

**Curriculum Vitae**  
**Kang Zhang, M.D., Ph.D.**

Last Updated: 9/19/2015

**I. EDUCATION**

**A. Baccalaureate Degree**

1980 - 1984 BS, Sichuan University, Sichuan, China, Biochemistry

**B. Advanced Degree**

1991 - 1995 MD, Harvard University Medical School - M.I.T., Health Sciences and Technology, Cambridge, MA, Medicine

1985 - 1991 PhD, Harvard University, Cambridge, MA, Genetics

**C. Resident/Fellowship Training**

2002 - 2003 FELLOW, University of Utah School of Medicine, Salt Lake City, UT, Vitreoretinal Diseases and Surgery

1996 - 1999 RESIDENT, Johns Hopkins University, Wilmer Eye Institute, Baltimore, MD, Ophthalmology

1995 - 1996 INTERN, Presbyterian/St. Lukes Hospital, Denver, CO, Medicine

**II. BOARD CERTIFICATIONS**

American Board of Ophthalmology (Ophthal), 05/13/2001, certified; 01/01/2012, recertified

National Board of Medical Examiners, 01/01/1996, Certified

**III. CURRENT MEDICAL LICENSES/CERTIFICATIONS**

State License (CA)

State License (UT)

CS (UT)

DEA Certificate (CA)

State License (OH)

State License (MD)

**IV. ACADEMIC HISTORY**

Johns Hopkins University

Wilmer Eye Institute

Instructor, 07/01/1999-09/30/00

Cleveland Clinic Foundation

Cole Eye Institute

Assistant Staff, 10/01/2000-02/29/02

University of Utah

Ophthalmology/Visual Sciences

Tenure Track-Assistant Professor, 03/01/2002-6/30/06

Promotion, Associate Professor with tenure, 07/01/2006

University of California San Diego

Department of Ophthalmology, School of Medicine

Full professor with tenure, 04/01/2008-present

**V. PROFESSIONAL EXPERIENCE**

**A. Full Time Positions**

- 2014 – pres Co-Director, Biomaterials and Tissue Engineering Center, Institute of Engineering in Medicine, University of California San Diego, La Jolla, CA
- 2009 – 2013 Founding Director, Institute for Genomic Medicine, University of California San Diego, La Jolla, CA
- 2008 – pres Chief of Ophthalmic genetics, Department of Ophthalmology, University of California San Diego, La Jolla, CA
- 2008 – pres Professor with tenure, University of California San Diego, La Jolla, CA
- 2008 -- pres Attending Physician, Shiley Eye Center and UCSD, La Jolla, CA
- 2008 – pres Attending Staff Physician, Veteran's Administration Medical Center, San Diego, CA
- 2006 – 2008 Associate Professor with tenure, University of Utah, Department of Ophthalmology and Visual Science, John Moran Eye Center, Salt Lake City, UT
- 2002 – 2008 Investigator, University of Utah, Eccles Institute of Human Genetics, Program in Human Molecular Biology & Genetics, Salt Lake City, UT
- 2002 – 2006 Attending Staff Physician, Veteran's Administration Medical Center, Salt Lake City, UT
- 2002 -2006 Assistant Professor, University of Utah, Department of Ophthalmology and Visual Science, John Moran Eye Center, Salt Lake City, UT
- 2000 -2002 Assistant staff, Cleveland Clinic Foundation, Lerner Research Institute, Cleveland, OH
- 1999 -2000 Instructor, Johns Hopkins University, School of Medicine, Wilmer Eye Institute, Baltimore, MD
- 1999 -2000 Attending Physician, Johns Hopkins Hospital, Baltimore, MD

**B. Editorial Experience**

- 2006-2010 Chief Medical Editor, Ophthalmology News and World Report, China Edition. (circulation: 40,000+ ophthalmologists in Asia)
- 2012-present Associated Editor-in –Chief, Chinese Journal of Retinal Diseases
- 2012-present Consulting Editor, Journal of Clinical Investigation
- 2013-2018 Editorial board, Journal of Biological Chemistry
- 2013-2016 Associate Editor, Current Molecular Medicine

**C. Reviewer Experience**

- Referee for American Journal of Human Genetics
- Referee for American Journal of Medical Genetics
- Referee for American Journal of Pathology
- Referee for Archives of Ophthalmology
- Referee for Biochemical Journal
- Referee for BMC Genomics
- Referee for Developmental Dynamics
- Referee for Experimental Eye Research
- Referee for Expert Opinion in Ophthalmology
- Referee for Genome Biology
- Referee for Human Genetics
- Referee for Human Molecular Genetics
- Referee for Human Gene Therapy
- Referee for International Journal of Biologic Science

Referee for Investigative Ophthalmology and Visual Science  
Referee for Journal of Biological Chemistry  
Referee for Journal of Cataract and Refractive Surgery  
Referee for Journal of Clinical Investigation  
Referee for Journal of Lipid Research  
Referee for Journal of Medical Genetics  
Referee for Journal of Neurology  
Referee for Molecular Therapy  
Referee for Molecular Vision  
Referee for Nature  
Referee for Nature Genetics  
Referee for Nature Communications  
Referee for Neuroscience  
Referee for New England Journal of Medicine  
Referee for Ophthalmic Genetics  
Referee for Ophthalmology  
Referee for PNAS  
Referee for PNAS Plus  
Referee for PLoS Biology  
Referee for PLoS Medicine  
Referee for PLoS Genetics  
Referee for PLoS One  
Referee for Progress in Retina and Eye Research  
Referee for Retina  
Referee for Science  
Referee for Trend in Genetics  
Referee for Trend in Molecular Medicine

## **VI. RESEARCH AWARDS**

Generation of iPS lines for blinding eye diseases; 8/01/2013-7/30/2015, California Institute for Regenerative Medicine. Direct Costs: \$630,000. Total costs: \$ 1,030,000. Principal Investigator.

Layer-by-Layer Bioprinting of Stem Cells for Retinal Tissue Regeneration

W81XWH-14-1-0522, 09/30/2014-09/29/2016 DoD

Major Goals: To investigate a Layer-by-Layer (LBL) bioprinting process using stem cells for retinal tissue regeneration. (Chen & Zhang) PI

Regeneration of Retinal Neurons by Chemically Induced Reprogramming of Muller Glia- R01 EY021374-01, 9/30/2010-9/29/2015, NIH Director's Transformative R01 Program (obtained with a perfect review score 10), Direct Costs: \$650,000 per year. Total costs: \$ 900,000 per year, Contact Principal Investigator.

Limbal Stem Cell Fate and Corneal Enhancers. R01EY021374, 03/01/2015-02/29/2020. Direct Costs: \$310,000 per year. Total costs: \$483,000 per year. Contact Principal Investigator.

Biomaterial enhancement of stem cell transplant efficacy for macular degeneration. RO1 EY024134, 2/1/2014-1/31/2017. National Eye

Institute, Direct Costs: \$250,000 per year. Total costs: \$375,000 per year. Co-Principal Investigator.

ELOVL4 and Retinal Disease. – To characterize ELOVL4 biochemical properties and macular degeneration mechanism. R01 EY014428 05/01/2002 - 04/30/2013. National Eye Institute, Direct Costs: \$250,000 per year. Total costs: \$375,000 per year. Principal Investigator.

Genetics and Functional Studies of Age-Related Macular Degeneration- To characterize chromosome 10q variants and functions in age related macular degeneration. 1R01EY018660-01A1. 9/30/2008 - 8/30/2014. National Eye Institute, Direct Costs: \$225,000 per year. Total costs: \$350,000 per year. Principal Investigator.

Regulation of the Hippo pathway and its role in uveal melanoma-To study the regulation of the Hippo pathway and its role in uveal melanoma. R01 EY022611 (PI: Guan, Kun-Liang) 09/01/2012 – 08/31/2017. National Eye Institute, Direct Costs: \$250,000 per year. Total costs: \$350,000 per year. (K. Zhang, Co-Investigator).

Genetic Susceptibility for Development of Proliferative Diabetic Retinopathy- To identify genetic variants that predispose to diabetic retinopathy. 1R01EY019270, 9/01/09-6/31/2012. National Eye Institute, Direct Costs: \$225,000 per year. Total costs: \$412,000 per year. Co- PI

HTRA1 and age related macular degeneration. - To investigate mechanism of macular degeneration due to HTRA1. VA Merit Award. 9/1/2008 - 8/30/2017. Direct Costs: \$150,000 per year. Principal Investigator.

Genetics of Macular Degeneration - To clone and characterize the disease gene for North Carolina macular dystrophy. R01EY16698. 11/30/2003 - 07/30/2009. National Eye Institute, Direct Costs: \$385,000 per year. Total costs: \$580,000 per year. Principal Investigator.

Eye Targeted Gene Therapy for Cystinosis in the Eye- To test the hypothesis that injection of self-complementary adeno-associated virus expressing a functional CTNS gene will prevent complications and progression of defects of cystinosis in the eye when delivered very early in the course and ameliorate the eye disease when administered to older patients.

Cystinosis Research Foundation, 9/1/09-8/31/11, \$321,346. Role: PI

Define novel genes for diabetic microvascular complications. –To use genetic association studies to identify genes for diabetic microvascular complications. Burroughs Wellcome Fund Clinical Scientist Award in Translational Research. 7/1/08-6/30/2013. Direct costs: \$150,000 per year Principal Investigator.

Wynn Center for the Study of Retinal Degeneration, University of Utah (Wolfgang Baehr) 07/01/2005 - 06/30/2010. Foundation Fighting Blindness, Direct Costs: \$45,000 per year. Total costs: \$45,000 per year. Module II: Molecular genetics. Principal Investigator.

Gene Identification for Age-Related Macular Degeneration. 07/01/2005 - 06/30/2006. Knights Templar Eye Research Grant for Lejin Wang: Genetic Linkage Mapping of Leber's Congenital Amaurosis. 06/01/2005 - 06/30/2006. Knight's Templar Eye Foundation, Direct Costs: \$30,000. Total costs: \$30,000. Principal Investigator.

Fellowship for Nathan Faulkner: Genetic Linkage Study of a Family with Marfan Syndrome. 05/01/2005 - 09/30/2005. Fight for Sight, Inc., Direct Costs: \$2,100. Total costs: \$2,100. Principal Investigator.

Pharmacological intervention of retinal degeneration in ELOVL4 transgenic mice to assess drugs for retinal degeneration intervention. FR-PT-0505-0237 01/01/2005 - 12/31/2006. Foundation Fighting Blindness, Direct Costs: \$119,000. Total costs: \$119,000. Principal Investigator.

Gene Identification for Juvenile Retinal Dystrophy. 11/01/2003 - 10/31/2006. Macula Vision Research Foundation and Ronald McDonald House Charities, Direct Costs: \$80,000 per year. Total costs: \$80,000 per year. Principal Investigator.

Gene Mapping for Stargardt's Macular Degeneration. 04/01/2002 - 03/31/2003. American Health Assistance Foundation, Direct Costs: \$50,000. Total costs: \$50,000. Principal Investigator.

Macular Degeneration Genetics. 49580-001.45 04/01/2002 - 03/31/2004. Karl Kirchgessner Foundation, Direct Costs: \$50,000; Total costs: \$50,000. Principal Investigator.

Gene Identification for Macular Degeneration. 04/01/2002 - 07/31/2005. Ruth and Milton Steinbach Fund, Direct Costs: \$100,000 per year; Total costs: \$100,000 per year. Principal Investigator.

Mentored Clinician Scientist Award K23EY00401. Project: "Cloning a gene for dominant Stargardt's disease"; Goal: to clone a gene for dominant Stargardt's disease. 08/01/1999 - 07/30/2004. National Eye Institute, Direct Costs: \$175,000 per year. Total costs: \$210,000. Principal Investigator.

Eye Research Award 01/01/1996 - 12/31/1996. Knight's Templar Eye Foundation, Direct Costs: \$30,000. Total costs: \$30,000. Principal Investigator.

## **VII. CLINICAL TRIALS**

Anti-VEGF Phase III Clinical Trial for predominantly classic choroidal neovascularization of age-related macular degeneration (ANCHOR). 06/01/2003 - 12/31/2005. Genentech Inc, Direct Costs: \$633,694. Total costs: \$788,160. University of Utah, Principal Investigator.

Anti-VEGF Phase III Clinical Trial for minimally classic and completely occult choroidal neovascularization of age-related macular degeneration (MARINA). 08/01/2003 - 03/31/2006. Genentech Inc, Direct Costs: \$686,082. Total costs: \$838,321. University of Utah, Principal Investigator.

Anti-VEGF aptamer for choroidal neovascularization from age-related macular degeneration sponsored by EyeTech pharmaceuticals and Pfizer 07/01/2001 - 07/31/2004. Eyetech Pharmaceuticals, Inc., Direct Costs: \$142,647. Total costs: \$180,271. Co-Investigator.

A Multicenter, Randomized, Double-Masked, Controlled Study to Evaluate Intravitreal Fluocinolone Acetonide (.5, 2, or 6 mg) Implant in Patients with Non-Infectious Uveitis Affecting the Posterior Segment of the Eye. BLP 415-001 02/01/2001 - 02/28/2005. Bausch & Lomb, Direct Costs: \$164,165. Total costs: \$195,498. Co-Investigator.

An open-label, multicenter extension study to evaluate the safety and tolerability of ranibizumab in subjects with choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) who have completed the treatment phase of III Anchor or Marina trials. 09/01/2005 - 2009. Genentech Inc, Direct Costs: \$100,500. University of Utah Principal Investigator.

A Six-Month, Phase III, Multi-centered, Masked, Randomized, Sham-Controlled Trial (With Six-Month Open Label Extension) To Assess the Safety and Efficacy of 700 microgram and 350 microgram Dexamethasone Posterior Segment Drug Delivery System (DEX PSDDS) Applicator System in the Treatment of Patients with Macular Edema Following Central Retinal Vein Occlusion or Branch Retinal Vein Occlusion. 04/01/2002 - . Allergan Inc, Co-Investigator.

An Evaluation of Efficacy and Safety of Posterior Juxtasclear Injections of Anecortative Acetate (15 mm) vs. Visudyne Patients with Subfoveal Exudative Age-Related Macular Degeneration (AMD). 04/01/2002 - 03/31/2006. Alcon Laboratories, Co-Investigator.

A Phase II Study of Implants of Encapsulated Human NTC-201 Cells Releasing Ciliary Neurotrophic Factor (CNTF), in Participants with Visual Acuity Impairment Associated with Atrophic Macular Degeneration (CNTF2). 08/01/2007-pres, Neurotech. Direct Costs: \$300,165; Principal Investigator and study chair.

Phase II/III Study of Encapsulated Human NTC-201 Cell Implants Releasing Ciliary Neurotrophic Factor (CNTF) for Participants with Retinitis Pigmentosa Using Visual Field Sensitivity as the Primary Outcome. 08/01/2007-08/01/2008, Neurotech. Direct Costs: \$90,000. University of Utah, Principal Investigator.

Clinical Assessment of Age-related Macular Degeneration Patients After Early Diagnosis and Treatment With Ranibizumab (COMPASS)

April 2011 - present

A phase II/III study to determine if patients treated with monthly ranibizumab within 4 months after diagnosis of exudative age-related macular degeneration can return to their baseline pre-disease visual acuity. Principal Investigator

Seven Year Update of Macular Degeneration Patients (SEVEN UP)

October 2010 - present

The purpose of this study is to assess long term vision outcomes and disease status in patients with age-related macular degeneration previously treated with ranibizumab as participants in the Phase III ANCHOR and MARINA Studies and the HORIZON Study. Co-Investigator

Ranibizumab for Edema of the Macula in Diabetes: Protocol 3 With High Dose - the READ 3 Study

April 2010 - present

A phase II study investigating the safety, tolerability, bioactivity, and dose response of two different dosages (0.5 mg and 2.0 mg) of ranibizumab in patients with diabetic macular edema (DME). Co-Investigator

HARBOR study

August 2009 – Nov. 2012

A phase II study to evaluate the safety and efficacy of 2.0 mg and 0.5 mg intravitreal ranibizumab administered monthly or as-needed in patients with subfoveal neovascular age-related macular degeneration (AMD). Genentech Inc, Direct Costs: \$679,694. Total costs: \$834,160. Principal Investigator

Study Evaluating Genotypes While Using Lucentis 2 (SEAGUL2)

May 2008 to present

A phase IV study investigating whether the efficacy of ranibizumab treatment for exudative-age related macular degeneration is associated with VEGF polymorphisms. Genentech. Direct Costs: \$600,500. Principal Investigator

Genetic Assessment of Early to Late Macular Degeneration Study 2 (GALLEY2)

April 2008 – present

An observational study to determine if HTRA1 and CFH polymorphisms are associated with an accelerated progression to advanced age-related macular degeneration (AMD) in patients with early AMD (soft confluent drusen >120 microns ) in the study eye, and with either early or advanced AMD in the non-study eye. Genentech. Direct Costs: \$600,000. Principal Investigator

**VIII. SCHOLASTIC HONORS**

Clinical Advancement & Recognition of Excellence in Service, UCSD (2012).

Fellow, Association of American Physicians (2011).

Fellow, American Association for the Advancement of Science (2011).

American's Top Ophthalmologists, Consumer's research Council of America (2011).

NIH Director's Transformative R01 Program (with a perfect review score 10, 2010)

Senior Investigator Award, Research to Prevent Blindness (2010)

Outstanding Achievement Award, Chinese Ophthalmological Society, 2009

Chinese National Endowed Visiting Professorship (Chang Jiang Scholar Program), 2009.

Burroughs Wellcome Fund Clinical Scientist Award in Translational Research, 2008

Inaugural Resident Research Mentor Award, Moran Eye Center, University of Utah, 2008

Lew R. Wasserman Merit Award, Research to Prevent Blindness, 2006

Macula Society membership, 2006

American Society of Clinical Investigation membership, 2006

Macular Vision Research Award, 2002

Ruth Steinbach Fund for Macular Degeneration, 2001

Charles Schepens Award for Excellence in Retina Research. 2001

Johns Hopkins Medical Institutions Clinician Scientist Award. 1999

Stark Research Award in Ophthalmology, Wilmer Eye Institute, Johns Hopkins University. 1998

Association of University Professors of Ophthalmology (AUPO) Inaugural Residents and Fellow's Research Forum, runner-up. 1997

Knights Templar Eye Foundation Research Award. 1996

Magna Cum Laude, Harvard Medical School. 1995

First Bower Award for Research on Macular Degeneration Wills Eye Hospital, Philadelphia. 1993

Reed Scholar, M.I.T.. 1993 -1994

Johnson & Johnson Scholar, M.I.T.. 1991 -1992

Chinese National Scholarship for Graduate Studies Abroad. 1984

Highest Scholarships and High Distinction in Biochemistry, Sichuan Univ. 1980 -1984

**IX. ADMINISTRATIVE EXPERIENCE**

**A. Grant Review Committee/Study Section**

2013-present Reviewer, New York Stem Cell Program

2013- present Reviewer, Penn Stem Cell Program  
 2012-present Reviewer, Chinese Academy of Science Strategic Stem Cell Program  
 2009-present Ad Hoc Reviewer, Natural Science foundation of China  
 2008-present Ad Hoc Reviewer, ChangJiang Scholars Program, Ministry of Education, China  
 2009-present Ad Hoc Reviewer Reviewer, National Basic Research Program, China  
 2007-present Ad Hoc Reviewer, Biology and Disease of the Posterior Eye Study Section (VISC), NIH  
 2006-present Ad Hoc Reviewer, Anterior Eye Disease Study Section (VISA), NIH  
 2007-present Distinguished Reviewer's panel, National Eye Institute, NIH  
 2009-present Ad Hoc Reviewer, diabetic complications section, Juvenile Diabetes research Foundation  
 2006-Present Ad Hoc Reviewer, research grants and fellowships, Wellcome Trust, UK  
 2006-Present Ad Hoc Reviewer, research grants and fellowships, Medical Research Council, UK  
 2004-present Ad Hoc Reviewer, Neurobiology C Study Section, Medical Research Service, Department of Veterans Affairs Administration  
 2002-present Ad Hoc Reviewer, research grants, Foundation Fighting Blindness, USA  
 2009-2010 ARRA grant panels  
 2007 Special emphasis panel, Gene environment Initiative, Nat Human Genome Research Institute, NIH  
 2007 CIDR Access Review Panel, National Human Genome Research Institute, NIH  
 2007 Ad Hoc Reviewer, research grants, Macular Disease Society, UK  
 2003 Ad Hoc Reviewer, research grants, Foundation Fighting Blindness, Canada  
 2001 Ad Hoc Reviewer, postdoctoral training grant, Research into Aging, UK  
 2000 Ad Hoc Reviewer, Medical Research Service, Department of Veterans Affairs Administration

## **X. PROFESSIONAL COMMUNITY ACTIVITIES**

2015 Co-organizer, International Society of Ocular Cell Biology Meeting  
 2014 Co-organizer, International Masters of Retina  
 2014 Co-organizer, Nature-Biocon Symposium  
 2014 Co-organizer, Nature-China Symposium  
 2012-pres Member, Harvard Medical School Dean's Genetics Advisory Council.  
 2011-2013 Founding President, American Chinese Association for Research in Vision and Ophthalmology  
 2002-pres Medical Advisory Board, Genentech  
 2012-pre Medical Advisory Board, Thrombogenics  
 2008-pres Scientific Advisory Board, Lifeboat Foundation  
 2006-pres Scientific Advisory Board, Acucela  
 2010-pres co-organizer, International Masters of Retina  
 2011-pres Program Committee, Annual Meeting of Chinese Ophthalmological Society  
 2012 Organizer, the Second World Wide Chinese Ophthalmologist Retina Summit  
 2012 Co-organizer, Nature-UCSD Institute for Genomic Medicine Symposium  
 2010 Organizer, Genetics of Diabetic Retinopathy Workshop, San Diego, CA  
 2009 Retina Subspecialty Day, Moderator, AAO Annual Meeting  
 2009 Organizer, Shanghai International Ophthalmology Symposium  
 2006 Co-Organizer, Genetics of Diabetic Retinopathy Workshop, Salk Lake City, UT  
 2008 Organizer, Genetics of Diabetic Retinopathy Workshop, Salk Lake City, UT



- 2007 Organizing Committee member, International Forum of Vitreoretinal Diseases and Surgery, China
- 2007 Section Chair, Animal Model of Age-Related macular Degeneration. PreARVO Meeting 2007 on Retinal Degeneration and gene Therapy, FL.
- 2007 Organizer, Shanghai International Ophthalmology Symposium
- 2006 Organizer, "Snowbird Neuroscience Symposium 2006"
- 2005 Co-organizer, "Genetics of Molecular Biology of Retinal Diseases", ancillary meeting of Annual Meeting of American Society of Human Genetics, UT.
- 1993-94 President, Harvard Chinese Student Association

## **I. UNIVERSITY COMMUNITY ACTIVITIES**

### **A. College Level**

- 2010-pre Member, Steering Committee, MD/PhD Program, UCSD/Salk/Burnham/TSRI
- 2009-2013 Founding Director, Institute of Genomic Medicine, UCSD
- 2008-pres Member, MD-PhD Program Admissions Committee, UCSD/Salk/Burnham
- 2010-pre Faculty Advisor, the MSTP Physician Scientist Colloquium
- 2010-pre Member, Executive Committee, Research Council, UCSD Health Sciences
- 2008-pres Member, Research Council, UCSD Health Science
- 2005 - 2008 Member, SOM Academic Senate Nominating Committee, Elected appointment by the Dean, University of Utah
- 2004 - 2008 Member, SOM Admissions Committee, University of Utah
- 2007-2008 Member, MD-PhD program Admissions Committee, University of Utah

### **A. Department Level**

- 2008-pres Member, Department of Ophthalmology CAP Committee, UCSD
- 2010-pres Chief, Division of Ophthalmic Genetics, UCSD
- 2005 - 2008 Director, Ophthalmology and Visual Sciences, Division of Ophthalmic Genetics, Moran Eye Center, University of Utah
- 2005 - 2008 Co-Director, Ophthalmology and Visual Sciences, Division of International Ophthalmology, Moran Eye Center, University of Utah
- 2006-2008 Chair, Resident Research Committee, Moran Eye Center, University of Utah
- 2002 – 2008 Member, Ophthalmology and Visual Sciences, Resident Selection Committee, Moran Eye Center, University of Utah
- 2002 - 2008 Member, Ophthalmology and Visual Sciences, Department Library Committee, Moran Eye Center, University of Utah
- 2002 - 2008 Member, Ophthalmology and Visual Sciences, Department Seminar Speaker Committee, Moran Eye Center, University of Utah

### **B. Other Internal Level**

- 2001 -2002 Member, Cleveland Clinic Foundation, Search Committee for the Director for the Center for Human Genetics and Genomics
- 1991 -1995 Member, Harvard University - M.I.T., M.D. Curriculum Committee, Division of Health Sciences and Technology
- 1988 -1989 President, Harvard University, Chinese Student Association

## **II. CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

- American Academy of Ophthalmology
- American Association for the Advancement of Science
- Association of American Physicians
- American Society for Clinical Investigation
- American Society of Human Genetics
- Association for Research in Vision and Ophthalmology

### **III. TEACHING RESPONSIBILITIES/ASSIGNMENTS**

#### **A. Course Lectures**

2008-pres	Instructor, BMS core curriculum, quantitative Methods in Genetics (BIOM262)
2009 – 2010	Small group discussion leader, Genetics in Medicine, preclinical core curriculum, School of Medicine, UCSD
2008 – 2009	Course Co-Director, Genetics in Medicine, preclinical core curriculum, School of Medicine, UCSD
2008-2009	Core course in Cellular and Molecular Medicine, Biomedical Science PhD Program, UCSD
2008-pres	Pharmacogenomics, School of Pharmacy and Pharmaceutical Sciences, UCSD
2008-pres	Resident Lecture Series, Shiley Eye Center, UCSD
2008-pres	Co-Director, bi-monthly San Diego city-wide Retinal Fluorescein Angiogram Conference
2008-pres	Visiting Professor, Peking University, China
2007-pres	Visiting Professor, Fudan University, China
2006-pres	Visiting Professor, Sichuan Academy of Medical Sciences, China
2005-2008	Frontiers in Neuroscience, PhD Program in Neuroscience, University of Utah, Salt Lake City, UT; contributing lecturer
2005	Visiting Professor, King Khaled Eye Specialty Hospital. Riyadh, Saudi Arabia
2004	Faculty Research Topic Lecture Series, PhD. Program in Molecular Biology, University of Utah, Salt Lake City, UT; contributing lecturer
2003 - Present	Visiting Professor, Peking University Eye Center, Peking University, China
2003 - Present	Visiting Professor, Sichuan University, China
2003 - Present	Visiting Professor, Sichuan academy of Medical Sciences and Sichuan Provincial Hospital, China
2003 - Present	Visiting Professor, Zhong Shan Ophthalmic Center, Sun Yet-sen University, China
2002 - 2008	Director, Fluorescein Angiogram Conference, John Moran Eye Center, University of Utah, Salt Lake City, UT; Contributing lecturer
2002 - 2008	Grand Rounds, John Moran Eye Center, University of Utah, Salt Lake City, UT; Contributing lecturer
2002 - 2008	Ophthalmology Resident Lectures - Lecture Series on the Retina, John Moran Eye Center, University of Utah, Salt Lake City, UT; Contributing lecturer
2000 -2002	Grand Rounds Quiz for residents, Cole Eye Institute, Cleveland Clinic
1992 -1994	Teaching Assistant in HMS-M.I.T. HST Genetics and Medicine, 80 students (MIT undergraduate and graduate students, Harvard Medical Students)

#### **B. Students/fellows Supervised**

2012-pre	Hongrong Luo, PhD, postdoctoral scholar
2011-pre	Hong Ouyang, PhD, postdoctoral scholar
2011-pre	Jing Luo, MD, PhD, postdoctoral scholar
2014-pre	Jie Zhu, MD, PhD, postdoctoral scholar
2012-2013	Lei Xi, MD, PhD student
2012-2013	Maling Go, PhD, visiting fellow
2012-2013	Jin Zhu, MS student

2012-2013	Yang Yang, MD, postdoctoral scholar
2011-2012	Xiaohui Zhang, MD, postdoctoral scholar
2011-2012	Jing Zeng, MD, postdoctoral scholar
2011-pre	Jing Zhu, MD, PhD student
2010-2012	Hongjun Du, MD, PhD, postdoctoral scholar
2010-2011	Shufeng Wang, PhD, postdoctoral scholar
2010-2012	Li Zhang, PhD, postdoctoral scholar
2010-2012	Sharon Lim, PhD, postdoctoral scholar
2010-2012	Xuemei Zhu, MD, PhD, postdoctoral scholar
2010-2012	Shirong Wang, PhD, postdoctoral scholar
2011-2012	Yuhong Yang, PhD, visiting scholar
2010-pres	Ling Zhao, PhD, postdoctoral scholar
2010-pres	Seanna Grob, BS, medical student, research advisor
2010-pres	Frances Wu, AB, medical student, research advisor
2010-pres	Seanna Grob, BS, medical student, research advisor
2010-pres	Martin Krupa, BS, medical student, research advisor
2009-pres	Sara Bozorg, MD, Resident, research advisor
2009-pres	Woong Sun, PhD, visiting fellow
2009-2010	Hisham Alkuraya, MD, postdoctoral fellow
2009-pres	Clara Lee, BS, premed/lab assistant
2009-pres	Guy Hughes, BS, premed/lab assistant
2009-pres	Kevin Wang, BS, pre-optometry, lab assistant
2009-pres	Matthew Bedell, MD, postdoctoral scholar
2000-2010	Zhenglin Yang, MD, Assistant Professor
2008-2010	Xufang Sun, MD, postdoctoral fellow
2006-2010	Yuhong Chen, MD, PhD, postdoctoral fellow
2008-2009	Bei Li, MD, PhD, postdoctoral fellow
2009-2010	Xiaolei Wang, MD, postdoctoral fellow
2007-2010	Jiexi Zeng, MD, postdoctoral fellow
2008-pre	Chao Zhao, BS, graduate student, UCSD
2008-2009	Cynthia Meyer, lab assistant
2008-2009	Ruben Rarmona, lab assistant, UCSD medical student
2008-2009	Francesca Salazar, lab assistant, UCSD medical student
2006-2007	Peiquan Zhao, MD, PhD, visiting fellow, Chair, Dept of Ophthalmology, Xinhua Hospital of Shanghai Jiaotong University
2006-2008	Haoyu Chen, MD, Postdoctoral fellow
2006-2008	Jessica Jiang, MD, Postdoctoral fellow
2007-2008	Manjusha Dixie, PhD, Postdoctoral fellow
2007-2008	Ling Luo, MD, Postdoctoral fellow
2006-2008	Shrena Patel, MD, Postdoctoral fellow
2004 - 2008	Bradley Katz, MD, PhD. Post Doctoral Fellow, NIH K23 Mentored Clinician-Scientist Awardee, and Associate Professor
2004 - 2007	Josh Cameron, Neuroscience Program, University of Utah PhD Thesis Student
2007 – 2008	Ryan Constantine, Neuroscience Program, University of Utah PhD Thesis Student (MD/PhD)
2007 – 2008	Charity Olson, Molecular Biology Program, University of Utah PhD Thesis Student
2004 - 2006	Shin Kamaya, University of Utah Undergraduate Student
2005 - 2006	Asif Azimi, MD, Postdoctoral fellow
2005 - 2006	Jay Meyer, University of Utah Medical Student
2005 - 2006	Nathan Faulkner, University of Utah Medical Student

2005 - 2007 Rusten Gomez, University of Utah Undergraduate Student  
2005 - 2007 Shan Duan, PhD, Postdoctoral fellow  
2005 - 2006 Wendy Rao, University of Utah Undergraduate Student  
2004 Mac Machan, University of Utah Undergraduate Student  
2004 Nathan Faulkner, University of Utah Undergraduate Student  
2004 Parley Filmore, University of Illinois Medical Student  
2004 - 2007 Yali Chen, PhD, Postdoctoral fellow  
2004 - 2008 Zongzhong Tong, PhD, Postdoctoral Fellow  
2003 Kristina Price, Emery University Medical Student  
2003 Marrielle Payne, University of Utah Medical Student  
2003 Yian Yin, University of Utah Medical Student  
2003 -2005 Chunmei Li, MD, Postdoctoral fellow, Staff Physician, Zhongshan Ophthalmic center, China  
2003 - 2005 Jianbin Hu, MD, Postdoctoral fellow  
2002 - 2008 Ophthalmology Attending. Supervising ophthalmology residents (PGY2-4), Moran Eye Center, Univ. of Utah  
2002 - 2008 Ophthalmology Attending. Supervising residents (PGY2-4) in retina and retina laser clinic, VA Hospital  
2002 -2003 Jieyan Pan, PhD, Senior Postdoctoral fellow, University of Penn  
2002 -2003 Keke Fan, PhD, Senior Postdoctoral fellow, Case Western University  
2002 -2003 Lin Gan, MD, Senior Postdoctoral fellow, University of Heidelberg  
2002 -2004 Li Jiang, MD, Postdoctoral Fellow/PhD Student, Dept of Biology, University of Utah  
2002 - 2007 Goutam Karan, PhD, Postdoctoral fellow  
2001 Wei Lin, Harvard Medical Student  
2000 -2001 Zhengya Yu, M.D., Prior Postdoctoral student, Assoc. Prof. Surgery and Chief of Vascular Surgery, Tong Reng Eye Hospital, Beijing, China  
2000 -2002 Ophthalmology Attending. Supervised residents (PGY3-4), Cole Eye Institute, Cleveland Clinic Foundation  
2000 -2001 Zhengya Yu, MD, Postdoctoral Fellow, Assoc. Prof. Surgery and Chief of Vascular Surgery, Tong Reng Eye Hospital, Beijing, China  
1999 -2000 Ophthalmology Attending. Supervised residents (PGY3-4), Wilmer Eye Institute, Johns Hopkins Hospital  
1999 -2001 Yang Li, M.D., Prior Postdoctoral student, Assoc. Prof. Ophthalmology and Director of Research, Tong Reng Eye Hospital, Beijing, China  
1999 -2001 Yang Li, MD, Postdoctoral Fellow, Assoc. Prof. Ophthalmology and Director of Research, Tong Reng Eye Hospital, Beijing, China  
1993 Edward Nugyen (Harvard College), UCSF Medical Student, practicing physician  
1993 Kristin Lichtenberg (Wellesley College), Medical Student, University of Pittsburg Medical School, practicing physician  
1992 Howard Yeon (Harvard College), Harvard Medical Student, practicing physician

### **C. Continuing Education**

#### **CME Courses Taught**

2005 Diabetic Retinopathy, Department of Public Health. Idaho State University, Boise, Idaho  
2003 Clinical Faculty Day, John Moran Eye Center, University of Utah School of Medicine. Salt Lake City, Utah

## **I. ORIGINAL PUBLICATIONS**

### **A. Peer-Reviewed Publications**

1. Kapler GM, **Zhang K**, Beverley SM. (1987) Sequence and S1 nuclease mapping of the 5' region of the dihydrofolate reductase-thymidylate synthase gene of *Leishmania major*. *Nucleic Acids Res*, 15(8), 3369-83.
2. Kapler GM, **Zhang K**, Beverley SM. (1990) Nuclease mapping and DNA sequence analysis of transcripts from the dihydrofolate reductase-thymidylate synthase (R) region of *Leishmania major*. *Nucleic Acids Res*, 18(21), 6399-408.
3. Perkins LA, Doctor JS, **Zhang K**, Stinson L, Perrimon N, Craig EA. (1990) Molecular and developmental characterization of the heat shock cognate 4 gene of *Drosophila melanogaster*. *Mol Cell Biol*, 10(6), 3232-8.
4. **Zhang K**, Chaillet JR, Perkins LA, Halazonetis TD, Perrimon N. (1990) *Drosophila* homolog of the mammalian jun oncogene is expressed during embryonic development and activates transcription in mammalian cells. *Proc Natl Acad Sci U S A*, 87(16), 6281-5.
5. **Zhang K**, Smouse D, Perrimon N. (1991) The crooked neck gene of *Drosophila* contains a motif found in a family of yeast cell cycle genes. *Genes Dev*, 5(6), 1080-91.
6. Rutledge BJ\*, Zhang K\*, Bier E, Jan YN, Perrimon N. (1992) The *Drosophila* spitz gene encodes a putative EGF-like growth factor involved in dorsal-ventral axis formation and neurogenesis. *Genes Dev*, 6(8), 1503-17. co-first authors.
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8. Hata Y, Duh E, **Zhang K**, Robinson GS, Aiello LP. (1998) Transcription factors Sp1 and Sp3 alter vascular endothelial growth factor receptor expression through a novel recognition sequence. *J Biol Chem*, 273(30), 19294-303.
9. Kniazeva M, Chiang MF, Morgan B, Anduze AL, Zack DJ, Han M, **Zhang K**. (1999) A new locus for autosomal dominant stargardt-like disease maps to chromosome 4. *Am J Hum Genet*, 64(5), 1394-9.
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12. **Zhang K**, Jampel HD. (1999) Discordance of primary infantile glaucoma in monozygotic twins. *Am J Ophthalmol*, 128(1), 97-8.
13. **Zhang K**, Kniazeva M, Hutchinson A, Han M, Dean M, Allikmets R. (1999) The ABCR gene in recessive and dominant Stargardt diseases: a genetic pathway in macular degeneration. *Genomics*, 60(2), 234-7.
14. Allikmets R. (2000) Further evidence for an association of ABCR alleles with age-related macular degeneration. The International ABCR Screening Consortium. *Am J Hum Genet*, 67(2), 487-91.
15. Kniazeva M, Traboulsi EI, Yu Z, Stefko ST, Gorin MB, Shugart YY, O'Connell JR, Blaschak CJ, Cutting G, Han M, **Zhang K**. (2000) A new locus for dominant drusen and macular degeneration maps to chromosome 6q14. *Am J Ophthalmol*, 130(2), 197-202.
16. Stefko ST, **Zhang K**, Gorin MB, Traboulsi EI. (2000) Clinical spectrum of chromosome 6-linked autosomal dominant drusen and macular degeneration. *Am J Ophthalmol*, 130(2), 203-8.
17. Ayyagari R, **Zhang K**, Hutchinson A, Yu Z, Swaroop A, Kakuk LE, Seddon JM, Bernstein PS, Lewis RA, Tammur J, Yang Z, Li Y, Zhang H, Yashar BM, Liu J, Petrukhin K, Sieving PA, Allikmets R. (2001) Evaluation of the ELOVL4 gene in patients with age-related macular degeneration. *Ophthalmic Genet*, 22(4), 233-9.

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27. Zhang XM, Yang Z, Karan G, Hashimoto T, Baehr W, Yang XJ, **Zhang K**. (2003) Elov14 mRNA distribution in the developing mouse retina and phylogenetic conservation of Elov14 genes. *Mol Vis*, 9301-7.
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- Jonsson PV, Thorleifsson G, Kong A, Stefansson H, **Zhang K\***, Stefansson K, Gulcher JR\*. (2006) CFH Y402H confers similar risk of soft drusen and both forms of advanced AMD. *PLoS Med*, 3(1), 109-114. \*Co-corresponding authors.
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  55. Wang C, Katz BJ, Turner MJ, Hu J, **Zhang K**. (2006) Intravitreal triamcinolone acetonide for the treatment of diffuse diabetic macular oedema--a case report. *Ann Acad Med Singapore*, 35(2), 112-4.
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## II. REVIEW ARTICLES

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3. Garibaldi D, **Zhang K.** (1999). Molecular genetics of macular degeneration. *Intl Ophthalmol Clinics*, 39, 117.
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6. **Zhang K.**, Wang MX, Munier F, Roth D, Mastrangelo D, Chung S, Shields JA, Donoso LA. (1993). Molecular genetics of retinoblastoma. *Int Ophthalmol Clin*, 33(3), 53-65.
7. Chen Y, Bedell M, **Zhang K.** (2010) Age-related macular degeneration: genetic and environmental factors of disease. *Mol Interv.* 2010 Oct;10(5):271-81. Review.
8. Molday, RS and Zhang, K. Defective lipid transport and biosynthesis in recessive and dominant Stargardt macular degeneration. *Prog Lipid Res.* 2010 Oct;49(4):476-92. Epub 2010 Jul 13.
9. Bedell M, Harkewicz R, Wang X, Zhang K. (2010). Focus on molecules: ELOVL4. *Exp Eye Res.*:476-7.
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11. **Zhang, K** and Ding S. (2011). Stem cells and eye development. *N Eng J Med.* 365:370-3.
12. Huang PS, Ho PT, **Zhang K.** A proposal: a comprehensive platform to characterize tumors in Chinese and improve success in cancer drug discovery and development. *Chin J Cancer.* 2011 Jun;30(6):363-7.
13. **Zhang K.**, Zhang L, and Weinreb, RN (2012). Ophthalmic drug discovery: novel targets and mechanisms. *Nature Review Drug Discovery* 11, 541-559
14. Tuo J, Grob S, **Zhang K.**, Chan CC (2012). Genetics of immunological and inflammatory components in age-related macular degeneration. *Ocul Immunol Inflamm.* 2012 Feb;20(1):27-36.

## III. BOOKS and CHAPTERS

1. Cameron DJ, Yang Z, Tong Z, Zhao Y, Praggastis A, Brinton E, Harmon J, Chen Y, Pearson E, Bernstein PS, Brinton G, Li X, Jorgensen A, Schneider S, Gibbs D, Chen H, Wang C, Howes K, Camp NJ, **Zhang K.** (2008) 10q26 is associated with increased risk of age-related macular degeneration in the Utah population. In Anderson RE, LaVail MM, Hollyfield JG (Eds.), *Recent Advances In Retinal Degeneration*. New York: Plenum Publishing Corporation.
2. Chen H, Yang Z, Zhao P, **Zhang K** (2008). Genetics of AMD. in Kaiser PK, Sears J, Singh R (Eds), *Macular Degeneration – State of the Art*. London, Remedica Medical Education and Publishing Limited (in press)
3. Moshfeghi DM, Yang Z, Faulkner ND, Karan G, Hirumalaichary S, Jiang L, Tsai T, **Zhang K.** (2005). Choroidal Neovascularization in Patients with Adult-onset Foveomacular Dystrophy Caused by Mutations in the RDS/Peripherin Gene: Report of 3 Cases. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*. New York: Plenum Publishing Corporation.
4. Katz BJ, Yang Z, Payne M, **Zhang K.** (2005). Fundus Appearance of Choroideremia. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*. New York: Plenum Publishing Corporation.
5. **Zhang K,** Carr RE, Sunness JS. (2005). Hereditary choroidal dystrophies. In Ryan SJ (Ed.), *Retina*.
6. Hu J, Payne M, **Zhang K.** (2005). Intravitreal Injection of Triamcinolone Acetonide for Macular Edema Due to Retinitis Pigmentosa and Other Retinal Diseases. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*. New York: Plenum Publishing Corporation.
7. Sauve Y, Karan G, Yang Z, Li C, Hu J, **Zhang K.** (2005). Treatment with Carbonic Anhydrase Inhibitors Depresses Electroretinogram Responsiveness in Mice. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*.
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9. Li Y, Lam L, Yu Z, Yang Z, Bither P, **Zhang K.** (2000). Clinical spectrum of autosomal dominant Stargardt's macular dystrophy with a mutation in ELOVL4. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*. New York: Plenum Publishing Corporation.
10. Garibaldi GC, Yang Z, Li Y, Yu Z, **Zhang K.** (2000). The role of fatty acids in the pathogenesis of retinal degeneration. In Hollyfield JG, Anderson RE, LaVail MM (Eds.), *Retinal Degeneration: Clinical and Laboratory Applications*. New York: Plenum Publishing Corporation.
11. Zhang, K. Ed. *Ophthalmic Drug Discovery*. World Scientific Publishing, in preparation.
12. Liu, Y and Zhang, K. Ed. *Ocular Stem Cell Therapy*. World Scientific Publishing, in preparation.

#### IV. OTHER (Commentary/Letters/Editorials/Case Reports/Video/Film)

##### Patents

- 1 **Zhang K,** Petrukhin, K; Li, W. ELOVL4 gene. Patent No. 2067809999. Washington, D.C.:U.S. Patent and Trademark Office.

#### V. ORAL PRESENTATIONS

##### A. **Invited/Visiting Professor Presentations**

##### **International**

2014 ARVO Invited Symposium  
2013 ARVO Invited Symposium  
2013 Plenary Lecture, International Society of Ocular Cell Biology conference, Oxford, England  
2013 Angiogenesis, Exudation and degeneration, Miami, FL  
2012 Cold Spring harbor Asia Stem Cell Meeting  
2012 NIH Director's Fund Regenerative Medicine Symposium, Bethesda, MD  
2012 International Symposium of Age Related Macular Degeneration, Beijing  
2012 Asian Pacific Academy of Ophthalmology Annual meeting, Pusan, Korea  
2012 Annual Meeting of Chinese Ophthalmology Society, Nanjing, China  
2012 Annual Meeting of Chinese Retina Society, Wuhan, China  
2012 Annual Meeting of Chinese Ophthalmology Society, Nanjing, China  
2012 International Masters of Retina, Dominican Republic  
2012 Second Symposium of Chinese Research in Vision and Ophthalmology, Tianjin, China  
2011 ARVO ISOCB Ocular Cell Biology Conference, Vancouver, Canada  
2011 Annual Meeting of Chinese Ophthalmology Society, Guangzhou, China  
2011 Glaucoma: Beyond IOP. San Diego, CA  
2011 International Masters of Retina, Dominican Republic  
2011 Angiogenesis, Miami, FL  
2011 Beckman Initiative in Macular Research, Irvine, CA  
2010 Chinese Ophthalmological Society/Asia Pacific Ophthal. Joint Annual Mtg, Beijing, China  
2010 Glaucoma Research Foundation, San Francisco, CA  
2010 Glaucoma: Beyond IOP. San Diego, CA  
2010 BioRetina Submit, San Francisco  
2010 Annual Meeting of Chinese Ophthalmology Society, Beijing, China  
2010 Gordon Conference on Visual System Development, Lucca (Barga), Italy  
2010 Beckman Initiative in Macular Research, Irvine, CA  
2010 Angiogenesis, Miami, FL  
2009 Mentors Lecture, American Society of Retinal Specialists Masters Meeting, Hawaii  
2009 FASCEB Conference, Snow mass, CO.  
2009 Beckman Initiative in Macular Research, Irvine, CA  
2009 International conference on inflammation and Retinal Disease, Greece  
2009 Annual Meeting of Chinese Ophthalmology Society, Chongqing, China  
2009 IBC's 5th International Conference on Ocular Angiogenesis and Retinal Degeneration, Las Vegas, NV  
2009 BioRetina Submit, San Francisco  
2009 Macula 2009, New York, NY  
2009 12th Annual Ocular Drug and Surgical Therapy Update Meeting, LA, CA  
2009 Angiogenesis, Exudation, and Degeneration, Miami, FL  
2008 International Society of Eye Research, Beijing, China  
2008 Shanghai International Ophthalmology Symposium, Shanghai, China  
2008 International Symposium on Retinal Degeneration (Key note speaker, Chengdu, China  
2008 Macular Vision Research Foundation Symposium, FL  
2008 World Ophthalmology Congress, Hong Kong, China

2008 International Society of Eye Research, Beijing, China  
2008 International Society of Ocular Cell Biology, CA  
2008 Angiogenesis 2008, FL  
2007 International Forum on Vitreoretinal Diseases and Surgery, China  
2007 University of Alberta, Canada  
2007 Annual Meeting of Chinese Ophthalmology Society, Beijing, China  
2007 Chinese Bioscience Symposium, Beijing  
2007 Institute of ophthalmology, University College London  
2007 Trinity College, Ireland  
2007 Angiogenesis 2007, FL  
2006 National Eye Institute, Bethesda, MD  
2006 Keystone Symposium on Genome Sequence Variation and the Inherited Basis of  
Common Disease and Complex Traits  
2006 Osaka Bioscience Institute, Japan  
2006 Annual Meeting of Chinese Ophthalmology Society, Beijing, China  
2005 Annual Meeting of Chinese Ophthalmology Society. Beijing, China  
2004 Beijing Ophthalmology Symposium.  
2003 Institute of Ophthalmology, University College London.  
2002 University of Nijmegen, Netherlands.  
2000 Singapore National Eye Research Institute, Singapore.

#### **National**

2012 LCA Conference, Philadelphia  
2007 Foundation Fighting Blindness, Orlando, FL  
2007 Diabetic Retinopathy Clinical Network Genetics workshop, Baltimore, MD.  
2005 Macular Vision Research Foundation Symposium.  
2004 Steinbach Macular Degeneration Symposium.  
2003 FASCEB Conference.  
2002 Steinbach Macular Degeneration Symposium.  
2001 III Retina Summit, Cleveland, OH.  
2001 7th Great Lake Vision Research Conference, Cleveland, OH.  
2000 Foundation Fighting Blindness, Ft. Lauderdale, FL.

#### **Local/Regional**

2014 Dept of Ophthalmology, SUNY Buffalo  
2013 Dept of Ophthalmology, Stanford University  
2013 Baylor College of Medicine  
2012 Research Day, Keynote speech, University of British Columbia, Vancouver, Canada  
2012 Dept of Ophthalmology, Mass Eye & Ear Infirmary and Harvard Med School  
2011 Mayo Clinic, MN  
2011 Medical College of Wisconsin, Milwaukee  
2010 Case Western Reserve University  
2009 Schepens Eye Research Institute distinguished lecture  
2008 Futterman Memorial Lecture, Dept of Ophthalmology, University of Washington  
2007 University of California San Diego, Inaugural Genetics and Genomics in Medicine  
Seminar Series  
2007 Brigham and Women's Hospital/Harvard Medical School, Molecular Medicine Series  
2007 Joslin Diabetes Center/Harvard Medical School  
2007 Santen, Inc. Inaugural Global Grand Rounds lecture  
2007 Genentech, Inc. Ophthalmology conference series

2007 Univ. of Kentucky, Dept. of Ophthalmology & Visual Sciences  
2003 Oklahoma University, Dept. of Ophthalmology & Visual Sciences  
2002 University of Utah, Moran Eye Center.  
2002 UCLA, Jules Stein Eye Institute.  
2002 Ohio State University, Dept. of Ophthalmology.  
1995 University of Colorado, Health Science Center.  
1994 Mass. Eye & Ear Infirmary, Harvard Medical School.