **Ying HS**, McLeod CA, Grebe R, Lubow M, Susac JO, and Luty GA. (2010) Retinal and Optic Nerve Head Pathology in Susac's Syndrome. *Ophthalmology [in press]*.
 - 49 Lienbacher K., Mustari M., **Ying H.**, Büttner-Ennever J.A., Horn A.K.E. (2010) Do the palisade endings in extraocular muscles arise from neurons in the oculomotor nucleus? *Invest Ophthalmol Vis Sci. [in press]*
 - 50 Darafsheh A, Fardad A, Fried NM, Antoszyk AN, **Ying HS**, and Astratov VN. Contact focusing multimodal microprobes for ultraprecise laser tissue surgery. *Optics Express* 2011; 19 (4): 3440-3448.

Recent Abstracts

- 1 **H.S. Ying**, A.P. Ciardella, R.E. Smith. (2000). Super glue and artificial tear bottles can appear dangerously similar. *ASCRS Symposium on Cataract, IOL, and Refractive Surgery Proceedings*.
- 2 **H.S. Ying**, and R.C. Kwun. (2000). Implications of clinically significant macular edema for proliferative diabetic retinopathy in an urban Hispanic population. *IOVS* 41(4):S951.
- 3 **H.S. Ying**, A. Angeles, L. Rife, R.E. Smith. (2001) Topical recombinant human nerve growth factor improves rat corneal epithelial wound healing. *IOVS* 42(4):S886.
- 4 **H.S. Ying**, C. Spee, J.I. Lim, S.J. Ryan, D.R. Hinton. (2002) Vitreous levels of hepatocyte growth factor and transforming growth factor-b2 in patients with proliferative retinopathy. *IOVS* 43(4):E-Abstract 623.
- 5 **H.S. Ying**, R.R. Grebe, M.Mahmoud, S.Y. Kim, J.T. Handa, E.de Juan, Jr. (2004) Genistein reduces retinal pigment epithelial and Bruch's membrane degeneration induced by prolonged blue light exposure in senescence-accelerated mice. *IOVS* 45(4):E-Abstract 1809.
- 6 **H.S. Ying**, X. Shan, J. Tian, R.J. Tamargo, D.S. Zee (2006) Unilateral IV nerve palsy in monkey: II. Saccades. *IOVS* 47(4):E-abstract 2490.
- 7 **H.S. Ying**, N. Ramey, M.C. Müllenbroich, K. Irsch, D.L. Guyton. (2006) Basic cyclovertical deviation and superior oblique palsy have similar head tilt behavior. 2006 AAO Annual Meeting:E-abstract P0624
- 8 R. ANSARI, **H. S. YING**, D. L. GUYTON, R. J. LEIGH, D. S. ZEE (2006) Torsional optokinetic nystagmus in normal human subjects and in a patient with chronic superior oblique palsy. *Society for Neuroscience Abstracts* 22:E-abstract 736.16.
- 9 M.F. Walker, J. Tian, X. Shan, **H. Ying**, R.J. Tamargo, D.S. Zee (2007) Ablation of the Cerebellar Nodulus and Uvula Selectively Impairs Downward Pursuit. *IOVS* 48(4):E-abstract 943.
- 10 X. Shan, **H.S. Ying**, J. Tian, D.L. Guyton, R. Tamargo, M. Walker, D.S. Zee (2007) Effect of Corrective Strabismus Surgery After Unilateral IV Nerve Palsy in Monkey: I. Vertical

Alignment and Head Tilt. *IOVS* 48(4):E-abstract 4869.

- 11 **H.S. Ying**, X. Shan, J. Tian, D.L. Guyton, R. Tamargo, M. Walker, D.S. Zee (2007) Effect of Corrective Strabismus Surgery after Unilateral IV Nerve Palsy in Monkey: II. Torsion. *IOVS* 48(4):E-abstract 4870.
- 12 **H.S. Ying**, X. Shan, J. Tian, D.L. Guyton, R.J. Tamargo, M.F. Walker, D.S. Zee (2007). Effect of corrective strabismus surgery on vertical saccade dynamics after unilateral IV nerve palsy in monkey. *Society for Neuroscience Abstracts* 23:E-abstract 718:18.

Inventions, Patents, Copyrights (pending, awarded)

Extramural Funding (current, pending, previous)

Dates	Title / ID#	Sponsor	Total Direct Cost	PI	Role / % Effort
Current					
4/1/2010-9/30/2011	Novel Optical Microprobes for Ultra-precise Intraocular Laser Surgery 1R41-EY019598	NIH/NEI		Vasily Astratov	Consultant
10/1/2008-9/29/2013	Ocular Motor Adaptation in Health and Disease R01-EY019347	NIH/NEI		Howard Ying	PI / 40%
9/1/2008-8/31/2011	A research and clinical tool for connectivity-based analysis of brainstem anatomy 5R21-NS059830	NIH/NEI		Sarah Ying	Co-PI
10/1/2007-9/29/2012	Oculomotor Disorders: Clinical and Experimental Study R01-EY001849	NIH/NEI		David Zee	Co-PI / 20%
Pending					
2/24/2011	Quantitative spectral domain optical coherence tomography (SD-OCT) as a probe of inner nuclear layer degeneration in glutamate-mediated neurodegenerative disease	Dana Foundation		Howard Ying	PI / 30%
2/16/2011	Coupled level set framework for retinal segmentation and atlas in SD-OCT	NIH/NEI		Jerry Prince	Co-PI / 5%
2/15/2011	SD-OCT Segmentation and Normalization in the Retina	ICTR		Jerry Prince	Co-PI / 5%

Previous

7/5/2004-7/31/2008	Mentored Clinical Research Scholar Program, 5K12EY015025-02	NIH/NEI	Harry Quigley	Mentee/80%
2006-2008	A Phase IIIB single-masked, multicenter, randomized study to evaluate the safety and tolerability of ranibizumab in naïve and previously treated subjects with Choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD).	Genentech, Inc.	Howard Ying	PI / up to 1%
2006-2007	A Phase II/III multi-center, double-masked, randomized, vehicle-controlled, parallel group evaluation of the safety and efficacy of OT-551 ophthalmic solution to prevent formation or delay progression of nuclear cataract formation in post-vitrectomy patients.	Othera, Inc.	Howard Ying	PI / up to 3%

Research Program Building / Leadership

EDUCATIONAL ACTIVITIES

Educational Publications

- Peer Reviewed Publications (i.e., consensus statements, expert opinions)
- Invited Review Articles
- Editorials
- Case Reports
- Letters, correspondence
- Book Chapters, Monographs
- Books, Textbooks
- Other media (films, videos, CD-ROMS, slide sets, etc)

Teaching

Classroom instruction (dates, course title, role, location)

Dates	Course Title	Institution	Role	Location
5/24/2011	Genes to Society – Visual Physiology/Anatomy	JHU SOM	Lecturer	Armstrong bldg
5/19/2010	Genes to Society – Visual Physiology/Anatomy	JHU SOM	Lecturer	Armstrong bldg

Clinical instruction (dates, course title, role, location)

Dates	Course Title	Institution	Role	Location
-------	--------------	-------------	------	----------

2004-2011	Retina Clinic	JHU SOM	Mentor	Maumenee
-----------	---------------	---------	--------	----------

CME instruction (dates, course title, role, location)

Dates	Course Title	Institution	Role	Location
3/6/2011	Retina Case Presentation and Panel Discussion	MOA	Presenter/ Moderator	Baltimore

Workshops /seminars (dates, course title, role, location)

Dates	Course Title	Institution	Role	Location
4/1/2011	The Nerve of That Muscle	AAPOS	Instructor	San Diego

Mentoring (pre- and post-doctoral)

Date	Advisee Name	Degree	Role	Awards earned while under mentorship	Present Position
2004 - 2005	Justin Brown	M.D.	Clinical Fellow		retina practice
2004 - 2005	Diana V. Do	M.D.	Clinical Fellow		Assistant Professor Wilmer Eye Institute
2004 - 2005	Wen-Hsiang Lee	M.D.	Clinical Fellow		Assistant Professor University of Miami School of Medicine
2004-2006	Brian Kim	M.D.	Clinical Fellow		retina practice
2004-2006	Egbert Saavedra	M.D.	Clinical Fellow		retina practice
2004-2006	Eric Tourville	M.D.	Clinical Fellow		retina practice
2004-2007	Xiaoyan Shan	M.D., Ph.D.	Post-doctoral Fellow		Johns Hopkins University
2005-2007	Heather Casparis	M.D.	Clinical Fellow		retina practice
2005-2007	Joanna Oda	M.D.	Clinical Fellow		retina practice
2005-2007	Sayjal Patel	M.D.	Clinical Fellow		Navy Hospital
2005-2006	Nicholas Ramey	M.D.	Medical Student		Duke Ophthalmology resident
2005-2007	Kristina Irsch	M.S.	Graduate Student		Johns Hopkins University
2006	Reena Vaswani	B.A.	Medical Student		Drexel University School of Medicine
2006-2007	Rohit Adayanthaya	M.D.	Research Fellow		Stonybrook Ophthalmology

Date	Name	Degree	Role	Program	Institution
					resident
2007	Eugenie Hsieh	M.D.	Medical Student	AFAR fellowship	Johns Hopkins Medical School
2006-2008	Margaret Chang	M.D.	Clinical Fellow		retina practice
2006-2008	Andrew Symonds	M.D.-Ph.D.	Clinical Fellow		Assistant Professor University of Kansas Clinical Scientist
2006-2008	Henry Wiley	M.D.	Clinical Fellow		National Eye Institute
2007-2009	Rahul Khurana	M.D.	Clinical Fellow		retina practice
2007-2009	Jeong-Hyeon Sohn	M.D.-Ph.D.	Clinical Fellow		retina practice
2007-2009	Shawn Wilker	M.D.	Clinical Fellow		Case Western Reserve
2008-2010	Benjamin Kim	M.D.-Ph.D.	Clinical Fellow		ASTP Wilmer Eye Institute
2008-2010	Bryan Propes	M.D.	Clinical Fellow		ASTP Wilmer Eye Institute
2008-2010	Akrit Sodhi	M.D.-Ph.D.	Clinical Fellow		ASTP Wilmer Eye Institute
2009-2011	Muge Kesen	M.D.	Clinical Fellow		ASTP Wilmer Eye Institute
2009-2011	Thomas Lee	M.D.	Clinical Fellow		Assistant Wilmer Eye Institute
2009-2011	Shiri Zavit-Soudry	M.D.	Clinical Fellow		Assistant Wilmer Eye Institute
2009-2010	Murilo Roggia	M.D.	Research Fellow		Johns Hopkins University

Thesis committees (provide: dates, name, title, your role)**Training grant participation (provide: dates, program)****Educational Program Building / Leadership**

Date	Course	Role	Institution
1992-1993	Medical Histology	Teaching Assistant	Washington University School of Medicine, St. Louis, MO
2001-2002	Introduction to Clinical Medicine	Instructor	University of Southern California School of Medicine, Los Angeles, CA
2002-present	Basic Skills in Ophthalmology	Instructor	Johns Hopkins University School of Medicine, Baltimore, MD

Jan 13, 2010 Speak Like A Pro Participant

Talent and Management and
Organizational Development
Office, Johns Hopkins
University, Baltimore, MD

Educational Extramural Funding (current, pending, previous)

Grants or contracts obtained to support an educational initiative

CLINICAL ACTIVITIES

Certification/Licensure

Date	Certification/Licensure	Issuing Organization	Expiration
1999	Diplomate	National Board of Medical Examiners	
1999	Drug Enforcement Agency BY6825939	United States Drug Enforcement Agency	11/30/2011
1999	Physician and Surgeon A71926	Medical Board of California	11/30/2009
2002	Medicine and Surgery D0058884	Maryland Board of Physician Quality Assurance	09/30/2011
2002	Controlled Dangerous Substance M54688	Maryland Department of Health and Mental Hygiene	6/30/2012
2003	Diplomate	American Board of Ophthalmology	12/31/2013

Clinical (Service) Responsibilities

Dates	Specialty	Role	Time commitment
2004-present	Retina	Outpatient service attending Operating room attending On-call attending	1 ½ day per week ½ day per week 6-7 weeks per year

Clinical Program Building / Leadership

Clinical Trials Participation:

2006-2008	A Phase IIIB single-masked, multicenter, randomized study to evaluate the safety and tolerability of ranibizumab in naïve and previously treated subjects with Choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD). Genentech, Inc. Principal Investigator: HOWARD YING
2006-2007	A Phase II/III multi-center, double-masked, randomized, vehicle-controlled, parallel group group evaluation of the safety and efficacy of OT-551 ophthalmic solution to prevent formation or delay progression of nuclear cataract formation in post-vitrectomy patients. Othera Pharmaceuticals. Principal Investigator: HOWARD YING

- 2006-present The Age-Related Eye Disease Study 2 (AREDS 2). Number: NA_00002266. Principal Investigator: SUSAN BRESSLER
- 2009-present Real-world mobility in glaucoma and macular degeneration. Number: NA_00025636. Principal Investigator: PRADEEP RAMULU
- 2010-present Ranibizumab for Edema of the mAcula in Diabetes: Protocol 3 with High Dose – the READ 3 Study. Number: NA_00034586. Principal Investigator: DIANA DO
- 2006-present RANIBIZUMAB FOR EDEMA OF THE MACULA IN DIABETES: A PHASE 2 STUDY (THE READ-2 STUDY). Number: NA_00005254. Principal Investigator: DIANA DO
- 2009-present Oculomotor disorders: experimental and clinical study. Number: NA_00033336. Principal Investigator: DAVID ZEE
- 2008-present National Ophthalmic Genotyping Network, Stage 1: Creation of Repository for Inherited Ophthalmic Diseases. Number: NA_00019419. Principal Investigator: JOHN GOTTSCH
- 2006-present Laser-targeted Angiography with Carboxyfluorescein Liposomes. Number: NA_00001784. Principal Investigator: BRENT PETTY
- 2006-present High-Resolution Ultrasonography Study of Patients Who Have Undergone Multiple Intravitreal Injections. Number: NA_00004893. Principal Investigator: CATHY DIBERNARDO
- 2009-present FVF4579g: A PHASE III, DOUBLE-MASKED, MULTICENTER, RANDOMIZED, ACTIVE TREATMENT–CONTROLLED STUDY OF THE EFFICACY AND SAFETY OF 0.5 mg AND 2.0 mg RANIBIZUMAB ADMINISTERED MONTHLY OR ON AN AS NEEDED BASIS (PRN) IN PATIENTS WITH SUBFOVEAL NEOVASCULAR AGE-RELATED MACULAR DEGENERATION. Number: NA_00027493. Principal Investigator: QUAN NGUYEN
- 2007-present FVF4166g: A PHASE III, MULTICENTER, RANDOMIZED, SHAM INJECTION-CONTROLLED STUDY OF THE EFFICACY AND SAFETY OF RANIBIZUMAB INJECTION COMPARED WITH SHAM IN SUBJECTS WITH MACULAR EDEMA SECONDARY TO CENTRAL RETINAL VEIN OCCLUSION. Number: NA_00010309. Principal Investigator: PETER CAMPOCHIARO
- 2007-present FVF4165g: A PHASE III, MULTICENTER, RANDOMIZED, SHAM INJECTION–CONTROLLED STUDY OF THE EFFICACY AND SAFETY OF RANIBIZUMAB INJECTION COMPARED WITH SHAM IN SUBJECTS WITH MACULAR EDEMA SECONDARY TO BRANCH VEIN RETINAL OCCLUSION. Number: NA_00010160. Principal Investigator: PETER CAMPOCHIARO
- 2008-present FVF3426g: AN OPEN-LABEL, MULTICENTER EXTENSION STUDY TO EVALUATE THE SAFETY AND TOLERABILITY OF RANIBIZUMAB IN SUBJECTS WITH CHOROIDAL NEOVASCULARIZATION (CNV) SECONDARY TO AGE RELATED MACULAR DEGENERATION (AMD) OR MACULAR EDEMA SECONDARY TO RETINAL VEIN OCCLUSION (RVO) WHO HAVE COMPLETED THE TREATMENT PHASE OF A GENENTECH SPONSORED

RANIBIZUMAB STUDY. Number: NA_00019708. Principal Investigator:
PETER CAMPOCHIARO

2008-present

Maculopathy in Comparison to
Normal Subjects. Number: NA_00018888. Principal Investigator: QUAN
NGUYEN

2009-present

and Optical
Coherence Tomography in Normal Subjec Diabetic Patients. Number:
NA_00022744. Principal Investigator: QUAN NGUYEN

2010-present Cerebellar syndromes: Clinical and experimental study. Number:
NA_00034854. Principal Investigator: Sarah Ying

2010-present Capabilities of Motor Plasticity in Human Otolith- and Canal-Ocular Reflexes.
Number: NA_00035739. Principal Investigator: MARK SHELHAMER

2008-present Aqueous Levels of Flucinolone Acetonide After Insertion of Retisert® Implant.
Number: NA_00021803. Principal Investigator: PETER CAMPOCHIARO

2008-present An Open-Label, Proof-of-Concept Study to Assess the Effects of Two AIN457
Doses (on Day 1 and Day 22) in Patients With Non-infectious Uveitis. Number:
NA_00018320 Principal Investigator: QUAN NGUYEN

2008-present An Open-Label, Long-Term, Safety, and Tolerability Study of Intravitreal VEGF
Trap-Eye in Subjects with Neovascular Age-Related Macular Degeneration
Number: NA_00013881 Principal Investigator: QUAN NGUYEN

2009-present An Open-Label Proof-of-Concept Study with a Double-Masked, Dose-Ranging
component to Assess the Effects of AIN457 in patients with Non-infectious
Uveitis. Number: NA_00030844 Principal Investigator: QUAN NGUYEN

2007-present An open label pharmacokinetic and efficacy study of 0.5 µg/day and 0.2 µg/day
Fluocinolone Acetonide Intravitreal Inserts in Subjects with Diabetic Macular
Edema . Short Title: Flucinolone Acetonide: Plasma and Aqueous
Levels(FAMOUS). Number: NA_00010635. Principal Investigator: PETER
CAMPOCHIARO

2007-present A single masked, randomized comparison of the safety and efficacy of 0.2 and
0.5 µg/day Fluocinolone Acetonide/Medidur™ in patients with Exudative Age
Related Macular Degeneration who have received Lucentis™. Number:
NA_00012714. Principal Investigator: PETER CAMPOCHIARO

2007-present A Randomized, Double Masked, Active Controlled Phase III Study of the
Efficacy, Safety, and Tolerability of Repeated Doses of Intravitreal VEGF Trap in
Subjects with Neovascular Age Related Macular Degeneration. Number:
NA_00012066. Principal Investigator: QUAN NGUYEN

- 2008-present A PHASE II PROSPECTIVE, RANDOMIZED, MULTI-CENTER, DIABETIC MACULAR EDEMA DOSE RANGING, COMPARATOR STUDY EVALUATING THE EFFICACY AND SAFETY OF PF-04523655 VERSUS LASER THERAPY (DEGAS). Number: NA_00016840. Principal Investigator: QUAN NGUYEN
- 2009-present A PHASE Ia, MULTICENTER, OPEN-LABEL, SINGLE-DOSE, DOSE-ESCALATION STUDY OF THE SAFETY, TOLERABILITY, PHARMACOKINETICS, AND IMMUNOGENICITY OF INTRAVITREAL INJECTIONS OF FCFD4514S IN PATIENTS WITH GEOGRAPHIC ATROPHY. Number: NA_00030252. Principal Investigator: DIANA DO
- 2009-present A Phase 1b, randomized, uncontrolled, single-masked, safety, tolerability, and pharmacokinetic study of multiple doses of three different concentrations (0.1%, 1.0%, 5.0%) of SAR 1118 Ophthalmic Solution in human subjects undergoing elective pars plana vitrectomy (PPV). Number: NA_00029830. Principal Investigator: DIANA DO
- 2008-present A Phase 1 Open-Label, Dose Escalation Trial of REDD14NP Delivered by a Single Intravitreal Injection to Patients with Choroidal Neovascularization (CNV) Secondary to Exudative Age-Related Macular Degeneration (WET AMD). Number: NA_00016523. Principal Investigator: QUAN NGUYEN
- 2009-present A Multicenter, Single Sequence, Open-Label Study to Assess the Tolerability, Safety and Efficacy of 2 Weeks Oral AEB071 300 mg Twice Daily , Followed by 6 Weeks AEB071 200 mg Twice Daily in the Treatment of Patients with Macular Edema Associated with Non-Infectious Intermediate uveitis, Posterior uveitis, or Pan-uveitis. Number: NA_00027010. Principal Investigator: QUAN NGUYEN
- 2008-present A Multicenter, Masked, Randomized, Sham-controlled, Paired-eye Comparison, 12 Month (Plus 12 Month Extension) Study to Evaluate the Safety and Effects on Retinal Structure and Visual Function of Brimonidine Tartrate Posterior Segment Drug Delivery System (Brimonidine Tartrate PS DDS) Applicator System in Patients with Geographic Atrophy from Age-related Macular Degeneration. Number: NA_00018527. Principal Investigator: NEIL BRESSLER
- 2009-present A Double-Masked, Randomized, Controlled Study of the Safety, Tolerability and Biological Effect of Repeated Intravitreal Administration of VEGF Trap-Eye in Patients with Diabetic Macular Edema (DME). Number: NA_00023248. Principal Investigator: DIANA DO
- 2007-present A 24-month double-blind, randomized, multicenter, placebo-controlled, parallel-group study comparing the efficacy and safety of 0.5 mg and 1.25 mg fingolimod (FTY720) administered orally once daily versus placebo in patients with relapsing-remitting multiple sclerosis with optional extension phase. Protocol #: NA_00006785. Principal Investigator: JOHN RATCHFORD
- 2010-present A 24 weeks, multicenter, randomized, double masked, placebo-controlled, dose ranging, phase 3 study of AIN457 versus placebo for maintaining uveitis suppression when reducing systemic immuno suppression in patients with

quiescent, non-infectious, intermediate, posterior or pan uveitis (ENDURE study).
Protocol # NA_00036523. Principal Investigator: QUAN NGUYEN.

Clinical Extramural Funding (current, pending, previous)

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

System Innovation and Quality Improvement Publications

System Innovation and Quality Improvement efforts within JHM:

Dates	Intervention Site	Role	% Effort	Results
2004-2011	Retina Clinic	participant	<5%	Improved patient service

System Innovation and Quality Improvement efforts outside of JHM:

Production of guidelines and/or protocols

Dates	Intervention Site	Role	% Effort	Results
3/3/2010	David Zee Ocular Motor Laboratory	Instructor	<5%	New, evidence-based coil sterilization protocol
5/20/2009	David Zee Ocular Motor Laboratory	Instructor	<5%	New, evidence-based corneal wetting protocol

System Innovation and Quality Improvement Program Building/Leadership

System Innovation and Quality Improvement Extramural Funding (current, pending, previous)

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

Dates	Appointment
1990-present	National Alumni Schools Committee, Member, Johns Hopkins University
1999-2001	Joint Council of Interns and Residents, Representative, Los Angeles County Hospital
1999-2002	Performance Improvement Team, Member, Los Angeles County Hospital
2008-2011	Friday Afternoon Research Meeting Committee, Member, Wilmer Eye Institute

Editorial Activities (dates, role)

Editorial Board appointments (dates)

Journal peer review activities (dates)

Journal peer review activities Comprehensive Ophthalmology Update
 Current Eye Research
 Investigative Ophthalmology and Visual Science
 Journal of Cerebral Blood Flow and Metabolism
 Journal of Neurochemistry
 Lasers in Surgery and Medicine
 Ophthalmology
 Retina
 Vision Research

Advisory Committees, Review Groups/Study Sections (date, sponsor, role)

Dates	Sponsor	Role
5/22-25/2011	BIT Life Sciences' 2 nd Annual Congress of Neuro Talk	Scientific Advisory Board Member (accepted)

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

2005-present	Associate Fellow, #3094382, American College of Surgeons
2004-present	Active Fellow, #247739, American Academy of Ophthalmology
2004-present	Member, #65385, Association for Research in Vision and Ophthalmology
2000-2002	Board of Directors, California Academy of Ophthalmology
1999-2002	Member-in-Training, American Society of Cataract and Refractive Surgery
1990-1998	Student Member, American Medical Association Political Action Committee

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

Consultantships (date, organization/agency, role)

Date	Description	Agency	Contact	Role
2006-ongoing	Ranibizumab for Diabetic Macular Edema Advisory Board.	Genentech, Inc.	Sean Ianchulev	Consultant

RECOGNITION

Awards, Honors (date, title, description, sponsor)

Date	Title	Sponsor
1986-1990	Stanley E. Blumberg Memorial Scholar	Johns Hopkins University
1988	Alpha Epsilon Delta honor society	Johns Hopkins University
1988	Tau Beta Pi honor society	Johns Hopkins University
1988	RG Thompson Fellow	American Cancer Society
1989	Undergraduate Summer Scholar	American Chemical Society
1990	Honors	G.W.C. Whiting School of Engineering Department of

1992	Disease Neurobiology course	Biomedical Engineering Cold Spring Harbor
1997	Spencer T. and Ann W. Olin Medical Scientist Fellow	Washington University Division of Biomedical Sciences
1990-1998	Medical Scientist Training Program Fellow	National Institutes of Health National Eye Institute,
2000	ARVO Travel Fellowship	National Institutes of Health
2000, 2001, 2002	Association for Research in Vision and Ophthalmology Best Resident Research Award	Doheny-USC Professional Association
2002	Thomas Heed Fellow	Heed Ophthalmic Foundation
2003	American Ophthalmologic Society-Knapp Fellow	Herman Knapp Testimonial Fund
2004	A. Edward Maumenee Scholar	Wilmer Eye Institute
2004	Wilmer Special Resident Teaching Award	Wilmer Residents' Association
2004	Raymond R. Margherio Award	The Retina Society
2007	Michaelson Club Travel Award	The Michaelson Club
2007	Jean Buttner-Ennever Symposium Travel Award	The Imperial College, London
2009	Wilmer Most Peer-reviewed Publications Award by an Assistant Professor in 2008	Wilmer Eye Institute
2010	Wilmer Silver Star Award for Outstanding Patient Service	Wilmer Eye Institute

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

Date	Title	Location
September 29, 2004	Age-related macular degeneration risk factors	Wilmer Macular Degeneration Center Support Group Meeting, Timonium, Maryland
November 17, 2004	Small pigmented retinal lesions	Wilmer at Frederick Continuing Medical Education course, Frederick, Maryland
December 2, 2004	Strabismus after retinal detachment surgery	Wilmer 17 th Annual Current Concepts in Ophthalmology, Baltimore, Maryland
December 2, 2004	Pars plana vitrectomy for diabetic macular edema	Wilmer 17 th Annual Current Concepts in Ophthalmology, Baltimore, Maryland
October 24, 2005	New insights from the American Academy of Ophthalmology	Wilmer Macular Degeneration Center Support Group Meeting, Timonium, Maryland
December 1, 2005	Update on superior oblique palsy	Wilmer 18 th Annual Current Concepts in Ophthalmology, Baltimore, Maryland
December 2, 2005	Anti-VEGF therapy for diabetic macular edema	Wilmer 18 th Annual Current Concepts in Ophthalmology, Baltimore, Maryland
September 3, 2006	A quantitative approach to superior oblique palsy and cyclovertical deviations.	Third Global Chinese Ophthalmic Conference in conjunction with the XI National Congress of Chinese Ophthalmological Society. Beijing, China.
September 4, 2006	Choroidal and Retinal Metastasis	Tian Jing Eye Hospital, Tian Jing, China
November 3, 2006	Is a medical work-up indicated for venous occlusive disease?	Wilmer What's New in Diabetic Retinopathy and Venous Occlusive

		Disease Course, Baltimore, Maryland
January 12, 2007	Central Vein Occlusion with Intraretinal Revascularization	Macula 2007, Baltimore, Maryland
January 13, 2007	Laser Photocoagulation for Macular Edema: How Good Is It?	Atlantic Coast Retina Club Meeting, Baltimore, Maryland
May 2, 2007	The retina is attached and the visual acuity is great, so why can't my patient see?	9th Michaelson Symposium, Baltimore, Maryland.
June 20, 2007	Superior oblique palsy in monkeys and man.	Ludwig-Maxmillian University, Munich, Germany
October 13, 2007	Why a medical work-up is not indicated for BVO or CVO?	Wilmer What's New in Diabetic Retinopathy and Venous Occlusive Disease Course, Baltimore, Maryland
November 28, 2007	Superior oblique palsy: innovations and challenges	Massachusetts Eye and Ear Infirmary, Boston, Massachusetts.
March 31, 2008	Concepts and challenges in cyclovertical deviations: superior oblique palsy vs. skew deviation	Kyushu Memorial Hospital, Fukuoka City, Japan
May 17, 2008	How common is geographic atrophy in AMD?	Wilmer Age-Related Macular Degeneration Course, Baltimore, Maryland.
December 4, 2008	Management of post-surgical cystoid macular edema	Wilmer 21st Annual Current Concepts in Ophthalmology, Baltimore, Maryland.
December 5, 2008	Update on superior oblique palsy	Wilmer 21st Annual Current Concepts in Ophthalmology, Baltimore, Maryland.
December 6, 2008	Who's at risk for developing proliferative retinopathy? Recognizing severe non-proliferative diabetic retinopathy	Wilmer What's New in Diabetic Retinopathy and Venous Occlusive Disease Course, Baltimore, Maryland.
March 22, 2009	What did we learn from AREDS I and expect to learn from AREDS II? NEURAL MECHANISMS AND THERAPEUTIC APPROACHES FOR MANAGEMENT OF DEVELOPMENTAL AND ACQUIRED STRABISMUS WORKSHOP	Maryland Optometric Association, Baltimore, Maryland
May 1, 2009		Neural Control of Movement Annual Meeting, Waikoloa, Hawaii
June 13, 2009	Superior oblique palsy vs. skew deviation	Doheny Days, Doheny eye Institute, Los Angeles, California
October 3, 2009	The eyes have it: management of eye disease in older adults	Gerontological Advanced Practice Nurses Association Conference, Savannah, Georgia
November 20, 2009	Risk factors for retinal venous occlusive disease: why isn't a medical work-up indicated?	Wilmer What's New in Diabetic Retinopathy and Venous Occlusive Disease Course, Baltimore, Maryland
December 4, 2009	Staged Retinal Detachment Repair to Avoid Post-Operative Positioning	Wilmer 22nd Annual Current Concepts in Ophthalmology, Baltimore, Maryland.
December 4, 2009	What's the Difference Between Skew Deviation and Superior Oblique Palsy?	Wilmer 22nd Annual Current Concepts in Ophthalmology, Baltimore, Maryland.
December 5, 2009	OCT WORKSHOP	Wilmer 22nd Annual Current Concepts in Ophthalmology, Baltimore, Maryland.
April 8, 2010	The Importance of Recognizing Skew Deviation and Superior Oblique Palsy?	Invited Professorship, Washington University, St. Louis, Missouri.
May 12, 2010	Strabismus after scleral buckling	Invited Lecture, University of Minnesota,

May 26, 2010 surgery
 Scleral search coil implantation in
 Macaca mulatta

Minneapolis, Minnesota.
Invited Professorship, Massachusetts
Eye and Ear Infirmary, Boston,
Massachusetts.

OTHER PROFESSIONAL ACCOMPLISHMENTS