

ZHANG Kang

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Teaching Modules:

Ophthalmology

Research Areas: Genetics, epigenetics, stem cells, and artificial intelligence

Kang Zhang, MD, PhD is the Professor of the Faculty of Medicine, Macau University of Science and Technology (MUST). Dr. Zhang obtained his M.D. with Magna Cum Laude honors from Harvard Medical School and MIT joint MD program and his PhD in genetics from Harvard University. He did his postdoctoral training also at Harvard. He completed his residency in ophthalmology at Johns Hopkins University and his retina surgery fellowship at University of Utah. He was a faculty member at Johns Hopkins University, Cleveland Clinic Foundation, University of Utah, and University of California San Diego.

Among his honors include AAAS fellow, fellow of American Institute for Medical and Biological Engineering, memberships in Association of American Physicians and American Society of Clinical Investigation; Outstanding Achievement Award of Chinese Ophthalmological Society, Burroughs Wellcome Clinical Scientist Award in Translational Research; Lew R. Wasserman Merit Award and Senior Investigator Award from Research to Prevent Blindness; Charles Schepens Award for Excellence in Retina Research; and Johns Hopkins Medical Institutions Clinician Scientist Award, the Ophthalmologist 100 Powerlist, American's Top Ophthalmologists.

Dr. Zhang has published over 200 peer-reviewed manuscripts in top peer-reviewed journals covering a wide range of topics in genetics, epigenetics, stem cells, nano-engineering and 3D printing, clinical trials, and artificial intelligence. He has more than 26,000 citations and an h-index of 80. His discovery that HTRA1 is a major susceptibility gene for age-related macular degeneration is listed as one of “top-ten breakthroughs in 2006” in Science Magazine.

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

Academic History

2019.8-Present	Professor and Faculty of Medicine, Macau University of Science and Technology, Macao
2008.7-2019.8	Staff Physician, Veteran Affairs San Diego Health System
2008.7-2019.7	Full professor with tenure, University of California San Diego
2002.3-2008.6	Assistant Professor, Associate Professor with tenure, University of Utah, Department of Ophthalmology/Visual Sciences
2000.10-2002.2	Assistant Staff, Cleveland Clinic Foundation, Cole Eye Institute
1999.7-2000.9	Instructor, Johns Hopkins University, Wilmer Eye Institute

Professional Experiences

A. Full Time Positions

2014 – 2019	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
2006 – 2008	Associate Professor with tenure, University of Utah, Department of Ophthalmology and Visual Science, John Moran Eye Center, 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

B. Editorial Experience

2015-present co-Editor in Chief, Signal Transduction and Targeted Therapy
2018-present co-Editor in Chief, Precision Clinical Medicine
2013-present Associate Editor, Current Molecular Medicine
2013-present Editorial board, Journal of Biological Chemistry
2012-present Consulting Editor, Journal of Clinical Investigation
2012-present Associated Editor-in -Chief, Chinese Journal of Retinal Diseases
2006-2010 Chief Medical Editor, Ophthalmology News and World Report, China Edition. (circulation: 40,000+ ophthalmologists in Asia)

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 Cell
Referee for Molecular Cell
Referee for Cell Stem Cell
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 Lancet
Referee for Molecular Therapy
Referee for Molecular Vision
Referee for Nature
Referee for Nature Genetics
Referee for Nature Medicine
Referee for Nature Materials
Referee for Nature Biomedical Engineering
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 Science Translational Medicine
Referee for Trend in Genetics
Referee for Trend in Molecular Medicine

Research Awards

Prof. Zhang has been continuously funded by NIH and other foundations from 2000 to 2019.

Scholastic Honors

The Ophthalmologist World 100 Power List (2016, 2018).
Fellow, American Institute for Medical and Biological Engineering (2016).
Fellow, Association of American Physicians (2011).
Fellow, American Association for the Advancement of Science (2011).
America's Top Ophthalmologists, Consumer's research Council of America (2011, 2014).
Senior Investigator Award, Research to Prevent Blindness (2010)
Outstanding Achievement Award, Chinese Ophthalmological Society (2009).
Burroughs Wellcome Fund Clinical Scientist Award in Translational Research (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).
Reed Scholar, M.I.T. (1993 -1994).

Administrative Experience

A. Grant Review Committee/Study Section

- 2013-present Reviewer, New York Stem Cell Program
- 2010-present Reviewer, Medical Research Council UK
- 2010-present Reviewer, Wellcome Trust Research Programs UK
- 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 Reviewer, Natural Science foundation of China
- 2008-present Reviewer, ChangJiang Scholars Program, Ministry of Education, China
- 2009-present 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

B. Professional Community Activities

- 2016 Co-organizer. Nature Conference on Tissue Engineering and Regenerative Medicine. Guangzhou, China
- 2016 Co-organizer, Nature Conference. Nuclear Reprogramming and the Cancer Genome. La Jolla, CA
- 2015 Co-organizer, Nature Conference. Epigenetics of Cancer and Aging, Beijing, China
- 2015 Co-organizer, International Congress of Ocular Cell and Stem Cell Biology
- 2014 Co-organizer, Nature Conference. Genomics and Stem Cell Based Therapies: Shaping the Future of Personalized Medicine, Guangzhou, China
- 2014 Co-organizer, Nature Conference. Genomic Technologies and Biomaterial for Understanding Disease, San Diego, CA
- 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 Advisory Council.
- 2011-2013 Founding President, American Chinese Association for Research in Vision and Ophthalmology
- 2002-pres Medical Advisory Board, Genentech
- 2012-pres 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

C. University Community Activities

i.) College Level

- 2009-2013 Founding Director, Institute of Genomic Medicine, UCSD
- 2008-2012 Member, MD-PhD Program Admissions Committee, UCSD/Salk/Burnham
- 2010-2012 Faculty Advisor, the MSTP Physician Scientist Colloquium
- 2009-2013 Member, Executive Committee, Research Council, UCSD Health Sciences
- 2008-2013 Member, Research Council, UCSD Health Science
- 2005 - 2008 Member, SOM Academic Senate Nominating Committee, Elected appointment by the Dean, University of Utah
- 2007- 2008 Member, SOM Admissions Committee, University of Utah
- 2007-2008 Member, MD-PhD program Admissions Committee, University of Utah

ii.) 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

Current Memberships in Professional Societies

American Academy of Ophthalmology
 American Institute for Medical and Biological Engineering
 American Association for the Advancement of Science
 American Society for Clinical Investigation
 Association for Research in Vision and Ophthalmology
 Association of American Physicians
 International Society for Stem Cell Research
 Macula Society

Teaching Responsibilities/Assignments

A. Course Lectures

- 2015-2019 MSII Ophthalmology Skills Lab

2015	Retina OKAP Academic Lectures “Macular Dystrophy”
2015	Guest lecturer, Bioengineering Seminar
2015	Stein Grand Rounds/Geriatric Multi-Professional Lecture Series
2014-2019	Guest lecturer, Molecular Basis of Human Disease (BIMM110)
2014-2019	Guest lecturer, “Genetics of Age Related Diseases” (PATH255/BIOM277)
2014	Guest Lecturer, PATH277
2014	Instructor, “Inherited Ocular Disorders” (Fellows’ Medical Genetics Course)
2008-2012	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 – Pres	Visiting Professor, Peking University Eye Center, Peking University, China
2003 - Pres	Visiting Professor, Sichuan University, China
2003 - Pres	Visiting Professor, Sichuan academy of Medical Sciences and Sichuan Provincial Hospital, China

- 2003 - Pres 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)

Representative Publications

ORIGINAL PUBLICATIONS

Peer-Reviewed Publications

1. **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.
2. **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.
3. 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.
4. **Zhang K**, Kniazeva M, Han M, Li W, Yu Z, Yang Z, Li Y, Metzker ML, Allikmets R, Zack DJ, Kakuk LE, Lagali PS, Wong PW, MacDonald IM, Sieving PA, Figueroa DJ, Austin CP, Gould RJ, Ayyagari R, Petrukhin K. (2001) A 5-bp deletion in ELOVL4 is associated with two related forms of autosomal dominant macular dystrophy. *Nature Genet*, 27(1), 89-93.
5. Yang Z, Peachey NS, Moshfeghi DM, Thirumalaichary S, Chorich L, Shugart YY, Fan K, **Zhang K**. (2002) Mutations in the RPGR gene cause X-linked cone dystrophy. *Hum Mol Genet*, 11(5), 605-11.
6. Toomes C, Bottomley HM, Jackson RM, Towns KV, Scott S, Mackey DA, Craig JE, Jiang L, Yang Z, Trembath R, Woodruff G, Gregory-Evans CY, Gregory-Evans K, Parker MJ, Black GC, Downey LM, **Zhang K**, Inglehearn CF. (2004) Mutations in LRP5 or FZD4 underlie the common familial

- exudative vitreoretinopathy locus on chromosome 11q. *Am J Hum Genet*, 74(4), 721-30.
7. Xu Q, Wang Y, Dabdoub A, Smallwood PM, Williams J, Woods C, Kelley MW, Jiang L, Tasman W, **Zhang K**, Nathans J. (2004) Vascular development in the retina and inner ear: control by Norrin and Frizzled-4, a high-affinity ligand-receptor pair. *Cell*, 116(6), 883-95.
 8. Karan G, Lillo C, Yang Z, Cameron DJ, Locke KG, Zhao Y, Thirumalaichary S, Li C, Birch DG, Vollmer-Snarr HR, Williams DS, **Zhang K**. (2005) Lipofuscin accumulation, abnormal electrophysiology, and photoreceptor degeneration in mutant ELOVL4 transgenic mice: a model for macular degeneration. *Proc Natl Acad Sci U S A*, 102(11), 4164-9.
 9. Magnusson KP*, Duan S, Sigurdsson H, Petursson H, Yang Z, Zhao Y, Bernstein PS, Ge J, Jonasson F, Stefansson E, Helgadóttir G, Zabriskie NA, Jonsson T, Bjornsson A, Thorlacius T, 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.
 10. Brown DM, Kaiser PK, Michels M, Goubrane MD, Heier JS, Kim RY, Sy JP, Schneider S for the ANCHOR Study Group. (2006) Ranibizumab versus Vertiporfin for Neovascular Age-Related Macular Degeneration. *New Eng J of Med*, 355(14): 1432-1444.
 11. Rosenfeld PJ, Brown DM, Heier JS, Boyer DS, Kaiser PK, Chung CY, Kim RY for the MARINA Study Group. (2006) Ranibizumab for Neovascular Age-Related Macular Degeneration, *New Eng J of Med*, 355(14): 1419-1431.
 12. Yang Z, Camp NJ, Sun H, Tong Z, Gibbs D, Cameron DJ, Chen H, Zhao Y, Pearson E, Li X, Chien J, Dewan A, Harmon J, Bernstein PS, Shridhar V, Zabriskie NA, Hoh J, Howes K, **Zhang K**. (2006) A variant of the HTRA1 gene increases susceptibility to age-related macular degeneration. *Science*, 314(5801), 992-3. (see *Science New Focus*, same issue; *Science Breakthroughs of the Year*, 2006)
 13. Kleiman M E, Yamada K, Kakeda A, Chandrasekaran V, Nozaki M, Baffi J Z, Albuquerque R J C, Yamasake S, Itaya M, Pan Y, Appukuttan B, Gibbs D, Yang Z, Kariko K, Ambati B, Wilgus T A, DiPietro L A, Sakurai E, **Zhang K**, Smith T R, Taylor E W, Ambati J. (2008). Sequence- and target-independent suppression of angiogenesis by siRNA via TLR3. *Nature* 452, 591-597.
 14. Jones, CA, London, NR, Chen, H, Park, KW, Sauvaget, D, Rebecca A. Stockton, RA., Wythe, J. D., Suh, W, Larrieu-Lahargue, F, Mukouyama, Y, Lindblom, P, Seth, P, Frias, A, Nishiya, N, Ginsberg, M, Gerhardt, H, **Zhang, K***, and Li, D.Y.* (2008). Robo4 stabilizes the vascular network by inhibiting pathologic angiogenesis and endothelial hyperpermeability. *Nature Medicine* 14, 448-453. *co-corresponding authors.
 15. Tong Z, Yang Z, Patel S, Chen H, Gibbs D, Zeng J, Yang X, Ma X, Harmon J, Pearson E, Beuhler J, Luo L, Hau VS, Kaminoh Y, Zabriskie NA, Sun JK, Prakash M, Haman R, Tonna S, Constantine R, Ronquillo CC, Sadda SV, Avery RL, Brand JM, London N, King GL, Bernstein PS, Watkins S, Genetics of Diabetes and Diabetic Complication Study Group, Jorde LB, Li DY, Aiello LP,

- Pollak MR, **Zhang K.** (2008). Promoter polymorphism of the Erythropoietin gene in severe diabetic eye and kidney complications. *Proc Natl Acad Sci.* 105:6998-7003. Epub 2008 May 5.
16. Yang Z, Chen Y, Lillo C, Chien J, Yu Z, Michaelides M, Klein M, Howes KA, Li Y, Kaminoh Y, Chen H, Zhao C, Chen Y, Al-Sheikh YT, Karan G, Corbeil D, Escher P, Kamaya S, Li C, Johnson S, Frederick JM, Zhao Y, Wang C, Cameron DJ, Huttner WB, Schorderet DF, Munier FL, Moore AT, Birch DG, Baehr W, Hunt DM, Williams DS, **Zhang K.** (2008). Mutant prominin 1 found in patients with macular degeneration disrupts photoreceptor disk morphogenesis in mice. *Journal Clinical Investigation* 118:2908-2916.
 17. Yang Z, Stratton C, Francis PJ, Kleinman ME, Tan PL, Gibbs D, Tong Z, Chen H, Constantine R, Yang X, Chen Y, Zeng J, Davey L, Ma X, Hau VS, Wang C, Harmon J, Buehler J, Pearson E, Patel S, Kaminoh Y, Watkins S, Luo L, Zabriskie NA, Bernstein PS, Cho W, Schwager A, Hinton DR, Klein ML, Hamon SC, Simmons E, Yu B, Campochiaro B, Sunness JS, Campochiaro P, Jorde L, Parmigiani G, Zack DJ, Katsanis N, Ambati J, **Zhang K.** (2008). Toll-like receptor 3 and geographic atrophy in age-related macular degeneration. *New England Journal of Med.* 14:1456-63. Epub 2008 Aug 27.
 18. Jiao X, Yang Z, Yang X, Chen Y, Tong Z, Zhao C, Zeng J, Chen H, Gibbs D, Sun X, Li B, Wakins WS, Meyer C, Wang X, Kasuga D, Bedell M, Pearson E, Weinreb RN, Leske MC, Hennis A, DeWan A, Nemesure B, Jorde LB, Hoh J, Hejtmancik JF, **Zhang K.** (2009). Common variants on chromosome 2 and risk of primary open-angle glaucoma in the Afro-Caribbean population of Barbados. *Proc Natl Acad Sci U S A.* 106:17105-10. Epub 2009 Sep 24.
 19. Yang Z, Tong Z, Chen Y, Zeng J, Lu F, Sun X, Zhao C, Wang K, Davey L, Chen H, London N, Muramatsu D, Salasar F, Carmona R, Kasuga D, Wang X, Bedell M, Dixie M, Zhao P, Yang R, Gibbs D, Liu X, Li Y, Li C, Li Y, Campochiaro B, Constantine R, Zack DJ, Campochiaro P, Fu Y, Li DY, Katsanis N, **Zhang K.** (2010). Genetic and functional dissection of HTRA1 and LOC387715 in age-related macular degeneration. *PLoS Genet.* 6(2):e1000836.
 20. Zhu, S, Li, W., Zhou, H., Wei, W., Ambasadhan, R., Lin, T., Kim, J., **Zhang, K.**, Ding, S. (2010). Reprogramming of Human Primary Somatic Cells by OCT4 and Chemical Compounds. *Cell Stem Cells* 7: 651-655
 21. **Zhang, K***, Hopkins, JJ, Heier, JS, Birch, DG, Halperin, LS, Albin, TA, Brown, DM, Jaffe, GJ, Tao, W, and Williams, GA. (2011). Ciliary neurotrophic factor delivered by encapsulated cell intraocular implants for treatment of geographic atrophy in age-related macular degeneration. *PNAS* 108(15):6241-5. *corresponding author.
 22. Korn BS, Zhang K. . Carotid-cavernous sinus fistula. *N Engl J Med.* 2011 Feb 24;364(8):
 23. Kim J, Efe JA, Zhu S, Talantova M, Yuan X, Wang S, Lipton SA, **Zhang K,** Ding S. (2011). Direct reprogramming of mouse fibroblasts to neural progenitors. *Proc Natl Acad Sci U S A.* 108:7838-43.
 24. Li W, Sun W, Zhang Y, Wei W, Ambasadhan R, Xia P, Talantova M, Lin T, Kim J, Wang X, Kim WR, Lipton SA, **Zhang K***, Ding S*. (2011) Rapid induction and long-term self-renewal of primitive neural precursors from human

- embryonic stem cells by small molecule inhibitors. *Proc Natl Acad Sci U S A*. 108:8299-304. *co-corresponding author.
25. Sun F, Park KK, Belin S, Wang D, Lu T, Chen G, **Zhang K**, Yeung C, Feng G, Yankner BA, He Z. (2011). Sustained axon regeneration induced by co-deletion of PTEN and SOCS3. *Nature* 480:372-375.
 26. Shaw P, Zhang L, Zhang M, Du H, Zhao L, Lee C, Grob S, Lim SL, Hughes G, Lee J, Bedell M, Nelson MH, Lu F, Krupa M, Luo J, Ouyang H, Tu Z, Su Zhiguang, Zhu J, Wei X, Feng Z, Duan Y, Yang Z, Ferreyra H, Bartsch DU, Kozak I, Zhang L, Lin F, Sun H, Feng H, **Zhang K**. (2012). Complement factor H genotypes impact risk of age-related macular degeneration by interaction with oxidized phospholipids. *PNAS* 109:13757-13762.
 27. Fang RH, Chen KN, Aryal S, Hu CM, **Zhang K**, Zhang L. (2012). Large-scale synthesis of lipid-polymer hybrid nanoparticles using a multi-inlet vortex reactor. *Langmuir*. 39:13824-9.
 28. Zhao J, Sun W, Cho HM, Ouyang H, Li W, Lin Y, Do J, Zhang L, Ding S, Liu Y, Lu P, **Zhang K**. (2013). Integration and long distance axonal regeneration in CNS from transplanted primitive neural stem cells. *J Biol Chem*. 288(1):164-8.
 29. Hannum G, Guinney J, Zhao L, Zhang L, Hughes G, Sadda S, Klotzle B, Bibikova M, Fan JB, Gao Y, Deconde R, Chen M, Rajapakse I, Friend S, Ideker T, **Zhang K**. (2013). Genome-wide Methylation Profiles Reveal Quantitative Views of Human Aging Rates. *Mol Cell*, 49:359-67.
 30. Xue, Y-C., Ouyang, K., Huang, J., Zhou, Y., Ouyang, H., Li, H., Wang, G., Wu, Q., Wei, C., Bi, Y., Jiang, L., Cai, Z., Sun, H., **Zhang, K.**, Zhang, Y., Chen, J., and Fu, X-D. (2012) Direct conversion of fibroblasts to neurons by reprogramming PTB-regulated microRNA circuits. *Cell* 152:82-96.
 31. Du H, Sun X, Guma M, Luo J, Ouyang H, Zhang X, Zeng J, Quach J, Nguyen DH, Shaw PX, Karin M, Zhang K. (2013). JNK inhibition reduces apoptosis and neovascularization in a murine model of age-related macular degeneration. *Proc Natl Acad Sci U S A*. 110:2377-82.
 32. Hu CM, Fang RH, Luk BT, Chen KN, Carpenter C, Gao W, **Zhang K**, Zhang L. (2013). 'Marker-of-self' functionalization of nanoscale particles through a top-down cellular membrane coating approach. *Nanoscale*. 5(7):2664-8.
 33. X. Qu, W. Zhu, S. Huang, J. Y. Li, S. Chien, K. Zhang, S.C. Chen, (2013). Relative impact of uniaxial alignment vs. form-induced stress on differentiation of human adipose derived stem cells. *Biomaterials*, 11:9812-9818.
 34. Yu FX, Luo J, Mo JS, Liu G, Kim YC, Meng Z, Zhao L, Peyman G, Ouyang H, Jiang W, Zhao J, Chen X, Zhang L, Wang CY, Bastian BC, **Zhang K***, Guan KL*. (2014). Mutant Gq/11 promote uveal melanoma tumorigenesis by activating YAP. *Cancer Cell*. 25:822-30.
 35. Liao C, Yin, A, Peng CF, Fu F, Yang JX, Li R, Chen YY, Luo DH, Zhang YL, Ou YM, Li J, Wu J, Mai MQ, Hou R, Wu F, Luo H, Li DZ, Liu, HL, Zhang XZ, **Zhang K**. (2014). Noninvasive prenatal diagnosis of common aneuploidies by semiconductor sequencing, *PNAS*, 111:7415-20.
 36. Ouyang, H, Xue, Y, Lin, Y, Zhang, X, Xi, L, Patel, S, Gen Li, Jing Luo, Wei Jiang, Yang Y, Li, H, Zhang, M, Cai, G, Yeh, E, Pei, M, Cao, G, Zhang, L, Yu, B, Chen, S,

- Fu, XD, Liu, Y, **Zhang K.** (2014). WNT7A and PAX6 define corneal epithelium homeostasis and pathogenesis. *Nature* 511:358-61.
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