

Division of Pediatric Ophthalmology

DIVISION PROFILE	
Number of Faculty	11
Number of Fellows	
Research Fellows	6
Number of Graduate Students	1
Number of Support Personnel	27
Annual Total Grant Support (direct)	\$550,000
Annual Total Industry Contracts (direct)	\$427
Number of Peer Reviewed Publications	21
Patient Encounters	
Outpatient	15,522
Inpatient	600
Surgical Cases	1,261

FACULTY LISTING

Constance E. West, MD, Associate Professor, Division Director, Pediatric Ophthalmology and Abrahamson Pediatric Eye Institute
James Augsburger, MD, Professor, Chairman Department of Ophthalmology, University of Cincinnati
Marlet Bazemore, MD, Assistant Professor, Co-Director of Medical Student Education in Ophthalmology
Nadean Brown, PhD, Assistant Professor
Tiffany Cook, PhD, Assistant Professor
Adam Kaufman, MD, Associate Professor
Richard Lang, PhD, Professor, Emma and Irving Goldman Scholar
Sarah Lopper, OD, Clinical Instructor
William Walker Motley, MD, Assistant Professor, Co-Director of Medical Student Education in Ophthalmology
Daniele Saltarelli, OD, Clinical Instructor
Michael Yang, MD, Assistant Professor



*Left to Right: (1st row) M. Yang, C. West, S. Lopper
 (2nd row) T. Cook, M. Bazemore, W. Motley, D. Saltarelli, N. Brown*

OVERVIEW

The research within the ophthalmology division continues to grow. Dr. Tiffany Cook was added to the visual development group based on her work related to color receptor differentiation. In organisms ranging from flies to humans, the functional integrity of photoreceptors relies on the expression of the light-sensing photopigments, called opsins, within these cells. Mutations in opsin expression in humans not only lead to certain forms of color blindness, but also to more dramatic juvenile and age-related forms of retinal degeneration. Dr. Cook has identified a number of transcription factors involved in opsin gene expression in the fruit fly, *Drosophila melanogaster*, which are critical for color photoreceptor differentiation and function. Importantly, the vertebrate counterparts for these factors have recently been shown to function during retinogenesis in mouse models as well. These data suggest an even higher level of similarity between the fly and vertebrate eye than previously realized. Dr. Cook's research will continue to examine the role that these factors play during photoreceptor differentiation in the fly and will collaborate with other researchers in the Visual Systems Group to test the conservation of these functions in the development and maintenance of the vertebrate retina.

Dr. Marlet Bazemore has completed coursework at the Harvard School of Public Health towards earning a Masters in Public Health. Dr. Bazemore is conducting a randomized, double-blinded, clinical trial evaluating the efficacy of oral sucrose as an analgesic agent for preterm infants undergoing retinopathy of prematurity exams, which have long been deemed painful for the infants. Use of sucrose has been supported in the literature for other types of painful procedures such as circumcision and heel-sticks. If efficacious in this capacity, the use of oral sucrose could change the way these exams are performed, based on the low risk and cost of using such an agent.

HIGHLIGHTS

Dr. Yang has been awarded a \$30,000 grant by the Knights Templar Eye Foundation to fund his research project titled "Race, Gender, Illness Severity and Retinopathy of Prematurity." Retinopathy of prematurity (ROP) is a disease of the blood vessels in the developing retina of premature babies that can progress to retinal detachment and blindness. Previous studies have found a racial difference in the disease with Caucasian premature babies having twice the rate of severe ROP as compared with African American premature babies. Since sicker babies are generally known to have more severe ROP, the apparent racial difference in the rate of severe ROP may be due to racial differences in the severity of illness. Dr. Yang plans to use previously developed illness severity scores that measure how sick a premature baby is in early life and determine whether racial differences in illness severity are responsible for the racial differences in ROP. Illness severity scores may also be used to predict severe ROP and help develop schedules for eye exams that concentrate on the babies most likely to develop severe ROP.

Dr. Nadean Brown's research continues to investigate the regulation and function of the transcription factor Math5, which is critically required for retinal ganglion cell and optic nerve formation. These studies use the mouse and fruit fly model systems and are aimed at advancing our understanding of retinal ganglion cell formation and differentiation. The overall goal of these studies is to contribute information to the process of optic nerve formation for potential therapeutic use in glaucoma, optic nerve aplasia/hypoplasia and diabetic conditions where the optic nerve is malformed or degenerated. Recent findings were presented by Dr. Brown as invited papers at the Association for Research in Vision and Ophthalmology Annual Meeting and the Visual Systems Development Gordon Conference and by laboratory members as posters at the Great Lakes Vision Research Conference, the Developmental Basis of Evolutionary Change International Conference and the 63rd Annual Meeting of the Society for Developmental Biology.

Drs. Lang and West are continuing their collaboration on a research project to develop a cell-based therapy for cataracts. Their experimental strategy is to develop the techniques for production, identification and isolation of lens progenitor cells from mouse embryonic stem cells, and then to determine whether lens progenitors will form a lens in situ after implantation in the empty lens capsule of an experimental animal. Dr. West is actively involved in the Pediatric Eye Disease Investigator Group.

Dr. Motley has coordinated the teaching activities for the division of pediatric ophthalmology including the education of medical students, residents in ophthalmology, pediatrics and internal medicine-pediatrics. Dr. Motley has served as a mentor to medical students in the writing of three papers studying the cost-effectiveness of vision screening, prism-adaptation testing for esotropia and pediatric intraocular lens implantation vision.

Dr. Lopper began a pediatric low vision clinic in association with the Cincinnati Association for the Blind in July, 2003. This monthly clinic services children in the surrounding Tri-State area who are visually impaired and are in need of low vision services and/or additional magnification for improved visual function for distance and near tasks. She has also initiated two clinical collaborations at Cincinnati Children's Hospital with the Division of Rheumatology and the Departments of Occupational Therapy and Physical Therapy. The relationships were developed to improve continuity of care and communication with the Ophthalmology Division. The Division of Rheumatology has established a database for children with juvenile rheumatoid arthritis and subsequent eye findings. Dr. Lopper's involvement included designing and implementation of a new template for screening examinations as well as serving as the primary doctor for these referrals and data collection.

Dr. Saltarelli has established a contact lens clinic for the treatment and management of infants and children who require specialized contact lens fittings. These services have been used primarily to assist infants after congenital cataract removal, however Dr. Saltarelli is working on expanding contact lens services to children with a variety of ocular conditions including pathological myopia, high hyperopia with associated strabismus, amblyopia, and certain ocular traumas. Currently he is experimenting with newer hyper-oxygen permeable lens products, and is working toward securing funding for a contact lens related study.

Carol Weinel, Vision Screening Coordinator, administers screening to schools and health fairs in our surrounding community in partnership with the Abrahamsom Pediatric Eye Institute. Dr. Ira Abrahamsom was instrumental in the formation of the Institute. The institute has enhanced thousands of lives.

TRAINING

Bharesh Kumar Chauhan, PhD	Oxford University, Oxford, England
Ivan Lobov, PhD	Institute of Cytology, Russian Academy of Sciences, St. Petersburg, Russia
Leigh-Anne Millder, PhD	University of Cincinnati, Cincinnati, Ohio
Jennifer Ondr, PhD	Washington University, St. Louis, Missouri
Virgilio Ponferrada, PhD	Wright State University, Dayton, Ohio
Sujata Rao, PhD	Cornell University, Ithaca, New York

GRANTS, CONTRACTS AND INDUSTRY AGREEMENTS

Grant and Contract Awards	Annual Direct/Project Period Direct
Lang, R	
A Cell Based Therapy for Cataracts	
National Institutes of Health	
R03 EY 014826	08/01/03 – 07/31/06 \$100,000/\$300,000
Molecular Regulation of Lacrimal Gland Branching	
National Institutes of Health	
R01 EY 14102	09/30/01 – 08/31/06 \$200,000/\$1,075,000
The Mechanisms of Lens and Lacrimal Gland Development	
National Institutes of Health	
R01 EY 11234	01/01/02 – 12/31/04 \$250,000/779,545
Current Year Direct	\$550,000

Industry Contracts

West, C

Merck & Co., Inc.

\$427

Current Year Direct Receipts

\$427

TOTAL

\$550,427

PUBLICATIONS

1. **Augsburger JJ**, Asbury T. Genetic aspects of ocular diseases. In: Riordan-Eva P, Whitcher J, Vaughan-Whitehead D, Asbury T, editors. Vaughan & Asbury's general ophthalmology 16th ed. New York ; McGraw-Hill; 2003. p. 363-369.
2. **Augsburger JJ**. Epidemiology of retinoblastoma. In: Albert DM, Polans A, editors. Ocular oncology. New York: Marcel Dekker; 2003. p. 47-61.
3. **Augsburger JJ**, Asbury T. Ocular and orbital trauma. In: Riordan-Eva P, Whitcher J, Vaughan-Whitehead D, Asbury T, editors. Vaughan & Asbury's general ophthalmology 16th ed. New York ; McGraw-Hill; 2003. p. 371-379.
4. Augsburger JJ, Anand R, Sandorn GE. Choroidal hemangiomas. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1081-1084.
5. **Augsburger JJ**, Bolling JP. Hypertrophy of retinal pigment epithelium. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1095-1096.
6. **Augsburger JJ**, Bolling JP. Phakomatoses. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1097-1102.
7. **Augsburger JJ**, Bornfeld N, Giblin M. Retinoblastoma. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1043-1051.
8. **Augsburger JJ**, Bornfeld N, Correa ZMS. Hemangiomas of retina. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1089-1092.
9. **Augsburger JJ**, Cruess AF. Astrocytoma of retina. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1087-1092.
10. **Augsburger JJ**, Damato BE, Bornfeld N. Uveal melanoma. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1052-1063.
11. **Augsburger JJ**, Guthoff R. Metastatic cancer to the eye. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1064-1069.
12. **Augsburger JJ**, Guthoff R. Choroidal osteoma. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1085-1086.
13. **Augsburger JJ**, Harbour JW, Gonder JR. Uveal nevus. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1077-1080.
14. **Augsburger JJ**, Meyers S. Combined hamartoma of the retina. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1093-1094.
15. **Augsburger JJ**, Schneider S. Medulloepithelium. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1075-1076.
16. **Augsburger JJ**, Schneider S. Tumors of the conjunctiva and cornea. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 535-545.
17. **Augsburger JJ**, Tsiaras WG. Lymphoma and leukemia. In: Yanoff M, Duker JS, editors. Ophthalmology 2nd ed. St. Louis, MO: Mosby; 2004. p. 1070-1074.

18. **Motley WW, 3rd, Kaufman AH, West CE.** Pediatric airbag-associated ocular trauma and endothelial cell loss. *J Aapos* 2003;7(6):380-3.
19. **Saltarelli D,** Wildsoet C, Nickla D, Troilo D. Susceptibility to form-deprivation myopia in chicks is not altered by an early experience of axial myopia. *Optom Vis Sci* 2004;81(2):119-26.
20. Kushner BJ, **West CE.** Monovision may be detrimental to patients with strabismus. In: Balkan RJ, Ellis GS, 2nd, Eustis HS, editors. *At the crossings: pediatric ophthalmology and strabismus (Proceedings of the 52nd annual symposium of the American Academy of Ophthalmology)*. The Hague, The Netherlands: Kugler; 2004. p. 77-86.
21. **Yang MB.** Ethnic variation in the incidence and severity of retinopathy of prematurity: possible explanations, including racial differences in illness severity. *Int Ophthalmol Clin* 2003;43(4):91-103.