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### EDUCATION

- Sept 2004-June 2005: Faculty Leadership Program, the University of Oklahoma Health Sciences Center, USA.
- Oct. 1988-May 1994: Ph.D., Biology/Microbiology (Advisor: Dr. Leo C. Vining), Dalhousie University, Canada.
- Sept. 1978-July, 1982: B. Sc. Biochemistry, Fudan University, China.

### PROFESSIONAL EXPERIENCE

- July 2011-present: Associate Professor of Medicine and Adjunct Associate Professor of Cell Biology, Colleges of Medicine and Graduate, the University of Oklahoma Health Sciences Center, USA.
- Jan. 2007-June 2011: Assistant Professor of Medicine and Adjunct Assistant Professor of Cell Biology, the University of Oklahoma Health Sciences Center, USA.
- Sept. 2002- Dec. 2006: Principal Investigator, Dean A. McGee Eye Institute, USA.
- Sept. 2000- Dec. 2006: Research Assistant Professor, Department of Cell Biology, the University of Oklahoma Health Sciences Center, USA.
- Sept. 1998-Aug. 2000: Senior Research Scientist, Developmental Biology Program, Oklahoma Medical Research Foundation, USA.
- Sept. 1996-Aug. 1998: Visiting Fellow (Advisor: Dr. Brian Sauer), Laboratory of Biochemistry and Metabolisms, National Institute of Diabetes, Digestive and Kidney diseases//NIH, USA.
- June 1994-Aug. 1996: Postdoctoral Fellow (Advisor: Dr. Melanie J. Dobson), Biochemistry Department, Dalhousie University, Canada.
- Sept 1988-May 1994: Graduate Research and Teaching Assistant, Biology Department, Dalhousie University, Canada.
- Aug. 1982-Sept. 1988: Engineer and Group Leader of Biochemical Reagent, Dong Feng Biochemical Reagent Co., Shanghai Institute of Biochemistry, Chinese Academy of Sciences, Shanghai, China.

### Awards, Honors, Special Recognition

- 2010-present: Visiting Professor, School of Ophthalmology and Optometry, Wenzhou Medical College, China.
- 2009-present: Member, Arnold and Mabel Beckman Initiative for Macular Research.
- 2008-present: Visiting Professor, Department of Ophthalmology, Xiangya Hospital of Central South University, China.
- 2007: Award for Outstanding Contribution to Vision Research (*unsolicited*), Hope for Vision of Washington D.C.
- 2006: Young Investigator Travel Award, the XII International Symposium on Retinal Degeneration, 2006.
- 1998: NIH Fellows Award for Research Excellence, National Institutes of Health.
- 1996-1998: Visiting Fellowship, National Institutes of Health, National Institute of Diabetes, Digestive and Kidney Diseases.

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## PROFESSIONAL ACTIVITY

### Professional Memberships

- 2010–Present: International Society for Eye Research.  
2006-Present: American Diabetes Association.  
2001–Present: Association for Research in Vision and Ophthalmology.  
2004-2006: American Society for Biochemistry and Molecular Biology.  
2001-Present: American Association for the Advancement of Science.

### Service to Scientific Community

- 2009-present: Member, Imaging, Stem Cell, and Cell Biology Task Groups, Arnold and Mabel Beckman Initiative for Macular Research (on atrophic age-related macular degeneration).  
2007-present: Session Moderator and Co-Organizer: Annual Meeting of the Association for Research in Vision and Ophthalmology.  
2004-present: Cre-drive mouse line distributor to vision research community.  
2004-2007: Cre/*lox* plasmids distributor for NIH/NIDDK.

### Grant Review

- 2009: Ad Hoc Grant Reviewer, NIH Cell Biology Integrated Review Group.  
2006 – 2007: Ad Hoc Grant Reviewer, Presbyterian Health Foundation.  
2006 – 2007: Ad Hoc Grant Reviewer, OUHSC College of Medicine alumni association.

### Editorial Board

- 2011- present: *World Journal of Ophthalmology*

### Manuscript Review

- 2011-present: *Journal of Inflammation Research*  
2011-present: *J. Neuroinflammation*  
2010-present: *Experimental Eye Research*  
2011-present: *Experimental Diabetes Research*  
2010-present: *Investigative Ophthalmology & Visual Science*  
2010-present: *Journal of Ophthalmology*  
2010-present: *Journal of Visualized Experiments*  
2010-present: *Laboratory Investigation (Nature Group)*  
2010-present: *Letters in Drug Design & Discovery*  
2010-present: *Molecular and Cellular Biochemistry*  
2010-present: *Molecular Vision*  
2010-present: *Ophthalmic Research*  
2010-present: *PLoS One*  
2009-present: *Journal of Cellular and Molecular Medicine*  
2008-present: *Diabetes*  
2008-present: *Vision Research*

### Consultantships

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2007-present: Allergan Inc. Irvine, California. USA.

## RESEARCH GRANTS AND CONTRACT

### **Active**

R01 EY020900-01 **Le, Y.** (PI)

09/01/10-8/31/14

NIH/NEI

Study of RPE barrier

The major goal of this application is to develop new technology for imaging RPE barrier breakdown, to investigate the biology and pathophysiology of the RPE barrier in various disease models using the new imaging assay, and to examine biochemical pathways regulating RPE barrier functions.  
(31% effort)

ADA 1-10-BS-94 **Le, Y.** (PI)

1/1/10-12/31/12

American Diabetes Association

Diabetic complication in the eye

The goals of this project are to investigate the cellular mechanism of diabetic complication in the eye.  
(12% effort)

Health Research Award HR09-058 **Le, Y.** (PI)

7/1/09-6/30/12

Oklahoma Center for the Advancement of Science and Technology

Biology of Outer Blood-Retina Barrier

The major goal of this application is to investigate the role of the RPE-derived VEGF in retinal inflammation and neovascularization.  
(5% effort)

Invited Research Grant 1003 **Le, Y.** (PI: 5% effort)

11/01/10-10/31/12

Beckman Initiative for Macular Research

Mechanisms of atrophic AMD

The major goal of this project is to generate preliminary data for mechanistic study for geographic atrophy.  
(5% effort)

OU Foundation 50744 **Le, Y.** (PI)

1/1/2007-no end

Allergan Inc & Hope for Vision

Retinal degenerative diseases funds

The goal of these unrestricted grants is to provide discretionary spending for research in the field of retinal degenerative diseases.  
(0% effort)

P20RR024215 Ma J. (PI)

07/01/07-6/30/12

NIH/NCRR/COBRE

Mentoring diabetes research in Oklahoma

Pilot project title: Function of VEGF signaling in photoreceptors

The major goal of overall program is to mentor diabetes research in Oklahoma. The major goal of my project is to perform preliminary study on the role of VEGF signaling in photoreceptors in diabetes.  
Role: Pilot Project PI (15% effort)

R01 EY019494 Elliott, M. H. (PI)

12/01/09-11/30/14

NIH/NEI

Role of Caveolin-1 in the Maintenance of Blood-retinal Barrier Integrity

The major goal of this study is to establish the role of caveolin-1 in the maintenance of blood-retina barrier integrity under pathological conditions.  
Role: Co-investigator (3% effort)

R01 EY04149 Anderson, R. E. (PI)

7/1/09-6/30/14

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NIH/NEI  
Lipid Metabolism in the Retina  
The goals for this study are to investigate biochemistry, cell biology and function of the ELOVL4 in the retina.  
Role: Co-investigator (3% effort)

1R01EY019949-01A1 Sarah (Xin) Zhang (PI) 7/1/10-6/30/15  
NIH/NEI  
Title: ER stress and diabetic retinopathy  
The major goals of this project are to determine the role of ER stress and an ER stress response gene named X-box binding protein 1 in retinal inflammation and diabetic retinopathy.  
Role: Co-investigator (3% effort)

R01 EY019309 Ma, J. (PI) 03/01/09-02/28/12  
NIH/NEI  
A new pathogenic mechanism for diabetic retinopathy.  
The major goal is to establish the causative role of the Wnt pathway activation induced by diabetes in diabetic retinopathy.  
Role: Co-investigator (6% effort)

R01 EY00871 Anderson R. E. & Rajala R. (PIs) 12/1/07-11/30/11  
NIH/NEI  
Second Messengers in the Retina  
The major goals for this study are to investigate the role of second messengers in retinal cell survival.  
Role: Collaborator in the preparation of the application (0% effort)

**Completed**  
Research Award BR-CMM-0808-0453-UOK **Le, Y.** (PI) 8/1/08-7/31/11  
Foundation fighting blindness  
A mouse model of geographic atrophy  
The major goal is to characterize a mouse model that may have characteristics similar to that in geographic atrophy using a smoke-like oxidative stress.

Macular Degeneration Res Award M2008-059 **Le, Y.** (PI) 7/1/08-6/30/10  
American Health Assistance Foundation  
Post-developmental function of the RPE-produced VEGF  
The major goal is to investigate the role of the RPE-produced VEGF in photoreceptor survival under oxidative stress using a light damage model.

Invited Contract **Le, Y.** (PI) 01/01/10-2/28/11  
Allergan Inc.  
Function of alpha-2 agonists  
The major goal is to determine the function of alpha-2 agonists in the eye.

ADA Research Award 1-06-RA-76 **Le, Y.** (PI) 1/1/06-12/31/08  
American Diabetes Association  
Retinal Müller cells in neovascularization and diabetic retinopathy.  
The major goals of this project are to investigate the Müller cell derived VEGF in neovascularization and diabetic retinopathy

HR05-133 **Le, Y.** (PI) 8/1/05-7/31/08  
Oklahoma Center for the Advancement of Science and Technology  
Role of glucose transport in diabetic retinopathy  
The goal of this seed grant application is to explore the role of major glucose transporter, GLUT1, in diabetic retinopathy.

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R01 EY018659 Ma, J. (PI) 08/01/09-7/31/11  
NIH/NEI  
The wnt signaling pathway in choroidal neovascularization.  
The major goal is to establish the causative role of the Wnt pathway activation in choroidal neovascularization.  
Role: Co-investigator

P20 RR017703 Anderson R. E. (PI) 9/16/02-06/30/07  
NIH/NCRR/COBRE  
Mentoring vision research in Oklahoma  
The overall goal of the COBRE program is to mentor junior investigators in vision research for the establishment of independent research programs. The goals for the sub-project are to generate and characterize retinal cell-specific Cre transgenic mice and use tissue-specific gene knockout approach to investigate the role of the Bcl-X<sub>L</sub> in retinal cell survival.  
Role: Promising Junior Investigator or PI of Sub-project 4

Partnership Award 5-2005-1292 Ma. J., **Le, Y.** (Co-PIs) 1/01/06-12/31/06  
Juvenile Diabetes Research Foundation  
A mouse model of retinal Müller cell-specific VEGF knockout  
The major goals are to perform a preliminary study on the role of Müller cell-derived VEGF in retinal neovascularization and vascular leakage.

P20 RR017703-02S1 Anderson R.E. (PI) 9/1/03-06/30/04  
NIH/NCRR/COBRE  
Supplement for functional genomics core.  
The major goal of this project is to establish a functional genomics core.  
Role: Promising Junior Investigator or PI of Sub-project 4

HR01-083 **Le, Y.** (PI) 7/1/01-6/30/04  
Oklahoma Center for the Advancement of Science and Technology  
Generation of photoreceptor-specific Cre transgenic mice.  
The major goals of this project are: to generate and analyze transgenic mice expressing Cre recombinase in photoreceptor cells.

R01 EY016507 Rajala R. (PI) 8/1/06-6/30/10  
NIH/NEI  
Light Activation of Retinal Insulin Receptor Signaling  
The major goal of this project is to reveal the functional significance of the light activation of retinal insulin receptor signaling.  
Role: Co-investigator

R01 EY016459 Ash, J. D. (PI) 2/1/06-1/31/10  
NIH/NEI  
Cytokine Regulation of Photoreceptor Gene Expression.  
The major goals of this project are to investigate the role of gp130 in 1) normal differentiation of the retina, 2) retinal protection and function, and 3) PI3K/Akt pathway related neuroprotection.  
Role: Co-investigator

R01 EY04149 Anderson, R. E. (PI) 12/1/04-11/30/08  
NIH/NEI  
Lipid Metabolism in the Retina  
The major goals for this study are to investigate biochemistry, cell biology and function of the ELOVL4 in the retina.  
Role: Co-investigator

Second Messengers in the Retina

The major goals for this study are to investigate the role of the PI-3 kinase and its downstream targets in retinal cell survival.

Role: Co-investigator

## PUBLICATIONS

### Refereed journals

1. Xu H., Song Z., Fu S., Zhu M., \***Le Y.** (2012) RPE barrier breakdown in diabetic retinopathy: seeing is believing. *J. Ocular Biology, Diseases and Informatics* (DOI 10.1007/s12177-011-9068-4).
2. Zhu, M., Bai, Y., Zheng, L. \***Le, Y.** (2012) Presence of RPE-produced VEGF in a timely manner is critical to choroidal vascular development. *Adv Exp Med Biol.* 723:299-304.
3. Xu H., Liu J., Xiong S. **Le Y.**, Xia X. (2012) Suppression of Retinal Neovascularization by Lentivirus-Mediated Netrin-1 Small Hairpin RNA. *Ophthalmic Res* 47:163-169 (DOI:10.1159/000331428).
4. Keady B., **Le Y.**, Pazour, G (2011) IFT20 is required for opsin trafficking and photoreceptor outer segment development. *Mol. Bio. Cells* 22: 921-30. PMC3069017.
5. \***Le Y.** (2011) Conditional gene targeting: dissecting the cellular mechanisms of retinal degenerations. *J. Ophthalmol.* (doi:10.1155/2011/806783). PMC3021885.
6. Lin M., Chen Y., Jin J., Hu Y., Zhou K., Zhu, M., **Le Y.**, Ge J., Ma J.X. (2011) The role of retinal Müller cell-derived hypoxia-inducible factor-1 in retinal inflammation and neovascularization in diabetic retinopathy. *Diabetologia* 54:1554-66.
7. \*Kusari J. (co-corresponding author), Padillo E.U., Zhou S., Ni M., Lalwani K., Bai Y. Wang J., Zhu M. \***Le Y.** (co-corresponding author), Gil D.W. (2011) Effect of Brimonidine on Retinal and Choroidal Neovascularization in Animal Models of Age-Related Macular Degeneration and Retinopathy of Prematurity. *Invest. Ophthalmol. Vis. Sci.* 52:5424-31.
8. Xu H., \***Le Y.** Visualizing diabetes- and ischemia-induced breakdown of outer blood-retina barrier (2011) *Invest. Ophthalmol. Vis. Sci.* 52:2160-4. PMC3080181.
9. Zhong Y., Li J. Wang, J.J., Chen C., Mandal N.A. **Le Y.**, Anderson R.E., Zhang S.X. (2011) Deficiency of X-box binding protein 1 induces oxidative damage of the RPE: implications in age-related retinal degeneration. *Human Mol. Genetics* (submitted).
10. Lin M., Hu Y., Chen Y., Zhou K., Jin J., Zhu, M., **Le Y.**, Ge J., Ma J.X. (2011) Knockout of Hypoxia-inducible Factor-1 in the Retinal Pigment Epithelium (RPE) and its Impact on Choroidal Neovascularization. *Amer. J. Pathol.* (submitted).
11. Ivanovic I., Anderson R.E., **Le Y.**, Fliesler S., Sherry D., Rajala R. (2011) Deletion of the p85 $\alpha$  Regulatory Subunit of Phosphoinositide 3-Kinase in Cone Photoreceptor Cells Results in Cone Photoreceptor Degeneration. *Invest. Ophthalmol. Vis. Sci.* 52:3775-83.
12. Lange C., Heynen S., Tanimoto, N., **Le Y.**, Meneau I., Seeliger M.W., Samardzija M., Grimm C. (2011) Normoxic activation of hypoxia inducible factors in photoreceptors provides transient protection against light induced retinal degeneration *Invest. Ophthalmol. Vis. Sci.* 52:5872-80.
13. Ivanovic I., Rajala A., Gupta V., Dighe R., **Le Y.**, Anderson R.E., Rajala R. (2011) Phosphoinositide 3-Kinase Signaling in Retinal Rod Photoreceptors. *Invest. Ophthalmol. Vis. Sci.* 52:6355-62.
14. Liu J., Xia X., Xiong S. **Le Y.**, Xu H. (2011) Intravitreal high expression level of netrin-1 in patients with proliferative diabetic retinopathy. *Eye Science (Yan Ke Xue Bao)* 26 (2):35-42.
15. \***Le Y.** (2010) Computer-assisted semi-quantitative analysis of choroidal density. *Adv Exp Med Biol.* 664:349-53. PMID: 20238035
16. Wang J., Xu X., Elliott M.H. \***Le Y.** (2010) Müller cell-derived VEGF is essential for diabetes-induced retinal inflammation and vascular leakage. *Diabetes* 59: 2297-2305. PMID: 20530741, PMC2927953.
17. \***Le, Y.** Bai, Y., Zhu, M. and Zheng, L. (2010) Temporal requirement of RPE-derived VEGF in the formation of choroidal vasculature. *J. Neurochem.* 112: 1584–1592. PMID: 20067573;

18. Zhu M., Zheng L., Ueki Y., Ash J.D., \***Le Y.** (2010) Unexpected transcriptional activity of the human *VMD2* promoter in retinal development. *Adv Exp Med Biol.* **664**: 211-216. PMID: 20238019
19. Bai Y., Ma J., Guo J., Wang J., Zhu M., Chen Y., \***Le Y.** (2009) Müller cell-derived VEGF is a significant contributor to retinal neovascularization (cover article). *J. Pathol.* **219**:446-454. PMID: 19768732
20. Ueki Y., **Le Y.**, Chollangi S., Müller, W., Ash J.D., (2009) Preconditioning-induced protection of photoreceptors requires cell autonomous activation of the signal-transducing receptor gp130. *Proc Natl. Acad. Sci. USA* **106**: 21389–21394. PMID: 19948961; PMC2785722.
21. Avasthi P., Watt C., Williams D., **Le Y.**, Li S., Chen C., Frederick J., Baehr, W. (2009) Heterotrimeric Kinesin-II Mediates Trafficking of Membrane Proteins to Cone, but not Rod Outer Segments. *J. Neurosci* **29**:14287–14298. PMID: 19906976; PMC2788486.
22. Haruta M., Bush R.A., Kjellstrom, S., **Le Y.**, Camasamudram V., Sieving P.A. (2009) Depleting Rac1 component of NADPH oxidase in mouse photoreceptors protects from photo-oxidative stress without affecting rod structure. *Proc Natl. Acad. Sci. USA.* **106**:9397-9402. PMID: 19470639; PMC2685247.
23. Ueki Y., Ash J.D., Zhu M., Zheng, L., \***Le Y.** (2009) Expression of Cre recombinase in the retinal Müller cells (cover article). *Vis. Res.* **49**: 615–621 (doi:10.1016/j.visres.2009.01.012). PMID: 19948109; PMC2787478.
24. Li F., Wicker L.D., Brush R.S., Elliott M.H., **Le Y.**, Henry K.A., Anderson A.G., Zhao C., Sun X., Zhang. K., Anderson R.E. DHA does not protect ELOVL4 transgenic mice from retinal degeneration (2009) *Mol. Vis.* **15**:1185-1193 <http://www.molvis.org/molvis/v15/a126>. PMID: 19536303; PMC2697457.
25. Thiersch M., Lange C., Joly S., Heynen S., **Le Y.**, Samardzija, M. Grimm C. (2009) Retinal neuroprotection by hypoxic preconditioning is independent of HIF-1 $\alpha$  expression in photoreceptors. *European J. Neurosci* **29**: 2291–2302. PMID: 19508692
26. \***Le Y.**, Zheng W., Rao P., Zheng L., Anderson R.E., Esumi N., Zack, J.D., Zhu M., (2008) Inducible expression of Cre recombinase in the RPE. *Invest Ophthalmol Vis Sci.* **49**: 1248-1253. PMID: 18326755; PMC2711689.
27. Rajala A., Tanito M, **Le Y.**, Kahn. R. C., Rajala, R.V. (2008) Loss of neuroprotective survival signal in mice lacking insulin receptor gene in rod photoreceptor cells. *J. Biol Chem* **283**:19781-92. PMID: 18480052; PMC2443670.
28. Zheng L., Anderson R.E., Agbaga M., Rucker III E.B., \***Le Y.** (2006) Loss of BCL-X<sub>L</sub>; increased rod photoreceptor susceptibility to bright light damage. *Invest Ophthalmol Vis Sci.* **47**: 5583-5589. PMID: 17122152.
29. \***Le Y.**, Zheng L., Zheng, W., Ash, J.D., and Anderson, R. E. (2006) Mouse opsin promoter controlled expression of Cre recombinase in transgenic mice, *Mol Vis* **12**: 389-398. PMID: 16636658.
30. \***Le Y.**, Ash, J.D., Al-Ubaidi, M.R., Chen, Y., Ma, J., and Anderson, R. E. (2004) Targeted expression of Cre recombinase to cone photoreceptors in transgenic mice *Mol Vis* **10**:1011-1018. PMID: 15635292.
31. **Le Y.**, Gagneten, S., Larson, T., Santha, E., Dobi, A., Agoston, D. and Sauer B. (2003) Far-upstream elements are dispensable for tissue-specific proenkephalin expression using a Cre-mediated knock-in strategy. *J. Neurochem.* **84**: 689-697. PMID: 12562513
32. **Le, Y.**, Miller, J. and Sauer, B. (1999). GFP $\text{cre}$  Fusion Vectors with Enhanced Expression. *Anal. Biochem.*, **270**:334-336. PMID: 10334853.
33. **Le, Y.**, Gagneten, S., Tombaccini, D., Betheke, B. and Sauer, B. (1999). Nuclear targeting determinants in the Cre recombinase of phage P1. *Nucleic Acids Res.*, **27**:4703-4709. PMID: 10572169.
34. Chute, I., **Le, Y.**, Ashley, T. and Dobson, M.J. (1997) The telomere-associated DNA from the short arm of human chromosome 20 contains a pseudotelomere structure and shares sequences with the

- 
- subtelomeric regions of 4q and 18p. *Genomics*, **46**, 51-60. PMID: 9403058
35. Gagneten, S., **Le Y.**, Miller, J. and Sauer, B. (1997) Brief expression of a GFP $\text{cre}$  fusion gene in embryonic stem cells allows rapid retrieval of site-specific genomic deletions (cover-article). *Nucleic Acids Res.*, **25**, 3326-3331. PMID: 9241248
  36. **Le, Y.** and Dobson, M.J. (1997) Stabilization's of yeast artificial chromosome clones in a *rad54* recombination-deficient host strain. *Nucleic Acid Res.* **25**, 1248-1253. PMID: 9092636
  37. **Le, Y.**, Smith, K.C., Vining, L.C. and White, R.L. (1996) Mutants of *Streptomyces akiyoshiensis* blocked in 5-hydroxy-4-oxonorvaline production. *J. Antibiot.*, **49**, 107-109. PMID: 8936306
  38. **Le, Y.**, He, J. and Vining, L.C. (1996) *Streptomyces akiyoshiensis* differs from other Gram-positive bacteria in the organization of a core biosynthetic pathway gene for aspartate family amino acids. *Microbiol.* **142**, 791-798. PMID: 8609075.
  39. Smith, K.C., White, R.L. **Le Y.**, Vining, L.C. (1995) Isolation of N-acetyl-3,4-dihydroxy-L-phenylalanine from *Streptomyces akiyoshiensis*. *J. Nat. Prod.* **58**, 1274-1277.
  40. \***Le Y.** (1994) Biosynthesis of 5-hydroxy-4-oxonorvaline. *Ph.D. Thesis*, Dalhousie University, Canada.
  41. \***Le, Y.**, Zhu. S. (1988) Purification of restriction endonuclease MspI. *Huaxue Shiji* **10**, (1) 35-37.
- \*: **Le Y** as corresponding author.

### Reviews

1. **Le, Y.** and Sauer, B. (2001) Conditional gene knockout using Cre recombinase. In *Mol Biotechnol.* Humana Press, Totowa, NJ. **17**(3):269-75. PMID: 11434315.
2. **Le Y.** and Sauer, B. (2000) Conditional gene knockout using Cre recombinase. In *Methods in Molecular Biology: Protocol in Developmental Biology*, Tuan R.S. and Lo C.W. eds. Humana Press, Totowa, NJ. **136**: II, 477-485. PMID: 10840735.

### Books and Book Chapters

1. Ueki Y., Chollangi S., **Le Y.**, Ash J.D. (2010) gp130 Activation in Müller Cells is not Essential for Photoreceptor Protection from Light Damage. In *Retinal Degenerations: Mechanisms and Experimental Therapy*. Anderson, R.E. et al. eds. Kluwer Academic/Plenum Publishers (New York): pp 655-661. PMID: 20238070
2. \***Le Y.**, Zheng L., Le, Y. Rucker III E.B., Anderson R.E. (2008) Role of BCL-X<sub>L</sub> in rod and cone photoreceptor survival. In *Retinal Degenerations: Mechanisms and Experimental Therapy*. LaVeil. M.M. et al. eds. Kluwer Academic/Plenum Publishers (New York): pp 69-74. PMID: 18188930.
3. \***Le Y.**, Ash, J.D., Al-Ubaidi, M.R., Chen, Y., Ma, J., and Anderson, R. E. (2006) Conditional knockout system in photoreceptor cells. In *Retinal Degenerations: Mechanisms and Experimental Therapy*. Hollyfield J. G. et al eds. Kluwer Academic/Plenum Publishers (New York): pp 173-178. PMID: 17249572

\*: **Le Y.** as corresponding author.

### Non-authored publications

1. Clark N.A. (2011) Yun-Zheng Le, Ph.D.: Challenging the outcomes of diabetic retinopathy, *Forefront, American Diabetes Association Semi-annual Magazine* 8 (1):21-22.
2. Koury C.B. (2007) Genetic system offer option for studying the role of retinal Müller cells-Cover-story-editorial on **Y. Le's** research. *Retina Today I* (Sept/Oct):31.

### National and International Meetings/Abstracts

1. **Le Y.**, Fu S. Zhu M. Abnormal interaction between RPE and choriocapillaris causes age-dependent photoreceptor degeneration: implication in dry-AMD (Invited Platform Presentation) Annual Foundation Fighting Blindness Center Meeting, October, 14-15, 2011, Houston, Texas, USA.

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2. **Le Y.**, Liu Y.; Zhu M.; Hui X: Significance of Diabetes-induced Outer Blood-retina Breakdown and its Relevance to Diabetic Macular Edema, 71st Scientific Session of America Diabetes Association, June 24-28, 2011. San Diego, California, USA.
  3. **Le Y.**, Liu Y.; Zhu M.; Hui X: Imaging Diabetes-induced Outer Blood-retina Breakdown: Implications in Diagnosis and Treatment of Diabetic Macular Edema. (Moderator) Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2011, Ft. Lauderdale, Florida, USA.
  4. Soojung S., **Le Y.**, Conners M.S., Jones K.D., Hauswirth W., Lewin A., Generation of Early AMD Mouse Model by Induction of Oxidative Stress. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2011, Ft. Lauderdale, Florida, USA.
  5. Barabas P., Liu A., Xing W., Tong Z., **Le Y.**, Anderson R.E., Zhang K., Bernstein P.S., Krizaj D.: Conditional Ablation of Retinal Elovl4 Reveals a Key Role in Synthesis of VLC-PUFAs and Photoreceptor Light Responses. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2011, Ft. Lauderdale, Florida, USA.
  6. Li, J., Zhong Y., Wang, J.J., **Le Y.** Mandal N.A. Zhang S.X.: Loss Of Xbp1 In The Aging RPE Reduces Autophagy And Exacerbates RPE Cell Death: A Novel Mechanism For Age-related Macular Degeneration (*platform presentation*). Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2011, Ft. Lauderdale, Florida, USA.
  7. **Le Y.**, Liu Y.; Zhu M.; Hui X.: Visualizing and Quantifying Outer Blood-Retina Barrier Breakdown: Implications in Finding a Cure for Macular Edema. 10th Scientific Meeting of Association for Ocular Pharmacology and Therapeutics (*platform presentation*). February 17-20, 2011, Fort Worth, Texas, USA.
  8. **Le Y.**, Zheng L., Bai Y., Zhu, M.: Mechanisms of atrophic AMD. 3<sup>rd</sup> Annual Conference of Arnold and Mabel Beckman Initiative for Macular Research, January 20-22, 2011, Irving, California, USA
  9. **Le Y.**, Hui X.: Visualizing Outer Blood-Retina Barrier Breakdown Under Pathological Conditions. XIX Biennial Meeting of the International Society for Eye Research (*platform presentation*), July 18-23, 2010. Montreal, QC, Canada.
  10. **Le Y.**, Hui X.: Pathophysiology Of Outer Blood-Retina Barrier Breakdown. XIX Biennial Meeting of the International Society for Eye Research, July 18-23. 2010, Montreal, QC, Canada.
  11. Zhang S.X., Zhong Y., Li, J., **Le Y.** Wang, J.J.: Transcriptional Regulation of Anti-Oxidant Genes in the RPE. XIV International Symposium on Retinal Degeneration (*platform presentation*) July 13-17, 2010 Mont Tremblant, QC, Canada.
  12. **Le Y.**, Zheng L. Bai Y., Zhu M.: Choroidal circulation and geographic atrophy. XIV International Symposium on Retinal Degeneration. July 13-17, 2010, Mont Tremblant, QC, Canada.
  13. Gibson S., Lewin A., Liu, J, **Le Y.**, Hauswirth W.: Generation of mouse model of atrophic retinal degeneration by induction of oxidative stress. XIV International Symposium on Retinal Degeneration (*platform presentation*). July 13-17, 2010, Mont Tremblant, QC, Canada.
  14. **Le Y.**, Wang, J., Xu H.: Pathophysiology Of Outer Blood-Retina Barrier Breakdown (Session Moderator). Annual Meeting of the Association for Research in Vision and Ophthalmology, May 2-6, 2010, Ft. Lauderdale, Florida, USA.
  15. Zhong Y., Li J., Wang J. **Le Y.**, Zhang S.: X-Box Binding Protein 1 is a Novel Regulator of Anti-Oxidant Genes in the RPE. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 2-6, 2010, Ft. Lauderdale, Florida, USA.
  16. Barabas P., Huang W., Xing W., Rao A., **Le Y.**, Chen C.-K.J., Krizaj D.: Store-Operated Calcium Entry Sustains Increased Calcium Level in Photoreceptor Cells and Affects Vision in the Mouse. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 2-6, 2010, Ft. Lauderdale, Florida, USA.
  17. Lin M., Chen Y., Jin J., Hu Y., Zhou K., Zhu M., **Le Y.**, Ma J.-X.: The Role of Müller Cell-Derived Hypoxia-Inducible Factor (HIF)-1 on Retinal Neovascularization. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 2-6, 2010, Ft. Lauderdale, Florida, USA.

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18. Xu H. **Le Y.**: Cellular Mechanism and Treatment of Outer Blood-Retina Barrier Breakdown in Uveitis (Platform Presentation). Annual Meeting of the Association for Research in Vision and Ophthalmology, May 2-6, 2010, Ft. Lauderdale, Florida, USA.
  19. Lewin A., Gibson S., Liu, J., Hauswirth W., **Le Y.**: Generation of a Mouse Model of Early AMD by Induction of Oxidative Stress. May 2-6, 2010, Ft. Lauderdale, Florida, USA.
  20. Baehr W., Watt C.B., Williams D.S., **Le Y.**, Li S., Chen C-K., Frederick J.M., Avasthi P.: Heterotrimeric Kinesin-2 is Required for Trafficking of Membrane Proteins to Cone, but Not Rod, Outer Segments. FASEB summer research meeting, June 14-19, 2009. Snowmass, Colorado, USA.
  21. Ueki Y., **Le Y.**, Wang, J., Chucair-Elliott, A., Ash, J.D.: Photoreceptor-specific knockouts of either gp130 or STAT3 accelerate inherited retinal degeneration: implication for chronic stress-induced neuroprotection. FASEB summer research meeting, June 14-19, 2009. Snowmass, Colorado, USA.
  22. Guo J., **Le Y.**: Role of BCL-XL in Photoreceptor Survival Under Diabetes and Hypoxic Stress. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  23. Thiersch M., Lange C., Joly S., **Le Y.**, Heynen S., Samardzija M., Grimm, C.: Hypoxia-Inducible-Factor 1 $\alpha$  Ablation in a Model of Retinal Neuroprotection by Hypoxic Preconditioning. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  24. Ueki Y., **Le Y.**, Ash, J.D.: Activation of the Signal-Transducing Receptor gp130 in Photoreceptors Is Essential for Endogenous Protection From Retinal Degeneration. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  25. Seo S., **Le Y.** Hauswirth W., Lewin A.: Early AMD Mouse Model by Reduction of MnSOD2 Using the Cre-LoxP Recombination System. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  26. Baehr W., Watt C.B., Williams D.S., **Le Y.**, Li S., Chen C-K., Frederick J.M., Avasthi P.: Heterotrimeric Kinesin-2 is Required for Trafficking of Membrane Proteins to Cone, but Not Rod, Outer Segments. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  27. Wang, J., **Le Y.**: The Role of the Müller Cell-Produced VEGF in Inflammatory Response During the Pathogenesis of Diabetic Retinopathy. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  28. Rajala R.V., Tanito M., **Le Y.**, Allen D.T., Kahn R.C., Neel B.G., Rajala A.: Insulin Receptor Survival Signaling in Rod Photoreceptors Is Regulated Through Rhodopsin-Controlled Protein Tyrosine Phosphatase 1B Activity. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  29. Ivanovic I., **Le Y.** Anderson, R.E., Rajala R.V.: Deletion of the p85 Regulatory Subunit of Phosphoinositide 3-Kinase in Cone Photoreceptor Cells Results in Cone Photoreceptor Degeneration. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  30. Bai Y., Ma J.-X., **Le Y.**: The Role of Retinal Müller Cell-Produced VEGF in Ischemia Induced Vascular Leakage. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  31. **Le Y.**, Guo J., Zhu M.: Genetic Disruption of Müller Cell-Produced VEGF Does Not Affect Retinal Development and Integrity: Implication in Anti-VEGF Therapeutics. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2009, Ft. Lauderdale, Florida, USA.
  32. **Le Y.**, Guo J., Wang J., Zhu, M.: Dissecting The Role Of Müller Cell-Produced VEGF In Diabetic Retinopathy. 69<sup>th</sup> Scientific Session of America Diabetes Association, June 5-9, 2009. New Orleans, Louisiana, USA.

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33. Zhu M., Zheng L., Ueki Y., Ash J.D., **Le Y.**: Expression of Cre recombinase in the retinal Müller cells. XIII International Symposium on Retinal Degeneration, September 18-23, 2008, Ermeishan, China.
  34. Ash J.D., Chollangi S. **Le Y.**, Ueki Y., Wang J.: The AKT Pathway is Required for Neuroprotection in the Retina from Acute Injury While the gp130/STAT3 Pathway is Required for Protection from Chronic Stress. XIII International Symposium on Retinal Degeneration, September 18-23, 2008, Ermeishan, China.
  35. Baehr W., **Le Y.**, Williams D., Frederick J., Avasthi P.: Kinesin-II Regulates Intraflagellar Transport of Membrane-associated Proteins to the Cone Photoreceptor Outer Segments. XIII International Symposium on Retinal Degeneration, September 18-23, 2008, Ermeishan, China.
  36. Ueki Y., Chollangi S. Wang J. **Le Y.**, Ash J.D.: Signal-transducing Receptor gp130 is Essential for Endogenous Protection of Photoreceptors from Light Damage. XIII International Symposium on Retinal Degeneration, September 18-23, 2008, Ermeishan, China.
  37. **Le Y.**, Zheng L., Bai Y., Zhu, M.: Age-dependent photoreceptor degeneration caused by the loss of the RPE-produced VEGF. XIII International Symposium on Retinal Degeneration, September 18-23, 2008, Ermeishan, China.
  38. **Le Y.**, Zhu M, Bai Y.: Retinal Pigment Epithelium in Diabetic retinopathy. 68<sup>th</sup> Scientific Session of America Diabetes Association, June 6-10, 2008. San Francisco, California, USA.
  39. Ash J.D., Ueki Y., **Le Y.**, Chollangi S.: Evidence That Leukemia Inhibitory Factor (LIF) Protects Photoreceptors From Light Damage Independent Of Müller Cell Activation By LIF. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  40. **Le Y.**, Bai Y., Zhu M.: Relationship Between the RPE-Produced VEGF and the Outer Blood-Retina Barrier Function. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  41. Avasthi P., **Le Y.**, Williams D., Frederick J., Baehr W.: Kinesin-II Regulates Transport of Membrane-Associated Proteins to the Cone Photoreceptor Outer Segments. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  42. Bai Y., Zhu M., **Le Y.**: Temporal Requirement of the RPE-Produced VEGF in Choroidal Development. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  43. Rajala R., Rajala A., **Le Y.**, Neel B. G. Tanito M: Enhanced Insulin Receptor Activated Neuroprotective Survival Signal in Mice Lacking the Protein Tyrosine Phosphatase-1B Gene in Rod Photoreceptor Cells. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 26-May 1, 2008, Ft. Lauderdale, Florida, USA.
  44. **Le Y.**: Function of the retinal Müller cell-produced VEGF in diabetic retinopathy. ARVO 2007 Summer Eye Research Conference, July 15-18, 2007, Warwick, Rhode Island, USA.
  45. **Le Y.**, Ma J., Zheng, W. Chen Y., Gerber. H.P., Ferrara N., and Zhu, M.: Role of the retinal Müller cells in retinal neovascularization. 67<sup>th</sup> Scientific Session of America Diabetes Association, June 22-26, 2007. Chicago, Illinois, USA.
  46. **Le Y.**: Contribution of the RPE to the bright light induced photoreceptor damages. FASEB summer research meeting, June 16-21, 2007. Snowmass, Colorado, USA.
  47. **Le Y.**, Ma J., Zheng, W. Chen Y., Gerber. H.P., Ferrara N., and Zhu, M: Role of the retinal Müller cells in retinal neovascularization (*platform presentation*). Annual Meeting of the Association for Research in Vision and Ophthalmology, May 5-10, 2007, Ft. Lauderdale, Florida, USA.
  48. Rajala R., **Le Y.**, Lee Y., Rajala A., Kahn R., and Tanito M: Photoreceptor Specific Deletion of Insulin Receptor Results in Light-Induced Retinal Degeneration. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 5-10, 2007, Ft. Lauderdale, Florida, USA.
  49. **Le Y.**: Temporal and spatial gene activation and inactivation in the retina using Cre/lox strategies. Cre-driver Lines for Use in the Tissue-Specific Deletion of Genes in Multiple Ocular Tissues (*invited*

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- as a platform presenter and moderator) - Special Interest Group. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 5-10, 2007, Ft. Lauderdale, Florida, USA.
50. **Le Y.**, Zheng L., Anderson R.E., Agbaga M., Rucker III E.B., Le, Y., Zhu, M.: Role of anti-apoptotic protein BCL-X<sub>L</sub> in photoreceptor survival (*invited as platform presentation*), 2<sup>nd</sup> Shanghai International Conference on Physiological Biophysics-Audition & Vision, November 3-7, 2006, Shanghai, China.
  51. **Le Y.**, Ma J., Zheng L., Zheng, W. Chen Y., Gerber. H.P., Ferrara N., Zhu, M.: Role of the RPE-produced VEGF In choriocapillaris integrity. XII International Symposium on Retinal Degeneration (*platform presentation*), October 23-28, 2006, San Carlos de Bariloche, Argentina.
  52. **Le Y.**, Zheng L., Agbaga M., Rucker III E.B., Anderson R.E.: Loss of BCL-X<sub>L</sub> causes increased rod photoreceptor susceptibility to bright light damage. XII International Symposium on Retinal Degeneration, October 23-28, 2006, San Carlos de Bariloche, Argentina.
  53. Zheng L., Anderson R.E., Agbaga M., Rucker III E.B., **Le Y.**: Loss of BCL-X<sub>L</sub> causes increased rod photoreceptor susceptibility to bright light damage. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 30-May 4, 2006, Ft. Lauderdale, Florida, USA.
  54. **Le Y.**, Zheng L., Zheng, W. Chen Y., Gerber. H.P., Ferrara N., Ma J.: Function of the RPE-produced VEGF in the outer blood retina barrier. Annual Meeting of the Association for Research in Vision and Ophthalmology, April 30-May 4, 2006, Ft. Lauderdale, Florida, USA.
  55. **Le Y.**, Rao P., Zheng L., Chen Y., Zheng L., Gerber. H.P., Ferrara N., Anderson R.E., Esumi N., Zack D.J., Ma J.: Inducible RPE-specific gene knockout and its application in gene function analysis. FASEB summer research meeting. June 18-23, 2005. Tucson, Arizona, USA.
  56. Zheng L., Rao P., Zheng W., **Le Y.**: Glucose transport in the retina. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2005, Ft. Lauderdale, Florida, USA.
  57. **Le Y.**, Rao P., Zheng L., Zheng W. Ash J.D., Esumi N., Zack J.D., Anderson R. E.: Inducible gene knockout system in the retinal pigmented epithelium. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 1-5, 2005, Ft. Lauderdale, Florida, USA.
  58. Zheng L., Rao P., Zheng W., Anderson R. E., **Le Y.**: Bcl-xl is involved in neuro-protection in the retina. April 1-2, 2005. Foundation Fight for Blindness, Southwest Regional Meeting, Dallas, Texas, USA.
  59. **Le Y.**, Ash J.D., Al-Ubaidi M.R., Chen Y., Ma J., Anderson R. E.: Conditional knockout system cone photoreceptor cells. XIth International Symposium on Retinal Degeneration, August 23 - 28, 2004, Perth, Western Australia.
  60. **Le Y.**, Ash J.D., Al-Ubaidi M., Anderson, R.E.: Conditional knockout system in cone photoreceptor cells. Annual Meeting of the Association for Research in Vision and Ophthalmology. April 25-29, 2004, Ft. Lauderdale, Florida, USA.
  61. **Le Y.**, Kontas C., Agbaga M. Ash J.D., LaVail M.M., Anderson R.E.: Conditional Knockout Systems in Retinal Cells. FASEB summer research meeting. June 21-26, 2003. Tucson, Arizona, USA.
  62. **Le Y.**, Kontas C., Agbaga M. Ash J.D., Anderson R.E.: Generation and characterization of photoreceptor-specific Cre transgenic mice. Annual Meeting of the Association for Research in Vision and Ophthalmology. May 4-9, 2003, Ft. Lauderdale, Florida, USA.
  63. **Le Y.** Conditional gene expression in the retina. March 28-29, 2003, Foundation Fight for Blindness Southwest Regional Meeting, Houston, Texas, USA.
  64. **Le Y.**, Agbaga M, Anderson, RE. Molecular cloning and expression of a phosphatidylinositol phosphate kinase from rat retina. Annual Meeting of Association for Research in Vision and Ophthalmology. May 2002, Fort Lauderdale, Florida, USA.
  65. **Le Y.** Cell-type specific knockout system in retina. April, 2002, Foundation Fight for Blindness Southwest Regional Meeting, Oklahoma City, Oklahoma, USA.
  66. **Le Y.**, Gagneten S., D. Agoston D., Larson T., Sauer B: Expression of proenkephalin-*lacZ* fusion gene in transgenic mice generated with a Cre-mediated knock-in strategy. IX International Symposium on Retinal Degeneration, October, 2000, Durango, Colorado, USA.

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67. **Le Y.**, Gagneten S., Larson T., Sauer B.: **(invited)**: Nuclear target determinants of Cre DNA recombinase and the use of Cre-*loxP* system in manipulating mouse genome. The Second International Cao Tian-Qin Memorial Symposium on Protein Research, June, 2000, Shanghai, China.
  68. Soukharev S. **Le Y.**, Sauer B: High frequency genomic targeting in ES cells by Cre recombinase. Conditional Genetic Technologies in the Mouse, First Cold Spring Harbor Workshop on Emerging Technologies for Cancer Research. September, 1998, Cold Spring Harbor, New York, USA.
  69. **Le Y.**, Agoston D., Gagneten S., Larson T. Sauer B.: Functional dissection of the proenkephalin promoter in the mouse using Cre-mediated targeting. Mouse Molecular Genetics Meeting, September 1998, Cold Spring Harbor, New York, USA.
  70. **Le Y.**, Gagneten S. Larson T., Miller J, Sauer B.: Use of GFP<sup>cre</sup> fusion gene for FACS sorting of DNA "pop-outs" in ES cells and for tracing Cre expression in transgenic mice. NIH Research Festival, October, 1997, Bethesda, Maryland, USA.
  71. **Le Y.**, Gagneten S. Larson T., Miller J, Sauer B.: Brief Expression of a GFP<sup>cre</sup> fusion gene in embryonic stem cells allows rapid retrieval of site-specific deletions. 17th International Congress of Biochemistry and Molecular Biology, August, 1997, San Francisco, California, USA.
  72. Dobson M.J., **Le Y.**, Chute I., Ashley T.: The telomere-associated DNA from the short arm of human chromosome 20 contains an interstitial tract of telomeric repeats. The First Canadian Telomere Workshop, May, 1997. Toronto, Ontario, Canada.
  73. **Le Y.**, Dobson M. J.: Development and use of improved yeast artificial chromosome vectors and host strains: stabilization of yeast artificial chromosome clones in a *rad54* recombination-deficient host strain. Genome Canada 96, June, 1996. Ottawa, Ontario, Canada.
  74. Dobson, M. J., **Le Y.**: Development and use of improved yeast artificial chromosome vectors and host strains. Genome Canada 95. April, 1995. Toronto, Ontario, Canada.
  75. **Le Y.**, He J., Vining, L.C.: Cloning and sequence of the aspartate semialdehyde dehydrogenase gene from the 5-hydroxy-4-oxonorvaline producer, *Streptomyces akiyoshiensis*. 7<sup>th</sup> International Symposium on Genetics of Industrial Microorganisms. June 1994. Montreal, Quebec, Canada.
  76. **Le Y.** and Vining L.C. **(invited)**: Biosynthesis of 5-hydroxy-4-oxonorvaline and aspartate family amino acids in *Streptomyces akiyoshiensis*. First International Workshop on Antibiotics "Antibiotics, 93". November, 1993, Havana, Cuba.
  77. **Le Y.**, Wright J., Vining L.C., Smith K.C., White R.L.: Biosynthesis of 5-hydroxy-4-oxonorvaline: location of the branch point in the aspartate family pathway. 42 Annual Canadian Society of Microbiologist meeting. June, 1992, St. John's, New foundland, Canada.
  78. **Le Y.**, Smith K.C., Vining, L.C, White, R.L.: Isolation and Characterization of mutants blocked in the aspartate pathway and in the biosynthesis of 5-hydroxy-4-oxonorvaline. 8th International Symposium on Actinomycete Biology. August, 1991, Madison, Wisconsin, USA.

### **Invited talks**

1. Diabetes-induced RPE barrier breakdown: seeing is believing. September 29, 2011, Symposium of Dean A. McGee Eye Institute New Research Building Dedication. Oklahoma City, OK, USA.
2. Physiological and pathological functions of VEGF in the eye. May 26, 2011, Department of Ophthalmology, Medical School of University of Texas at Galveston, TX, USA.
3. Dissecting the cellular mechanisms of diabetic retinopathy. December 2, 2010, Department of Cell Biology and Human Anatomy, University of California, Davis, California, USA.
4. Lessons learned from mice about retinal biology and diseases. November 15, 2010, Department of Ophthalmology, University of Florida, Gainesville, Florida, USA.
5. The "good" and the "bad" side of VEGF. October 21, 2010. Department of Neural & Behavioral Sciences, Pennsylvania State University, Hershey, Pennsylvania, USA.
6. Diabetic retinopathy: Müller cells matter: a 3-cover-story tale. August 10, 2010. Shanghai Institute of Materia Medica, Academia Sinica, Shanghai, China.

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7. Essential role of Müller cells in retinal inflammation and vascular lesion: cellular mechanisms of diabetic retinopathy. July 31, 2010. Second Conference on the New Development in Ophthalmology. Department of Ophthalmology, Xiang-Ya Hospital of Central South University, Changsha, China.
  8. Cellular mechanism of VEGF action in the eye. June 7, 2010. Department of Pharmacology and Toxicology, University of Mississippi Medical Center, Jackson, Mississippi, USA.
  9. Mechanisms of retinal degeneration and diseases. September 24, 2008. Department of Ophthalmology, Xiang-Ya Hospital of Central South University, Changsha, China.
  10. Cellular Mechanisms of diabetic retinopathy. November 29, 2007. Allergan Inc. Irvine, California.
  11. Temporal and spatial gene activation and inactivation in the retina using Cre/lox strategies. Cre-driver Lines for Use in the Tissue-Specific Deletion of Genes in Multiple Ocular Tissues-Special Interest Group. Annual Meeting of the Association for Research in Vision and Ophthalmology, May 5-10, 2007, Ft. Lauderdale, Florida, USA.
  12. Mechanisms of retinal degeneration and diseases. November 17, 2006. Institute of Neurobiology, Fudan University, Shanghai, China.
  13. Role of anti-apoptotic protein BCL-X<sub>L</sub> in photoreceptor survival, 2<sup>nd</sup> Shanghai International Conference on Physiological Biophysics-Audition & Vision, November 3-7, 2006, Shanghai, China.
  14. Dissecting gene function in retinal degeneration and diseases. October 19, 2006. Department of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA.
  15. Conditional gene expression and its use in gene function studies. July 23, 2004. Department of Medicine Endocrinology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA.
  16. Use of Cre/lox system to study gene function in photoreceptor cells. October 18, 2001. Oklahoma Center for Neuroscience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA.
  17. The use of Cre recombinase to manipulate mouse genome. June 8, 2000. Shanghai Institute of Cell Biology, Academia Sinica, Shanghai, China.
  18. Nuclear target determinants of Cre DNA recombinase and the use of Cre-loxP system in manipulating mouse genome. June, 2000, The Second International Cao Tian-Qin Memorial Symposium on Protein Research, Shanghai, China.
  19. Site-specific Cre recombinase: tool for genomic engineering. March 8, 2000. Fox Chase Cancer Center, Institute for Cancer Research, Philadelphia, Pennsylvania, USA.
  20. Biosynthesis of 5-hydroxy-4-oxonorvaline and aspartate family amino acids in *Streptomyces akiyoshiensis*. November, 1993, First International Workshop on Antibiotics "Antibiotics, 93". Havana, Cuba.

## TEACHING ACTIVITIES

- 2007-present: Lecturing Molecular Genetics (Cell 6331, graduate class) at the University of Oklahoma Health Sciences Center. Responsibilities also include teaching materials, handouts, and grading. Contact hour: 2 hrs. Enrollment: 10.
- 2003-present: Lecturing Molecular and Cellular Aspects of Vision (Cell 6321) at the University of Oklahoma Health Sciences Center. Responsibilities also include teaching materials, and handouts. Contact hour: 2 hrs. Enrollment: 6-10.
- 2001-present: Lecturing Cellular and Molecular Developmental Biology (Cell 6063) at the University of Oklahoma Health Sciences Center. Responsibilities also include teaching materials, handouts, exams, and grading. Contact hour: 4 hrs. Enrollment: 6-10.
- 2004: Lecturing Vision journal club (BMSB 522) at the University of Oklahoma Health Sciences Center. Responsibilities also include teaching materials and handouts. Contact hour: 2 hrs. Enrollment: 15.

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- 2005-2009 Lecturing Continuing Medical Education in the Department of Medicine (5D30, 6D30, 7D30, 8D30) at the University of Oklahoma Health Sciences Center. Responsibilities also include teaching materials and handouts. Contact hour: 1 hrs. Enrollment: ~10.
- 1992-1994: Teaching a laboratory session for second year microbiology class (MICR 2100.03A, winter term) at Dalhousie University. Contact hour: 36 hrs. Enrollment: ~40.
- 1990-1992: Tutoring for first year biology class (Bio 1000) at Dalhousie University Contact hour: 24 hrs. Enrollment: ~30.
- 1989-1992: Teaching a laboratory session for first year biology class (Bio 1000, both terms) at Dalhousie University Contact hour: 72 hrs. Enrollment: ~30.
- 1986-1988: Course Director and Lecturer, Enzyme and Protein Biochemistry, a biochemistry class as continuing educations for employees in Dong-Feng Biochemical Reagent Factory, an affiliation of Shanghai Institute of biochemistry, Chinese Academy of Sciences. Responsibilities also include teaching materials, handouts, exams, and grading. Contact hour: 36 hrs. Enrollment: ~20.

### **UNIVERSITY SERVICE**

- 2010-present: Member, Web site Committee, Department of Medicine, the University of Oklahoma Health Sciences Center.
- 2009-present: Voting Member, Rodent Oversight Committee, the University of Oklahoma Health Sciences Center.
- 2007: Acting Director, Basic Sciences Seminar series, Oklahoma Diabetes Center.
- 2003-present: Institutional Animal Care and Use Committee, Dean McGee Eye Institute.
- 2005-present: Moderator and designated questioner, OU Vision Retreats, Diabetes Research Retreats, and Cell Biology Department Retreats, the University of Oklahoma Health Sciences Center.