Division Data Summary

Research and Training Details

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Clinical Activities and Training

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Significant Publications

Phng LK, Potente M, Leslie JD, Babbage J, Nyqvist D, Lobov I, Ondr JK, Rao S, Lang RA, Thurston G,
Gerhardt H. Narp coordinates endothelial Notch and Wnt signaling to control vessel density in angiogenesis. Dev Cell. 2009; 16: 70-82.

In Phng et al., we have identified a mechanism for integration of the Wnt and Notch pathway during development of retinal blood vessels. This has important implications for the many vascular diseases of the retina.


These studies identify an important regulatory loop that provides insight into how sensory cells use the Ras-MAPK pathway to induce the formation of additional cell types. Because this pathway is essential for lens formation, retinogenesis, and growth control, this work has important implications for a broad spectrum of eye-related diseases.


This is the first demonstration of involvement of fusion gene is simple Mendelian disorders. Furthermore, we provided evidence that in the primate lineage LRTOMT evolved from the fusion of two neighboring ancestral genes, which exist as separate genes (Lrrc51 and Tomt) in rodents. The identification of LRTOMT as a new gene involved in hearing loss gives insight for genetic and physiological studies of the inner ear and will help in our understanding of the basic mechanisms underlying normal hearing and in the diagnosis of nonsyndromic deafness.


In Pontoriero et al., we have shown that E and N cadherins work in concert to regulate morphogenesis of the lens. This is an important backdrop for studies of epithelial morphogenesis in vertebrates.

Division Highlights

Zubair Ahmed, PhD

Zubair Ahmed, Ph.D. was one of two new faculty members to join CCHMC and the Division of Pediatric Ophthalmology, during FY2009. Prior to coming to CCHMC, Dr. Ahmed received a Career Development Award (K99) from NIDCD at the National Institutes of Health. Dr. Ahmed studies the genetic causes of Usher Syndrome Type I and, in FY2009; his laboratory identified a new locus for Usher Syndrome Type 1, two novel deafness-causing genes, two new loci for nonsyndromic deafness and twenty new mutations causing hearing loss in human population.

James J. Augsburger, MD

Dr. Augsburger provides ocular oncology services for the pediatric pediatrics. He is the Chairman of the Department of Ophthalmology at the Unvieristy of Cincinnati Academic Health Care Center.

Marie I. Bodack, OD

Dr. Bodack is focusing on a research project studying exotropia. She is comparing presentations, magnitude of deviation, associated systemic and ocular conditions.

Dean Bonsall, MD

Dr. Bonsall is involved in the Pediatric Eye Disease Investigator Group with clinical trials. These studies are beneficial to patients and the division.

Tiffany A. Cook, PhD

Dr. Cook’s laboratory continues their work on deepening our understanding of ocular development, using the fruit fly model, *Drosophila melanogaster*. This year, Dr. Cook served as ad hoc reviewer for two international funding agencies: the German Israeli Foundation for Scientific Research and Development, and the Welcome Trust Research Foundation. Dr. Cook was also a participant of a nationwide National Science Foundation/ASHG-supported Geneticist-Educator Network, which serves as an alliance outreach program. Dr. Cook also served this year as the Director of Recruitment for the University of Cincinnati Molecular and Developmental Biology Graduate Program.
Adam Kaufman, MD
Dr. Kaufman provides specialized care of the cornea and anterior segment of the eye.

Richard A. Lang, PhD
Dr. Lang’s laboratory continued making significant scientific contributions during FY2009. His lab has made important advances in our understanding of epithelial morphogenesis mechanisms and has shown that Cdc42-dependent filopodia are critical during the epithelial invagination that results in eye formation. Dr. Lang has also shown that during tissue repair, macrophages produce Wnt pathway ligands to re-capitulate the developmental programs that can re-build a damaged organ. Dr. Lang’s research has wide-ranging implications for tissue repair therapies. In FY2009, Dr. Lang and Rashmi Hegde, Ph.D. (Division of Developmental Biology) were awarded a two-year project to investigate how cadherins function in eye development and disease, from the National Eye Institute as part of the America Recovery and Reinvestment Act of 2009.

Sarah Lopper, OD
Dr. Lopper was instrumental in establishing OD Grand Round. These education sessions were very valuable to academic and community optometrist. Dr. Lopper has worked hard to facilitate pathways to ensure regular ophthalmic screenings for children at risk for ophthalmic manifestations of systematic diseases.

William Walker Motley, MD
Dr. Motley is managing the Fellowship Program. He is integrating education, research and clinical training into the fellow's education. Dr. Brenda Connors completed the fellowship program and is a practicing pediatric ophthalmologist.

Robert North, DO, MBA, FACS
Dr. North was instrumental in the opening of ophthalmology at the Liberty facility. He provides excellent patient care to patients at the Liberty satellite.

Saima Riazuddin, Ph.D.
Saima Riazuddin, Ph.D. was one of two new faculty members to join CCHMC in FY2009 and she holds a secondary appointment in the Division of Pediatric Ophthalmology and a primary appointment in Division of Otolaryngology. Dr. Riazuddin’s research this year focused on characterizing the nonsyndromic deafness gene known as BSND. BSND has been reported as a disease gene for a severe variant of Barter Syndrome that combines renal salt loss with sensorineural deafness. In November 2008, Dr. Riazuddin was selected as a member of The Academy of Science for the Developing World (TWAS).

Dan Saltarelli, OD
Dr. Saltarelli is making a contact lens educational video for parents of patients who require aphakic contact lens. The division anticipates a positive response to this new teaching tool.

Constance West, MD
Dr. West continues to lead the division by teaching several courses outside CCHMC which include: (1) Lancaster; (2) Curso Basico (Puerto Rico); (3) Mexico; and (4) developing academic portfolios for faculty within the division.

Michael Yang, MD
Dr. Yang is working on preliminary ideas for basic science research in ROP and capillary hemangioma with Dr. Lang and Dr. Cook. The hemangioma research will be complimented by his work in the hemangioma clinic.

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**Division Collaboration**

**Collaboration with Developmental Biology**

**Collaborating Faculty: Jim Wells**
Wntless in Pancreas Development with Richard Lang

**Collaboration with Developmental Biology**

**Collaborating Faculty: Aaron Zorn; Rashmi Hegde; Matt Kofron**
CRIM1 Function with Richard Lang

**Collaboration with Developmental Biology**

**Collaborating Faculty: Yutaka Yoshida**
Wntless in Neurogenesis with Richard Lang
Collaboration with Developmental Biology
**Collaborating Faculty: Geraldine Guasch**
Sox2 and Wnt in Transitional Zone Formation with Richard Lang

Collaboration with Developmental Biology
**Collaborating Faculty: Yi Zheng**
GTPase function in morphogenesis with Richard Lang

Collaboration with Developmental Biology
**Collaborating Faculty: Noah Shroyer**
Wnts in gut regeneration with Richard Lang

Collaboration with Developmental Biology
**Collaborating Faculty: Chris Karp**
Toll receptor activity in vascular regression with Richard Lang

Collaboration with Developmental Biology
**Collaborating Faculty: Xinhua Liu**
Wntless function with Richard Lang

Collaboration with Developmental Biology
**Collaborating Faculty: Brian Gebelein**
Conserved regulatory pathways during Drosophila neurogenesis with Tiffany Cook

Collaboration with Developmental Biology
**Collaborating Faculty: Nadean Brown**
Photoreceptor differentiation in vertebrates vs. invertebrates with Tiffany Cook

**Faculty Members**

Constance E. West, MD, Associate Professor; Division Director
James J. Augsburger, MD, FACS, Professor; Chairperson, Department of Ophthalmology
Richard A. Lang, PhD, Professor; Emma & Irving Goldman Scholar; Head, Visual Systems Group
Zubair Ahmed, PhD, Assistant Professor
Marie I. Bodack, OD, FAAO, FCVO, Instructor Clinical
Dean J. Bonsall, MD, MS, FACS, Associate Professor
Tiffany Cook, PhD, Assistant Professor
Adam H. Kaufman, MD, FACS, Associate Professor
Sarah Lopper, OD, Instructor Clinical
William Walker Motley, MD, MS, Assistant Professor
Robert B. North, DO, MBA, FACS, Assistant Professor
Daniele Saltarelli, OD, Instructor Clinical
Michael B. Yang, MD, Associate Professor

**Joint Appointment Faculty Members**

Nadean Brown, PhD, Associate Professor
Department of Developmental Biology
Saima Riazuddin, PhD, Assistant Professor
Department of Otolaryngology

**Clinical Staff Members**

- Laurie Hahn-Parrott, CO, COT, MBA
- Corey Bowman, COA, LDO, ABOC
Brandy Dearwater, COA
Adrienne Distler, COA
Jennifer Duncan, COA
Lisa Fite, COA
Ashley Jackson, COA
Debbie Lipps, COA
Patty Lucas, COA
Judy Masters, COT
Nicole McLeod, COA
Debbie Meister, COA
Krissy Paddock,
Kelli Vieson, COT

Trainees
- Elizabeth Agabegi, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Jason Bell, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- April Carpenter-Elrod, PhD, Research Fellow, Hospital for Special Surgery, New York, NY
- Bhavesh Chauhan, PhD, Research Associate, Oxford University, Oxford England
- Manpreet Chhabra, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Ian Conner, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Brenda Connors, MD, Pediatric Ophthalmology Fellow, University of Cincinnati, Cincinnati, OH
- Jieqing Fan, PhD, Graduate Student, Tsinghua University, Beijing, China
- Yueyang Fei, Undergraduate Student, Washington University, St. Louis, MO
- Raja Goli, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- M. Victoria Gomez, Undergraduate Student, Xavier University, Cincinnati, OH
- Michael Gray, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Faiz Khaja, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Rachel Kominsky, Undergraduate Student, Xavier University, Cincinnati, OH
- Lauren Kopicky, Undergraduate Student, Xavier University, Cincinnati, OH
- Elizabeth McDonald, PhD, Graduate Student, Hartwick College, Oneonta, NY
- Elsa Palkovacs, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Timothy Plageman, PhD, Research Fellow, University of Cincinnati, Cincinnati, OH
- Virgilio Ponferrada, PhD, Research Associate, Wright State University, Dayton, OH
- Sujata Rao, PhD, Research Associate, Cornell University, Ithaca, New York
- Scott Schoenberger, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Eric Speckner, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- James A. Stefater, MD, PhD, Graduate Student, Centre College, Danville, KY
- Larry Tenkman, MD, Ophthalmology Resident, University of Cincinnati, Cincinnati, OH
- Yoshiaki Ueda, MD, Visiting Research Scientist, National Defense Medical College, Japan
- Baotong Xie, PhD, Research Fellow, Chinese Academy of Sciences
- Eun-Jin Yeo, PhD, Research Fellow, Seoul National University, Seoul, South Korea

Significant Accomplishments
Pediatric Retina Program at The Abrahamson Pediatric Eye Clinic
The Abrahamson Pediatric Eye Institute and the Division of Pediatric Ophthalmology successfully recruited Dr. Robert Sisk, a vitreoretinal specialist, in FY2009. Dr. Sisk completed both an Internship in Internal Medicine and a Residency in Ophthalmology at the University of Cincinnati. He completed his training with a fellowship in adult and pediatric vitreoretinal surgery at the Bascom Palmer Eye Institute. He will provide care to neonates, infants, and young children at Cincinnati Children’s Hospital Medical Center. Dr. Sisk specializes in all medical and surgical diseases of the retina, vitreous. He has special interests in pediatric retinal and surgical diseases, hereditary diseases of the retina, and retinal
Visual Systems Group: Research Accomplishments

The Visual Systems Group of Pediatric Ophthalmology welcomed two new faculty members in FY2009. Zubair Ahmed, Ph.D. and Saima Riazuddin, Ph.D. are both geneticists studying the mechanisms of ocular development and disease in the human population. Their recruitment fulfills the mission of Dr. West and Dr. Lang, and their vision to develop a successful basic science research initiative at CCHMC, focused solely on the development and disease processes of the visual system. The Visual Systems Group, of Pediatric Ophthalmology, is poised to continue their significant contributions to science and translational medicine, well into the next decade.

Division Publications


### Grants, Contracts, and Industry Agreements

#### Grant and Contract Awards

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