

BIOGRAPHICAL SKETCH

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NAME Lihua Y. Marmorstein	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Nankai University, China	B. S.	1988	Biology
SUNY Downstate Medical Center, Brooklyn, N. Y.	Ph. D.	1995	Neuroscience

A. Positions and Honors:**Positions and Employment**

9/90-12/95 Graduate student, Neuroscience, SUNY Downstate Medical Center, Brooklyn, N. Y.
 1/96-3/99 Postdoctoral fellow, Derald H. Ruttenberg Cancer Center, Mount Sinai School of Medicine, New York, N. Y., and The Wistar Institute, Philadelphia, PA.
 4/99-7/02 Project Scientist, Cole Eye Institute, The Cleveland Clinic Foundation, Cleveland, OH.
 8/02-4/03 Staff Scientist, Cole Eye Institute, The Cleveland Clinic Foundation, Cleveland, OH.
 5/03-7/03 Assistant Staff, Cole Eye Institute, The Cleveland Clinic Foundation, Cleveland, OH.
 7/03-6/07 Assistant Professor, Department of Ophthalmology and Vision Science, University of Arizona, Tucson, AZ
 6/05-10/06 Joint appointment, assistant Professor, Department of Cell Biology and Anatomy, University of Arizona, Tucson, AZ
 6/05-6/07 Joint appointment, assistant Professor, Department of Physiology, University of Arizona, Tucson, AZ
 7/07-present Associate Professor, Department of Ophthalmology and Vision Science, University of Arizona, Tucson, AZ
 7/07-present Joint appointment, associate Professor, Department of Physiology, University of Arizona, Tucson, AZ

Professional Memberships and Other Experience

1992-1996 Society for Neuroscience
 1994-1999 American Association for the Advancement of Science
 1999-present American Society for Cell Biology
 1999-present Association for Research in Vision and Ophthalmology
 2004-present Research to Prevent Blindness Ophthalmological Association
 2005 Ad hoc member for NIH/NEI R03 Study Section, ZEY1VSN (01)
 2006-2008 Member for Texas Higher Education Coordinating Board's ARP Study Section.

Honors

1994-1995 Schoolwide Competitive Research Fellowship, SUNY Downstate Medical Center
 1997-1999 Postdoctoral Fellowship, U. S. Army, Department of Defense
 2004-2007 Career Development Award, Research to Prevent Blindness.

B. Publications (in chronological order):

(Name used in the past – Lihua Yao)

1. Speight, J.L., **Yao, L.**, Rozenberg, I., and Bernd, P. (1993). Early embryonic quail dorsal root ganglia exhibit high affinity nerve growth factor binding and NGF responsiveness - absence of NGF receptors on migrating neural crest cells. *Dev. Brain Res.*, 75, 55-64.
2. **Yao, L.**, Zhang, D., and Bernd, P. (1994). The onset of neurotrophin and trk mRNA expression in early embryonic tissues of the quail. *Dev. Biol.*, 165, 727-730.
3. Zhang, D., **Yao, L.**, and Bernd, P. (1994). Expression of trk and neurotrophin mRNA in dorsal root and sympathetic ganglia of the quail during development. *J. Neurobiol.*, 25, 1517-1532.
4. Bernd, P., Zhang, D., **Yao, L.**, and Rozenberg, I. (1994). The potential role of nerve growth factor, brain-derived neurotrophic factor and neurotrophin-3 in avian cochlear and vestibular ganglia development. *Int. J. Devl. Neuroscience*, 12, 709-723.
5. Zhang, D., **Yao, L.**, and Bernd, P. (1996). Expression of neurotrophin trk and p75 receptors in quail embryos undergoing gastrulation and neurulation. *Dev. Dynam.*, 205, 150-161.
6. **Yao, L.**, Zhang, D., and Bernd, P. (1997). Differential regulation of substance P by all members of the nerve growth factor family of neurotrophins in avian dorsal root ganglia throughout development. *Neuroscience*, 79, 1197-1206.
7. Bernd, P., Rozenberg, I., **Yao, L.**, and Zhang, D. (1998). The role of nerve growth factor and other neurotrophins in the formation and early development of avian sensory dorsal root ganglia. In "Neurotrophins and the Neural Crest", 1st. Edition, M. Sieber-Blum (Ed.), CRC Press, Boca Raton, F. L. pp95-115.
8. **Marmorstein, L.Y.**, Ouchi, T., and Aaronson, S. A. (1998). The BRCA2 gene product functionally interacts with p53 and RAD51. *Proc. Natl. Acad. Sci. USA*, 95, 13869-13874.
9. Marmorstein, A. D., **Marmorstein, L. Y.**, Rayborn, M., Wang, X., Hollyfield, J. G., and Petrukhin, K. (2000). Bestrophin is localized to the basolateral plasma membrane of RPE cells. *Proc. Natl. Acad. Sci. USA*, 97, 12758-12763.
10. **Marmorstein, L. Y.**, Kinev, A. V., Chan, G. K. T., Bochar, D. A., Beniya, H., Epstein, J. A., Yen, T. J., and Sheikhattar, R. (2001). A human BRCA2 complex containing a structural DNA binding component influences cell cycle progression. *Cell*, 104, 247-257.
11. Hoppe, G., **Marmorstein, L. Y.**, and Marmorstein, A. D. (2001). Localization and functional analysis of bestrophin. In: New Insights into Retinal Degenerative Diseases. Eds. R. Anderson, J. G. Hollyfield, and M. LaVail. Kluwer Academic/Plenum Publishers, pp207-216, 2001
12. West, K. A., Yan, L., Miyagi, M., Crabb, J. S., Marmorstein, A. D., **Marmorstein, L. Y.**, and Crabb, J. W. (2001). Proteome analysis of differentiated and undifferentiated rat RPE-J cells. *Exp. Eye Res.*, 73, 479-491.
13. Marmorstein, A. D., **Marmorstein, L. Y.**, Sakaguchi, H., and Hollyfield, J. G. (2002). Spectral profiling of autofluorescence associated with lipofuscin, Bruch's membrane, and sub-RPE deposits in normal and AMD eyes. *Invest. Ophthalmol. Vis. Sci.*, 43, 2435-2441.
14. **Marmorstein, L.Y.**, McLaughlin, P., Staton, J. B., Yan, L., Crabb, J. W., and Marmorstein, A. D. (2002). Bestrophin physically and functionally interacts with protein phosphatase 2A. *J. Biol. Chem.*, 277, 30591-30597.
15. Low, S. H., **Marmorstein, L. Y.**, Miura, M., Li, X., Kudo N., Marmorstein, A. D., and Weimbs, T. (2002). Retinal pigment epithelial cells exhibit unique expression and localization of plasma membrane syntaxins which may contribute to their trafficking phenotype. *J. Cell Sci.*, 115, 4545-4553.
16. **Marmorstein, L.Y.**, Munier, F. L., Arsenijevic, Y., Schorderet, D. F., McLaughlin, P. J., Chung, D., Traboulsi, E., and Marmorstein, A. D. (2002). Aberrant Accumulation of EFEMP1 underlies drusen formation in Malattia Leventinese and age-related macular degeneration. *Proc. Natl. Acad. Sci. USA*, 99, 13067-13072.
17. Bakall, B., **Marmorstein, L. Y.**, Hoppe, G., Peachey, N. S., Wadelius, C., and Marmorstein, A. D. (2003). Expression and localization of bestrophin during normal mouse development. *Invest. Ophthalmol. Vis. Sci.*, 44, 3622-3628.
18. Marmorstein, A. D., Stanton, J. B., Yocom, J., Bakall, B., Schiavone, M. T., Wadelius, C., **Marmorstein, L. Y.**, and Peachey, N. S. (2004). A Model of Best Vitelliform Macular Dystrophy in Rats. *Invest. Ophthalmol. Vis. Sci.*, 45, 3733-3739.

19. Klenotic, P., Munier, F. L., **Marmorstein, L. Y.**, and Anand-Apte, B. (2004). Tissue Inhibitor of Metalloproteinases-3 (TIMP-3) is a binding partner of EGF-containing fibulin-like extracellular matrix protein 1 (EFEMP1): Implications for macular degenerations. *J Biol Chem.*, 279, 30469-30473.
20. **Marmorstein, L. Y.** (2004). Association of EFEMP1 with Malattia Leventinese and age-related macular degeneration: a mini-review. *Ophthalmic Genet.*, 25, 219-226.
21. Roybal, C. N., **Marmorstein, L. Y.**, Vander Jagt, D. L., and Abcouwer, S. F. (2005). Aberrant accumulation of fibulin-3 in the endoplasmic reticulum leads to activation of the unfolded protein response and VEGF expression. *Invest. Ophthalmol. Vis. Sci.*, 46, 3973-3979.
22. McLaughlin, P. J., Chen, Q., Horiguchi, M., Starcher, B. C., Stanton, J. B., Broekelmann, T. J., Marmorstein, A. D., McKay, B., Mecham, R., Nakamura, T., and **Marmorstein, L. Y.** (2006). Targeted disruption of fibulin-4 abolishes elastogenesis and causes perinatal lethality in mice. *Mol. Cell. Biol.*, 26, 1700-1709.
23. Stanton, J. B., Goldberg, A. F. X., Hoppe, G., **Marmorstein, L. Y.**, and Marmorstein, A. D. (2006). Hydrodynamic properties of porcine bestrophin-1 in Triton X-100. *Biochim Biophys Acta.*, 1758, 241-247.
24. **Marmorstein, L. Y.**, Wu, J., McLaughlin, P. J., Yocom, J., Karl, M. O., Neussert, R., Stanton, J. B., Gregg, R. G., Strauss, O., Peachy, N. S., and Marmorstein, A. D. (2006). The light peak of the electroretinogram is dependent on voltage gated calcium channels and antagonized by bestrophin. *J. Gen. Physiol.*, 127, 577-589.
25. Huchtagowder, V., Sausgruber, N., Kim, K. H., Angle, B., **Marmorstein, L. Y.**, and Urban, Z. (2006). Fibulin-4: novel gene for an autosomal recessive cutis laxa syndrome. *Am. J. Hum. Genet.*, 78, 1075-1080.
26. Cudilo, E., Naemi, H. A., **Marmorstein, L. Y.**, and Baldwin, A. L. (2007). Knockout mice: is it just genetics? Effect of enriched housing on Fibulin-4^{+/-} mice. *PLoS ONE*, 2, e229.
27. Marmorstein, A. D. and **Marmorstein, L. Y.** (2007). The challenge of modeling macular degeneration in mice. *Trends Genet.*, 23, 225-231.
28. **Marmorstein L. Y.**, McLaughlin, P. J., Peachey, N. S., Sasaki, T., and Marmorstein, A. D. (2007). Formation and progression of sub-retinal pigment epithelium deposits in *Efemp1* mutation knock-in mice: A model for the early pathogenic course of macular degeneration. *Hum. Mol. Genet.*, 16, 3423-3432.
29. McLaughlin, P. J., Bakall, B., Choi, J., Liu, Z., Sasaki, T., Davis, E. C., Marmorstein, A. D., and **Marmorstein, L. Y.** (2007). Lack of fibulin-3 causes early aging and herniation, but not macular degeneration in mice. *Hum. Mol. Genet.*, 16, 3059-3070.
30. Bakall, B., McLaughlin, P.J., Stanton, J. B., Zhang, Y., Hartzell, H. C., **Marmorstein, L. Y.**, and Marmorstein, A. D. (In press, 2008). Bestrophin-2 is involved in the generation of intraocular pressure. *Invest. Ophthalmol. Vis. Sci.*

C. Research Support

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NIH/NEI

EFEMP1 and Drusen Formation in the Retina

The major goal of this project is to determine how a mutation in the gene *EFEMP1* (fibulin-3) causes macular degeneration.