

XF LEI le
 N ggl N d dK a
 Sl g c g dQagl ac l b
 Rcafl j e
 D a j D a j dKcbgg c K a
 Sl g c g dQagl ac l b
 Rcafl j e
 Ck g i f l e k c b k
 Rcjc f l c
 M d g c
 K g g e b b c

M f f jk j e

Ecl c g a c g ecl c g a ck acjj l b g g j g c j j g ecl ac

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 S 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

DCJMU Slgc g dS f Qaf j dKcbggc QjJ ic g SR
Tg c cgl j gc c lbQ ec
PCQG CLR Hfl F ig Slgc g U gkc C cG g c jgk c
K Mffjk je
LRCP L Nc cgl Q J ic F g j cl c MKcbggc
K F bSlgc g Kcbggj Qaf j K GR Fc jf Qaglac lb
Rcafl je k ghec K Kcbggc
Nf F bSlgc g k ghec K Ecl c g
Q Qaf l Slgc g Qaf l fg g afckg

N c cl N d lbD a j dKcbggc K a Slgc g dQaglac lb
Rcafl je K a
Q dNf ggl Tc c l dl g Ql ge Fc jf Q ck
D jj d gf cl c Slgc g d jgl lg Ql ge
g l N d ag c N d gf cl c
Slgc g dS f c kcl dMffjk je Tg jQaglac
g l Q dl jc cj lb jggD lb gl jc C cG g c
G a Hfl F ig Slgc g U gkc C cG g c

A. Full Time Positions

gca gk c gj lbRg c Clegcc ge cl c G g c d
Clegcc ge g Kcbggc Slgc g d jgl lg Ql ge J Hj
D lbge gca G g cd Ecl k g Kcbggc Slgc g d
jgl lg Ql ge J Hj
ag c N d gf cl c Slgc g dS f c kcl d
Mffjk je lbTg jQaglac Hfl K l C c cl c QjJ ic
g SR
clbge Q dNf ggl Tc c l bkgg gl Kcbggj cl c
QjJ ic g SR
g l N d Slgc g dS f c kcl dMffjk je
lbTg jQaglac Hfl K l C c cl c QjJ ic g SR
g l dl jc cj lb jggD lb gl Jcl c Pcc af G g c
jc cj lb MF
G a Hfl F ig Slgc g Qaf j dKcbggc U gkc C c
G g c jgk c K

B. Editorial Experience

c cl a Cbg g fgd Qel jR l b a gl l bR ec cbRf c
c cl a Cbg g fgd N cag gl jg ga jKcbgag c
c cl ag c Cbg cl K jca j Kcbgag c
c cl Cbg gj b H l j d gj ega j fck g
c cl l jge Cbg H l j d jg ga jG c g g l
c cl ag cb Cbg g fgd fgd c c H l j d Pc g j g c c
fgdKcbga j Cbg M f f jk j e Lc l b U jb Pc fg
Cbggl aga j gl f f jk j eg g g

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
Pcđ cc d R cl b ġ Ecl c ġ
Referee for Trend in Molecular Medicine

N dXf lef ccl a l ġ cj d l bcb LĜ lb fc d lb ġ l d k

The Ophthalmologist U j b N c J ġ
Dcjj kc ġ l Ĝ ġ cd Kcbġ j lb ġ j eġ j Cl e ġ cc ġ e
Dcjj ag ġ l d kc ġ l Nf ġ ġ l
Dcjj kc ġ l ag ġ l d fc b lack cl dQa ġ l ac
kc ġ R M f f jk j e ġ l kc cc af lag d kc ġ
Qcl ġ Ĝ c ġ b Pc c af N c cl j ġ bl c
M lb ġ e af ġ ck cl b fg c c M f f jk j eġ j Q a ġ
ef U c jja kc D lb j ġ ġ j Q a ġ l ġ b ġ R l j ġ l j Pc c af
Jc P U c k l Kc ġ b Pc c af N c cl j ġ bl c
K a j Q a ġ kck c fg
kc ġ l Q a ġ d j ġ ġ j Ĝ c ġ ġ l kck c fg
K a j T ġ ġ l Pc c af b
P f Q c ġ af D lb d K a j cecl c ġ l
f jc Q a f c cl bd C ac j j cl ac ġ Pc ġ Pc c af
Hfl F i ġ Kcbġ j Ĝ ġ ġ l j ġ ġ ġ l Q a ġ l ġ b
Q i Pc c af b ġ M f f jk j e U ġ kc C c Ĝ ġ c Hfl F i ġ Sl ġ c ġ
ag ġ l dSl ġ c ġ N đ dM f f jk j e SNM Ĝ e j Pc ġ cl lb
Dcjj Pc c af D k ll c
Il ġ f Rck j C c D lb ġ l Pc c af b
K el k J bc F b Kcbġ j Q a f j
Pccb Q a f j K GR

c cl Pc g c Lc W i Q ck cjj N e k
 c cl Pc g c Kcbg j Pc c af l ag SI
 c cl Pc g c U c jja k c R Pc c af N e k SI
 c cl Pc g c Lc W i Q ck cjj N e k
 c cl Pc g c Ncl l Q ck cjj N e k
 c cl Pc g c f g c c a bck dQagl ac Q ceg Q ck cjj
 N e k
 2009-present Reviewer, Natural Science foundation of China
 2008-present Reviewer, ChangJiang Scholars Program, Ministry of Education,
 China
 2009-present 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 , 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 Reviwer, postdoctoral training grant, Research into Aging,
 UK
 2000 Ad Hoc Reviewer, Medical Research Service, Department of
 Veterans Affairs Administration

B. Professional Community Activities

e l g c L c l d c l a c l R g c C l e g c c g e l b
P c e l c g c K c b g g c E l e f f g

e l g c L c l d c l a c L a j c P c e k k g e l b
f c l a c E c l k c J H j j

e l g c L c l d c l a c C g e c l c g a d l a c l b
e g e c g g e f g

e l g c G c l g l j l e c d M a j c j j l b Q c k c j j
g j e

e l g c L c l d c l a c E c l k g a l b Q c k c j j c b
R f c g Q f g e f c D c d N c l j g c b K c b g g c
E l e f f g

e l g c L c l d c l a c E c l k g a R c a f l j e g l b
g k c g j d S l b c l b g e g c c Q l g e

e l g c G c l g l j K c d P c g

e l g c L c g a l Q k g k

e l g c L c f g Q k g k

c K c k c F b K c b g a j Q a f j c l b g l a g
D l b g e N c g b c l k c g a l f g c c a g g l d P c c a f
g T g g l l b M f f j k j e

c K c b g a j b g b E c l c l c a f

c K c b g a j b g b R f k e c l g a

c Q a g l g a b g b J g t D l b g l

c Q a g l g a b g b a a c j

c a e l g c G c l g l j K c d P c g

c N e k k k g c c l l j K c c g e d f g c c

M f f j k j e g a j Q a g

M e l g c f c Q a l b U j b U g b c f g c c M f f j k j e g

P c g Q k k g

e l g c L c S Q G g c d E c l k g a K c b g g c
Q k g k

M e l g c E c l c g a d g c g a P c g f U i f Q l
g e

P c g Q c a g j K b c M l l j K c c g e

M e l g c Q f l e f g G c l g l j M f f j k j e Q k g k

M e l g c E c l c g a d g c g a P c g f U i f Q j i

J i c g S R

M e l g c E c l c g a d g c g a P c g f U i f Q j i J i c
g S R

M e l g g e k k g c c k c k c G c l g l j D k d

T g c c g j g c c l b Q e c f g

Q a g l f g l g k j K b c j d e c P c j c b k a j

c e c l c g l N c P T M K c c g e l P c g j c e c l c g l

l b e c l c R f c D J

Me lgc Qf lef gG c l gl jM f f jk j e Q k g k
Me lgc Ql gbLc

Pc g Ml N a bck gJca c K a j f
E c jca c g cle g cc g e Qck g
Qc g E l b P l b Ec g g K j g N d t g l j Jca c
Qc g

E c jca c K jca j g d F k l g c c K K
E c jca c Ecl c g d ec Pc j cb g c c
N R F G M K

E c Jca c N R F

G a G f c g c b Ma j g bc Dc j j K c b g a j
Ecl c g c

G a K Q a c a g j k l g g c K c f b g
Ecl c g G M K

Qk j j e b g a g l j c b c Ecl c g g K c b g a j c
c a j g g a j a c a g j k Q a f j d K c b g a j c S Q
c g c a Ecl c g g K c b g a j c c a j g g a j a c
a g j k Q a f j d K c b g a j c S Q

c a c g c j j l b K jca j K c b g a j c g k c b g a j
Q a g l a c N f N e k S Q

c N f k a ecl k g a Q a f j d N f k a l b N f k a c g a j
Q a g l a c S Q

c P c g b c l Jca c Qc g Q f g c C c c l c S Q

c g c a g k l f j Q l g e a g g b c P c g j
D j c a c g l e g e k l d c l a c

c T g g g e N d t N c i g e S l g c g f g

c T g g g e N d t D b l S l g c g f g

c T g g g e N d t Q a f l a b c k d K c b g a j Q a g l a c f g
D l g g L c a g l a c N f N e k g L c a g l a c
S l g c g d S f Q j J i c g S R a l g g e j c a c
T g g g e N d t I g e l f j c b C c Q c a g j F g j P g f b
Q b g g

D a j P c c a f R g Jca c Qc g N f N e k g
K jca j g j e S l g c g d S f Q j J i c g S R
a l g g e j c a c

N c T g g g e N d t N c i g e S l g c g C c c l c N c i g e
S l g c g f g

N c T g g g e N d t Q a f l S l g c g f g

N c T g g g e N d t Q a f l a b c k d K c b g a j Q a g l a c l b
Q a f l N g a g j F g j f g

N c TgggeN d Xf leQf l M f f jk g a cl c Q l W c cl
 Slgc g fg
 gca Dj c acg lege k l d clac Hfl K l C c
 cl c Slgc g dS f Qj J ic g SR l g ge
 jca c
 E lbP lb Hfl K l C c cl c Slgc g dS f Qj
 J ic g SR l g gejca c
 M f f jk j e Pc gcl Jca c Jca c Qc g l fc
 Pc g Hfl K l C c cl c Slgc g dS f Qj J ic
 g SR l g gejca c
 E lbP lb O g d c gcl jc C c G g c jc c j lb
 jg g
 Rc afge g l g FKQK GR FQR Ecl c g a lbKcbg g c
 bcl K R lbc e b c lbe b c bcl
 F bKcbg jQ bcl

MPGEL JNS JG RMLQ

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, Dewan5(r 5*JE.Le,8h5HK 0 1 2512 79ttw2 Tfb1.75 Tm0r6tp-11(.Z)1

- 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***

- 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.

D V Jg W ULR lbN V bcdjca lc j
c gfcjgk f kc g lb f eclcg L c
H DlePF J i RF KE U Xf leJ
jc lac d f j e g j l g bg ge gk g c gal l gjc N a
L j a b QagS Q
fggi jP Kclbc RQP def QCl l g U c QQ bb QP
K a j f N ec gl lb W Tgg l M a kc g
Q lca D k fc L FMP K PL lbFMPGXML Q bg fcQCTCL SN
Q b k HM ff jk j
Xf J fcl VHxf HVgW Wle VF J M le FN cj QF H V
Jg U DDj ee I gF JgE E Jg W fcl Ucl fle
U le W Og Wf C U le U F VE Q e l P Q X Rh lb
F Xf VHJ F P gF P Nc HNE U I i GE lc JgW
Q l V U le HXf le J Jg WWl W lb J l c j
c c c cg ee ce gl ga a L c
F K DlePF U le I J i R Rf k fg l Q cf gg
Le cl N le l g j NUcl F I jj T cl c P kcf K O
T N cj Q Xf HF dk l DK fcl R E U fgl Q
JgledleXf le J L l gjc gg c d a g e g j c j c
kck lcaj i g e L c a a c lbge
f
Q l i l a i Xf J Xf HU cg c PL E J HDj ee I
N cj QUcl I K J F M le F Jg U le U JgE V W JgM
f le Wf CHd gK gK Xf le X QfgU Xf cle J I a i K fcl
Qfg Xg Xf HKcjj l N J E U e l P Xf le J Q l V Xf le Q
Xf WP cl d j b KE Jg W N QI S ce j gl
Kcbg cb QW cd c Pc g j E le j gl c j j N f eclc gg Ej a k
K jca j c j j

d k L FMP K PCL 1bFMPXML QCTCL SNQ b
M f f jk j e
Q igl R lci WFcl lbc clgc P U HXf HIgk CHF l i
DWk k K i R JgXI g K Fgf R JgK g CE Q
fcl QE c j Q jg jj P O Hg le RD VHd gK C c l P
c ee cl UR J h HL c c jg b CE gjcl N k g jHK
K igD Jg EF K eg c gN Xf le l jj CK lb
cjk l cHG G g ecl kccbgge g PCNP kcbg cb
f k j e gbc clbcl ec cbg ce gl L c
F VJ FI a iK UcgU U leU U leHDj eeI F HXf le
F WgQHd gK Jg f le efc JgE f QfgU Xfcl eJ
F P Xf HXf J D V Xf le C Xf le Xf H I g K V PF
L kcf j glk ic d bgel g lb el g d
a k k l a l a c N a L j a b QagSQ N a L j a b QagSQ

V PF UcgU I a iK U leU J F Dj eeI WgQ QfgU O l O Jg
I Xfcl eJ Xf leF efc Xf O F HXf leP V W gF JgE
F P Xf leX Jg D V Xf H l WWK Wge Xf leU U leH
Xf leC Xf le JgME P c F Xf H F V
gaj ge k L kcf j glk ic d bgel g lb el g
dfc acjj j a ag k L K cgj
Xf HKge D V l WF le P e bHXf leP U leU F P
Xf le Xf leC Xf le F V Vg leU Ecl c lb
k gl gbc clbcl fc g PCNP kcbg cbacjj j
c e kkg eg b f cac cjjPcc af
lck l Ejb kK gU T jcl gk QJgleF c QJ
Kalc l WleEU VWl D leHN bf KI NcgHRgeK Xf H
Jg Fc c Q leHXg GQfg Xf leP Xfcl eJ F P QfgU D V
l WF T Ucl Xf leC Xf le J JgMU leV Qdec K Ql V
V HRdcfg Jc gK Vg F Gbcl glgeKcbgaj
gel c lbRc jc gc c Gk ec cb cc Jc lge cjj
a c

JgleF R g WLgF T jcl gk Q c QJ JgE gU lck l Q
Ql V fcl HFcJ Xf HRgl N Qf F Xfcl eJ F P Fc c QJgE
JgleNXleV Xf leXNl J gF JgeP JgQ gWR leQ W F
F leVFcU JgleU Xf leO Hg leHWU E HM U cleWF O
U le W JgleWXf leQ l WXf leP Eg l QXf le J JgM

1. Chen Y, Bedell M, **Zhang K** (2010) Age-related macular degeneration: genetic and environmental factors of disease. *Mol Intervention*. 2010 Oct;10(5):271-81. Review.
2. **Zhang, K** and Ding S. (2011). Stem cells and eye development. *N Eng J Med*. 365:370-3.
3. **Zhang K**, Zhang L, and Weinreb, RN (2012). Ophthalmic drug discovery: novel targets and mechanisms. *Nature Review Drug Discovery* **11**, 541-559
4. Lu Y and Zhang K. (2018). Cellular Reprogramming in retina, seeing the light. *New Eng J of Med*. 378:1059-1060.
5. Xia, H., Li, X., Gao, W., Fu, X., Fang, FR., Zhang, L., and Zhang, K. (2018). Tissue repair and regeneration with endogenous stem cells. *Nature Review Materials*, 3:174-193
6. He, JX, Baxter, SL, Xu, J., Xu, JM, Zhou, JT, and Zhang, K. (2019). The Practical Implementation of Artificial Intelligence Technologies in Medicine. *Nature Medicine*, 25:30-36.