

Ophthalmology

Division Details

RESEARCH AND TRAINING DETAILS

Faculty	2
Research Fellows and Post Docs	9
Total Annual Grant Award Dollars	\$1,235,808
Total Annual Industry Award Dollars	\$37,387
Total Publications	14

CLINICAL ACTIVITIES AND TRAINING

Staff Physicians	6
Clinical Fellows	1
Inpatient Encounters	2,045
Outpatient Encounters	28,356



Row 1: S Lopper, M Gray, M Yang, M Rice, K Hogan

Row 2: W Motley, R Lang, K Thomson

Research Highlights

Michael B. Yang, MD, FAAP

Dr. Yang served as site principal investigator (PI) for the [Postnatal Growth and Retinopathy of Prematurity \(G-ROP\) multicenter study](#). This study is analyzing various risk factors for incorporation into a highly accurate risk model that can help predict which premature infants will develop severe ROP. This allows the elimination of lower risk infants from screening altogether, or for less frequent screening. With Patricia Cobb's assistance, over 1,200 premature infants from Cincinnati Children's Hospital Medical Center, [Good Samaritan Hospital](#) and [University of Cincinnati Medical Center](#) enrolled in the retrospective portion of the study completed in August 2015. Enrollment is ongoing for the prospective arm of the study with Cincinnati Children's once again contributing among the highest numbers of enrolled patients in the study.

Dr. Yang was also site PI for the phase 1 trial of Bevacizumab Treatment for Severe ROP. Bevacizumab, an anti-VEGF (vascular endothelial growth factor) antibody, is an effective treatment for severe ROP. However, after injection into the eye, the drug can escape into the peripheral circulation, and potentially affect the development of the brain, lung, kidneys and bone. Consequently, finding the lowest dose of bevacizumab that is effective in treating ROP in this dose de-escalation trial is important for lessening potential developmental morbidities and determining a dose for future comparison trials.

Fumika Hamada, PhD

Dr. Hamada's laboratory studies circadian rhythm of body temperature (body temperature rhythm). Body temperature rhythm is critical for the maintenance of homeostasis functions, such as metabolic energy generation and sleep. Her lab's progress has been remarkable as their work reveals the hitherto unknown molecular mechanisms underlying body temperature rhythm and has led to the first identification of a molecule that links circadian clock to body temperature rhythm. In the past year, Dr. Hamada has presented her work at [Cold Springs Harbor Laboratory meeting](#), Neurobiology of Drosophila and The Society for Research on Biological Rhythms (SRBR).

Richard A. Lang, PhD

Dr. Lang's major research interests include early eye development, vascular development, the developmental and homeostatic function of myeloid cells and more recently, the role of light response pathways in development. In this latter project area, the [Lang lab](#) has been investigating the function of two atypical opsins, OPN3 and OPN5. In collaboration with the [Van Gelder lab](#) at the [University of Washington](#), the Lang lab has shown that OPN5 is the light detector required for photentrainment of a local circadian clock in the retina. This year, Dr. Lang presented his work at [Umeå University](#), Sweden, in their [International Seminar Series](#); at the [Society for Research in Biological Rhythms annual meeting](#); and at the [Walter and Eliza Hall Institute](#), Melbourne, Australia. Dr. Lang will also present at the [19th International Vascular Biology Meeting](#), Boston, and will deliver the [Joan & Gordon Bergy Lecture](#) at University of Washington, Seattle.

Division Publications

1. Buhr ED, Yue WW, Ren X, Jiang Z, Liao HW, Mei X, Vemaraju S, Nguyen MT, Reed RR, Lang RA, Yau KW, Van Gelder RN. **Neuroopsin (Opn5)-Mediated Photoentrainment of Local Circadian Oscillators in Mammalian Retina and Cornea.** *Proc Natl Acad Sci U S A.* 2015; 112:13093-8.
2. Franco CA, Jones ML, Bernabeu MO, Vion AC, Barbacena P, Fan J, Mathivet T, Fonseca CG, Ragab A, Yamaguchi TP, Coveney PV, Lang RA, Gerhardt H. **Non-Canonical Wnt Signalling Modulates the Endothelial Shear Stress Flow Sensor in Vascular Remodelling.** *Elife.* 2016; 5:e07727.
3. Gray M, Palileo C, Sheridan R. **Cellular Neurothekeoma of the Eyelid in a 6-Year-Old Boy.** *J AAPOS.* 2015; 20:374-6.
4. Hutchinson AK, Melia M, Yang MB, VanderVeen DK, Wilson LB, Lambert SR. **Clinical Models and Algorithms for the Prediction of Retinopathy of Prematurity: A Report by the American Academy of Ophthalmology.** *Ophthalmology.* 2016; 123:804-16.
5. Irvine KM, Clouston AD, Gadd VL, Miller GC, Wong WY, Melino M, Maradana MR, MacDonald K, Lang RA, Sweet MJ, Blumenthal A, Powell EE. **Deletion of Wntless in Myeloid Cells Exacerbates Liver Fibrosis and the Ductular Reaction in Chronic Liver Injury.** *Fibrogenesis Tissue Repair.* 2015; 8:19.
6. Maddala R, Nagendran T, Lang R, Morozov A, Rao P. **Rap1 Gtpase Is Required for Mouse Lens Epithelial Maintenance and Morphogenesis.** *Dev Biol.* 2015; 406:74-91.
7. McKee EC, Ely AL, Duncan JE, Dosunmu EO, Freedman SF. **A Comparison of Icare Pro and Tono-Pen XI Tonometers in Anesthetized Children.** *J AAPOS.* 2015; 19:332-7.
8. Motley WW, 3rd, Golnik KC, Anteby I, Atilla H, Gole GA, Murillo C, Olitsky SE, Pilling RF, Reddy AR, Sharma P, Siatkowski RM, Yadarola MB. **Validity of Ophthalmology Surgical Competency Assessment Rubric for Strabismus Surgery in Resident Training.** *J AAPOS.* 2016; 20:184-5.
9. Qian B-Z, Zhang H, Li J, He T, Yeo E-J, Soong D, Carragher N, Munro A, Chang A, Bresnick A. **Flt1 Signaling in Metastasis-Associated Macrophages Activates an Inflammatory Signature That Promotes Breast Cancer Metastasis.** *J Exp Med.* 2015; 212:1433-48.
10. Riazifar H, Sun G, Wang X, Rupp A, Vemaraju S, Ross-Cisneros FN, Lang RA, Sadun AA, Hattar S, Guan MX, Huang T. **Phenotypic and Functional Characterization of Bst+/- Mouse Retina.** *Dis Model Mech.* 2015; 8:969-76.
11. Sessa R, Yuen D, Wan S, Rosner M, Padmanaban P, Ge S, Smith A, Fletcher R, Baudhuin-Kessel A, Yamaguchi TP, Lang RA, Chen L. **Monocyte-Derived Wnt5a Regulates Inflammatory Lymphangiogenesis.** *Cell Res.* 2016; 26:262-5.
12. Wang Y, Tadjuidje E, Pandey RN, Stefater JA, 3rd, Smith LE, Lang RA, Hegde RS. **The Eyes Absent Proteins in Developmental and Pathological Angiogenesis.** *Am J Pathol.* 2016; 186:568-78.

13. Yang J, Cusimano A, Monga JK, Preziosi ME, Pullara F, Calero G, Lang R, Yamaguchi TP, Nejak-Bowen KN, Monga SP. **Wnt5a Inhibits Hepatocyte Proliferation and Concludes Beta-Catenin Signaling in Liver Regeneration.** *Am J Pathol.* 2015; 185:2194-205.
14. Zhang Y, Fan J, Ho JW, Hu T, Kneeland SC, Fan X, Xi Q, Sellarole MA, de Vries WN, Lu W, Lachke SA, Lang RA, John SW, Maas RL. **Crim1 Regulates Integrin Signaling in Murine Lens Development.** *Development.* 2016; 143:356-66.

Grants, Contracts, and Industry Agreements

Annual Grant Award Dollars

Investigator	Title	Sponsor	ID	Dates	Amount
Richard Lang, PHD	Light Regulated Vascular Development of the Eye	National Institutes of Health	R01 EY023179	1/1/2016 - 12/31/2016	\$456,523
Richard Lang, PHD	Retinal Microglia and Angiogenesis	National Institutes of Health	R01 EY021636	5/1/2016 - 4/30/2017	\$382,500
Fumika Namekawa	Molecular Mechanisms of Body Temperature Rhythm in <i>Drosophila</i>	Japan Science and Technology Corporation	JST - Hamada	10/1/2011 - 10/20/2015	\$71,031
Fumika Namekawa	Molecular and Neural Mechanisms of Temperature Preference	National Institutes of Health	R01 GM107582	9/1/2013 - 8/31/2018	\$290,700
Constance E West, MD	Save Our Sight Ohio Amblyope Registry	Ohio Department of Health (The Research Institute at Nationwide Hosp)	02530011AR0109	7/1/2008 - 6/30/2017	\$5,000
Michael Yang, MD	Postnatal Growth and Retinopathy of Prematurity (G-ROP)	National Institutes of Health (Children's Hospital of Philadelphia)	R01 EY021137	9/1/2014 - 8/31/2017	\$30,054
Total Annual Grant Award Dollars					\$1,235,808

Annual Industry Award Dollars

Investigator	Industry Sponsor	Amount
Virginia Utz, MD	Retrophin, Inc.	\$37,387
Total Annual Industry Award Dollars		\$37,387