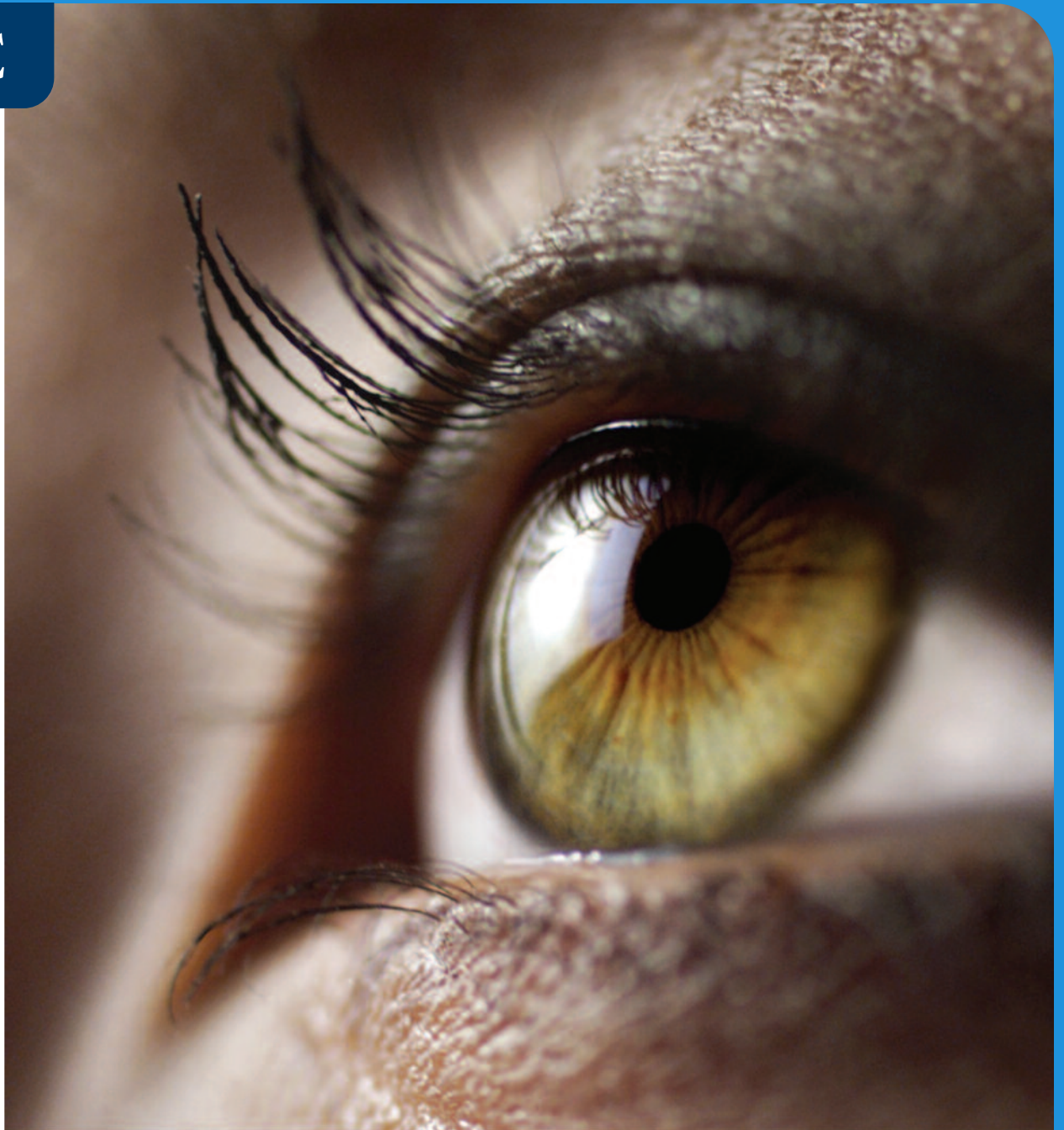


UPMC



# 2008 Highlights

*UPMC Eye Center*

*Department of Ophthalmology*

*University of Pittsburgh  
School of Medicine*

# Table of Contents

- Vision..... 2**
- Chairman’s message..... 3**
- Clinical activities..... 4**
- Research and other scholarly activities ..... 6**
- New research initiatives ..... 8**
- Faculty ..... 10**

UPMC Eye Center's mission  
is to improve the quality of  
life through the preservation  
and restoration of vision.

## The Vision of UPMC Eye Center is to:

- be a leader in the delivery of eye care
- advance the frontiers of eye research
- educate current and future generations in the fundamentals and state-of-the-art in eye health, disease and treatment
- bring innovations in science and technology from the laboratory to our patients

### We achieve these goals in a number of ways:

**Clinical patient care** — UPMC Eye Center is rated among the top ophthalmology programs in the United States in the delivery of patient care. We value excellent quality care combined with outstanding service. We personalize care to each individual patient.

**Research** — UPMC Eye Center, the Department of Ophthalmology of the University of Pittsburgh School of Medicine, has one of the top basic and clinical research programs in the country. Among the top ranked programs in the United States in National Eye Institute funding, UPMC Eye Center's research focuses on ocular immunology, infectious disease, ocular wound healing, molecular biology of retinal and corneal development and disease, glaucoma, and advanced diagnostic technology invention and development.

**Teaching** — UPMC Eye Center has an outstanding teaching program, training six residents per year in a three-year program. Graduates have gone on to clinical, research, and combined clinician-scientist careers. UPMC Eye Center is at the forefront of continuing medical education, providing both ongoing and specialized educational opportunities.



**Joel S. Schuman, MD, FACS**

Eye and Ear Foundation  
Professor and Chairman,  
Department of Ophthalmology  
University of Pittsburgh  
School of Medicine  
Director, UPMC Eye Center

## *Dear Colleague —*

I am pleased to present the UPMC Eye Center, the Department of Ophthalmology of the University of Pittsburgh School of Medicine 2008 Highlights. This collection represents the work of our faculty — basic scientists and clinicians — as well as our trainees — residents and graduate, postdoctoral, and medical students. We have had a productive year, and we hope that you will enjoy reading this brief version of our department's clinical activity, advancements and research.

2008 was an important year for the UPMC Eye Center's research program, as we were awarded a prestigious T32 training grant award from the National Institutes of Health's National Eye Institute. In addition, we welcomed a number of distinguished new faculty members, including the following:

### **Basic Scientists:**

- **Shiva Swamynathan, PhD, corneal developmental biology**
- **Valeria Fu, PhD, pediatric ocular motility and electrophysiology**

### **Clinicians:**

- **Marshall Stafford, MD, comprehensive ophthalmology and glaucoma**
- **Edmond Watters, MD, comprehensive ophthalmology**
- **Larissa Camejo, MD, glaucoma and cataract surgery**
- **Xiaoqin (Alexa) Lu, MD, cornea and refractive surgery**
- **Christin Sylvester, DO, pediatric ophthalmology and strabismus**
- **Alexander Anetakis, MD, vitreoretinal surgery**

In an effort to enhance the overall academic experience for our graduate students and residents, the department has pursued several initiatives designed to offer new opportunities and forums for group interaction. Program highlights include:

- **Scholars in Vision science lecture participation —** Graduate students and residents attend and present at our new Scholars in Vision science lecture series. Graduate students present material to make the guest speaker's lecture more accessible to our clinicians. Residents present clinical background material that make the guest speaker's lecture more accessible to our basic scientists.
- **Faculty research retreat participation —** We conducted our first department wide retreat this year. Clinical and basic science faculty presented their current research. Guest speakers spoke about best practices and strategies for creating a successful research program and obtaining funding.
- **Joint graduate student-resident retreat —** As a follow-up to faculty research retreat, the graduate students and residents participated in a separate, trainee-only retreat to work on strategies to continue the resident-graduate student interactions that were initiated at the department retreat.

By every measure — clinical work RVUs, procedure volume, gross charges — the UPMC Eye Center's clinical productivity increased with superb clinical outcomes. Our physicians offered the full spectrum of eye care — including comprehensive subspecialty care — on our main academic campus and expanded this offering to include seven suburban locations.

As always, we welcome your comments, questions, or suggestions. Please feel free to contact me at any time.

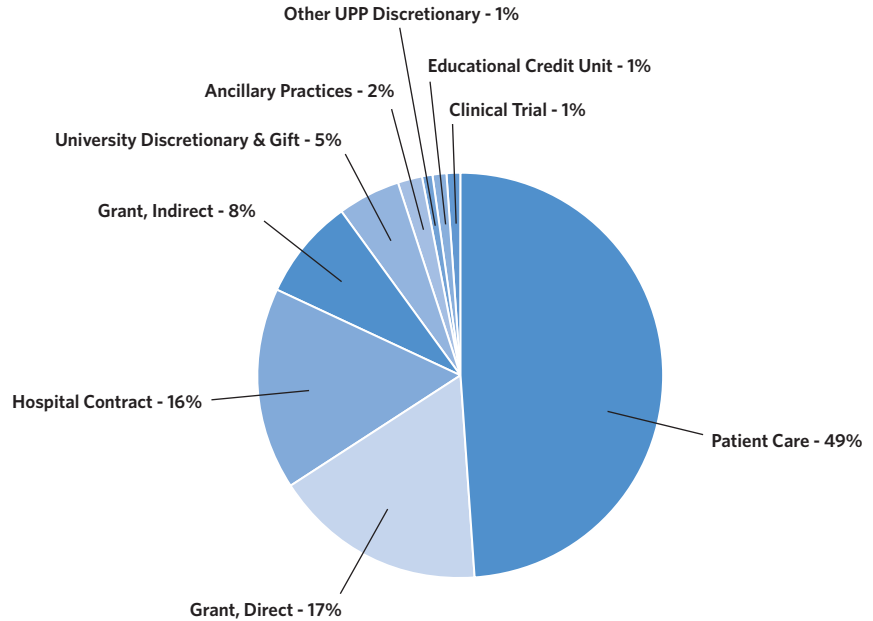
Sincerely,

A handwritten signature in black ink that reads "Joel S. Schuman". The signature is fluid and cursive.

Joel S. Schuman, MD, FACS

## Revenues

### Consolidated Revenue Mix, FY08



## Productivity of Professional Clinical Services

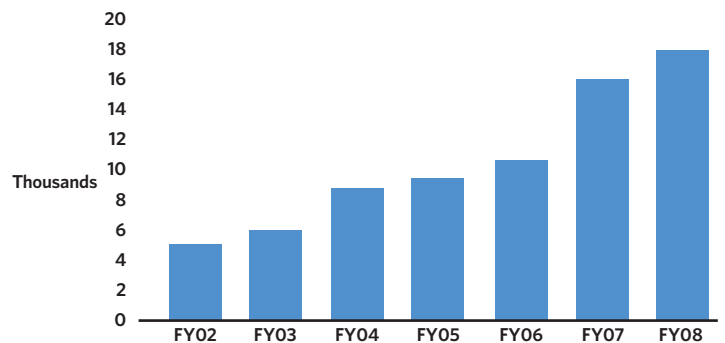
All core clinical productivity indicators increased substantially during FY08 in comparison to FY07, continuing a seven-year favorable trend in professional clinical service growth. The following table illustrates a comparison of FY08 vs. FY07 performance in key clinical service production indicators.

Production Metric	% Growth
Gross Charges	15.9%
Net Payments	18.7%
Work RVUs	26.9%
E&M Services *	29.3%
Procedures	10.5%

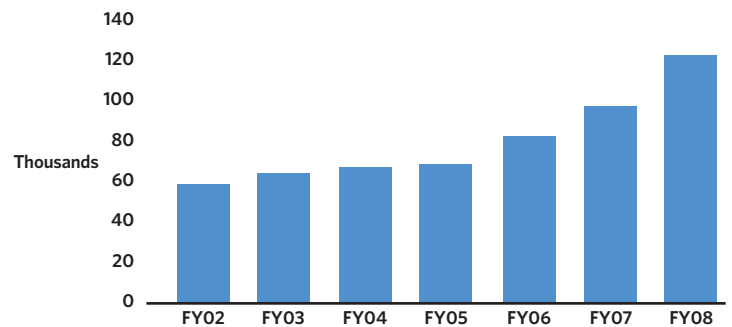
\* Includes both professional office and hospital sites of service.

## Patient Care Productivity - Departmental Totals

### Clinical Work RVUs



### Procedures

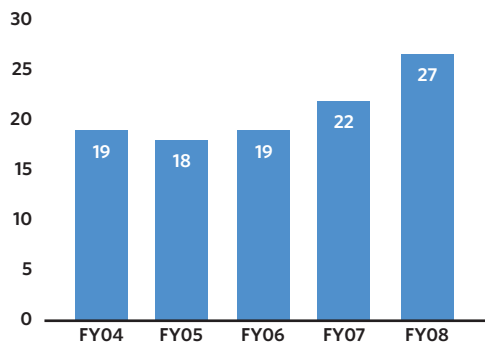


The volume of work RVUs and clinical procedures respectively increased by 27 percent and 11 percent from FY07 to FY08, demonstrating continuation of the favorable growth trends experienced over the past seven years.

## Patient Care Productivity - Trends per Clinical Faculty Including Fellows

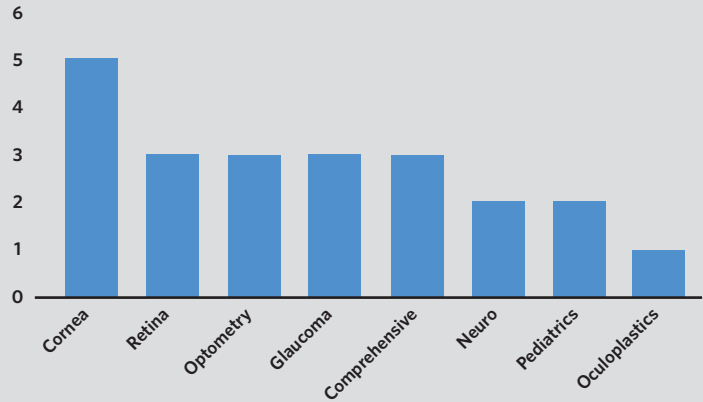
### Consolidated Revenue Mix, FY08

Clinical faculty staffing remained consistent from FY04 through FY06, and increased in FY07 and FY08 as a result of successful recruitment seasons, and the establishment of new clinical fellowship programs in Pediatric Ophthalmology and Oculoplastic Surgery. Clinical headcount is comprised of physicians with combined UPP and School of Medicine employment, and physicians employed solely by UPP inclusive of clinical fellows. Headcount is defined as the total number of faculty employed at the end of each fiscal year.



## Patient Care Productivity - FY08 Clinical Faculty Metrics Excluding Fellows

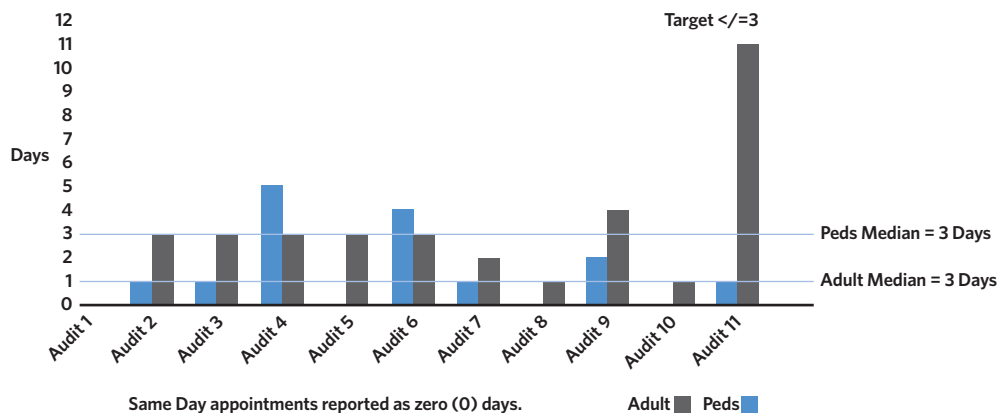
### Clinical Faculty Headcount by Specialty, Excluding Fellows, 2008.



## Availability of Office-Based Care

### Appointment Availability Audit Results, FY08

Compliance with the corporate wide appointment availability standard of offering an appointment within 72 hours (3 business days) was favorable for both the department's adult and pediatric lines of business.



## Clinical Programs: Focus on Satellite Office Expansion

During FY08, UPMC Eye Center continued its tradition of excellence in clinical program development through the maintenance and enhancement of existing programs designed to broaden service delivery to our patients. Significant attention was afforded to satellite office expansion efforts during FY08 as part of our strategic mission to treat and serve new populations in need of eye care. In addition to the main campus-based practice, UPMC Eye Center offered comprehensive and subspecialty care in seven suburban locations.

## Trends in Research Support

Research funding in the Department of Ophthalmology has increased steadily over the past seven years — from \$3.5 million in 2001 to over \$5.3 million in 2008. The department continues to rank among top ophthalmology departments nationally in funding from the National Eye Institute of the National Institutes of Health.

## Key Research Accomplishments and Initiatives

During FY08, the research interests of our faculty continued to expand with new recruits and new initiatives by our existing faculty. The quality of our departmental research effort is continually enhanced by the collaborative and synergistic nature of our faculty.

## Improved Core Facilities Foster Growth in New Research

Continuing upgrades to our departmental core imaging facilities have been instrumental in the funding of one new R01 grant and the competitive renewal of four others during FY08.

James Funderburgh, PhD obtained a new NIH R01 grant to study the properties of corneal stromal stem cells. Dr. Funderburgh was first to identify stromal stem cells based on observations of unique morphology made in our confocal microscopy facility. He subsequently isolated the stem cells using our departmental fluorescence activated cell sorter facility. Dr. Funderburgh also used the imaging, gene expression, tissue culture, hybridoma, and molecular biology modules of our Core Grant for Vision Research to obtain a competitive edge in the successful renewal of another R01 grant to study proteoglycans in corneal wound healing. That grant is now in its 15th year.

Heavy use of the departmental core facilities was also instrumental in the success of Robert Hendricks, PhD competitive renewal of two NIH R01 grants entitled “Cytokines and Adhesion Molecules in HSV Keratitis,” now in its 15th year, and “Cytotoxic Lymphocytes and HSV-1 Corneal Lesions” now in its 22nd year.

Nirmala Sundar-Raj, PhD also credited the outstanding facilities and services of the departmental core grant for her success in competing for renewed funding of her NIH R01 grant entitled “Corneal Homeostasis and Repair,” now in its 26th year.

The availability of newly-acquired and state-of-the-art clinical imaging equipment has enabled Joel S. Schuman, MD, Eye and Ear Foundation professor and chairman, and colleagues to identify a previously unrecognized component of eye movement, and to experiment with novel approaches to contrast enhancement with nanoparticles. The source and universality of the newly-discovered fore and aft form of eye movement is being evaluated through collaboration with departmental colleague Dongsheng Yang, PhD, and was the subject of a recently submitted R21 grant entitled “Fore-aft Eye Movement.”

Attempts to enhance OCT resolution through the use of nanoparticles is progressing through collaboration with departmental colleagues Gadi Wollstein, MD and Valeria Fu, PhD, and is the subject of a recently submitted R21 grant entitled “Nanoparticles as OCT Contrast Agents.”

## Corneal Wound Healing

Corneal wound healing continues to be a strength of our department with contributions from Drs. James Funderburgh, and Nirmala Sundar-Raj, and Jes Klarlund, PhD. These investigators combine skills in biochemistry, cell biology, and cell signaling to address key issues of wound healing including: signals inducing epithelial cell movement into wounds; differentiation and extracellular matrix production by keratocytes in wounded corneas; and corneal regeneration through the use of corneal stromal stem cells.

## Infectious Eye Disease

Infectious eye disease is another significant strength of our research faculty. A highly interactive group of investigators including bacterial geneticist Robert Shanks, PhD, virologists Paul R. Kinchington, PhD and Jerold Gordon, MD, and viral immunologist Dr. Hendricks, address issues including:

- the mechanisms of bacterial biofilm formation, development and evaluation of antiviral drugs and antibiotics for ocular use;
- the contribution of Varicella Zoster proteins to ocular infectivity and immune evasion; and
- the role of the immune system in immunopathology in herpes simplex virus type 1 (HSV-1) infected corneas, and in the maintenance of HSV-1 latency in sensory neurons.

Drs. Shanks and Gordon collaborate closely in developing animal models of ocular bacterial infections, while Drs. Kinchington and Hendricks also maintain close collaboration in developing viral reagents to explore host immunity to HSV-1 corneal infections.

## Ocular Development

The arrival of Shiva Swamynathan, PhD has expanded our departmental research efforts in the area of ocular development. Dr. Swamynathan's studies of the developmental biology of the conjunctiva and cornea complements the studies of Xiangyun Wei, PhD in the area of retinal development. Through collaboration with Dr. Wei, Dr. Swamynathan is now adding zebrafish models to his research program.

## Ocular Immunology

Kyle C. McKenna, PhD continues to enhance our departmental efforts in ocular immunology. Dr. McKenna is examining the effect of the microenvironment of the immune privileged anterior chamber of the eye on the immune response to intraocular tumors. His interest in the biology of macrophages and CD8 T cells complements the interests of Dr. Hendricks, who studies immunity to ocular viral infections.

## Pediatric Ocular Motility & Electrophysiology

As anticipated, the addition of Dr. Fu, to the research faculty during FY08 provided additional expertise in electrophysiology and psychophysics that nicely augmented the eye movement studies of Richard Hertle, MD, and Dr. Yang. Together, these investigators have initiated comprehensive studies of infants and children with binocular visual disorders such as strabismus and amblyopia.

## Ophthalmic Imaging

The department's glaucoma imaging group, headed by Dr. Schuman, in collaboration with colleagues, Hiroshi Ishikawa, MD, Gadi Wollstein, MD, Larry Kagemann, and Richard Bilonick, PhD, has continued to expand and develop new initiatives. This group continues to be at the forefront of efforts to develop and enhance ocular coherence tomography (OCT) imaging for the diagnosis and monitoring of glaucoma, diabetic retinopathy, age-related macular degeneration, and other ocular diseases. In addition, the group has developed collaborations with departmental colleagues Dr. Wei, (using OCT to document zebrafish development), Dr. Yang, (using OCT to measure a new form of eye movement), and Dr. Fu, (to develop new forms of contrast enhancement).

Several new research initiatives were launched as a result of recruitment and collaborative interactions among our faculty. Moreover, the availability of cutting-edge technology within our departmental core facilities has enabled continuing research projects to progress at an unprecedented rate. Key initiatives for FY08 are highlighted below.

## **Robert Shanks, PhD: The Molecular Requirements of Bacteria Biofilm**

During FY08, Dr. Shanks built upon the novel work he established since joining the faculty in FY07. He has initiated an exciting new research project designed to identify molecular requirements for bacterial biofilm formation by the ocular pathogen *Serratia marcescens*. The recently-discovered capacity of certain bacteria to form these biofilms on abiotic surfaces (for example, intraocular lenses and catheters, etc.) has spawned an exciting field of research aimed at identifying the changes in bacterial physiology (that is, drug resistance) and identifying the genes that predispose certain bacteria to assume this lifestyle. As a bacterial geneticist trained by a leader in the field of bacterial biofilm formation, Dr. Shanks is well-positioned to lead our departmental research in this new and exciting direction.

He has joined the Campbell Ophthalmic Microbiology group headed by Dr. Gordon, and will benefit from the extraordinary resources and technology afforded by that group. This work led to the recent submission by Dr. Shanks of a new R01 grant entitled "Serratia marcescens adhesion and exoenzyme regulation by CpdA."

## **Kyle McKenna, PhD: Ocular Oncology**

Dr. McKenna, also joined the faculty in FY07 and has made significant progress over the course of FY08 in the field of ocular oncology. Dr. McKenna is an immunologist with an interest in the general field of macrophage biology, and a specific interest in the influence of the intraocular microenvironment on the development of tumors. In collaboration with Walter Storkus, PhD, Juan Ochoa, MD, and Dr. Hendricks, he is studying the role of macrophages in subverting the immune response to intraocular tumors.

## **Shiva Swamynathan, PhD: Corneal Development and Ocular Developmental Biology**

Dr. Swamynathan, joined our department during the first quarter of FY08. Since his arrival, he has established an independent research project investigating the developmental biology of the cornea and conjunctiva. His work is supported by a K22 grant, the first such grant awarded by the National Eye Institute. Dr. Swamynathan has expanded an already strong departmental research effort in developmental biology of the eye.

A complementary program headed by Dr. Wei, investigates the mechanisms of photoreceptor positioning and polarization during development. Dr. Wei's work continues to be supported by an NIH R01 grant entitled "Retinal Epithelial Polarity and Cellular Patterning," now in its third year.

## Valeria Fu, PhD: Pediatric Ocular Motility & Electrophysiology

Dr. Fu joined our department during the second quarter of FY08. Dr. Fu is a neuroscientist in the field of electrophysiology and psychophysics. Her research focuses on the use of visual evoked potentials to define the normal and abnormal development of infants and children with binocular visual disorders such as amblyopia and strabismus. She incorporates both behavioral studies and neuronal extracellular electrophysiological recording to study oculomotor abnormalities associated with amblyopia and strabismus. She is developing binocular sensory testing such as random dot distance stereoacuity tests, and evaluating their utility in surgical decision-making and surgical outcome evaluation. She is also using clinical ocular recordings to assess the relationship between eye movement parameters and acuity during infancy in patients with infantile nystagmus syndrome and strabismus, and to evaluate the predictive value of early acuity measurements for long-term outcome.

Dr. Fu's long-term research interest is in developing preventative strategies, visual evaluation protocols, and treatment plans that would minimize pediatric visual deficits for infants and children with binocular visual disorders such as strabismus and amblyopia with the aid of electrophysiological testing such as visual evoked potentials and electroretinogram, as well as the clinical ocular recording techniques. She works closely with Drs. Hertle and Yang.

## Training and Project Grants

The training of graduate students in the Department of Ophthalmology was facilitated by the recent funding of a T32 Grant entitled "Interdisciplinary Visual Sciences (IVS) Training Program" (Robert L. Hendricks, PI). This is the first T32 training grant ever awarded to our department, and is a reflection of the continued excellence of our departmental faculty in mentoring graduate students.

Over the past year, one of our department doctoral candidates, Jared Knickelbein, was awarded an F30 individual training grant entitled "Maintenance of Herpes Simplex Type 1 Neuronal Latency by CD8 T cells" by the National Institutes of Neurological Disorders and Stroke. Another of our doctoral candidates, Angela Erazo, successfully competed for funding on a T32 training grant entitled "Immunology of Infectious Disease." Awarding of individual training grants as well as slots on T32 training grants is quite competitive, underscoring the quality of the graduate students and training programs within our department.

The department remains as one of approximately 40 departments/institutes nationally that are supported by a Core Grant for Vision Research from the National Eye Institute. The Core Grant (Robert L. Hendricks, PI) provides \$2.9 Million in ancillary support of the departmental research projects.

## Graduate and Other Students Participating in Research

Our Ophthalmology and Visual Sciences Research Center continues to provide a popular venue for graduate training. Currently 12 graduate students are pursuing PhD research within the department. Of these, five are PhD candidates from the Interdisciplinary Biomedical Graduate Program, one is a MD/PhD candidate from the Medical Science Training Program, and three are PhD candidates from the Bioengineering program. During the past year, three students received PhD degrees under the mentorship of departmental faculty.

## Academic Year 2007-2008

### **Joel S. Schuman, MD, FACS**

Eye and Ear Professor and Chairman  
of Ophthalmology  
Director of UPMC Eye Center

### **Alexander Anetakis, MD**

Clinical Assistant Professor of  
Ophthalmology  
Retina and Vitreous Service

### **Richard A. Bilonick**

Assistant Professor of Ophthalmology  
Biostatistician

### **Gabrielle R. Bonhomme, MD**

Assistant Professor of Ophthalmology  
Neuro-Ophthalmology Service/  
Comprehensive Eye Service

### **Larissa Camejo, MD**

Assistant Professor of Ophthalmology  
Director, UPMC Eye Center Bethel Park  
Glaucoma Service

### **Viki Christopoulos, MD**

Clinical Assistant Professor  
of Ophthalmology  
Cornea, External Disease and  
Refractive Surgery Service

### **Deepinder K. Dhaliwal, MD**

Associate Professor of Ophthalmology  
Director, Cornea, External Disease  
and Refractive Surgery Service  
Chief of Refractive Surgery

### **Andrew W. Eller, MD**

Associate Professor of Ophthalmology  
Retina and Vitreous Services  
Director, Ocular Trauma Service

### **Thomas R. Friberg, MD**

Professor of Ophthalmology  
Retina and Vitreous Service

### **Valeria Fu, PhD**

Visiting Assistant Professor  
of Ophthalmology  
Director of Electrophysiological Testing

### **James L. Funderburgh, PhD**

Associate Professor of Ophthalmology  
Departments of Ophthalmology  
& Cell Biology & Physiology

### **Denise S. Gallagher, MD**

Clinical Assistant Professor  
of Ophthalmology  
Retina Service

### **Y. Jerold Gordon, MD**

Professor of Ophthalmology  
Director, Charles T. Campbell Ophthalmic  
Microbiology Laboratory

### **Stephen A. K. Harvey, PhD**

Research Associate of Ophthalmology

### **Robert L. Hendricks, PhD**

Joseph F. Novak Professor and  
Vice-Chair for Research  
Departments of Ophthalmology,  
Molecular Genetics & Biochemistry  
and Immunology  
Director, Ophthalmology &  
Visual Sciences Research Center

### **Richard W. Hertle, MD**

Professor of Ophthalmology  
Chief of Pediatric Ophthalmology  
and Strabismus Service

### **Hiroshi Ishikawa, MD**

Assistant Professor of Ophthalmology  
and Bioengineering  
Director, Ocular Imaging Center

### **Lawrence Kagemann, MS, MSE**

Research Instructor of Ophthalmology  
and Bioengineering

### **Paul (Kip) R. Kinchington, PhD**

Associate Professor of Ophthalmology,  
Molecular Genetics and Biochemistry,  
The Campbell Laboratory for Infectious  
Eye Diseases

### **Jes K. Klarlund, PhD**

Associate Professor of Ophthalmology,  
Molecular Genetics and Biochemistry,  
Ocular Signal Transduction Laboratory

### **Regis P. Kowalski, MS, BS, [M]ASCP**

Research Associate Professor of  
Ophthalmology  
Manager, Charles T. Campbell Oph-  
thalmic Microbiology Laboratory

### **Xiaoqin (Alexa) Lu, MD**

Assistant Professor of Ophthalmology  
Director, UPMC Eye Center Monroeville  
Cornea, External Disease and Refractive  
Surgery Service

**Craig O. Luchansky, OD**

Clinical Assistant Professor of  
Ophthalmology  
Contact Lens and Low Vision Service

**Francis S. Mah, MD**

Assistant Professor of Ophthalmology  
Director, UPMC Eye Center Wexford  
Cornea, External Disease and  
Refractive Surgery Service  
Co-Medical Director, Campbell  
Ophthalmic Microbiology Laboratory

**Kyle C. McKenna, PhD**

Assistant Professor of Ophthalmology  
Laboratory of Ocular Tumor Immunology

**Amy C. Nau, OD**

Visiting Assistant Professor  
of Ophthalmology  
Director of Contact Lens and Low  
Vision Service

**Robert J. Noecker, MD, MBA**

Associate Professor of Ophthalmology  
Vice Chair, Department of Ophthalmology  
and UPMC Eye Center  
Director, Glaucoma and Anterior Segment  
Surgery Service

**Gale S. Pollock, Major General (Ret)**

Executive Director, Center for Vision  
Restoration

**Hazem M. Samy, MD**

Assistant Professor of Ophthalmology  
Director, Neuro-Ophthalmology Service  
Comprehensive Ophthalmology Service

**Robert M. Q. Shanks, PhD**

Associate Professor of Ophthalmology  
The Campbell Laboratory for Infectious  
Eye Diseases

**Marshall W. Stafford, MD**

Clinical Assistant Professor of  
Ophthalmology

**S. Tonya Stefko, MD**

Assistant Professor of Ophthalmology  
Director, Orbital, Oculoplastics and  
Aesthetic Surgery Service

**Cholappadi V. SundarRaj, OD, PhD**

Clinical Assistant Professor of  
Ophthalmology  
Contact Lens and Low Vision Service

**Nirmala SundarRaj, PhD**

Associate Professor of Ophthalmology,  
Cell Biology and Physiology  
Corneal Wound Healing Laboratory

**Shiva Swamynathan, PhD**

Assistant Professor of Ophthalmology  
Laboratory of Ocular Surface Development

**Christin Sylvester, OD**

Clinical Assistant Professor of  
Ophthalmology  
Pediatric Ophthalmology and  
Strabismus Service

**Edmond C. Watters, MD**

Clinical Associate Professor of  
Director, UPMC Eye Center St. Margaret  
Ophthalmology

**Evan L. Waxman, MD, PhD**

Assistant Professor of Ophthalmology  
Director, UPMC Eye Center Mercy  
Director, Ophthalmic Medical Education  
& Inpatient Consult Services

**Xiangyun Wei, PhD**

Assistant Professor of Ophthalmology,  
Cell Biology and Physiology  
Retinal Development Laboratory

**Gadi Wollstein, MD**

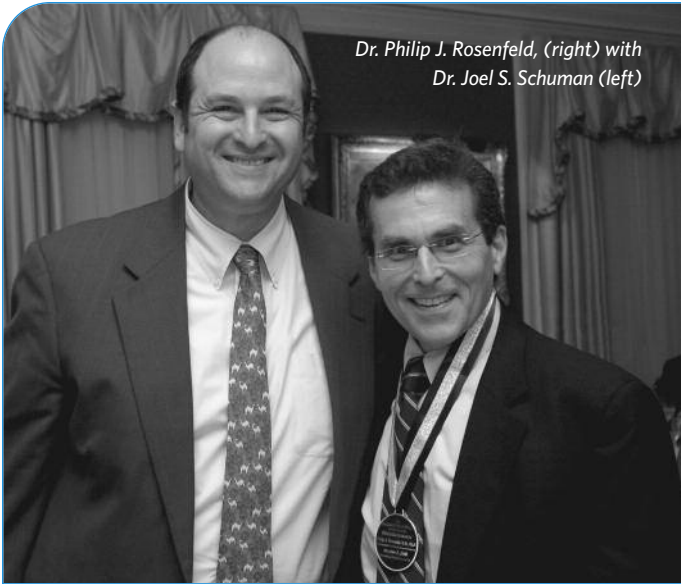
Assistant Professor of Ophthalmology  
Director, Ophthalmic Imaging Research  
Laboratories

**Dongsheng Yang, PhD**

Assistant Professor of Ophthalmology  
and Bioengineering  
Laboratory of Visual and Ocular  
Motor Physiology

**Jenny Y. Yu, MD**

Visiting Assistant Professor of  
Ophthalmology  
Orbital, Oculoplastics and Aesthetic  
Surgery Service



*Dr. Philip J. Rosenfeld, (right) with  
Dr. Joel S. Schuman (left)*

### **Muse Prize Awarded to Philip J. Rosenfeld, MD, PhD**

With a single gift from a grateful patient, Philip J. Rosenfeld, MD, PhD, professor of ophthalmology and a retina specialist at the Bascom Palmer Eye Institute of the University of Miami Miller School of Medicine, transformed the treatment of patients with neovascular age-related macular degeneration.

When industry and federal support was not available, a patient invested in Dr. Rosenfeld's research into injecting Avastin, a drug approved by the United States Food and Drug Administration (FDA) for the treatment of colon cancer, directly into the eye. This breakthrough therapy for the treatment of neovascular AMD halts the progression of wet AMD in patients with many regaining vision just after treatment for the fraction of the cost of other therapies. Today, ophthalmologists all over the world are using this safe, effective, and inexpensive treatment with thousands of patients.

In recognition of this revolutionary discovery and his dedication to the research of diagnosis and treatment of macular diseases, including the genetics of early-onset and late-onset maculopathies, Dr. Rosenfeld was awarded the 2009 Albert C. Muse Prize for excellence in ophthalmology by the Eye & Ear Foundation, the Eye & Ear Institute, University of Pittsburgh School of Medicine and UPMC. The award ceremony and lecture on October 2 and 3, 2008, provided the opportunity for supporters of the Eye & Ear Foundation and professionals in clinical and research areas of ophthalmology in the Pittsburgh region to learn more about this important field of treatment and research.

**UPMC Eye Center**  
**Department of Ophthalmology**  
Eye & Ear Institute  
203 Lothrop St.  
Pittsburgh, PA 15213

**1-800-544-2500**  
[www.upmc.com/eyecenter](http://www.upmc.com/eyecenter)



**Doctors:**

Joel S. Schuman, MD, FACS (Chair)  
 Alexander J. Anetakis, MD  
 Gabrielle R. Bonhomme, MD  
 Larissa Camejo, MD  
 Viki A. Christopoulos, MD  
 Tara Cronin, MD  
 Deepinder K. Dhaliwal, MD  
 Andrew W. Eller, MD  
 Thomas R. Friberg, MD, FACS  
 Denise S. Gallagher, MD  
 Josh Glatman, MD  
 Richard W. Hertle, MD, FACS  
 Jason Liss, MD  
 Xiaoqin (Alexa) Lu, MD  
 Craig A. Luchansky, OD  
 Francis S. Mah, MD  
 Amy C. Nau, OD  
 Robert J. Noecker, MD, MBA  
 Mina B. Pantcheva, MD  
 Shilpi Pradhan, MD  
 Hazem M. Samy, MD, FRCS  
 Marshall W. Stafford, MD, MBA  
 S. Tonya Stefko, MD, FACS  
 Cholappadi V. Sundar-Raj, OD, PhD  
 Christin L. Sylvester, DO  
 Edmond W. Watters, MD  
 Evan L. Waxman, MD, PhD  
 Jenny Yu, MD

**Locations:**

**UPMC Eye Center**  
 Eye & Ear Institute  
 203 Lothrop St.  
 Pittsburgh, PA 15213

**UPMC Eye Center Optical Shop**  
 UPMC Presbyterian, Suite 1100  
 200 Lothrop St.  
 Pittsburgh, PA 15213

**The Children's Eye Center**  
 Children's Hospital of  
 Pittsburgh of UPMC  
 Children's Hospital Drive  
 45th and Penn Ave.  
 Pittsburgh, PA 15201

**Children's North**  
 2599 Wexford Bayne Road  
 Sewickley, PA 15143

**UPMC Eye Center Bethel Park**  
 1300 Oxford Drive, Suite 1-A  
 Bethel Park, PA 15102

**UPMC Eye Center Mercy**  
 UPMC Eye Center Mercy Optical Shop  
 1400 Locust Street, Suite 3103  
 Pittsburgh, PA 15219

**UPMC Eye Center Monroeville**  
 125 Daugherty Drive, Suite 400  
 Monroeville, PA 15146

**UPMC Eye Center St. Margaret**  
 Medical Arts Building, Suite 102  
 100 Delafield Road  
 Pittsburgh, PA 15215

**UPMC Eye Center Wexford**  
 Blaymore 2, Suite 104  
 1603 Carmody Court  
 Sewickley, PA 15143

# UPMC

600 Grant Street | Pittsburgh, PA 15219 | 1-800-544-2500 | [www.upmc.com](http://www.upmc.com)

UPMC is an integrated global health enterprise headquartered in Pittsburgh, Pennsylvania, and one of the leading nonprofit health systems in the United States. As western Pennsylvania's largest employer, with 50,000 employees and \$7 billion in revenue, UPMC is transforming the economy of the region into one based on medicine, research, and technology. By integrating 20 hospitals, 400 doctors' offices and outpatient sites, long-term care facilities, and a major health insurance services division, and in collaboration with its academic partner, the University of Pittsburgh Schools of the Health Sciences, UPMC has advanced the quality and efficiency of health care and developed internationally renowned programs in transplantation, cancer, neurosurgery, psychiatry, orthopaedics, and sports medicine, among others. UPMC is commercializing its medical and technological expertise by nurturing new companies, developing strategic business relationships with some of the world's leading multinational corporations, and expanding into international markets, including Italy, Ireland, the United Kingdom, and Qatar. For more information about UPMC, visit our website at [www.upmc.com](http://www.upmc.com).

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