

**Yongdong Zhou, M.D., Ph.D.**

**Assistant Professor of Research, Ophthalmology and Neuroscience**

**Degrees**

2007-2009: Postdoctoral Fellow, LSU Health Sciences Center

1996-2001: Ph.D., Sichuan University, Chengdu, China

1985-1990: M.D., Nantong Medical College, Jiangsu, China

2009 – present: **Assistant Professor Research, Ophthalmology & Neuroscience;** Neuroscience Center of Excellence, LSU Health Sciences Center, New Orleans, LA

2001-2007: **Associate Professor & Chairman;** Department of Ophthalmology, Second Affiliated Hospital of Nantong Medical College, China

1990-1996: **Attending; Department of Ophthalmology,** Second Affiliated Hospital of Nantong Medical College.

**Bio**

**Awards/Prizes**

2001-2007: The Outstanding Young Medical Experts award, Nantong, China

2002-2006: The Development of Sciences & Technology Prize, Nantong, China

2006: The Development of Sciences & Technology Prize, Jiangsu Province, China

2002: The Outstanding Young Professionals award, Jiangsu Province, China

2001-2006: The Achievements in Sciences & Technology Prize, Nantong, China

**Major Professional Societies/Committees**

Member, Association for Research in Vision and Ophthalmology

Vice-chairman of Ophthalmological Committee of Nantong City (2003-2008)

Member of Standing Committee, Ophthalmological Society of Jiangsu Province (2001-2008)

**Research Interests**

**Research Interests and Goals**

**Keywords: retinal diseases, such as AMD, retinitis pigmentosa, and diabetic retinopathy**

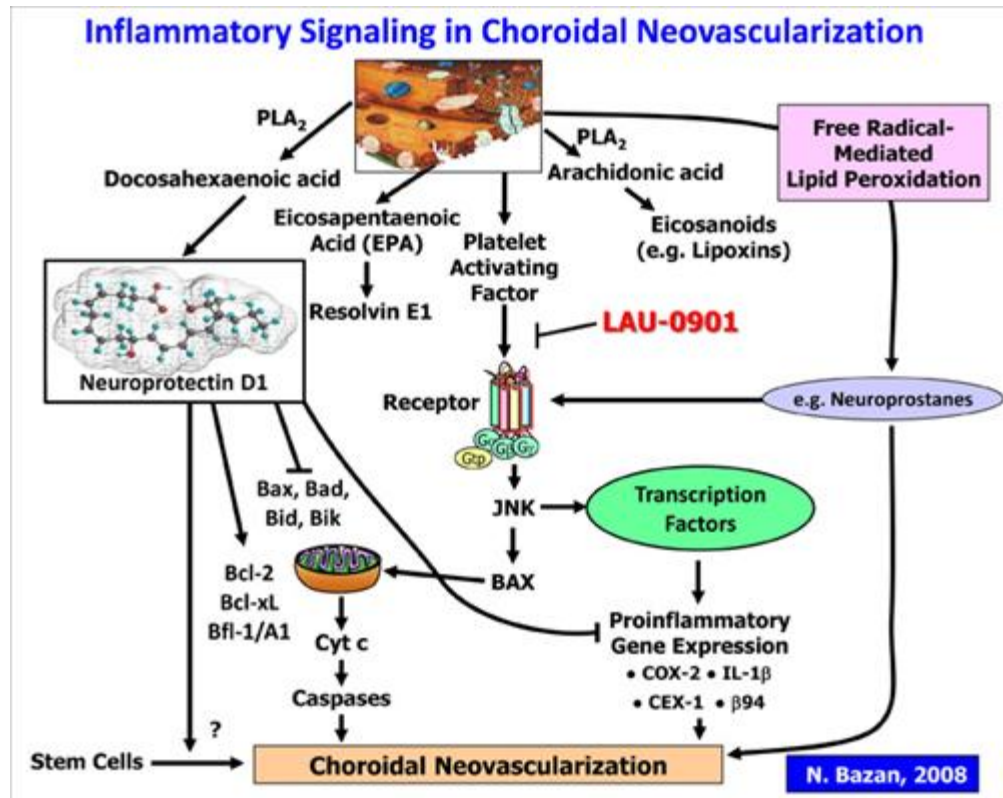
We will identify the impact of lipids on these diseases with the use of animal

models and to describe underlying mechanisms. This information will then be translated from “the bench” to the patient’s “bedside”.

## **Current Research**

### ***The Effect of Lipids on Laser Induced Choroidal Neovascularization Model***

Age-related macular degeneration (AMD) is the leading cause of irreversible blindness among the elderly in most industrialized nations. Choroidal Neovascularization (CNV) is the hallmark of the exudative form of AMD, in which new vessels from the choroidal vasculature penetrate Bruch’s membrane and extend into the subretinal space or into the plane of the retinal pigment epithelium (RPE). CNV may lead to RPE detachment, subretinal or intraretinal hemorrhage, or fibrovascular scarring and accounts for the majority of vision loss associated with AMD. The role of immunity and inflammation in AMD pathogenesis has been shown in recent research, where some lipids have been shown to have potent anti-inflammatory *in vitro* and *in vivo* effects, and part of the signaling pathways have been described. Thus, we hypothesized an inhibitory role by these lipids on CNV (see paradigm below). We are currently focusing on the assessment of several compounds. Laser induced CNV on mouse retina was established as our model system to address these questions. Our techniques include fundus fluorescence angiography, optical coherence tomography, choroidal-scleral flatmounts with immuno-localization of key molecular labels, and paraffin sections, histochemistry, and confocal imaging analysis to grade CNV-induced blood leakage, measure CNV volumes. Our goal is to describe which signaling pathways are involved in this debilitating retinal disease. The results from our study will provide insights for therapeutic interventions in CNV associated with AMD.



### Selected Publications

### Selected Peer-reviewed Publications

Songhua Li, Jungsoo Lee, Yongdong Zhou, William C. Gordon, James M. Hill, Nicolas G. Bazan, Jeffrey H. Miner, and **Minghao Jin**; [Fatty Acid Transport Protein 4 \(FATP4\) Prevents Light-Induced Degeneration of Cone and Rod Photoreceptors by Inhibiting RPE65 Isomerase](#); *The Journal of Neuroscience*, 2013 *The Journal of Neuroscience*, **3178**:33(7):3178 – 318933(7):3178 – 3189

Li S, Lee J, **Zhou Y**, Gordon WC, Hill JM, Bazan NG, Miner JH, Jin M. (2013) [Fatty Acid Transport Protein 4 \(FATP4\) Prevents Light-Induced Degeneration of Cone and Rod Photoreceptors by Inhibiting RPE65 Isomerase](#). *The Journal of Neuroscience*; In press.

Bai S, Sheline CR, **Zhou Y**, and Sheline CT. (2013) [A Reduced Zinc Diet or Zinc Transporter 3 Knockout Attenuate Light Induced Zinc Accumulation and Retinal Degeneration](#). *Experimental Eye Research*; 108: 59-67.

Knott EJ., Sheets KG., **Zhou Y**, Gordon WC., Bazan NG. (2011) [Spatial correlation of mouse photoreceptor-RPE thickness between SD-OCT and histology](#). *Experimental Eye Research*; 92:155-160.

Sheets KG, **Zhou Y**, Ertel, MK, Knott, EJ, Regan CE. Jr, Elison JR, Gordon WC, Gjørstrup P, Bazan NG. (2010) Neuroprotectin D1 Attenuates Laser-induced Choroidal Neovascularization in Mouse. *Molecular Vision*;16:320-329.

Sheline CT., **Zhou Y**, Bai S. (2010) Light-induced photoreceptor and RPE degeneration involve zinc toxicity and are attenuated by pyruvate, nicotinamide, or cyclic light.*Molecular Vision*;16:2639-2652.

**Zhou Y**, Sheets KG., Knott EJ., Regan CE. Jr., Tuo J, Chan CC, Gordon WC., Bazan NG. Cellular and 3D optical coherence tomography assessment during the initiation and progression of retinal degeneration in the Ccl2/Cx3cr1-deficient mouse.*Experimental Eye Research* 2011; 93: 636-648.

Sheline, C.T. , **Zhou, Y.** , Bai, S.. Light-induced photoreceptor and RPE degeneration involve zinc toxicity and are attenuated by pyruvate, nicotinamide, or cyclic light. *Molecular Vision* 2010; 16:2639-2652.

Knott, E.J., Sheets K.G., **Zhou, Y.**, Gordon, W.C., Bazan, N.G. Spatial correlation of mouse photoreceptor-RPE thickness between SD-OCT and histology. *Exp. Eye Res.* 2011;92:155-160.

SHEETS, K.G., **ZHOU, Y.**, Ertel, M.K., Knott, E.J., Regan, C.E. Jr, Elison, J.R., Gordon, W.C., Gjørstrup, P., Bazan, N.G: Neuroprotectin D1 Attenuates Laser-induced Choroidal Neovascularization in Mouse.*Molecular Vision* (2010) 16:320-329.

ZHOU, T., FAN, H., **ZHOU, Y**: Power setting of transpupillary thermotherapy for patients with choroidal neovascularization. *Academic Report of Nantong Medical School* (2008) 2:101-103.

**ZHOU, Y.**, ZHOU, T., FAN, H: Transpupillary thermotherapy for choroidal neovascularization in patients with age-related macular degeneration. *International Journal of Ophthalmology* (2006) 5:961-963.

**ZHOU, Y.**, YAN, M., ZHANG, J: The response of bFGF、FGFR1、Bcl-2 and caspase3 to visible light in cultured human retinal pigment epithelium cells. *Chin J Ophthalmol* (2003) 39:655-659.

**ZHOU, Y.**, YAN, M., ZHANG, J: The effect of DEVD-CHO and YVAD-cmK on apoptosis induced by visible light on cultured human RPE cells. *Chin Ophthal Res* (2003) 21:344-346.

**ZHOU, Y.**, YAN, M., ZHANG, J: The effect of visible light on apoptosis of cultured human retinal pigment epithelium cells. *Chin J Ocul Fundus Dis* (2002) 18:227-

230.

LIU, J., JING, H., ZHANG, W., **ZHOU, Y.**, LIAO, S., YANG, L., HUANG, Q: The relation between polymorphsim in the gene for angiotensin converting enzyme and diabetic retinopathy. *Chin J Ocul Fundus Dis* (1999) 15:37-38.

### **Additional Info Research Support**

P20 RR016816 Bazan (PI) 02/01/07-01/31/12

NIH, NCRR

"Mentoring Neuroscience in Louisiana: A Biomedical Program to Enhance Neuroscience"

This study is to test the protective effects of Neuroprotectin D1 in Ccl2/Cx3cr1-Deficient Mice: An Animal Modal for Age-Related Macular Degeneration. Under this award, I have completed two years of mentored research training under the mentorship of Dr. Bazan, preparing me for this independent proposal.

Role: Promising Junior Investigator (PJI)

"The Program for Mentoring in Sciences & Technology (Ophthalmology)"

Director of the Program: Yongdong Zhou, MD, Ph.D.

Agency: Bureau of Science and Technology of Nantong city, Nantong, China

Period: 09/30/2001-09/30/2007

"The study on treatment of age related macular degeneration"

Principle Investigator: Yongdong Zhou, MD, Ph.D.

Agency: Bureau of Science and Technology of Jiangsu Province, China. (No. S2004)

Period: 10/30/2001-10/30/2004

"The study on transplanting BDNF gene transfected RPE under the retina of RP mouse." Principle Investigator: Yongdong Zhou, MD, Ph.D.

Agency: Bureau of Science and Technology of Nantong city, Jiangsu, China (No. 04017)

Period: 09/30/2005-09/30/2007