

**Harvard Medical School Curriculum Vitae**

**Date Prepared:** August 23, 2018  
**Name:** Joan Whitten Miller

**Education**

06/30/1980	S.B.	Life Sciences	Massachusetts Institute of Technology
09/01/1981– 06/30/1985	M.D. cum laude	Medicine	Harvard Medical School

**Postdoctoral Training**

07/01/1985– 06/30/1986	Intern	Medicine	Newton-Wellesley Hospital
07/01/1986– 06/30/1989	Resident	Ophthalmology	Massachusetts Eye and Ear Infirmary, Harvard Medical School
07/01/1989– 06/30/1991	Clinical and Research Fellow	Vitreoretinal surgery, Retina Service	Massachusetts Eye and Ear Infirmary, Harvard Medical School

**Faculty Academic Appointments**

08/1991–10/1991	Assistant Professor of Ophthalmology	Tufts University School of Medicine
10/1991–12/1993	Instructor in Ophthalmology	Harvard Medical School
01/1994–12/1997	Assistant Professor of Ophthalmology	Harvard Medical School
01/1998–08/2002	Associate Professor of Ophthalmology	Harvard Medical School
09/2002–09/2003	Professor of Ophthalmology	Harvard Medical School
2003–2006	Faculty of Medicine, Institute of Medical Science	University of Toronto
10/2003–06/2017	Henry Willard Williams Professor of Ophthalmology	Harvard Medical School
07/2017—	David Glendenning Cogan Professor of Ophthalmology	Harvard Medical School

**Appointments at Hospitals/Affiliated Institutions**

08/1991–10/1991	Ophthalmologist	New England Medical Center
09/1991–10/1992	Assistant in Ophthalmology	Massachusetts Eye and Ear Infirmary
10/1992–03/1996	Assistant Surgeon Ophthalmology	Massachusetts Eye and Ear Infirmary
10/1994–05/2000	Courtesy Staff	Mt. Auburn Hospital

03/1996–03/2002	Associate Surgeon	Ophthalmology	Massachusetts Eye and Ear Infirmary
07/1996–	Clinical Associate	Surgery	Massachusetts General Hospital
06/22/2000– 06/22/2002	Consulting Staff	Ophthalmology	Spaulding Rehabilitation Hospital
03/2002–	Surgeon	Ophthalmology	Massachusetts Eye and Ear Infirmary

### Other Professional Positions

1995–2001	Study Advisory Group		Treatment of Age-related Macular Degeneration with Photodynamic Therapy Study Group QLT PhotoTherapeutics Inc. CIBA Vision AG
2000–2003	Scientific Advisory Board		EyeTech Pharmaceuticals, Inc.
2004–	Advisory Board		Women’s Eye Health Task Force
2005–2007	Scientific Advisory Board		Alcon Research Institute
2005–2009	Scientific Advisory Board		Bausch and Lomb
2006–	Ad Hoc Consultant		Genzyme
2006–2014	Member of the Corporation		The Charles Stark Draper Laboratory, Inc.
2007	Lucentis Global Advisory Board		Genentech
2009–2011	Board of Directors		Alcon, Inc.
2011–2015	Consultant		Alcon Research Council
3/31/2012–	Consultant		KalVista Pharmaceuticals, Ltd.
3/29/2013– 3/29/2014	Consultant		Regeneron Pharmaceuticals, Inc.
4/16/2013– 4/16/2014	Consultant		ISIS Pharmaceuticals, Inc.
4/29/2013– 4/29/2014	Consultant		Imagen Biotech, Inc.
5/3/2013–	Scientific Advisory Board		ONL Therapeutics, LLC
10/3/2013– 10/3/2015	Clinical Advisory Board		Maculogix, Inc.
5/13/2014–	Board Member		National Alliance for Eye and Vision Research (NAEVR) / Alliance for Eye and Vision Research (AEVR)
5/20/2014	Consultant		Biogen, Inc.
9/18/2014– 9/18/2016	Consultant		Amgen, Inc.

7/21/2017– 7/21/2018	Consultant	Genentech, Inc./Roche
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### Major Administrative Leadership Positions

#### *General administrative leadership positions*

##### **Local**

10/2003–	Chair	Ophthalmology	Harvard Medical School
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#### *Clinical administrative leadership positions*

##### **Local**

1991	Director	Vitreo-Retinal Service	New England Eye Center
1991	Assistant Chief for Clinical Services	Ophthalmology	New England Eye Center
1996–1999	Co-Director	Methuen Satellite	Massachusetts Eye and Ear Infirmary
1998–1999	President-Elect	Medical Staff	Massachusetts Eye and Ear Infirmary
1998–2000	President	Eye Staff	Massachusetts Eye and Ear Infirmary
1999–2000	President	Medical Staff	Massachusetts Eye and Ear Infirmary
2003–	Chief	Ophthalmology	Massachusetts Eye and Ear Infirmary
2009–	Chief	Ophthalmology	Massachusetts General Hospital

#### *Educational administrative leadership positions*

##### **Local**

1991	Co-Director, Greater Boston Lecture Series; Retina Section		Massachusetts Eye and Ear Infirmary
1991	Co-Director, Laser Therapy of Ocular Disease Course		Harvard Medical School
1992–2003	Co-Director, Continuing Medical Education Series, Department of Ophthalmology		Harvard Medical School
1995	Co-Director, Fifth Annual Claes H. Dohlman Course: Concepts and Controversies in Outcomes Analysis and Clinical Decision Making in Ophthalmology		Harvard Medical School
2000	Co-Director, New Treatments for Macular Degeneration, Department of Ophthalmology		Harvard Medical School
2003	Co-Director, Grand Rounds, Department of Ophthalmology		Harvard Medical School

2004–	Co-Director, Annual/Alumni Meeting, Update on Ophthalmology	Harvard Medical School
2004–2010	Co-Director, Fellows Course, Controversies in Ophthalmology	Harvard Medical School
2005–	Co-Director, Residents Course (Biennial)	Harvard Medical School
2010, 2012	Co-Director, Department of Ophthalmology Biennial Symposium on Age-Related Macular Degeneration	Harvard Medical School
2015	Course Director, MEEI HMS Ophthalmology Grand Rounds	Massachusetts Eye and Ear Harvard Medical School

### **Regional**

1995	Course Director, Kevin Hill Seminar in Ophthalmology. Update on Retinal Disease. Neovascular Disorders and Pediatric Retina	Colby College
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### **National**

2011	Program Co-Director, Retina Subspecialty Day: The Magical World of Retina	American Academy of Ophthalmology (In conjunction with the American Society of Retina Specialists, the Macula Society, the Retina Society, and Club Jules Gonin)
2012	Program Co-Director, Retina Subspecialty Day: The Winds of Change	American Academy of Ophthalmology (In conjunction with the American Society of Retina Specialists, the Macula Society, the Retina Society, and Club Jules Gonin)

### **International**

1997	Advisory Board	International Symposium of Experimental and Clinical Ocular Pharmacology and Pharmaceutics, Munich, Germany
2017	Course Director, Heidelberg Engineering 15 <sup>th</sup> Annual International Spectralis Symposium	Heidelberg Engineering

### *Research administrative leadership positions*

#### **Local**

1991–	Co-Director, Laser Research Laboratory	Massachusetts Eye and Ear Infirmary
1995	Director, Laboratory and Journal Meetings, Laser/Angiogenesis Research Laboratory	Massachusetts Eye and Ear Infirmary
2000–	Co-Director, Angiogenesis Laboratory	Massachusetts Eye and Ear Infirmary

2003–	Co-Director, Retina Research Institute	Massachusetts Eye and Ear Infirmary
2003–2009	Director, Howe Laboratory of Ophthalmology	Massachusetts Eye and Ear Infirmary

Committee Service**Local**

1991–	Full-Time Medical Staff 2003	Massachusetts Eye and Ear Infirmary Chair
1991–2001	Pharmacy Committee 1991–2001	Massachusetts Eye and Ear Infirmary Co-Chair, Eye Subcommittee
1991–1992, 2004–2005	Joint Commission on Accreditation of Healthcare Organizations Work Group	Massachusetts Eye and Ear Infirmary
1991–1995	Harvard Medical Laser Center Board	Harvard Medical School
1992–	Residency Selection Committee	Massachusetts Eye and Ear Infirmary
1993–1996	Clinical Practice Group	Massachusetts General Hospital
1993–2003	Continuing Medical Education 1993–2003	Massachusetts Eye and Ear Infirmary Co-Chair
1993–2003	Continuing Medical Education Committee	Harvard Medical School
1996–2000	Faculty Search Committee, Department of Ophthalmology	Harvard Medical School
1998–2000	Executive Committee	Massachusetts Eye and Ear Infirmary
1998–2000	Medical Board	Massachusetts Eye and Ear Infirmary
1998–2001	Joint Governance Committee, Center for Clinical Research, Department of Ophthalmology 1998–2000	Harvard Medical School  Chair
2001–2005	Patient Committee	Massachusetts Eye and Ear Infirmary
2002–	Executive Committee of the Department of Ophthalmology 2003–	Harvard Medical School  Chair
2002–2003	Executive Research Committee	Massachusetts Eye and Ear Infirmary
2002–2008	Research Committee	Massachusetts Eye and Ear Infirmary
2003–	Board of Directors	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2003–	Board of Directors	Massachusetts Eye and Ear Associates, Inc.
2003–	Board of Surgeons, Ophthalmology 2003–	Massachusetts Eye and Ear Infirmary Chair
2003–	Medical Board	Massachusetts Eye and Ear Infirmary
2003–	Patient Care Assessment Committee	Massachusetts Eye and Ear Infirmary
2003–	Practice Advisory Committee 2003	Massachusetts Eye and Ear Infirmary Chair

2003–	Fellowship Review Committee	Massachusetts Eye and Ear Infirmary
2003–2004	Promotions and Reappointments Committee	Harvard Medical School
2003–2006	Conflicts of Interest and Commitment Review Committee	Massachusetts Eye and Ear Infirmary
2003–2006	Executive Committee	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2003–2006	Office of the President	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2003–2008	Nominating Committee	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2003–2009	Budget and Finance Committee	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2005–2006	Medical Education Reform Committee	Harvard Medical School
2005–2006	Curriculum Design Group on Advanced Clinical and Science Experiences	Harvard Medical School
2005–2006		Co-Chair
2005–2008	Subcommittee of Professors	Harvard Medical School
2006–2007	Library and Archives Committee	Massachusetts Eye and Ear Infirmary
2006–2007		Chair
2008–	Quality of Care Committee	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2008–2009	Research Strategy Committee	Massachusetts Eye and Ear Infirmary
2008–2009		Chair
2008–2011	Faculty Standing Committee for the Harvard-MIT Combined MD-PhD Program	Harvard Medical School
2009–	Finance Committee	Foundation of the Massachusetts Eye and Ear Infirmary, Inc.
2009–	Chiefs' Council	Massachusetts General Hospital
2009–	General Executive Council	Massachusetts General Hospital
2009–2010	Harvard University Faculty of Medicine Policy on Conflicts of Interest and Commitment Review Committee	Harvard Medical School
2009–2010	Liaison Committee on Medical Education (LCME) Governance and Administration Subcommittee	Harvard Medical School
2011–	Advisory Committee, Office of Faculty Affairs	Harvard Medical School

2011–2012	Finance and Administration Subcommittee, Continuing Medical Education Strategic Planning Process	Harvard Medical School
2012–2013	Chair, Search Committee for Chief & Chair of Otolaryngology	Harvard Medical School/Mass. Eye and Ear
2014-2015	Member, Search Committee for Chief & Chair of Oral and Maxillofacial Surgery	Harvard School of Dental Medicine/MGH

### Regional

2006–	Course Director, Nominating Committee Kevin Hill Seminar in Ophthalmology	Colby College
2014–2015, 2018-2019	Planning Committee Atlantic Coast Retina Club Meeting and Macula 2015 Conference  Atlantic Coast Retina Club Meeting and Macula 2019 Conference	Massachusetts Eye and Ear (jointly with New England Eye Center, Ophthalmic Consultants of Boston, and Tufts University School of Medicine in conjunction with Boston University and Lahey Hospital & Medical Center)

### National

2002–2006	Expert Committee Reviewer	US Pharmacopeia
2006–2007	Scientific Advisory Committee	Alcon Research Institute
2009–2012	Program Planning Group	American Academy of Ophthalmology Retina Subspecialty Day
2009–	Leadership Committee, Women in Eye and Vision Research (WEAVR)	ARVO Foundation for Eye Research (AFER)
2010–	Executive Committee	Alcon Research Institute
2014	Scientific Review Committee	A. Alfred Taubman Medical Research Institute
2016-	National Advisory Eye Council Working Group on AMD Pathobiology	National Eye Institute/National Institutes of Health

### International

2009	International Research Review Panel, Centre for Eye Research Australia	University of Melbourne
2011	External Review Panel, Department of Ophthalmology and Vision Sciences	University of Toronto
2012	Scientific Program Committee	Retina Subspecialty Day, 2012 World Ophthalmology Congress, Abu Dhabi, United Arab Emirates



2014–2017	Academic Committee Member	Peking University Eye Center, Beijing, China
2014–2019	ICO-RRF Helmerich Fellowship Committee	International Council of Ophthalmology (ICO)/Retina Research Foundation (RRF)
	2017-2018	Chair

Professional Societies

- 1976–1980 Delta Psi Social Fraternity  
1979 President
- 1980–1985 Lawrence B. Henderson Society, Harvard Medical School
- 1984– Massachusetts Medical Society
- 1985– Harvard Medical Alumni Association
- 1987– American Medical Association
- 1989– Massachusetts Eye and Ear Infirmary Alumni Association
- 1989– Association for Research in Vision and Ophthalmology  
2010–2014 Silver Fellow  
2013– Member, ARVO Foundation Board of Governors  
2015– Gold Fellow
- 1992–1996 American Diabetes Association
- 1991– American Board of Ophthalmology  
2007– Examiner
- 1992– American Academy of Ophthalmology  
2002–2005 Retina Panel, Preferred Practice Patterns  
2018– AAO Laureate Nominations Committee
- 1992– American Association for the Advancement of Science
- 1993– Women’s Alumnae, Massachusetts Eye and Ear Infirmary (Founder)
- 1993– Research to Prevent Blindness
- 1994– New England Ophthalmological Society  
2006–2012 Program Committee  
2011– Admissions Committee  
2011–2012 Vice President  
2013–2014 President
- 1995– Retina Society  
1996– Travel Fellowship Committee  
2015–2017 Awards Committee
- 1995– Macula Society  
1999–2003 Awards Committee  
2003–2006 Chair, Research Committee  
2003–2006 Executive Committee  
2011– Awards Committee  
2016–2017 Treasurer  
2017-2018 Secretary  
2018-2019 President-Elect  
2018-2018 Investment Committee
- 1998– Club Jules Gonin

2002–	Alcon Research Institute	
2004–	Massachusetts Society of Eye Physicians and Surgeons	
2004–	Association of University Professors of Ophthalmology	
2017–	Board of Trustees	
2018—	Data Usage Committee	
2004–	American Society for Investigative Pathology	
2005–	American Society of Retina Specialists	
2005–	American Association for Physician Leadership (formerly American College of Physician Executives)	
2007–	Women in Retina (Founding Member)	
2007–	Women in Ophthalmology	
2007–	Nominating Committee	
2008–	American Ophthalmological Society	
2009–	Women in Eye and Vision Research	
2009–	Leadership Committee	
2012–	Heed Ophthalmic Foundation	Board of Directors
2012–	Society for Neuroscience	
2012–	The Roxbury Society for Medical Improvement and Medical Reading Club	
2013–	Academia Ophthalmologica Internationalis, Chair LXVIII	
2013–2014	Provisional Member	
2014–	Voting Member	
2017—	Member, Nominations Committee	
2015–	National Academy of Medicine (formerly Institute of Medicine)	
2017—	Dowling Society	

### Grant Review Activities

2007–	Scientific Selection Committee	Alcon Research Institute Permanent member
2008	Proposal Selection Committee	Research to Prevent Blindness Ad hoc member
2009–2017	Scientific Review Committee	Thome Foundation Member and Chair

**Editorial Activities****Peer reviewer**

Acta Biomaterialia	Investigative Ophthalmology and Visual Science
American Ophthalmological Society	JAMA Ophthalmology (formerly Archives of Ophthalmology)
American Journal of Ophthalmology	Journal of Cellular Physiology
American Journal of Pathology	Journal of Photochemistry and Photobiology B: Biology
Biochimica et Biophysica Acta – Molecular Basis of Disease	Metabolism
British Journal of Ophthalmology	Microvascular Research
Canadian Journal of Ophthalmology	Molecular Therapy
Current Eye Research	Nature Communications
Diabetes/Metabolism Research and Review	Nature Medicine
European Journal of Ophthalmology	New England Journal of Medicine
European Journal of Pharmacology	Ophthalmology
Experimental Eye Research	Proceedings of the National Academy of Sciences
FEBS Letters	Retina
Free Radical Biology and Medicine	Stem Cell Research
Gene	Survey of Ophthalmology
Human Gene Therapy	The FASEB Journal

**Other Editorial Roles**

1998–2006	Editorial Board	EyeNet Magazine
2000–	Guest Editorial Board	Investigative Ophthalmology and Visual Science
2003–2006	Editorial Board	Graefes Archives of Clinical and Experimental Ophthalmology
2004–2007	Editorial Advisory & Review Board	Retinal Physician
2005–2013	Editorial Board	JAMA Ophthalmology (formerly Archives of Ophthalmology)
2007–	Editorial Advisory Board	EyeNet Magazine
2008–	Editorial Advisory Board, Associate Medical Editor	Ophthalmology Times
2013–	Editorial Advisory Board	Proto: Massachusetts General Hospital Dispatches from the Frontiers of Medicine
2013–	Editorial Board	Ophthalmology
2016	Editor Search Committee	
2016–	Editorial Advisory Committee	

2016	Editorial Board (Founding Member)	Ophthalmology Retina
2017—	Advisory Board (Editorial Team), Sensory Systems Research	EBioMedicine

Honors and Prizes

1976	Governor General's Academic Medal	Governor General of Canada
1980	Phi Beta Kappa	
1985	Hewlett-Packard Top Medical Graduate Award	Harvard Medical School
1986	Department of Surgery Award	Newton-Wellesley Hospital
1993	Research Award	American Diabetes Association
1997	Manpower Award	Research to Prevent Blindness
1999	Richard and Hinda Rosenthal Award	Macula Society
2000	Research Fund	Macula Society
2000	Individual Research Award	Foundation Fighting Blindness
2000	S. Elizabeth O'Brien Grant	S. Elizabeth O'Brien Trust
2000	Physician-Scientist Award	Research to Prevent Blindness
2002	Jules Gonin Lecturer of the Retina Research Foundation	Club Jules Gonin
2002	Alcon Research Institute Award	Alcon Research Institute
2003	Achievement Award	American Academy of Ophthalmology
2003	Walter Wright Lectureship	University of Toronto School of Medicine
2004	John Milton McLean Medal	Cornell University Weill Medical College
2004	Nominee, 2003-04 Excellence in Mentoring Award	Harvard Medical School
2004	Nominee, Dean's Award for Leadership in the Advancement of Women Faculty	Harvard Medical School
2004	Alice R. McPherson Lectureship	University of Wisconsin School of Medicine
2006	ARVO/Pfizer Ophthalmics Translational Research Award	Association for Research in Vision and Ophthalmology
2007	Honorary Lectureship	Women in Ophthalmology Symposium
2007	Roy H. Stein Memorial Lectureship	University of California, San Francisco
2008	Nominee, Joseph B. Martin Dean's Leadership Award for the Advancement of Women Faculty	Harvard Medical School
2009	J. Donald Gass Medal	The Macula Society
2010	Silver Fellow	Association for Research in Vision and Ophthalmology

2010	Founders Award	American Society of Retina Surgeons
2010	Joseph B. Martin Dean's Leadership Award for the Advancement of Women Faculty	Harvard Medical School
2010	Suzanne Veronneau-Troutman Award	Women in Ophthalmology
2011	Life Sciences Award	Health Resources in Action
2011	Paul Henkind Memorial Award	The Macula Society
2011	Senior Achievement Award	American Academy of Ophthalmology
2011	Arthur Gerard Devoe Lectureship	Columbia University
2012	Certificate of Honour	European Association for Vision and Eye Research
2012	Edward Jackson Memorial Lecture	American Academy of Ophthalmology
2012	Nominee, John T. Potts Jr., MD, Faculty Mentoring Award	Massachusetts General Hospital
2013	Honoree	ARVO Foundation for Eye Research
2014	Cless Best of the Best Award	University of Illinois at Chicago Department of Ophthalmology
2014	António Champalimaud Vision Award	Champalimaud Foundation For The Development Of Anti-Angiogenic Therapy For Retinal Disease
2015	Mildred Weisenfeld Award for Excellence in Ophthalmology	Association for Research in Vision and Ophthalmology
2015	Gold Fellow	Association for Research in Vision and Ophthalmology
2016	Cuhna-Vaz Award	Portuguese Society of Ophthalmology
2017	Benning Society Lecture	University of Utah School of Medicine
2017	George Kambara Vision Symposium Keynote Speaker	University of Wisconsin School of Medicine and Public Health
2017	Knobloch Visiting Professor Lecture	University of Minnesota
2017	John T. Potts, Jr., MD, Faculty Mentoring Award Nominee, Recognition as Mentor with Distinction	Massachusetts General Hospital
2018	Haimovici Lecture	Boston University School of Medicine
2018	Robert Haimovici Visiting Retina Lecture	Bascom Palmer Eye Institute
2018	Lucien Howe Medal	American Ophthalmological Society

2018	Gertrude D. Pyron Award	Retina Research Foundation and American Society for Retinal Specialists
2018	Charles L. Schepens, MD, Award	American Academy of Ophthalmology, Retina Research Foundation, and Schepens International Society



## Report of Funded and Unfunded Projects

### Funding Information

#### Past

- 1991–1992 Experimental angiogenesis: pathogenesis and treatment  
Department of Ophthalmology Seed Grant  
PI
- 1992–1993 Center for Excellence Grant  
DOE  
PI
- 1992–1993 Hypoxia-mediated release of vascular endothelial growth factor from the retina  
Massachusetts Lions Research Fund  
Co-PI
- 1992–1994 Pharmacological treatment of macular degeneration  
F. Hoffman-La Roche, Ltd.  
Co-PI
- 1992–1994 Alpha-interferon treatment of iris neovascularization  
F. Hoffman-La Roche, Ltd.  
PI
- 1993–1995 Application of a model of intraocular neovascularization  
American Diabetes Association  
PI
- 1993–1996 Experimental intraocular neovascularization  
Massachusetts Eye and Ear Foundation  
PI
- 1993–1996 Photodynamic therapy of experimental choroidal neovascularization  
Quadra-Logic Technologies, Inc.  
PI
- 1994–1995 Pharmacological treatment of macular degeneration  
F. Hoffman-La Roche, Ltd.  
PI
- 1994–1995 Angiography of experimental ocular neovascularization  
Massachusetts Lions Eye Research Fund  
Co-PI
- 1995–1996 Phase I/II study of photodynamic therapy of choroidal neovascularization  
Quadra-Logic Technologies, Inc.  
PI
- 1995–1999 Proton beam irradiation of choroidal melanoma  
National Cancer Institute  
Co-PI

- 1996–1997 Photodynamic therapy of ocular neovascularization  
Massachusetts Lions Eye Research Fund  
PI
- 1996–1997 Preclinical evaluation of anti-VEGF agents  
Genentech, Inc.  
PI
- 1996–1998 Evaluation of VEGF antisense oligonucleotides  
Hybridon, Inc.  
PI
- 1996–1999 Phase III trial of photodynamic therapy for macular degeneration  
QLT Phototherapeutics/CIBA Vision  
PI
- 1997–1998 Photodynamic therapy of ocular neovascularization  
Massachusetts Lions Eye Research Fund  
PI
- 1997–1998 Manpower Award  
Research to Prevent Blindness  
PI
- 1998–1999 Digital fundus angiography  
Massachusetts Lions Eye Research Fund  
PI
- 1998–1999 Integrin inhibitors in preclinical models of choroidal neovascularization  
Monsanto-Searle  
Co-PI
- 1998–2000 Preclinical evaluation of two-photon PDT  
Photogen, Inc.  
PI
- 1998–2000 Phase I/II study of matrix metalloproteinase inhibitor for AMD  
Agouron Pharmaceuticals  
Co-PI
- 1998–2000 Verteporfin in photodynamic therapy  
QLT Phototherapeutics/CIBA Vision  
PI
- 1998–2001 Evaluation of photoelectron device for experimental choroidal neovascularization  
Photoelectron Corp  
Co-PI
- 1999–2000 Photodynamic therapy and RPE lipofuscin  
Joint Clinical Research Center  
PI
- 1999–2000 Cellular mechanisms following PDT  
Macula Society Research Award  
PI

1999–2000 Photodynamic therapy  
Massachusetts Lions Eye Research Fund  
PI

1999–2000 Evaluation of angiostatin in retinal ischemia model  
Macula Foundation  
PI

1999–2000 Phase I and II study of angiostatic steroid for AMD  
Alcon Laboratories  
PI

1999–2001 Phase I and II Study of Lu-Tex PDT for AMD  
Alcon Laboratories  
PI

1999–2000 Evaluation of VEGF inhibition in experimental choroidal neovascularization  
Genentech, Inc.  
PI

1999–2001 Phase I and II study of anti-VEGF antibody fragment for AMD  
Genentech, Inc.  
PI

2000 Diabetic retinopathy studies  
Lions Club International Foundation  
PI

1998–2001 Evaluation of lutetium texafrin photodynamic therapy for experimental choroidal neovascularization  
Alcon Laboratories  
PI

2000–2001 Photodynamic therapy  
Massachusetts Lions Eye Research Fund  
PI

2000–2002 Evaluation of VEGF inhibition and verteporfin PDT in experimental choroidal neovascularization  
Genentech, Inc.  
PI

2000–2002 Preclinical evaluation of tyrosine kinase inhibitor  
Allergan, Inc.  
PI

2000–2002 Apoptosis research  
Research to Prevent Blindness Physician Scientist Award  
PI

2001–2002 Photodynamic therapy  
Massachusetts Lions Eye Research Fund  
PI

- 2000–2003 Continuation studies of verteporfin PDT  
QLT Phototherapeutics/CIBA Vision  
PI
- 2000–2003 Photodynamic therapy  
S. Elizabeth O'Brien Trust  
PI
- 2000–2003 Photodynamic therapy  
Foundation Fighting Blindness  
PI
- 2000–2003 Unrestricted grant for angiogenesis research  
Eyetechnic Pharmaceuticals  
Co-PI
- 2000–2003 Angiogenesis research  
Iacocca Foundation  
Co-PI
- 2001–2006 Non-invasive measurements of RPE lipofuscin  
National Eye Institute  
Co-PI
- 2002–2003 Photodynamic therapy  
Massachusetts Lions Eye Research Fund  
PI
- 2002–2008 Phase II and III study of intraocular telescope for AMD  
Visioncare  
Co-PI
- 2003–2012 Sib-pair study in AMD  
NIH/NEI # R01EY014458  
Co-PI
- 2004–2005 The role of cathepsin B in choroidal angiogenesis  
Joint Clinical Research Center  
Co-PI
- 2004–2005 PEDF in retinal detachment-associated apoptosis  
Joint Clinical Research Center  
Co-PI
- 2004–2005 Evaluation of subretinal fluid following primary macula detachment by optical coherence tomography  
John & Edith Fitzpatrick Fund, Massachusetts Eye and Ear Infirmary Foundation  
Co-PI
- 2004–2009 Mentoring of clinician-scientists in vision research; mentee: Lucia Sobrin, MD, MPH  
2006-2007  
Harvard Vision Clinical Scientist Development Program  
Mentor

- 2006–2007 Efficacy of AAV-sFlt1 in inhibition of laser-induced choroidal neovascularization in a primate model  
Genzyme  
Co-PI
- 2006–2012 Age-Related Eye Disease Study (AREDS)-2  
Emmes Corporation HHS-N260-2005-00007-C  
Co-PI  
Clinical trial using anti-oxidant and zinc therapies in eye disease
- 2009–2010 Creation of the first primate model of dry AMD  
The Boston Foundation (Philanthropy)  
Co-PI
- 2013–2014 ADVANCE – Comparison of delayed near infrared fluorescence imaging for detection of phagocytic cells  
Massachusetts Eye and Ear Infirmary  
PI (\$14,915)
- 2014–2015 Third Biennial Symposium on Age Related Macular Degeneration  
NIH/NEI 1R13EY024813 08/01/2014-07/31/2015  
Role: Co-PI (PI: Patricia A. D'Amore)  
The objective of this multidisciplinary conference is to stimulate discussions and collaborations aimed at elucidating the mechanisms that underlie the development of AMD and, thus, to identify means to treat, cure, and ultimately prevent AMD

### **Current**

- 1995– Retinal and choroidal disease: translational research  
Retinal Neovascularization Fund (Philanthropy)  
PI
- 2004– Annual Unrestricted Grant  
Research to Prevent Blindness  
PI (\$1,070,000 to date)
- 2011–2018 A natural history observation and registry study of macular telangiectasia type 2: The Mactel Study  
Lowy Medical Research Institute Limited (Lowy Medical Research)  
PI (\$223,350)
- 2014–2015 AY2013 Award  
Mass. Lions  
Role: PI (\$169,00)

### **Current Unfunded Projects**

- 1993– Neovascular Research Fund  
Private foundation and philanthropic funds  
PI  
Areas of investigation include: genetics of age-related macular degeneration, neuroprotection, role of AMP kinase in retinal disease, novel treatments for retinoblastoma and melanoma, and role of TNF-alpha in glaucoma
- 2010– QLT Funds  
Industrial and pharmaceutical funds  
PI  
Areas of investigation include: genetics of age-related macular degeneration, neuroprotection, role of AMP kinase in retinal disease, novel treatments for retinoblastoma and melanoma, and role of TNF-alpha in glaucoma

## **Report of Local Teaching and Training**

### **Teaching of Students in Courses**

2002	Pasteur Program for Clinical Scholars: Translational Research. The Development of PDT for Macular Degeneration Medical Students	Harvard Medical School 1 hour
2004	Pasteur Program for Clinical Scholars: Treatment for Neovascular Macular Degeneration Medical Students	Harvard Medical School 1 hour

### **Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)**

1996	Review Course for Residents and Fellows: Acquired Macular Diseases Residents	Harvard Medical School 1 hour
2001	National Eye Institute Postdoctoral Training Program in the Molecular Basis of Eye Disease Postdoctoral fellows	Schepens Eye Research Institute 1 hour
2002	Boston Retina Fellows Program: Selected Cases in Macular Disease Clinical fellows	Harvard Medical School 1 hour
2002	Pasteur Program for Clinical Scholars: Translational Research. The Development of PDT for Macular Degeneration Research Fellows	Harvard Medical School 1 hour
2004	Pasteur Program for Clinical Scholars: Treatment for Neovascular Macular Degeneration Research fellows	Harvard Medical School 1 hour
2004	Review Course for Residents and Fellows: Therapeutic Approaches to Retinal Diseases Residents, clinical fellows	Massachusetts Eye and Ear Infirmary 1 hour
2005	Molecular Basis of Eye Disease Physicians, research fellows	Schepens Eye Research Institute 1 hour

### Clinical Supervisory and Training Responsibilities

1991–	Retina Service Conference Massachusetts Eye and Ear Infirmary	2 hours/year
1991–	Residency Training Program, Department of Ophthalmology, Massachusetts Eye and Ear Infirmary	8 residents/year
1991–	Vitreoretinal Fellowship Program, Department of Ophthalmology, Massachusetts Eye and Ear Infirmary	3 fellows/year

### Laboratory and Other Research Supervisory and Training Responsibilities

1990–	Supervision of clinical and research fellows, Research Program, Department of Ophthalmology, Massachusetts Eye and Ear Infirmary	3-5 postdoctoral fellows/year 2-3 medical students, residents, and clinical fellows/year
1996	Reader of a Senior Thesis for Harvard-MIT Division of Health Science and Technology	4 hours

### Formally Supervised Trainees

1990–1992	David Guyer, MD / Partner, SV Life Sciences Venture Capital Research and clinical fellow; co-authored one research publication
1991–1993	Arthur Walsh, MD / Ophthalmic Consultants of the Upper Valley, Inc., Lebanon, NH Research and clinical fellow; co-authored one research publication
1992–1994	Michal Kramer, MD / Head of Uveitis Service, Department Of Ophthalmology, Rabin Medical Center, Israel Research fellow; co-authored four research publications, one review, and one chapter
1992–1994	Robert Haimovici, MD / Deceased Research and clinical fellow; co-authored three research publications and one chapter
1992–1995	Thomas Ciulla, MD / Macula-Retina-Vitreous Services, Midwest Eye Institute, IN Resident; co-authored five research publications
1993–1994	Marie-Therese Bernal, MD / Private practice, Bogota, Columbia Research fellow; co-authored one research publication
1994–1996	William Stinson, MD / Clinical Instructor in Ophthalmology, Essex VitreoRetinal Services, Inc., Beverly, MA Research and clinical fellow; co-authored two research publications
1994–1996	Ekaterina Karatza, MD / Cincinnati Eye Institute,, Cincinnati, OH Research fellow
1994–1996	Chandler Samy, MD / Ocala Eye, Ocala, FL Research and clinical fellow



- 1994–1996; 1997–1998; 2001–2003 Deeba Husain, MD / Associate Professor of Ophthalmology, Harvard Medical School; Medical Director, Mass. Eye and Ear Retina Consultants  
Resident (1994–1996), clinical research fellow (1997–1998), vitreoretinal clinical fellow (2001–2003); co-authored ten research publications, two reviews, and five chapters
- 1994–1999 Michael Tolentino, MD / Director of Clinical Research, Center for Retina and Macular Disease; Private practice, FL  
Research fellow and resident; co-authored 6 research publications and two chapters
- 1995–1997 Martin Reinke, MD / Reinke Eye and Laser Center, Dallas, TX  
Research and clinical fellow; co-authored one research publication and one chapter
- 1995–1998 Christina Canakis, MD / University of Athens  
Resident; co-authored two research publications
- 1996–1998 James Palmer, MD / Northern California Retina Vitreous Associates Medical Group, Mountain View, CA  
Research and clinical fellow
- 1996–1998 Robert Bhisitkul, MD, PhD / Professor of Clinical Ophthalmology, University of California, San Francisco  
Research and clinical fellow; co-authored one research publication
- 1996–1998 Panos G. Theodossiadis, MD / Associate Professor of Ophthalmology, University of Athens Medical School  
Research fellow
- 1997–1999 Jean Daniel Arbour, MD / Professor and Chair, Department of Ophthalmology, University of Montreal  
Research and clinical fellow; co-authored one chapter
- 1997–1999 Timothy You, MD / Orange County Retina, California  
Research and clinical fellow; co-authored one research publication
- 1997–1999 Evandro Lucena, MD / Private practice, Rio de Janeiro, Brazil  
Research fellow
- 1997–2001; 2001–2003 Subhransu Ray, MD PhD / Bay Area Retina Associates, San Francisco, CA  
Resident; research and clinical fellow
- 1998–1999 Sam Razavi, MD / Centre Ophtalmologique Transparence, Tours, France  
Research fellow
- 1998–2000 Kenneth B. Graham, MD / Long Island Vitreoretinal Consultants  
Research and clinical fellow; co-authored one chapter
- 1998–2000 Magda Krzystolik, MD / Southern New England Retina Associates  
Research and clinical fellow; co-authored two research publications
- 1998–2000 Rosa Y. Kim, MD / Retina Consultants of Houston, Houston, TX  
Research and clinical fellow
- 1998–2000 Hogara Taguchi, MD / Assistant Professor of Ophthalmology, Kyoto University  
Research fellow; co-authored one research publication

- 1998–2001 Jaya Ambati, MD / Professor of Ophthalmology and Vice Chair, Department of Ophthalmology and Visual Sciences, University of Kentucky  
Research and clinical fellow; co-authored five research publications
- 1998–2001; 2001–2003 Ivana Kim, MD / Associate Professor, Mass. Eye and Ear Infirmary, Harvard Medical School  
Resident, research and clinical fellow; co-authored two research publications during clinical training (over 20 research publications, one review, and three chapters total)
- 1998–2002 Reem Z. Renno, MD / The Methodist Hospital System, Houston, TX  
Research fellow; co-authored three patents, three research publications, one review, and two chapters
- 1999–2001 Danny Gauthier, MD / Clinical Professor of Ophthalmology, University of Montreal  
Research and clinical fellow; co-authored two research publications
- 1999–2001 Ron Afshari Adelman, MD, MPH, MBA, FACS / Professor of Ophthalmology and Visual Science and Director, Retina Service, Yale University School of Medicine  
Research and clinical fellow
- 1999–2002 Ayman Youssri, MD / Private Practice, Washington, DC  
Research and clinical fellow; co-authored one research publication and one review
- 2000–2001 Eric Ezra, MD / Surgeon and Director, Vitreoretinal Service, Moorfields Eye Hospital  
Research fellow; co-authored four research publications
- 2000–2002 Eugene Lit, MD / East Bay Retina Consultants, California  
Research and clinical fellow
- 2000–2002 Yoshiko Terada, MD / Assistant Professor of Ophthalmology, Okayama University  
Research fellow; co-authored two research publications
- 2000–2002 Karen Carrasquillo, OD, PhD / Clinical Associate, Boston Foundation for Sight  
Research fellow; co-authored one research publication and one patent application
- 2000–2002 David N. Zacks, MD PhD / Professor of Ophthalmology, University of Michigan  
Research and clinical fellow; co-authored one patent and four research publications
- 2002–2004 Tara Young McCannell, MD, PhD / Assistant Professor of Ophthalmology, University of California, Los Angeles; Director, Ophthalmic Oncology Center, Jules Stein Eye Institute  
Research and clinical fellow; co-authored three research publications
- 2002–2004 Atul Sharma, MD / Georgia Retina, Georgia  
Research and clinical fellow
- 2003–2005 John Christoforidis, MD / Assistant Professor, University of Arizona Medical Center  
Research and clinical fellow
- 2003–2005; 2006–2007 Lucia Sobrin, MD / Assistant Professor of Ophthalmology, Harvard Medical School; Director, Morse Laser Center, Massachusetts Eye and Ear Infirmary  
Research and clinical fellow, and K12 clinician-scientist; co-authored four research publications and one review
- 2003–2005 Janey Ho, MD / Medical Eye Care Associates, Norwood, MA  
Clinical fellow

- 2003–2005 Jennifer K. Sun, MD / Associate Professor of Ophthalmology, Harvard Medical School, Beetham Eye Institute, Joslin Diabetes Center  
Clinical fellow; co-authored one review
- 2004–2006 Nadia Waheed, MD, MPH / Assistant Professor of Ophthalmology, Tufts University School of Medicine  
Clinical fellow; co-authored one review
- 2004–2006 Toru Nakazawa, MD / Professor and Chair, Department of Ophthalmology, Tohoku University  
Research fellow; co-authored 19 research publications
- 2004–2006 Haicheng She, MD / Assistant Professor, Beijing University Medical School  
Research fellow; co-authored 11 research publications
- 2004–2006 Akihisa Matsubara, MD / Assistant Professor, Department of Ophthalmology and Visual Sciences, Nagoya City University Graduate School of Medicine  
Research fellow; co-authored eight research publications
- 2004–2006 Paul Chan, MD / Associate Professor of Ophthalmology, Weill Cornell Medical College  
Clinical fellow; co-authored one research publication
- 2004–2006 Hadi Zabarackji, MD / Ophthalmic Surgeon, Whipps Cross University Hospital NHS Trust  
Research fellow
- 2004–2007 Kousuke Noda, MD, PhD / Associate Professor of Ophthalmology, Hokkaido University Graduate School of Medicine  
Research Fellow; co-authored 11 manuscripts and one abstract
- 2004–2007; 2011–2013 Dinitra Skondra / John Stroger County Hospital and Part-Time Faculty, Northwestern University  
Research fellow (2004–2007) and clinical fellow (2011–2013); co-authored two research publications
- 2005–2007 Demetrios Vavvas, MD, PhD / Associate Professor of Ophthalmology, Harvard Medical School, Massachusetts Eye and Ear Infirmary  
Clinical fellow; co-authored two patents, 16 research publications, two reviews, and three chapters; co-edited one textbook
- 2005–2007 Fina Canas Barouch, MD / Lahey Eye Clinic, Burlington, MA; Clinical Instructor in Ophthalmology, Harvard Medical School  
Clinical fellow; co-authored three research publications and co-edited one book
- 2006–2008 Christopher Andreoli, MD / Harvard Vanguard Medical Associates, Boston, MA; Clinical Instructor, Harvard Medical School  
Clinical fellow; co-authored two research publications and one review
- 2006–2008 Szilard Kiss, MD / Associate Professor of Ophthalmology, Weill Cornell Medical College  
Clinical fellow; co-authored two research publications and one review
- 2006–2008 Nancy Huynh / Fellow, Ophthalmic Genetics & Clinical Epidemiology, National Eye Institute  
Medical student; co-authored two research publications

- 2007–2009 Vasiliki Poulaki, MD, PhD / Associate Professor of Ophthalmology, Boston University School of Medicine; VA Boston Healthcare System  
Clinical fellow; co-authored two patents, six research publications, and one chapter
- 2007–2009 Corey Westerfeld, MD / Eye Health Vision Centers, Boston, MA  
Clinical fellow; co-authored one chapter
- 2007–2009 Daniel Esmaili, MD / Retina Consultants of Los Angeles  
Clinical fellow; co-authored two research publications and one abstract
- 2007–2010 George Trichonas, MD / Vitreoretinal Fellow, University of Pittsburgh Medical Center  
Research fellow; co-authored one patent, four research publications
- 2007–2011; Aristomenis Thanos, MD / Resident, Department of Ophthalmology, Harvard Medical  
2012–2015 School, Massachusetts Eye and Ear Infirmary  
Research fellow (2007–2011), resident (2012–2015); co-authored nine research publications and three abstracts
- 2008–2009 Ling Chen, MD, PhD / Associate Professor of Ophthalmology and Director, Ophthalmology residency program, Shanghai Eye and ENT Hospital at Fudan University  
Research fellow; co-authored three research publications
- 2008–2010 Yanek Leiderman, MD, PhD / Assistant Professor of Ophthalmology, University of Illinois-Chicago; Illinois Eye and Ear Infirmary  
Clinical fellow; co-authored one review
- 2008–2010 M. Stephanie Jardeleza, MD / Assistant Professor of Ophthalmology, University of Texas-San Antonio  
Clinical fellow; co-authored one review
- 2008–2010 Sandra R. Montezuma, MD / Assistant Professor of Ophthalmology, University of Minnesota  
Clinical fellow; co-authored one research publication and one review
- 2008-2011 Yuki Morizane, MD, PhD / Assistant Professor of Ophthalmology and Director of Retia Service, Okayama University, Japan  
Research fellow; co-authored twelve research publications
- 2009–2011 Maki Kayama, MD / Ophthalmologist, St. Marianna University School of Medicine  
Research fellow; co authored one patent, seven research publications, and three abstracts
- 2009–2011 Sofia Theodoropoulou, MD / Ophthalmology at Attikon Hospital, Athens Greece  
Postdoctoral research fellow; co-authored four research publications
- 2009-2011 Netan Choudhry, MD, FRCS(C)/ Director of Vitreoretinal Surgery, Herzig Eye Institute, Toronto, ON  
Vitreoretinal fellow; co-authored one research publication and one review
- 2009–2012 Mi-In “Irene” Roh, MD / Resident, Department of Ophthalmology, Harvard Medical  
2013– School  
Research fellow (2009–2012), resident (2013–present); co-authored seven research publications and one abstract

- 2009–2012 Yusuke Murakami, MD, PhD / Lecturer, Department of Ophthalmology, Kyushu University Hospital  
Research fellow; co-authored two patents (one US, one international), 12 research publications, two reviews, and seven abstracts
- 2009–2012 Miriam Englander / Vitreoretinal Fellow, Cole Eye Institute, Cleveland Clinic  
Resident; co-authored one research manuscript
- 2009–2012 Dimosthenis Mantopoulos, MD / Intern, Metropolitan Hospital Center  
Research fellow; co-authored two research publications
- 2010–2011 Jun Suzuki, MD / Lecturer, Department of Medicine, Tokyo Medical University  
Research fellow; co-authored three research publications
- 2010–2012 Grace Chang, MD, PhD / University of Washington  
Clinical fellow
- 2010–2012 Eugene Shildkrot, MD / Department of Ophthalmology, University of Virginia  
Clinical fellow; co-authored one abstract
- 2010–2012 Jason Comander, MD, PhD / Instructor of Ophthalmology, Harvard Medical School  
Clinical fellow; co-authored one research publication
- 2010–2013 Rachel Huckfeld, MD, PhD / Research Fellow, Inherited Retinal Diseases, University of Pennsylvania  
Resident; co-authored one abstract
- 2010–2013 Kimio Takeuchi, MD, PhD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Co-authored five manuscripts and three abstracts
- 2010-2014 Ryoji Yanai, MD, PhD / Associate Professor of Ophthalmology, Yamaguchi University, Yamaguchi, Japan  
Research fellow; co-authored three research publications
- 2011 Cynthia Kamami-Levy, MD / Resident in Ophthalmology at Assistance Publique - Hôpitaux de Paris  
Research Fellow; co-authored one manuscript and one abstract
- 2011–2013 Anthony Daniels, MD / Full-Time Faculty, Vanderbilt University  
Clinical fellow; co-authored two book chapters
- 2011–2013 Marina Simeonova, MD / In transition  
Research fellow
- 2011-2014 John Harry Sweigard, PhD / Principal Scientist, Absorption Systems, San Diego, CA  
Research fellow; co-authored four research publications
- 2011– Ahmad Al Moujahed, MD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Co-authored two manuscripts
- 2012-2013 Lama Almulki, MD / Resident, Brown University, Providence, RI  
Research fellow; co-authored seven research publications
- 2012-2013 Alp Atik, MD, MPH / Ophthalmology Resident, Royal Victorian Eye and Ear Hospital, Melbourne, Australia  
Research fellow; co-authored two research publications and one review

- 2012-2014 Haijiang Lin, MD, PhD / Assistant Professor in Ophthalmology and Visual Sciences, University of Massachusetts Medical School, Worcester, MA  
Medical retina fellow; co-authored six research publications
- 2012–2014 Hidetaka Matsumoto, MD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Research fellow; co-authored three manuscripts and four abstracts
- 2012–2014 Fumiaki Kumase, MD, PhD / Chief Physician, Department of Ophthalmology, Okayama University Graduate School of Medicine  
Research fellow; co-authored two research article and three abstracts
- 2012–2015 Keiko Kataoka, MD, PhD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Co-authored eight research publications
- 2012– Katarzyna Brodowska, MD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Co-authored five research publications
- 2013-2016 Eiichi Hasegawa, MD, PhD / Kyushu University  
Research fellow; co-authored three research publications
- 2014– Inês Laíns, MD / Research Fellow, Massachusetts Eye and Ear Infirmary  
Co-authored five research publications

### Formal Teaching of Peers (e.g., CME and other continuing education courses)

1991	Advances in Ocular Drug Therapy CME Series, Harvard Medical School	Single presentation Boston, MA
1992, 1994	Phacoemulsification and Small Incision Cataract Implant Surgery CME Series, Harvard Medical School	Single presentation Boston, MA
1992, 1994	Ophthalmology for Primary Care: Diabetic Retinopathy and Retinal Manifestations of AIDS CME Series, Harvard Medical School	Single presentation Boston, MA
1994, 1995	Ophthalmology for Primary Care: Age-Related Macular Degeneration CME Series, Harvard Medical School	Single presentation Boston, MA
1995	Age-Related Macular Degeneration: Contemporary Manifestations and Treatment Retina Workshop for Nurses and Technicians, Department of Nursing, Harvard Medical School	Single presentation Boston, MA
1997	Macular Degeneration Update American Society of Ophthalmic Registered Nurses, Harvard Medical School	Single presentation Boston, MA
1999	Study Group: Macular Degeneration AMIL Study Group, Massachusetts General Physicians Organization	Single presentation Boston, MA
2007	Ophthalmology for Internists Physician Day, Harvard Medical School/Partners Health Care	Single presentation Boston, MA
2011	Proactive Approach to Career Advancement Leadership Development Course for Physicians & Scientists, Harvard Medical School	Single presentation Boston, MA
2014	University of Washington (UW) Ophthalmology Departmental Lecture Series, January 15, 2014 Washington Association of Eye Physicians & Surgeons Society (WAEPS) & UW School of Medicine Continuing Medical Education	Two presentations Seattle, WA
2015	Age-related Macular Degeneration and Angiogenesis Presented and recorded at the 8th Annual Retina Symposium, University of Illinois at Chicago College of Medicine, Department of Ophthalmology and Visual Sciences, March 13, 2015 Published in: Audio-Digest Ophthalmology Volume 53, Issue 12 June 21, 2015 ISSN 0271-1281.	Single presentation

### Local Invited Presentations

- 1986– Ophthalmology / Grand Rounds  
Department of Ophthalmology, Harvard Medical School
- 1987 The Retinal Manifestations of AIDS / Greater Boston Lecture Series  
Department of Ophthalmology, Massachusetts Eye and Ear Infirmary
- 1991 Retina Section / Greater Boston Lecture Series  
Department of Ophthalmology, Massachusetts Eye and Ear Infirmary
- 1989–1992 Ophthalmology / Chief's Rounds  
Department of Ophthalmology, Harvard Medical School
- 1990–1992 Pharmacologic and Photodynamic Modulation of Experimental Iris Neovascularization /  
Plenary Talk  
Massachusetts Eye and Ear Infirmary Alumni Meeting, Harvard Medical School
- 1991 Laser Therapy of Ocular Disease / Plenary Talk  
Department of Ophthalmology, Harvard Medical School
- 1993 Clinical Trial of Alpha-interferon for AMD / Plenary Talk  
MEEI Alumni Meeting, Harvard Medical School
- 1993 Photodynamic Therapy in Ophthalmology / Plenary Talk  
Laser Center Symposia, Massachusetts General Hospital
- 1994 The Role of VEGF in Ocular Neovascularization / Plenary Talk  
Massachusetts Eye and Ear Infirmary Alumni Meeting, Harvard Medical School
- 1994 Diabetic Retinopathy / Plenary Talk  
Endocrine Conference, Massachusetts General Hospital
- 1995 The Role of VEGF in a Model of Ocular Neovascularization / Plenary Talk  
Schepens Eye Research Institute
- 1995 New Treatments for Macular Degeneration / Plenary Talk  
Longwood Medical Area (Brigham and Women's Hospital)
- 1999 Photodynamic Therapy for Age-Related Macular Degeneration / Plenary Talk  
Schepens Eye Research Institute
- 2001 Aging Retina and Early Degeneration / Plenary Talk  
Schepens Eye Research Institute
- 2002 Drug Delivery to the Posterior Segment / Plenary Talk  
Joint Clinical Research Center, Schepens Eye Research Institute and MEEI
- 2003 Photodynamic Therapy for Choroidal Neovascularization / Plenary Talk  
Schepens Eye Research Institute
- 2003 Neovascularization in the Eye / Plenary Talk  
Lester Wolfe Workshop in Laser Biomedicine, Wellman Laboratories of Photomedicine
- 2004 Mariana Mead Lecture / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting, Harvard Medical School
- 2005 Treatment of AMD: Where do we go next? / Plenary Talk  
Schepens Eye Research Institute



- 2006 Changing the Face of Medicine: Celebrating America's Women Physicians / Panel Discussion  
On Being a Woman in Medicine: critical decisions along the path to where I am today / Plenary Talk  
Harvard Medical School
- 2006 Physicians & Scientists as Leaders in Academic Medicine / Plenary Talk  
Harvard Medical School
- 2007 New Treatments for AMD / Plenary Talk  
Vascular Biology Program, Harvard Medical School
- 2007 Ophthalmology for Internists / Plenary Talk  
Physician Day, Harvard Medical School-Partners Health Care
- 2007 Physicians and Scientists as Leaders in Academic Medicine / Panel Discussion  
Harvard Medical School Leadership Development Symposium
- 2007 Research During Residency: Pros and Cons / Panel Discussion  
Doris Duke Clinical Research Fellowship Meeting, Harvard Medical School
- 2007 Challenges for Women in Research / Plenary Talk  
Doris Duke Clinical Research Fellowship Meeting, Harvard Medical School
- 2008 HMS Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting, Harvard Medical School
- 2008 Current Priorities at Harvard Medical School and Possible Opportunities for Collaborative Efforts / Plenary Talk  
Schepens Eye Research Institute Faculty Retreat
- 2008 On Being a Woman in Medicine: critical decisions along the path to where I am today / Plenary Talk  
Harvard Graduate Women in Science and Engineering
- 2009 Treatment of Age-Related Macular Degeneration—Beyond VEGF / Plenary Talk  
Boston Angiogenesis Meeting, Schepens Eye Research Institute
- 2010 Introduction / Plenary Talk  
Harvard Medical School Department of Ophthalmology Biennial Symposium on Age-Related Macular Degeneration
- 2011 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting, Harvard Medical School
- 2012 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 7-10, 2012)
- 2012 Introduction / Plenary Talk  
SERI Military Symposium, Mass. Eye and Ear/Schepens Eye Research Institute (September 18, 2012)
- 2013 Where Are We and Where We Are Headed / Plenary Talk  
Harvard Medical School Department of Ophthalmology Faculty Retreat, Wentworth by the Sea, Newcastle, NH (April 5, 2013)

- 2013 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 21-22, 2013)
- 2014 HMS Ophthalmology Plugged In / Plenary Talk  
Harvard Medical School Department of Ophthalmology Faculty Retreat, Wentworth by  
the Sea, Newcastle, NH (March 14, 2014)
- 2014 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 20-21 2014)
- 2014 Macular Degeneration: Piecing the Puzzle / Plenary Talk  
3<sup>rd</sup> International Biennial Symposium on AMD, Harvard Medical School (October 24–2,  
2014)
- 2015 Summary & Plans for Macula 2016 / Plenary Talk  
Atlantic Coast Retina Club Meeting and Macula 2015 Conference, Massachusetts Eye and  
Ear (jointly provided with New England Eye Center, Ophthalmic Consultants of Boston,  
and Tufts University School of Medicine in conjunction with Boston University and Lahey  
Hospital & Medical Center) (January 8–10)
- 2015 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (May 29-30, 2015)
- 2016 Setting the Course: Goals and Challenges / Plenary Talk  
Harvard Medical School Department of Ophthalmology Faculty Retreat, Wentworth by the  
Sea, Newcastle, NH (April 1, 2016)
- 2016 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 10-11, 2016)
- 2017 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 23-24, 2017)
- 2018 Photodynamic Therapy: From Bench to Bedside / Plenary Talk  
Resident's Grand Rounds, Mass. Eye and Ear/Harvard Ophthalmology (February 2, 2018)
- 2018 Harvard Medical School Department of Ophthalmology Update / Plenary Talk  
Department of Ophthalmology Annual and Alumni Meeting (June 8-9, 2018)

## **Report of Regional, National and International Invited Teaching and Presentations**

### **Invited Presentations and Courses**

#### **Regional**

- 1992            Pharmacologic Therapy of Intraocular Neovascularization / Plenary Talk  
Rhode Island Ophthalmological Society
- 1992            Pharmacologic Therapy of Intraocular Neovascularization / Grand Rounds  
Lahey Clinical Ophthalmology
- 1994            Update on Background Diabetic Retinopathy: New approaches to the treatment of Macular  
Degeneration / Plenary Talk  
Update on Retinal Diseases for the Anterior Segment Surgeon, Newport, RI:
- 1995            Alternative Dyes for Digital Angiography / Plenary Talk  
New England Chapter Ophthalmic Photographers Society
- 1995            Aging and Vision Loss / Plenary Talk  
Hale Hospital, Haverhill, MA
- 1995            Neovascular Disorders and Pediatric Retina / Lecture  
Kevin Hill Ophthalmology Course: Update on Retinal Disease, Colby College
- 1995            Developments in Macular Degeneration / Plenary Talk  
Boston Veterans Administration Hospital
- 1996            Posterior Segment Complications of Cataract Surgery / Plenary Talk  
Retina Conference, Boston University School of Medicine
- 1997            Novel Therapeutic Development for Neovascular Diseases of the Eye / Plenary Talk  
IBC's Conference on Ocular Disorders, Boston, MA
- 1998            Interpretation of ICG Angiography / Plenary Talk  
New England Chapter Ophthalmic Photographers Society
- 1999            PDT for AMD and the Role of VEGF in Ocular Neovascularization / Plenary Talk  
Rhode Island Hospital, Providence, RI
- 2000            Vitreoretinal Complications of Cataract Surgery / Plenary Talk  
Symposium on Retinal Disease, American Society of Cataract and Refractive Surgery,  
Boston, MA
- 2000            Photodynamic Therapy: Clinical Indications and Treatment / Plenary Talk  
New England Ophthalmological Society
- 2000            Advances in Macular Degeneration / Plenary Talk  
Albert E. Sloane, Eye Forum, Boston, MA
- 2000            Update on Photodynamic Therapy and Practical Issues for Nurses / Plenary Talk  
New England Ophthalmological Society, Boston, MA
- 2000            Photodynamic Therapy: Clinical Indications and Treatment / Plenary Talk  
New England Ophthalmological Society

- 2001 Photodynamic Therapy and Anti-Angiogenic Therapy for Neovascular Macular Degeneration / Plenary Talk  
Yale University Alumni Day
- 2001 Ophthalmology Specialty / Breakout Session Leader  
Health Care, East and West, Moving into the 20<sup>th</sup> Century, Massachusetts Institute of Technology (Chinese Medical Association)
- 2001 Photodynamic therapy / Plenary Talk  
Kevin Hill Course, Waterville, ME
- 2003 Treating Choroidal Neovascularization: Beyond PDT / Honorary Lecture  
First Annual Robert Haimovici, MD, Lecture, Boston University School of Medicine
- 2004 PDT, Anti-VEGF, and the Alphabet Soup of Drug Therapy of AMD / Plenary Talk  
New England Ophthalmologic Society, Boston, MA
- 2006 Patients Helped by Lions Support at the MEEI / Plenary Talk  
Lions District 33, Massachusetts
- 2007 Achieving Success / Panel Discussion  
Women Ophthalmologists of New England Symposium, Boston, MA
- 2007 Mechanisms of Photoreceptor Apoptosis following Retinal Detachment / Presenter  
Retina Society 40<sup>th</sup> Annual Meeting, Boston, MA
- 2008 Inflammation and Age-Related Macular Degeneration / Plenary Talk  
Federation of Clinical Immunology Societies, American Uveitis Society Sponsored Satellite Symposium, Boston, MA
- 2011 Novartis Institutes for Biomedical Research Review (Focus: Vision Care, External Disease, and Complement Inhibition) / Session Moderator  
Fall 2011 Alcon Research Council Meeting, Boston, MA.
- 2011 Women in Retina (WinR) Panel: Work Life Balance / Panel Discussion  
American Society of Retina Specialists 29<sup>th</sup> Annual Meeting, Boston, MA
- 2012 New Treatments for Macular Degeneration / Plenary Talk  
The Roxbury Society For Medical Improvement and Medical Reading Club, Boston, MA
- 2012 EyeHealth: A Lifetime of Vision / Plenary Talk  
Women's World of Health Luncheon, Boston, MA (September 19, 2012)
- 2012 Ophthalmology Vision / Plenary Talk  
Foundation Fighting Blindness Board Meeting, Boston, MA (September 27-28, 2012)
- 2013 Saving Sight in Retinal Disease / Plenary Talk  
École Polytechnique Fédérale de Lausanne and Harvard Joint Workshop, The American Association for the Advancement of Science (AAAS) Annual Meeting, Boston, MA (February 14-18, 2013)
- 2013 How to make a photoreceptor: from basic biology to treatment of retinal degenerative disease / Panel Discussant  
Alcon Research Institute Symposium, Cambridge, MA (March 7th-9th, 2013)

- 2014 Physician Quality Assessment and Performance Evaluation: Perspective from Harvard Medical School affiliate hospitals: MEEI, MGH and BWH / Plenary Talk  
New England Ophthalmological Society 749<sup>th</sup> Meeting, Boston, MA (February 28, 2014)
- 2015 Controversies: All anti-VEGF agents are equivalent, hence all wet AMD patients should be treated with bevacizumab (Avastin) initially / Panel Discussion (Debate)  
New England Ophthalmological Society Meeting, Boston, MA (April 10, 2015)
- 2016 Conflict of Interest in Medical Innovation and Research / Plenary Talk  
New England Ophthalmological Society Meeting, Boston, MA (March 11, 2016)
- 2017 Neovascular Age-related Macular Degeneration: Best Practices and Optimal Dosing for Anti-VEGF / Plenary Talk  
New England Ophthalmological Society Meeting, Boston, MA (March 3, 2017)
- 2017 Controversies: Anterior and Posterior Segment Debates/Panels / Moderator  
New England Ophthalmological Society Meeting, Boston, MA (June 2, 2017)
- 2017 Multimodal Imaging of Non-neovascular Exudative AMD / Plenary Talk  
Heidelberg Engineering 15th Annual International Spectralis Symposium, Boston, MA (October 13, 2017)
- 2018 Macular Degeneration: Breakthroughs in Research and Treatment / Plenary Talk  
Harvard Club of New York, New York, New York (January 23, 2018)
- 2018 Future Directions in Age-related Macular Degeneration / Plenary Talk (Honorary Lecture)  
Haimovici Lecture, Boston University School of Medicine, Boston, MA (March 24, 2018)
- 2018 Practical Tips in the Management of Age-related Macular Degeneration / Plenary Talk  
Boston University 2018 Ophthalmology Update, Boston, MA (March 24, 2018)

### **National**

- 1991 Phthalocyanine Photodynamic Therapy of Iris Neovascularization / Plenary Talk  
Third International Congress on Laser Technology in Ophthalmology, San Francisco, CA
- 1992 Systemic Alpha-Interferon for Intraocular Neovascularization / Plenary Talk  
Retina Society Meeting, New York, NY
- 1993 AGM – 1470 Treatment of Experimental Intraocular Neovascularization / Plenary Talk  
ARVO Annual Meeting, Sarasota, FL
- 1993 VPF/VEGF Levels in Experimental Neovascularization / Plenary Talk  
Retina Society Meeting, San Francisco, CA
- 1994 Photodynamic Therapy of Experimental CNV Using Liposomal Benzoporphyrin Derivative / Plenary Talk  
Retina Society Meeting, Williamsburg, VA
- 1995 Inhibition of VEGF Prevents Ocular Neovascularization in a Monkey Model / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 1995 Photodynamic Therapy of Choroidal Neovascularization Using Liposomal Benzoporphyrin Derivative Mono-acid (BPD-MA) / Plenary Talk  
Retina Society Meeting, Santa Fe, NM

- 1996 Current Understanding of Macular Degeneration / Plenary Talk  
ARVO Mini Symposium, Fort Lauderdale, FL
- 1996 Selected Angiographic Findings Following Photodynamic Therapy of Choroidal Neovascularization / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 1996 Photodynamic Therapy / Plenary Talk  
Gordon Conference
- 1996 New Developments in Age-Related Macular Degeneration / Plenary Talk  
American Academy of Ophthalmology, Subspecialty Day Symposium, Chicago, IL
- 1997 VEGF and Ocular Neovascularization / Plenary Talk  
Cleveland Clinic Ophthalmology Conference
- 1997 VEGF and Ocular Neovascularization / Plenary Talk  
Research to Prevent Blindness Science Writer's Seminar, Los Angeles, CA
- 1997 Update on Age-Related Macular Degeneration and Photodynamic Therapy / Panel Discussion  
American Academy of Ophthalmology Subspecialty Day Symposium, San Francisco, CA
- 1998 VEGF and Ocular Neovascularization; Photodynamic Therapy for AMD / Plenary Talk  
Albany Medical College, Albany, NY
- 1997 Other Experimental Treatment Modalities / Plenary Talk  
Macula Society Symposium, American Academy of Ophthalmology, San Francisco, CA
- 1998 Expression of VEGF in Experimental Choroidal Neovascularization / Plenary Talk  
Macula Society, Boca Raton, FL
- 1998 VEGF and Neovascularization, and Photodynamic Therapy for AMD / Plenary Talk  
Aspen Retina Society, Aspen, CO
- 1998 Comparison of Fluorescein Angiography and Indocyanine Green Angiography after Photodynamic Therapy for Choroidal Neovascularization / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 1998 VEGF and Neovascularization, Photodynamic Therapy, and Alternative Treatments of AMD / Visiting Professor  
University of Cincinnati, Cincinnati, OH
- 1998 Pathogenesis and Treatment of Age-Related Macular Degeneration / Plenary Talk  
Wilmer Ophthalmological Institute, Baltimore, MD
- 1998 Integrin Expression in Experimental Choroidal Neovascularization / Plenary Talk  
Retina Society Meeting, Washington, DC
- 1998 PDT for AMD and the Role of VEGF in Ocular Neovascularization / Visiting Professor  
University of North Carolina, Chapel Hill, NC
- 1999 New Treatments for AMD / Honorary Lecture  
Rosenthal Award Lecture / Macula Society, San Diego, CA,
- 1999 PDT for AMD and Pharmacologic Treatment for AMD / Plenary Talk  
Ninth National Masters Club Meeting, Tarpon Springs, FL

- 1999 The Rationale of Photodynamic Therapy / Plenary Talk  
29th Anniversary Meeting of the Wilmer Retinal Vascular Center, Baltimore, MD
- 1999 The Rationale of Photodynamic Therapy / Plenary Talk  
Research to Prevent Blindness Science Writer's Seminar, Los Angeles, CA
- 1999 The Rationale of Photodynamic Therapy / Plenary Talk  
American Academy of Ophthalmology, Subspecialty Day Symposium, Orlando, FL
- 1999 Photodynamic Therapy of Experimental CNV Using Lutetium Texaphyrin / Plenary Talk  
The Retina Society Meeting, Maui, Hawaii
- 2000 Anti-Angiogenesis and Growth Factors; Photodynamic Therapy / Plenary Talk  
Wills Retina Service 40th Anniversary, Philadelphia, PA
- 2000 Photodynamic Therapy / Plenary Talk  
Vail Vitrectomy Meeting, Vail, CO
- 2000 Minisymposium on Photodynamic Therapy / Plenary Talk  
Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL
- 2000 Anti-VEGF Therapy / Plenary Talk  
International Conference on Eye Research, Santa Fe, NM
- 2000 One-Year Results of the Verteporfin in Photodynamic Therapy (VIP) Study for Pathologic Myopia / Plenary Talk  
Vitreoretinal Subspecialty Day, American Academy of Ophthalmology, Dallas, TX
- 2001 Update on Photodynamic Therapy and Anti-Angiogenic Therapy for Macular Degeneration / Plenary Talk  
Aspen Retinal Detachment Society, Aspen, CO
- 2001 Photodynamic Therapy and the Development of Pharmacologic Therapy for AMD and PDR / Visiting Professor  
Washington University, St. Louis, MO
- 2001 Other Photosensitizers for Photodynamic Therapy / Plenary Talk  
Vitreoretinal Subspecialty Day, American Academy of Ophthalmology, New Orleans, LA
- 2002 Experimental Animal Models of Choroidal Neovascularization / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2002 Pharmacological Inhibition of Retinal and Choroidal Neovascularization: New Strategies and Future Frontiers / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2002 Targeted Photodynamic Therapy using a Homing Peptide to VEGFR2 / Plenary Talk  
Combined Meeting of the Retina and Vitreous Society, San Francisco, CA
- 2002 Expanding Indications for PDT in AMD / Plenary Talk  
Vitreoretinal Subspecialty Day, American Academy of Ophthalmology, Orlando, FL
- 2002 Update on Photodynamic Therapy and New Treatments for Retinal Diseases / Plenary Talk  
University of San Francisco Department of Ophthalmology, Ophthalmology 2003

- 2003 Photodynamic Therapy for Choroidal Neovascularization / Plenary Talk  
Biannual Alcon Research Institute Meeting, Ft. Worth, TX
- 2003 Combined Angiostatin and Verteporfin PDT for the Treatment of Experimental Choroidal Neovascularization in the Rat / Plenary Talk  
Retina Society Meeting, Chicago, IL
- 2003 New Therapies for Age related Macular Degeneration / Visiting Professor  
Cole Eye Institute, Cleveland, OH
- 2003 Controversies in AMD / Panel Discussion  
American Academy of Ophthalmology Subspecialty Day, Anaheim, CA
- 2004 Search for Genes Expressed in Leukocytes That May Serve as Biomarkers for Neovascular Age-Related Macular Degeneration / Plenary Talk  
Macula Society Annual Meeting, Las Vegas, NV
- 2004 Experimental Choroidal Neovascularization / Moderator  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2004 New Technologies for Age-Related Macular Degeneration / Honorary Lecture  
Alice McPherson Lecture, Wisconsin EYEMD Spring Symposium, Lake Geneva, WI
- 2004 Update on Age-related Macular Degeneration / Plenary Talk  
Cornell Ophthalmology Alumni Association, New York, NY
- 2004 Alternative, Pharmacologic, and Surgical Treatment of AMD / Panel Discussion  
American Academy of Ophthalmology Subspecialty Day, New Orleans, LA
- 2004 Pharmacotherapies: Now and in the Future / Plenary Talk  
American Academy of Ophthalmology Retina Subspecialty Day, New Orleans, LA
- 2004 John Milton McLean Lecture / Honorary Lecture  
Department of Ophthalmology Annual Alumni Day Meeting, Weill Medical College of Cornell University, New York, NY
- 2005 Potent Stable siRNA to Human VEGF for the Treatment of Ocular Neovascular Disease / Plenary Talk and Moderator  
Macula Society Annual Meeting, Key Biscayne, FL
- 2005 Epidemiology and Genetics of AMD / Plenary Talk  
Retina Summit, Cleveland, OH.
- 2005 Pharmacological Therapy for Visually Significant ARMD: Verteporfin/Miravant / Plenary Talk  
American Academy of Ophthalmology Annual Meeting, Chicago, IL
- 2005 Intraocular Antagonism of VEGF for Treatment of CNV or DME / Plenary Talk  
American Academy of Ophthalmology Annual Meeting, Chicago, IL
- 2005 Pharmacologic Therapy for Visually Significant AMD / Moderator  
American Academy of Ophthalmology Retina Subspecialty Day, Chicago, IL
- 2005 Changing Concepts and Controversies / Discussion Group Leader  
American Academy of Ophthalmology, Retina Subspecialty Day, Chicago, IL.



- 2005 State of the Art Management of Age Related Macular Degeneration / Plenary Talk  
Therapeutic Options in Development, Washington, DC
- 2006 Ophthalmology / Grand Rounds  
University of Michigan School of Medicine, Ann Arbor, MI
- 2006 Vision Seminar / Plenary Talk  
University of Michigan School of Medicine.
- 2006 Randomized, Controlled Phase III Study of Ranibizumab (Lucentis™) for Minimally  
Classic or Occult Neovascular Age-Related Macular Degeneration: Two-Year Safety  
Results of the MARINA Study / Presenter  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2006 New Treatments for AMD / Plenary Talk  
New York Academy of Medicine
- 2007 Anti-VEGFs in Wet AMD / Plenary Talk  
The Steven M. Podos Colloquium: Macular Degeneration and Drug Therapy, Alcon  
Research Institute, Fort Worth, Texas
- 2007 Design and End Points for AMD / Plenary Talk  
NIH/National Eye Institute Conference, Bethesda, MD
- 2007 Cytokines, Retinal Detachment, and AMD / Presenter  
Vail Vitrectomy Meeting, Vail, CO
- 2007 Update on AMD / Grand Rounds  
University of California, San Francisco, Department of Ophthalmology
- 2007 Preventing Photoreceptor Apoptosis—Can We Improve Vision Outcomes? / Grand  
Rounds  
University of California, San Francisco, Department of Ophthalmology
- 2007 How Did I End Up Here? / Plenary Talk  
Women in Ophthalmology Symposium, Sedona, AZ
- 2007 Update on AMD / Honorary Lecture  
Roy H. Steinberg Memorial Lecture, University of California, San Francisco
- 2008 AMD Therapy / Session Moderator  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2008 Collagen and Elastin Abnormalities Relevant to CNV / Plenary Talk  
American Academy of Ophthalmology Retina Subspecialty Day, Atlanta, GA
- 2008 Role of VEGF in Ocular Disease / Plenary Talk  
Combined Meeting of American Academy of Ophthalmology and the Italian Society of  
Ophthalmology, Atlanta, GA
- 2008 International Perspectives: The Use of VEGF Inhibitors in Different Retinal Diseases /  
Plenary Talk  
Combined meeting of American Academy of Ophthalmology and the Italian Society of  
Ophthalmology, Atlanta, GA.
- 2008 Pharmacologic Treatments for AMD / Discussion Group Leader  
American Academy of Ophthalmology Retina Subspecialty Day, Atlanta, GA

- 2008 Endogenous Endostatin Inhibits Choroidal Neovascularization / Plenary Talk  
Macula Society Annual Meeting, Palm Beach, FL
- 2009 Podos Colloquium / Moderator  
Alcon Research Institute, Fort Worth, TX
- 2009 An Anti-VEGF Gene Therapy for Neovascular Age-Related Macular Degeneration-  
Efficacy and Safety Studies in Murine and Primate Models / Plenary Talk  
ARVO Annual Meeting, Fort Lauderdale, FL
- 2009 Genetics of AMD / Plenary Talk  
Yale Retina 2009: New Frontiers in Retina Diagnosis and Therapy, New York, NY
- 2009 Cellular Basis of Proliferative Vitreoretinopathy / Plenary Talk  
American Academy of Ophthalmology Retina Subspecialty Day, San Francisco, CA
- 2009 Cellular Basis of Proliferative Vitreoretinopathy / Presenter  
American Academy of Ophthalmology Symposium, San Francisco, CA.
- 2009 Anti-Angiogenesis Treatment / Plenary Talk  
American Academy of Ophthalmology Symposium, San Francisco, CA.
- 2009 Retina, Vitreous Original Papers / Panel Discussion  
Joint Meeting of the American Academy of Ophthalmology and Pan-American  
Association of Ophthalmology, San Francisco, CA
- 2010 Looking Back, Moving Forward / Plenary Talk (Keynote)  
Women in Eye and Vision Research, ARVO Annual Meeting, Fort Lauderdale, FL.
- 2010 Dealing with the Hospital CEO / Plenary Talk  
ARVO Symposium, Sarasota, FL
- 2010 Chairmanship: the Good, the Bad, the Ugly/ Plenary Talk  
ARVO Symposium, Sarasota, FL
- 2010 What Experience Has Taught Me: Looking at the Macula / Plenary Talk  
82nd Annual Spring Postgraduate Conference, University of Michigan School of  
Medicine, Ann Arbor, MI
- 2010 Preventing Cell Death in the Retina: The Role of Necroptosis / Plenary Talk  
Vail Vitrectomy Conference, Vail, CO.
- 2010 Treatment of Parafoveal Telangiectasia / Plenary Talk  
Duke University School of Medicine Residents and Fellows Day, Durham, NC
- 2010 Therapy of AMD: Past, Present, and Future / Plenary Talk (Keynote)  
Duke University School of Medicine Residents and Fellows Day, Durham, NC
- 2010 Genes and Genetic Testing in AMD Patient / Plenary Talk  
American Academy of Ophthalmology, Chicago, IL
- 2010 AMD Part 1: Pathogenesis / Session Moderator  
American Academy of Ophthalmology, Chicago, IL
- 2010 Break with the Experts: AMD / Panel Discussion  
American Academy of Ophthalmology, Chicago, IL

- 2011 The Harvard Angiogenesis Story / Honorary Lecture  
Paul Henkind Memorial Lecture, Macula Society 34th Annual Meeting, Boca Raton, FL
- 2011 Macular Degeneration: Past, Present, and Future / Flaum Eye Institute Distinguished  
Visiting Professor  
56th Annual Rochester Ophthalmology Conference, University of Rochester School of  
Medicine and Dentistry, Rochester, NY
- 2011 What I Have Learned From Looking at the Retina / Plenary Talk  
56th Annual Rochester Ophthalmology Conference, University of Rochester School of  
Medicine and Dentistry, Rochester, NY
- 2011 The Association of Increased VEGF Expression With Avascular Retina in a Rat Model of  
Retinopathy of Prematurity / Presentation Discussant  
American Ophthalmological Society 127th Annual Meeting, Dana Point, CA
- 2011 One Retinoblastoma World / Panel Discussion  
Alcon Research Institute
- 2011 Neuroprotection in Retinal Disease: A Fresh Start / Plenary Talk  
2011 ARVO Foundation for Eye Research (AFER) Seminar, Ft. Lauderdale, FL
- 2011 Opening/Closing Remarks / Plenary Talk  
American Academy of Ophthalmology Subspecialty Day, Orlando, FL
- 2011 AMD: Beyond VEGF / Honorary Lecture  
Arthur Gerard Devoe Lecture, Department of Ophthalmology, Columbia University, New  
York, NY
- 2012 Harvard Angiogenesis Story / Plenary Talk  
Macula 2012, New York, NY (January 20-21, 2012)
- 2012 A Second Decade / Plenary Talk  
Steven Podos Symposium, Association of University Professors of Ophthalmology,  
Miami, FL (June 1, 2012)
- 2012 The MD, PhD, and Others with Research Experience / Plenary Talk  
Clinician Scientist Symposium, Association of University Professors of Ophthalmology,  
Miami, FL (January 26–28, 2012)
- 2012 Photoreceptor Cell Death in Retinal Disorders / Plenary Talk  
The Eye in Neurodegeneration Mini-Symposium, ARVO Annual Meeting, Fort  
Lauderdale, FL (May 6– 10, 2012)
- 2012 What I Have Learned from Looking at the Macula / Plenary Talk  
Women in Ophthalmology 2012 Summer Symposium, Williamsburg, Virginia
- 2012 AMD Revisited—Piecing the Puzzle: LXIX Edward Jackson Memorial Lecture /  
Honorary Lecture  
American Academy of Ophthalmology Annual Meeting, Chicago, IL (Nov. 10–13, 2012)
- 2013 Current and Future Therapies of AMD / Honorary Lecture (Abstract)  
William O. Edward and Ottiwell W. Jones Founders Lecture, Aspen Retinal Detachment  
Society Meeting, Snowmass, CO (March 4, 2013)

- 2013 Neuroprotection for Retinal Disorders / Plenary Talk  
Aspen Retinal Detachment Society Meeting, Snowmass, CO (March 6, 2013)
- 2013 The Impact of Current Clinical Data on AMD Management / Panel Discussant  
Aspen Retinal Detachment Society Meeting, Snowmass, CO
- 2013 Effects of Human Umbilical Tissue-Derived Cells (hUTCs) on Retinal Vascular Leakage  
in the Streptozotocin (STZ) Diabetic Rat / Plenary Talk (Abstract)  
Retina Society 46<sup>th</sup> Annual Meeting, Beverly Hills, CA (September 27, 2013)
- 2013 Future Treatments for Retinal Degenerations: Neuroprotection / Plenary Talk  
American Academy of Ophthalmology Annual Meeting, Retina Subspecialty Day, New  
Orleans, LA (November 15, 2013)
- 2013 Diabetic Retinopathy / Panel Discussant  
American Academy of Ophthalmology Annual Meeting, Retina Subspecialty Day, New  
Orleans, LA (November 15, 2013)
- 2014 Understanding AMD: Piecing the Puzzle / Plenary Talk  
Washington Academy of Eye Physicians & Surgeons (WAEPS)/University of Washington  
Lecture Series, Seattle, WA (January 15, 2014)
- 2014 Genetic testing for AMD-are we ready? / Plenary Talk  
Washington Academy of Eye Physicians & Surgeons (WAEPS)/University of Washington  
Lecture Series, Seattle, WA (January 15, 2014)
- 2014 Grand Rounds  
University of Washington School of Medicine, Seattle, WA (January 15, 2014)
- 2014 Retina / Plenary Talk (Resident Lecture)  
University of Washington School of Medicine, Seattle, WA (January 16, 2014)
- 2014 Neuroprotection for retinal disease – can we make it work? / Plenary Talk  
Macula 2014 meeting (January 11, 2014) / Wills Eye Hospital, Philadelphia, PA (held in  
conjunction with the Atlantic Coast Retina Club, January 9–10, 2014)
- 2014 Costs and Perils of Recruiting / Plenary Talk  
48th AUPO Annual Meeting and 2014 UAO Annual Meeting, Trump National Doral  
Miami, Miami, Florida (January 30– February 1, 2014)
- 2014 Age-Related Macular Degeneration Revisited – Piecing the Puzzle: The LXIX Edward  
Jackson Memorial Lecture / Plenary Talk (Honorary Lecture)  
Cless Best of the Best Event, University of Illinois at Chicago (March 20, 2014)
- 2014 AMD—Piecing the Puzzle: 42<sup>nd</sup> Bruce Fralick Lecture / Plenary Talk (Honorary Lecture)  
86th Annual Spring Postgraduate Conference and 30th Annual Research Day, Kellogg Eye  
Center, University of Michigan (June 13, 2014)
- 2014 Current Perspectives on Genetic Testing for AMD / Lecture  
86th Annual Spring Postgraduate Conference and 30th Annual Research Day, Kellogg Eye  
Center, University of Michigan (June 14, 2014)
- 2014 Neuroprotection for Retinal Disorders / Lecture  
86th Annual Spring Postgraduate Conference and 30th Annual Research Day, Kellogg Eye  
Center, University of Michigan (June 14, 2014)

- 2014 Macular Degeneration—Piecing the Puzzle: Jeffrey W. Berger Lecture / Plenary Talk (Honorary Lecture)  
Scheie Eye Institute, Penn Presbyterian Medical Center, University of Pennsylvania (September 18, 2014)
- 2014 What's New on the Horizon for Retinal Vein Occlusion / Plenary Talk  
American Academy of Ophthalmology, Subspecialty Day Symposium, Chicago, IL (October 17, 2014)
- 2015 Managing Quality, Patient Safety Outcomes and the Patient Experience/ Plenary Talk  
AUPO 2015 Annual Meeting, Tucson, AZ (January 28-31, 2015)
- 2015 AMD and Angiogenesis / Plenary Talk (Honorary Lecture)  
2015 Gerhard Cless Retina Lecture, 8<sup>th</sup> Annual Retina Symposium—Update: Clinical Pearls and Novel Treatments, Department of Ophthalmology and Visual Sciences, College of Medicine, University of Illinois at Chicago (March 13, 2015)
- 2015 AMD: Beyond VEGF—2015 Weisenfeld Lecture / Plenary Talk (Honorary Lecture)  
ARVO 2015 Annual Meeting, Denver, CO (May 4, 2015)
- 2015 VEGF: From Discovery to Therapy—Champalimaud Vision Award Lecture / Plenary Talk (Honorary Lecture)  
ARVO 2015 Annual Meeting, Denver, CO (May 5, 2015)
- 2015 First-time Results of Clinical Trials, Part I / Moderator  
Retina 2015: Upping the Ante, Sands Expo/Venetian, Las Vegas, NV (November 13, 2015)
- 2015 Exploring Careers in Research / Keynote Speaker  
AAO Young Ophthalmologists (YO) / ARVO Members-in-Training (MIT) Lounge Networking Event, AAO 119<sup>th</sup> Annual Meeting (November 15, 2015)
- 2016 New Treatment Concepts / Plenary Talk  
ARMD Section, Atlantic Coast Retina Club / Macula 2016 (January 9, 2016)
- 2016 Presentation by Amirfarbod Yazdanyar, MD, PhD / Discussant  
AUPO/RPB Resident & Fellow Research Forum, 2016 AUPO Annual Meeting, Fort Lauderdale, FL (January 29, 2016)
- 2016 COI—Interest, Commitment, and Outside Money: Can you defend? / Plenary Talk  
2016 AUPO Annual Meeting, Fort Lauderdale, FL (January 30, 2016)
- 2016 Retention 101: Challenging Situations in Faculty Recruitment / Plenary Talk and Panel Discussant  
2016 AUPO Annual Meeting, Fort Lauderdale, FL (January 29, 2016)
- 2016 New Technologies, Refractive and Refractory Surgical Issues / Moderator  
Vail Vitrectomy 2016 Meeting, Vail, CO (February 22, 2016)
- 2016 The Future of VR Surgery / Panel Discussant  
Vail Vitrectomy 2016 Meeting, Vail, CO (February 23, 2016)
- 2016 Intensive Statin Treatment Regresses High-risk Features of Age-related Macular Degeneration (AMD) / Plenary Talk  
39<sup>th</sup> Annual Macula Society Meeting, Miami, FL (February 26, 2016)

- 2016 NEI Audacious Goals Initiative Town Hall / Panel Discussant  
ARVO 2016 Annual Meeting, Seattle, WA (May 1, 2016)
- 2016 Career Path Discussion—Laboratory Research / Small Group Discussant  
Heed Ophthalmic Foundation Residents Retreat, Chicago, IL (September 26, 2016)
- 2016 Research Funding and Grant Writing: Work/Life Balance / Moderator  
Heed Ophthalmic Foundation Residents Retreat, Chicago, IL (September 26, 2016)
- 2017 New Approaches to Treating Age-related Macular Degeneration / Plenary Talk (Honorary Lecture)  
Benning Lecture, University of Utah, Salt Lake City, UT (February 14, 2017)
- 2017 The Harvard Angiogenesis Story / Plenary Talk  
30<sup>th</sup> Annual Cogan Ophthalmic Society Meeting, Boston, MA (March 25, 2017)
- 2017 Treatment of AMD Beyond VEGF / Plenary Talk (Keynote Speaker)  
Spring Vision Science Research Symposium, University of Wisconsin, Madison, WI (April 7, 2017)
- 2017 Human Plasma Metabolomics in Age-Related Macular Degeneration Using Nuclear Magnetic Resonance Spectroscopy / Plenary Talk  
American Society of Retinal Specialists Annual Meeting, Boston, MA (August 12, 2017)
- 2017 Young Members Lecture on International Collaborations / Panel Discussant  
American Society of Retinal Specialists Annual Meeting, Boston, MA (August 14, 2017)
- 2017 Nuclear DNA Damage in RPE Promotes Senescence and Inflammation in AMD / Plenary Talk  
50<sup>th</sup> Annual Retina Society Meeting, Boston, MA (October 6, 2017)
- 2017 Retinal Mardi Gras—Section XIII: Late Breaking Development Part II / Moderator  
American Academy of Ophthalmology Subspecialty Day, New Orleans, LA (November 11, 2017)
- 2017 The Path to Drug Approval / Plenary Talk  
Macula Society Symposium at American Academy of Ophthalmology Annual Meeting, New Orleans, LA (November 13, 2017)
- 2017 Practical Tips in the Management of Age-related Macular Degeneration / Plenary Talk  
Minnesota Academy of Ophthalmology, Minneapolis, MN (December 1, 2017)
- 2017 Future Directions in Age-related Macular Degeneration / Plenary Talk (Honorary Lecture)  
Knobloch Lecture, University of Minnesota, Minneapolis, MN (December 2, 2017)
- 2018 Departmental Mentoring Structures / Plenary Talk  
New Chair Bootcamp, Association of University Professors of Ophthalmology, Austin, TX (January 24, 2018)
- 2018 Multimodal Imaging of Quiescent Exudative AMD with Persistent Subretinal Fluid / Plenary Talk  
Macula Society Annual Meeting, Beverly Hills, CA (February 22, 2018)
- 2018 Developing a Therapy—from Target to Treatment / Plenary Talk (Keynote Speaker)  
Young Member Mentor Lecture, Macula Society Annual Meeting, Beverly Hills, CA (February 23, 2018)

- 2018 Treatment of AMD: Where Do We Go from Here? / Plenary Talk (Honorary Lecture)  
Robert Haimovici Visiting Retina Lecture, Bascom Palmer Eye Institute, Miami, FL  
(April 5, 2018)
- 2018 Practical Tips in the Management of Age-related Macular Degeneration / Plenary Talk  
Bascom Palmer Eye Institute, Miami, FL (April 5, 2018)
- 2018 New Treatments for AMD / Plenary Talk  
International Retina Symposium, Honolulu, HI (April 28, 2018)
- 2018 Identifying Biomarkers in AMD / Plenary Talk  
International Retina Symposium, Honolulu, HI (April 28, 2018)
- 2018 Introduction of Reza Dana, the 2018 Recipient of the Friedenwald Award / Plenary Talk  
ARVO 2018 Annual Meeting, Honolulu, HI (April 29, 2018)

### **International**

- 1991 Systemic Alpha-Interferon for Intraocular Neovascularization / Plenary Talk  
Retina Society Meeting, Quebec, Canada
- 1993 Posterior Segment Complications of Cataract Surgery / Plenary Talk  
Invited Speaker, Walter Wright Day, University of Toronto
- 1994 VEGF Levels in Experimental and Clinical Neovascularization / Plenary Talk  
Club Jules Gonin, Versailles, France
- 1995 Photodynamic Therapy / Plenary Talk and Moderator  
International Symposium of Experimental and Clinical Ocular Pharmacology and  
Pharmaceutics, Geneva, Switzerland
- 1996 Ocular Neovascularization / Plenary Talk and Moderator  
Macular Workshop, Bath, England
- 1996 Photodynamic Therapy / Plenary Talk  
Club Jules Gonin, Bern, Switzerland
- 1997 VEGF and Ocular Neovascularization / Plenary Talk  
Pan Hellenic Congress, Athens, Greece
- 1997 Photodynamic Therapy / Plenary Talk and Moderator  
International Symposium of Experimental and Clinical Ocular Pharmacology and  
Pharmaceutics, Munich, Germany
- 1998 Update on Clinical Trials of PDT for AMD / Plenary Talk  
Club Jules Gonin, Edinburgh, Scotland
- 1998 Rationale of PDT for AMD / Plenary Talk  
IIIe Symposium International de Creteil, Paris, France
- 1999 Retinal Vascular Dysfunction / Plenary Talk  
Oxford Ophthalmological Congress, Oxford, England
- 2000 Photodynamic Therapy for Macular Degeneration / Plenary Talk  
International Conference on Photodynamic Therapy, Lausanne, Switzerland

- 2000 Photodynamic Therapy for Macular Degeneration / Plenary Talk  
Canadian Retina Society, Whistler, British Columbia
- 2000 New Treatments for Macular Degeneration / Plenary Talk  
Canadian Ophthalmological Society, Whistler, British Columbia
- 2000 Photodynamic Therapy / Plenary Talk  
Vision Quest 2000: 11th World Congress of Retina International, Toronto, Ontario, Canada
- 2000 One-Year Results of the Verteporfin in Photodynamic Therapy (VIP) Study for AMD / Plenary Talk  
Club Jules Gonin, Taormina, Sicily
- 2000 Photodynamic Therapy for Macular Degeneration / Plenary Talk  
China National Ophthalmic Society, Shanghai, China
- 2000 Photodynamic Therapy / Plenary Talk and Moderator  
International Symposium of Experimental and Clinical Ocular Pharmacology and Pharmaceutics, Lisbon, Portugal
- 2001 Update on Photodynamic Therapy / Visiting Professor  
Universite Laval, Quebec City, Canada
- 2001 New Treatments for Macular Degeneration / Visiting Professor  
University of Alberta, Edmonton, Alberta, Canada
- 2002 Combined rhuFab V2 and Visudyne Therapy / Plenary Talk  
Macula Society Annual Meeting, Barcelona, Spain
- 2002 The Development of PDT for AMD / Honorary Lecture  
Jules Gonin Lecture, Club Jules Gonin, Montreux, Switzerland
- 2003 New Treatments for AMD / Honorary Lecture  
Walter Wright Speaker, University of Toronto School of Medicine, Toronto, Ontario, Canada
- 2005 Randomized, Controlled Phase III Study of Ranibizumab (Lucentis™) for Minimally Classic or Occult Neovascular Age-related Macular Degeneration / Plenary Talk  
American Society of Retina Surgeons, Toronto, Ontario, Canada
- 2005 Treatment of AMD / Moderator  
American Society of Retina Surgeons, Toronto, Ontario, Canada
- 2007 New Treatments for AMD / Plenary Talk  
Singapore Eye Research Institute, Singapore
- 2007 Neovascular AMD: Past Present and Future / Plenary Talk  
9th International Congress, International Ocular Inflammation Society, Paris, France
- 2008 The Updated Macular Disease Treatment in the US from Surgical and Medical Sides / Plenary Talk  
Alcon Seminar, 62nd Annual Congress of the Japanese Clinical Ophthalmology Society, Tokyo, Japan.
- 2008 Treatment of Choroidal Neovascularization: Beyond VEGF / Plenary Talk (Keynote)  
62nd Annual Congress of the Japanese Clinical Ophthalmology Society, Tokyo, Japan



- 2008 Update on Clinical Treatment of AMD at the Mass Eye and Ear / Plenary Talk  
Department of Ophthalmology, Tohoku University, Tohoku, Japan
- 2009 AMD: Genetics Update / Plenary Talk  
Retina Subspecialty Day, Canadian Ophthalmology Society, Toronto, BC, Canada
- 2009 Neuroprotection for Retinal Disease; Cellular Mechanism of Proliferative  
Vitreoretinopathy / Plenary Talk  
Retina Subspecialty Day, Canadian Ophthalmology Society, Toronto, BC, Canada
- 2009 Risk Factors for AMD: Nature vs. Nurture / Plenary Talk  
Atlantic Eye Symposium, Dalhousie University, Halifax, NS, Canada
- 2009 Update on Treatment for AMD; Current Strategies for Managing CRVO / Presenter  
Atlantic Eye Symposium, Dalhousie University, Halifax, NS, Canada
- 2009 Value of Eye Research in Driving Excellence in Clinical Care: Lessons from Harvard /  
Plenary Talk  
Centre for Eye Research Australia, University of Melbourne
- 2010 Treatment of Parafoveal Telangiectasia / Plenary Talk  
World Ophthalmology Congress, Berlin, Germany
- 2010 Therapy of AMD: Past, Present, and Future / Honorary Lecture  
Founders' Award Lecture, American Society of Retina Specialists, Vancouver, BC,  
Canada
- 2010 AICAR: An Exercise Mimetic is a Novel Non-Chemotherapeutic Drug for Intraocular  
Tumors / Plenary Talk  
Club Jules Gonin, Kyoto, Japan
- 2011 Treatment of AMD: Beyond VEGF / Plenary Talk  
RetinaCanada, Montreal, Canada
- 2011 What I Have Learned From Looking at the Macula / Plenary Talk (Keynote)  
RetinaCanada, Montreal, Canada
- 2011 AMD: Beyond VEGF / Grand Rounds  
University of Toronto, Ontario, Canada
- 2011 Update on AMD / Visiting Professor  
University of Toronto, Ontario, Canada
- 2011 Update on Diabetic Retinopathy / Visiting Professor  
University of Toronto, Ontario, Canada
- 2011 New Developments, New Hope: Translating Research into Treatments / Plenary Talk  
Foundation Fighting Blindness / VisionQuest AMD Session, Toronto, Ontario, Canada
- 2012 Medical Retina Beyond Basic / Session Chair  
World Ophthalmology Congress, Abu Dhabi, United Arab Emirates
- 2012 Inhibition of RIP Kinases is Needed for Effective Neuroprotection in Dry AMD Models /  
Plenary Talk  
XXVIII Meeting of the Club Jules Gonin, Reykjavik, Iceland (June 20-23, 2012)

- 2012 New Treatments for Age related Macular Degeneration / Plenary Talk (Keynote)  
European Association for Vision and Eye Research (EVER) Congress, Nice, France  
(October 10-13, 2012)
- 2013 Saving Sight in Retinal Disease / Plenary Talk  
36<sup>th</sup> Annual Macula Society Meeting, Dana Point, CA (Feb 27–Mar 2, 2013)
- 2013 Pathogenesis of AMD and the Pathway to Future Treatments / Plenary Talk  
Chilean Society of Ophthalmology, Santiago, Chile (September 6, 2013)
- 2013 Genetic Testing in AMD: Are We Ready? / Plenary Talk  
Chilean Society of Ophthalmology, Santiago, Chile (May 24–25, 2013)
- 2013 What I Have Learned from Looking at the Macula / Plenary Talk  
Chilean Society of Ophthalmology, Santiago, Chile (May 24–25, 2013)
- 2013 Current and Future Therapies of AMD / Plenary Talk (Abstract)  
13<sup>th</sup> Aegean Retina Meeting, Santorini, Greece (July 5-7, 2013)
- 2013 Programed Necrosis, but Not Apoptosis, Mediates Photoreceptor Cell Loss and  
Inflammation in dsRNA-Induced Retinal Degeneration / Plenary Talk (Abstract)  
American Society of Retina Specialists (ASRS) 31st Annual Meeting, Toronto, Canada  
(August 24-28, 2013)
- 2013 Current and Future Therapies of AMD / Plenary Talk  
Seoul National University Hospital Symposium, Seoul, Korea (September 6, 2013)
- 2013 Current and Future Therapies of AMD / Plenary Talk  
Special Symposium of the Korean Ophthalmological Society, Busan University, Korea  
(September 7, 2013)
- 2013 Macular Degeneration: Piecing the Puzzle / Honorary Lecture  
2013 Gerard Crock Lecture, Centre for Eye Research Australia (CERA), University of  
Melbourne, Melbourne, Australia (October 30, 2013)
- 2013 Treating Macular Degeneration: Looking to the Future / Plenary Talk (Abstract)  
45<sup>th</sup> Annual Scientific Congress, The Royal Australian and New Zealand College of  
Ophthalmologists (RANZCO), Hobart, Tasmania (November 2–6, 2013)
- 2013 Managing Neovascular AMD: Imaging & Anti-VEGF choices / Plenary Talk  
45<sup>th</sup> Annual Scientific Congress, The Royal Australian and New Zealand College of  
Ophthalmologists (RANZCO), Hobart, Tasmania (November 2–6, 2013)
- 2013 Managing Neovascular AMD Patients/ Plenary Talk  
Novartis Breakfast, 45<sup>th</sup> Annual Scientific Congress, The Royal Australian and New  
Zealand College of Ophthalmologists (RANZCO), Hobart, Tasmania (November 2-6,  
2013)
- 2014 The Harvard Angiogenesis Story / Plenary Talk (Inaugural Lecture)  
Special Scientific Meeting of the Academia Ophthalmologica Internationalis, Tokyo,  
Japan (April 2, 2014)
- 2014 Management of Neovascular AMD / Lecture  
Asia Pacific Vitreoretinal Society, Nagoya, Japan (April 7, 2014)

- 2014 Long-term Anti-VEGF Therapy / Plenary Talk  
Club Jules Gonin, Zurich, Switzerland (September 3–6, 2014)
- 2014 Macular Degeneration: Piecing the Puzzle / Plenary Talk (Honorary Lecture)  
8<sup>th</sup> Martin J. Steinbach Lecture, 10<sup>th</sup> Faculty Research Day, University of Toronto,  
Ontario, Canada (November 7, 2014)
- 2014 Understanding AMD: Assembling the Puzzle Pieces / Plenary Talk  
68<sup>th</sup> Annual Congress of Japan Clinical Ophthalmology Kobe, Japan (November 13-16,  
2014)
- 2015 Dysfunctional Autophagosomes in AMD: Role of LAMP-2 / Plenary Talk  
Retina Society Annual Meeting, Paris, France (October 7–11, 2015)
- 2016 Switching agents: When, How, Why / Plenary Talk  
2016 Canadian Retina Society Meeting, Mont-Tremblant, Quebec (March 4, 2016)
- 2016 Treatment of Age-related Macular Degeneration Beyond VEGF / Plenary Talk (Honory  
Lecture)  
The Cunha-Vaz Lecture, 59<sup>th</sup> Congress for the Portuguese Society of Ophthalmology,  
Coimbra, Portugal (December 8-10, 2016)
- 2016 Translational Research at Massachusetts Eye and Ear/Harvard Ophthalmology / Plenary  
Talk  
59<sup>th</sup> Congress for the Portuguese Society of Ophthalmology, Coimbra, Portugal  
(December 8-10, 2016)
- 2017 AMD: Beyond VEGF / Grand Rounds  
Aravind Eye Hospital, Aravind, India (January 27, 2017)
- 2017 VEGF: from Discovery to Therapy / Plenary Talk (Champalimaud Lecture)  
Champalimaud Symposium, LV Prasad Eye Institute, Hyderabad, India (January 29, 2017)
- 2017 Structural Changes Associated with Delayed Dark Adaptation / Plenary Talk  
40<sup>th</sup> Annual Macula Society Meeting, Singapore (June 7-10, 2017)
- 2017 Young Member Mentor Lecture—International Collaborations: Lessons Learned from  
Leaders in Global Ophthalmology Research, Clinical Care, and Advocacy / Panelist  
40<sup>th</sup> Annual Macula Society Meeting, Singapore (June 7-10, 2017)
- 2018 Neuroprotection Effects of Immune Cells and Angiogenesis / Poster Presentation  
Club Jules Gonin, Jersey, Channel Islands (GB) (July 13, 2018)
- 2018 AMD: Back to the Future? / Honorary Lecture  
Pyron Award Lecture, American Society of Retinal Specialists, Vancouver, BC (July 22,  
2018)

## **Report of Clinical Activities and Innovations**

### **Current Licensure and Certification**

1989–	Massachusetts Medical License
1991–	American Board of Ophthalmology

### **Practice Activities**

1991	Ophthalmology	New England Medical Center	3 sessions per week
1991–2003	Office visits, outpatient injections, lasers therapy, surgery, and teaching	Massachusetts Eye and Ear Infirmary	4–5 sessions per week
2003–	Office visits, outpatient injections, lasers therapy, surgery, and teaching	Massachusetts Eye and Ear Infirmary	1 session per week

### **Clinical Innovations**

#### **Photodynamic therapy (PDT) for neovascular macular degeneration**

Development of photodynamic therapy for neovascular macular degeneration, from pre-clinical studies through clinical trials, and receiving approval by health authorities in the United States and abroad. This represents a major innovation in the treatment of neovascular macular degeneration, a common blinding disorder, with broader application to other forms of choroidal neovascularization, as well as iris and corneal neovascularization. The work has garnered a number of awards: the Rosenthal Award of the Macula Society, the Retina Research Award of the Club Jules Gonin, and the ARVO/Pfizer Award of the Association for Research in Vision and Ophthalmology.

#### **Identification of vascular endothelial growth factor (VEGF) as the major growth factor responsible for pathological neovascular growth in ocular disorders**

Two drugs targeting VEGF (Macugen<sup>®</sup> and Lucentis<sup>®</sup>) are currently in full clinical use worldwide. Lucentis has been found not only to slow progression of disease, but to also improve vision (>3 lines) in approximately 30% of patients with neovascular macular degeneration. The Alcon Research Institute Award, the Macula Society's Gass Medal, and the Founders Award, American Society of Retina Surgeons were awarded for the work in PDT and VEGF.

## Report of Technological and Other Scientific Innovations

### United States Patents

January 13, 1998      **Miller JW**, Young LHY, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Angiographic method using green porphyrins in primate eyes. United States Patent US 5,707,986.

An angiographic method to observe the condition of blood vessels, including neovasculation in the eyes of living primates using green porphyrins and light at a wavelength of 550-700 nm to effect fluorescence is disclosed

August 25, 1998      Levy J, **Miller JW**, Gragoudas ES, Hasan T, Schmidt-Erfurth U, inventors; The General Hospital Corporation, Quadra Logic Technologies, Inc., Massachusetts Eye and Ear Infirmary, assignees. Use of green porphyrins to treat neovasculation in the eye. United States Patent US 5,798,349.

Photodynamic therapy of conditions of the eye characterized by unwanted neovasculation, such as age-related macular degeneration, is effective using green porphyrins as photoactive agents, preferably as liposomal compositions.

May 1, 2001            **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Use of green porphyrins to treat neovasculation in the eye. United States Patent US 6,225,303. May 1, 2001.

Photodynamic therapy of conditions of the eye characterized by unwanted neovasculation, such as age-related macular degeneration, is effective using green porphyrins as photoactive agents, preferably as liposomal compositions.

August 26, 2003      **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Use of green porphyrins to treat neovasculation in the eye. United States Patent US 6,610,679.

Photodynamic therapy of conditions of the eye characterized by unwanted neovasculation, such as age-related macular degeneration, is effective using green porphyrins as photoactive agents, preferably as liposomal compositions.

- October 24, 2006 **Miller JW**, Gragoudas ES, Renno RZ, inventors; Massachusetts Eye and Ear Infirmary, assignee. Methods and compositions for treating conditions of the eye. United States Patent US 7,125,542.
- Provided are methods and compositions for the photodynamic therapy (PDT) of ocular conditions characterized by the presence of unwanted choroidal neovasculation, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of the PDT method can be enhanced by combining the PDT with an anti-angiogenesis factor, for example, angiostatin or endostatin, or with an apoptosis-modulating factor. Furthermore, the selectivity and sensitivity of the PDT may be further enhanced by coupling a targeting moiety to the photosensitizer so as to target the photosensitizer to choroidal neovasculation.
- September 2, 2008 Iliaki E, Adamis AP, **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Treatment of ocular disorders. United States Patent US 7,419,666.
- The invention includes a method of treating an intraocular disorder in a mammal, the method comprising administering to the mammal a Very Late Antigen-4 (VLA-4) antagonist for the treatment of selected ocular disorders.
- July 21, 2009 Adamis AP, **Miller JW**, Gragoudas ES, Mescher MJ, Dube CE, Borenstein JT, Weinstein MG, Miller RA, Hansberry ML; Massachusetts Eye and Ear Infirmary, The Charles Stark Draper Laboratory, Inc., assignees. Implantable Drug Delivery Device and Use Thereof. United States Patent US 7,563,255.
- The invention provides a miniaturized, implantable drug delivery device and a method of delivering over a prolonged period of time one or more drugs using such a device. The drug delivery device can be adapted for attachment to the outer surface of an eye. Once attached to the outer surface of an eye, the device can deliver one or more drugs directly into the eye for preventing or ameliorating the symptoms of a particular ocular disorder.
- September 28, 2010 Gragoudas ES, Poulaki V, **Miller JW**, inventors; Massachusetts Eye and Ear Infirmary, assignee. Methods and compositions for treating conditions of the eye. United States Patent US 7,803,375.
- Provided are methods and compositions for treating ocular conditions characterized by the presence of unwanted choroidal neovasculation, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of, for example, a photodynamic therapy (PDT)-based approach can be enhanced by combining the PDT with an anti-FasL factor, for example, an anti-FasL neutralizing antibody.

- October 12, 2010 Zacks D, **Miller JW**, inventors; Massachusetts Eye and Ear Infirmary, assignee. Methods for preserving the viability of photoreceptor cells by anti-FAS-ligand/anti-FAS-receptor antibodies. United States Patent US 7,811,832.
- Provided are methods and compositions for maintaining the viability of photoreceptor cells following retinal detachment. The viability of photoreceptor cells can be preserved by administering an apoptosis inhibitor to a mammal having an eye with retinal detachment. The apoptosis inhibitor maintains the viability of the photoreceptor cells until such time that the retina becomes reattached to the underlying retinal pigment epithelium and choroid. The treatment minimizes the loss of vision, which otherwise may occur as a result of retinal detachment.
- February 25, 2014 Poulaki V, **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Methods and compositions for treating conditions of the eye. United States Patent US 8,658,633.
- Provided are methods and compositions for treating ocular conditions characterized by the presence of unwanted choroidal neovasculature, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of, for example, a photodynamic therapy (PDT)-based approach can be enhanced by combining the PDT with an ansamycin analog or heat shock protein 90 inhibitor, for example, 17-allylamino-17-demethoxygeldanamycin
- March 24, 2015 Iliaki I, Adamis A, Miller JW, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Treatment of ocular disorders. United States Patent US 8,987,219.
- The invention includes a method of treating an intraocular disorder in a mammal, the method comprising administering to the mammal a Very Late Antigen-4 (VLA-4) antagonist for the treatment of selected ocular disorders.
- November 15, 2016 Vavvas D, Trichonas G, **Miller J**, Murakami Y, inventors; Massachusetts Eye and Ear Infirmary, owner. Methods and compositions for preserving photoreceptor and retinal pigment epithelial cells. United States Patent US 9,492,432.
- Provided are methods and compositions for maintaining the viability of photoreceptor cells and/or retinal pigment epithelial cells in a subject with an ocular disorder including, for example, age-related macular degeneration (AMD) (e.g., dry or neovascular AMD), retinitis pigmentosa (RP), or a retinal detachment. The viability of the photoreceptor cells and/or the retinal pigment epithelial cells can be preserved by administering a necrosis inhibitor either alone or in combination with an apoptosis inhibitor to a subject having an eye with the ocular condition. The compositions, when administered, maintain the viability of the cells, thereby minimizing the loss of vision or visual function associated with the ocular disorder.

## United States Patent Applications

Filed Jul 27, 2005  
Published February  
2, 2006

**Miller JW**, Matsubara A, Husain D, Gragoudas E, inventors; Massachusetts Eye and Ear Infirmary, assignee.

Methods and compositions for treating ocular glaucoma.  
United States Patent Application US20060021623 A1 (also published as  
WO2006015016A2, WO2006015016A3).

The invention provides a photodynamic therapy-based method for treating ocular glaucoma. A photosensitizer, for example, a benzoporphyrin derivative photosensitizer, is administered to a mammal either having or at risk of developing ocular glaucoma. The photosensitizer, when present in the ciliary body, is activated by light, for example, light from a laser. The treatment results in a reduction of intraocular pressure within the treated eye, which can persist for a prolonged period of time.

Filed June 12, 2013  
Published March 27,  
2014

Poulaki V, **Miller JW**, inventors; Massachusetts Eye and Ear Infirmary, assignee. Inflammatory eye disease. United States Patent Application 20140088182 (also published as US20050267087, WO2005105077A1).

The present invention provides methods, kits and compositions for treating uveitis in a subject using Hsp90 inhibitors.

August 9, 2012

Carrasquillo KG, Adamis AP, **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, assignee. Drug Delivery Systems and Use Thereof. United States Patent Application 20120201859.

The invention provides a microsphere formulation for the sustained delivery of an aptamer, for example, an anti-Vascular Endothelial Growth Factor aptamer, to a preselected locus in a mammal, such as the eye. In addition, the invention provides methods for making such formulations, and methods of using such formulations to deliver an aptamer to a preselected locus in a mammal. In particular, the invention provides a method for delivering the aptamer to an eye for the treatment of an ocular disorder, for example, age-related macular degeneration.

December 20, 2012

**Miller JW**, Gragoudas ES, Renno RZ, inventors; Massachusetts Eye and Ear Infirmary, assignee. Methods and compositions for treating conditions of the eye. United States Patent Application 20120323162.

Provided are methods and compositions for the photodynamic therapy (PDT) of ocular conditions characterized by the presence of unwanted choroidal neovasculation, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of the PDT method can be enhanced by combining the PDT with an anti-angiogenesis factor, for example, angiostatin or endostatin, or with an apoptosis-modulating factor. Furthermore, the selectivity and sensitivity of the PDT may be further enhanced by coupling a targeting moiety to the photosensitizer so as to target the photosensitizer to choroidal neovasculation.



**International**

May 1, 2000 Adamis AP, Gragoudas ES, **Miller JW**, inventors; Massachusetts Eye and Ear Infirmary, owner. Targeted transscleral controlled release drug delivery to the retina and choroid. Canadian patent application CA 2358296. Filed May 1, 2000.

The invention provides methods for delivering a therapeutic or diagnostic agent to the eye of a mammal. The method involves contacting sclera with a therapeutic or diagnostic agent so as to permit its passage through the sclera into the choroidal and retinal tissues. The sclera may be contacted with a therapeutic or diagnostic agent together with a device for enhancing transport of the agent through the sclera.

June 3, 2008 **Miller JW**, Gragoudas ES, inventors; Massachusetts Eye and Ear Infirmary, owner. Use of green porphyrins in ocular diagnosis and therapy. Canadian patent CA 2536069. Issued June 3, 2008.

Photodynamic therapy of conditions of the eye characterized by unwanted neovasculture, such as macular degeneration, is effective using green porphyrins as photoactive agents. Green porphyrins are also effective in photodynamic therapy of pigmented tumors of the eye. In addition, green porphyrins serve as effective dyes in ocular angiography.

November 16, 2010 **Miller JW**, Gragoudas ES, Renno RZ, inventors; Massachusetts Eye and Ear Infirmary, owner. Methods and compositions for treating conditions of the eye. Canadian patent CA 2398901. Issued November 16, 2010.

Provided are methods and compositions for the photodynamic therapy (PDT) of ocular conditions characterized by the presence of unwanted choroidal neovasculture, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of the PDT method can be enhanced by combining the PDT with an anti-angiogenesis factor, for example, angiostatin or endostatin, or with an apoptosis-modulating factor. Furthermore, the selectivity and sensitivity of the PDT may be further enhanced by coupling a targeting moiety to the photosensitizer so as to target the photosensitizer to choroidal neovasculture.

April 12, 2011 **Miller JW**, Gragoudas ES, Levy J, Hasan T, Schmidt-Erfurth U, inventors; The General Hospital Corporation, Quadra Logic Technologies, Inc., Massachusetts Eye and Ear Infirmary, owners. Use of green porphyrins in ocular diagnosis and therapy. Canadian patent CA 2185644. Issued April 12, 2011.

Photodynamic therapy of conditions of the eye characterized by unwanted neovasculture, such as macular degeneration, is effective using green porphyrins as photoactive agents. Green porphyrins are also effective in photodynamic therapy of pigmented tumors of the eye. In addition, green porphyrins serve as effective dyes in ocular angiography.

- October 27, 2011 Vavvas D, Trichonas G, **Miller J**, Murakami Y, inventors; Massachusetts Eye and Ear Infirmary, owner. Methods and compositions for preserving photoreceptor and retinal pigment epithelial cells. International patent application PCT/US2011/033704. Filed April 23, 2011. Publication number WO2011133964. Published October 27, 2011.
- Provided are methods and compositions for maintaining the viability of photoreceptor cells and/or retinal pigment epithelial cells in a subject with an ocular disorder including, for example, age-related macular degeneration (AMD) (e.g., dry or neovascular AMD), retinitis pigmentosa (RP), or a retinal detachment. The viability of the photoreceptor cells and/or the retinal pigment epithelial cells can be preserved by administering a necrosis inhibitor either alone or in combination with an apoptosis inhibitor to a subject having an eye with the ocular condition. The compositions, when administered, maintain the viability of the cells, thereby minimizing the loss of vision or visual function associated with the ocular disorder.
- May 10, 2012 Vavvas DG, **Miller JW**, Kayama M, inventors; Massachusetts Eye and Ear Infirmary, owner. Methods and compositions for preserving retinal ganglion cells. International patent application PCT/US2011/057327. Filed October 21, 2011. Publication number WO/2012/061045. Published May 10, 2012.
- Provided are methods and compositions for maintaining the viability of retinal ganglion cells in a subject with an ocular disorder including, for example, glaucoma and optic nerve injury. The viability of the retinal ganglion cells can be preserved by administering a necrosis inhibitor either alone or in combination with an apoptosis inhibitor to a subject having an eye with the ocular condition. The compositions, when administered, maintain the viability of the cells and/or promote axon regeneration, thereby minimizing the loss of vision or visual function associated with the ocular disorder.
- August 6, 2013 **Miller JW**, Gragoudas ES, Renno RZ, inventors; Massachusetts Eye and Ear Infirmary, owner. Photodynamic therapy for treating conditions of the eye. Canadian patent CA 2714081. Filed February 9, 2001. Issued September August 6, 2013.
- Provided are methods and compositions for the photodynamic therapy (PDT) of ocular conditions characterized by the presence of unwanted choroidal neovasculation, for example, neovascular age-related macular degeneration. The selectivity and sensitivity of the PDT method can be enhanced by combining the PDT with an anti-angiogenesis factor, for example, angiostatin or endostatin, or with an apoptosis-modulating factor. Furthermore, the selectivity and sensitivity of the PDT may be further enhanced by coupling a targeting moiety to the photosensitizer so as to target the photosensitizer to choroidal neovasculation.

## **Report of Education of Patients and Service to the Community**

### **Activities**

1980–1985	MIT Crew Alumni Association
1999–	Friends of MIT Crew 1999–2003 Management Committee
2008–	EyeCare America Diabetes EyeCare Program Foundation of the American Academy of Ophthalmology Volunteer care provider for EyeCare America patients who need referrals for retinopathy
2011	Neuroprotective Strategies for Retinal Degenerations / Plenary Talk Foundation Fighting Blindness / Massachusetts Eye and Ear Infirmiry Partnership Meeting
2011	Fashion Show Fundraiser Palm Beach, FL
2012	Executive Roundtable Discussion on Public-Private Partnerships in Prevention with the U.S. Surgeon General Dr. Regina Benjamin / Discussant Sponsors: SkinHealth, Inc., the White House Business Council, and Business Forward
2013	STEM Talk (Grades 9-10) / Plenary Talk The Bishop Strachan School, Toronto, CA (October 21, 2013)
2013	STEM Talk (Grade 12 Science Class) / Plenary Talk The Bishop Strachan School, Toronto, CA (October 21, 2013)
2014	AMD: Age-related Macular Degeneration / Plenary Talk Palm Beach Luncheon, Palm Beach Club, FL (January 8, 2014)

### **Recognition**

2000	Best of What's New Award (Visudyne)	Popular Science
2000	Top Products of 2000 Award (Visudyne)	Business Week
2003–	America's Top Doctors	Castle Connolly Medical, Ltd.
2006	International Health Professional of the Year	International Biographical Centre
2007	Distinguished Old Girl Award	Bishop Strachan School, Toronto
2012	Pinnacle Award for Achievement in the Professions	Greater Boston Chamber of Commerce
2012	Top 1% of Doctors	US News and World Report
2012	U360 Communication Excellence Award ( <i>Frontiers in Ophthalmology</i> )	Appleton Coated LLC Project role: Editor in Chief
2008–	Boston's Top Doctors—Ophthalmology	Boston Magazine

## Report of Scholarship

### Peer-reviewed publications in print or other media

#### Research investigations

1. **Miller JW**, Stinson WG, Gregory WA, el-Koumy HA, Puliafito CA. Phthalocyanine photodynamic therapy of experimental iris neovascularization. *Ophthalmology*. 1991 Nov;98(11):1711-9. PubMed PMID: 1724793.
2. **Miller JW**, Stinson WG, Folkman J. Regression of experimental iris neovascularization with systemic alpha-interferon. *Ophthalmology*. 1993 Jan;100(1):9-14. PubMed PMID: 7679482.
3. Wong J, Wang N, **Miller JW**, Schuman JS. Modulation of human fibroblast activity by selected angiogenesis inhibitors. *Exp Eye Res*. 1994 Apr;58(4):439-51. PubMed PMID: 7523160.
4. **Miller JW**, Adamis AP, Shima DT, D'Amore PA, Moulton RS, O'Reilly MS, Folkman J, Dvorak HF, Brown LF, Berse B, Yeo T-K, Yeo K-T. Vascular endothelial growth factor/vascular permeability factor is temporally and spatially correlated with ocular angiogenesis in a primate model. *Am J Pathol*. 1994 Sep;145(3):574-84. PubMed PMID: 7521577; PubMed Central PMCID: PMC1890317.
5. Adamis AP, **Miller JW**, Bernal MT, D'Amico DJ, Folkman J, Yeo TK, Yeo KT. Increased vascular endothelial growth factor levels in the vitreous of eyes with proliferative diabetic retinopathy. *Am J Ophthalmol*. 1994 Oct 15;118(4):445-50. PubMed PMID: 7943121.
6. **Miller JW**, Walsh AW, Kramer M, Hasan T, Michaud N, Flotte TJ, Haimovici R, Gragoudas ES. Photodynamic therapy of experimental choroidal neovascularization using lipoprotein-delivered benzoporphyrin. *Arch Ophthalmol*. 1995 Jun;113(6):810-8. PubMed PMID: 7540388.
7. Ciulla TA, Moulton R, Oberoi A, **Miller JW**. Retinal artery occlusion in rabbit eyes using human atheroma. *Curr Eye Res*. 1995 Jul;14(7):573-8. PubMed PMID: 7587303.
8. Adamis AP, Shima DT, Tolentino MJ, Gragoudas ES, Ferrara N, Folkman J, D'Amore PA, **Miller JW**. Inhibition of vascular endothelial growth factor prevents retinal ischemia-associated iris neovascularization in a nonhuman primate. *Arch Ophthalmol*. 1996 Jan;114(1):66-71. PubMed PMID: 8540853.
9. Kramer M, **Miller JW**, Michaud N, Moulton RS, Hasan T, Flotte TJ, Gragoudas ES. Liposomal benzoporphyrin derivative verteporfin photodynamic therapy. Selective treatment of choroidal neovascularization in monkeys. *Ophthalmology*. 1996 Mar;103(3):427-38. PubMed PMID: 8600419.
10. Shima DT, Gougos A, **Miller JW**, Tolentino M, Robinson G, Adamis AP, D'Amore PA. Cloning and mRNA expression of vascular endothelial growth factor in ischemic retinas of *Macaca fascicularis*. *Invest Ophthalmol Vis Sci*. 1996 Jun;37(7):1334-40. PubMed PMID: 8641836.
11. Husain D, **Miller JW**, Michaud N, Connolly E, Flotte TJ, Gragoudas ES. Intravenous infusion of liposomal benzoporphyrin derivative for photodynamic therapy of experimental choroidal neovascularization. *Arch Ophthalmol*. 1996 Aug;114(8):978-85. PubMed PMID: 8694734.
12. Tolentino MJ, **Miller JW**, Gragoudas ES, Chatzistefanou K, Ferrara N, Adamis AP. Vascular endothelial growth factor is sufficient to produce iris neovascularization and neovascular glaucoma in a nonhuman primate. *Arch Ophthalmol*. 1996 Aug;114(8):964-70. PubMed PMID: 8694732.
13. Tolentino MJ, **Miller JW**, Gragoudas ES, Jakobiec FA, Flynn E, Chatzistefanou K, Ferrara N, Adamis AP. Intravitreal injections of vascular endothelial growth factor produce retinal ischemia and microangiopathy in an adult primate. *Ophthalmology*. 1996 Nov;103(11):1820-8. PubMed PMID: 8942877.
14. Haimovici R, Kramer M, **Miller JW**, Hasan T, Flotte TJ, Schomacker KT, Gragoudas ES. Localization of lipoprotein-delivered benzoporphyrin derivative in the rabbit eye. *Curr Eye Res*.

- 1997 Feb;16(2):83-90. PubMed PMID: 9068937.
15. Husain D, **Miller JW**, Kenney AG, Michaud N, Flotte TJ, Gragoudas ES. Photodynamic therapy and digital angiography of experimental iris neovascularization using liposomal benzoporphyrin derivative. *Ophthalmology*. 1997 Aug;104(8):1242-50. PubMed PMID: 9261310.
  16. Vorwerk CK, Hyman BT, **Miller JW**, Husain D, Zurakowski D, Huang PL, Fishman MC, Dreyer EB. The role of neuronal and endothelial nitric oxide synthase in retinal excitotoxicity. *Invest Ophthalmol Vis Sci*. 1997 Sep;38(10):2038-44. PubMed PMID: 9331267.
  17. Pournaras CJ, **Miller JW**, Gragoudas ES, Husain D, Munoz JL, Tolentino MJ, Kuroki M, Adamis AP. Systemic hyperoxia decreases vascular endothelial growth factor gene expression in ischemic primate retina. *Arch Ophthalmol*. 1997 Dec;115(12):1553-8. PubMed PMID: 9400789.
  18. Schmidt-Erfurth U, **Miller J**, Sickenberg M, Bunse A, Laqua H, Gragoudas E, Zografos L, Birngruber R, van den Bergh H, Strong A, Manjuris U, Fsadni M, Lane AM, Piguet B, Bressler NM. Photodynamic therapy of subfoveal choroidal neovascularization: clinical and angiographic examples. *Graefes Arch Clin Exp Ophthalmol*. 1998 May;36(5):365-74. PubMed PMID: 9602321.
  19. Kim I, Ryan AM, Rohan R, Amano S, Agular S, **Miller JW**, Adamis AP. Constitutive expression of VEGF, VEGFR-1, and VEGFR-2 in normal eyes. *Invest Ophthalmol Vis Sci*. 1999 Aug;40(9):2115-21. Erratum in: *Invest Ophthalmol Vis Sci* 2000 Feb;41(2):368. PubMed PMID: 10440268.
  20. **Miller JW**, Schmidt-Erfurth U, Sickenberg M, Pournaras CJ, Laqua H, Barbazetto I, Zografos L, Piguet B, Donati G, Lane AM, Birngruber R, van den Berg H, Strong A, Manjuris U, Gray T, Fsadni M, Bressler NM, Gragoudas ES. Photodynamic therapy with verteporfin for choroidal neovascularization caused by age-related macular degeneration: results of a single treatment in a phase 1 and 2 study. *Arch Ophthalmol*. 1999 Sep;117(9):1161-73. Erratum in: *Arch Ophthalmol* 2000 Apr;118(4):488. PubMed PMID: 10496388.
  21. Schmidt-Erfurth U, **Miller JW**, Sickenberg M, Laqua H, Barbazetto I, Gragoudas ES, Zografos L, Piguet B, Pournaras CJ, Donati G, Lane AM, Birngruber R, van den Berg H, Strong HA, Manjuris U, Gray T, Fsadni M, Bressler NM. Photodynamic therapy with verteporfin for choroidal neovascularization caused by age-related macular degeneration: results of retreatments in a phase 1 and 2 study. *Arch Ophthalmol*. 1999 Sep;117(9):1177-87. Erratum in: *Arch Ophthalmol* 2000 Apr;118(4):488. PubMed PMID: 10496389.
  22. Husain D, Kramer M, Kenny AG, Michaud N, Flotte TJ, Gragoudas ES, **Miller JW**. Effects of photodynamic therapy using verteporfin on experimental choroidal neovascularization and normal retina and choroid up to 7 weeks after treatment. *Invest Ophthalmol Vis Sci*. 1999 Sep;40(10):2322-31. PubMed PMID: 10476799.
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  24. Tolentino MJ, Husain D, Theodosiadis P, Gragoudas ES, Connolly E, Kahn J, Cleland J, Adamis AP, Cuthbertson A, **Miller JW**. Angiography of fluoresceinated anti-vascular endothelial growth factor antibody and dextrans in experimental choroidal neovascularization. *Arch Ophthalmol*. 2000 Jan;118(1):78-84. PubMed PMID: 10636419.
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  28. Ciulla TA, Pawlyk BS, Harris A, Oberoi A, **Miller JW**, Sandberg MA. Endothelin-1-mediated retinal artery vasospasm and the rabbit electroretinogram. *J Ocul Pharmacol Ther*. 2000 Aug;16(4):393-8. PubMed PMID: 10977135.
  29. Renno RZ, Delori FC, Holzer RA, Gragoudas ES, **Miller JW**. Photodynamic therapy using Lu-Tex induces apoptosis in vitro, and its effect is potentiated by angiostatin in retinal capillary endothelial cells. *Invest Ophthalmol Vis Sci*. 2000 Nov;41(12):3963-71. PubMed PMID: 11053300.
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## Narrative Report

As an ophthalmologist with subspecialty expertise in retina, I am committed to understanding the molecular mechanisms of ocular disease and improving therapeutic interventions. I pursue these objectives using a combination of laboratory and clinical research (5% effort), clinical care (10% effort), teaching (20% effort), and administrative leadership (65% effort). These activities take place primarily at Massachusetts Eye and Ear Infirmary—the flagship academic center for the Harvard Medical School Department of Ophthalmology—and extend worldwide through global collaborations and partnerships.

My research interests focus on neovascular diseases of the retina and choroid, particularly age-related macular degeneration (AMD) and diabetic retinopathy. My work has led to two major advances: the first pharmacologic therapy for AMD, and the identification of a prominent therapeutic target in neovascular retinal disease. The first endeavor comprised the development of photodynamic therapy (PDT) with verteporfin, from preclinical studies to clinical trials to FDA approval, for the treatment of choroidal neovascularization. A second line of investigation identified the key role of vascular endothelial growth factor (VEGF) in pathological retinal and choroidal neovascularization. Several drugs targeting VEGF were subsequently developed, and many are now approved by health authorities worldwide. For the development of anti-angiogenic therapy for retinal disease, I was a recipient of the 2014 António Champalimaud Vision Award, the highest distinction in ophthalmology and visual science. Ongoing studies seek to improve the specificity and efficacy of these therapies in combination with other interventions. Additional laboratory studies are pursuing other mechanisms of vision loss in retinal disease, and identifying novel therapeutic targets through genetic and metabolomics studies. Finally, investigations are developing new methods of drug delivery.

My clinical practice in the Mass. Eye and Ear Retina Service also focuses on retinal disease, with special emphasis on AMD. Clinical effort is divided between office visits, outpatient treatments, laser procedures, surgery, and associated teaching of medical trainees. Patients are generally referred by ophthalmologists throughout the world, and typically require special expertise in diagnosis and/or therapy. Additionally, I serve as a principal investigator or co-investigator in numerous clinical trials of AMD therapies. These have included the Interferon Study Group, the Treatment of Age-related Macular Degeneration with Photodynamic Therapy (TAP) Study, the Verteporfin in Photodynamic Therapy (VIP) Study, Lu-Tex Photodynamic Therapy Study, the rhuFab Therapy for Macular Degeneration Study, the Age-Related Eye Disease Study 2 (AREDS2), a clinical trial for an implantable prosthetic telescope for patients with advanced AMD, and a natural history observation and registry study of macular telangiectasia type 2

As David Glendenning Cogan Professor of Ophthalmology at HMS, I focus on educating future leaders in ophthalmology through clinics, procedures, surgeries, courses, lectures, conferences, and symposia. Each year, in addition to HMS medical students, eight residents and three fellows are trained in the Retina Service in all aspects of patient care. Teaching also takes place through mentorship in the research program, and includes 3-5 postdoctoral research fellows yearly. I have supervised more than fifty clinical and research fellows, many of whom now hold positions in academic ophthalmology around the world.

In 2003, I became Chair of the HMS Department of Ophthalmology and Chief of Ophthalmology at Mass. Eye and Ear; in 2009, I also assumed the position of Chief of Ophthalmology at Mass General Hospital. These leadership positions represent a unique opportunity to channel my research, practice, and educational efforts to supporting the development of clinicians and scientists. Building upon the intellectual and innovative force of the HMS Ophthalmology faculty, I have fostered multidisciplinary collaborations to integrate the efforts of HMS affiliates and partners—with the singular goal of advancing ophthalmic science and discovery.