

Vision for the Future

University of Rochester Eye Institute

Volume IV, Issue ii

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Our Mission

The mission of the Eye Institute is to develop and apply advanced technologies for the preservation, enhancement, and restoration of vision through a partnership of academic medicine, private industry, and the community we serve.

Message from the Director



What a fitting time to host the 50th anniversary celebration of the annual Rochester Ophthalmology Conference. The conference represents Rochester's long history of ophthalmic excellence and collaboration, at the Medical Center and in community practices. The University of Rochester Eye Institute expands the tradition as it takes a leading role in the advancement of eye care at the national level.

As we advance toward our goal of ranking among the top 10 eye institutes, we benchmark progress through our people, research, education, patient care, and technology transfer:

- Doubling in faculty size since 2001, the Eye Institute is now comprised of 11 physicians, two optometrists, five Ph.D. researchers, nine residents, and a staff of 65.
- NIH funding totals more than \$5.5 million in grants.
- In three years we have tripled our number of resident applicants. Four of our nine 2005 residents will be M.D., Ph.D.s.
- Offering access to tertiary clinical specialties, patient volume has increased 80% since 2001 and surgical volume 136% since 2002.
- Ten patents for new ophthalmic inventions have been filed in the past 12 months.

Another valued benchmark is community support. We are pleased to announce that we have formed a Board of Directors. Our Board members are all prominent leaders in the Rochester community: **Daniel Chessin, David Flaum, Barbara Kelley, Thomas Muldoon, Ann Mulligan, Peter Parts, and Richard Rose**. We are grateful for their vision and expertise as well as the generosity of all of our corporate partners, donors, and our Alumni Council.

A handwritten signature in black ink, appearing to read "Steven E. Feldon".

Steven E. Feldon, M.D., M.B.A.
Director of the Eye Institute

**Celebrating the 50th Anniversary
of the Annual Rochester Ophthalmology Conference!
May 20-21, 2005**

Sharing the Vision

The University of Rochester Eye Institute is most grateful to its donors for their generous gifts and ongoing support. We are deeply appreciative to the friends, patients, alumni, and faculty who responded to our first Eye Institute Annual Appeal. Close to 100 supporters donated \$29,725, helping the Eye Institute in its goal to become a national leader in patient care, research, education, and technology transfer.

The following donors contributed to the 2005 Eye Institute Annual Appeal:

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We offer special thanks to Bausch & Lomb and Research to Prevent Blindness for their sustaining support.

Celebrating the 50th Anniversary of the Rochester Ophthalmology Conference: An Historical Timeline

Early 1900s: Local ophthalmologists began to meet informally.

Late 1920s: University of Rochester School of Medicine and Dentistry was opened and meetings were moved to Strong Memorial Hospital's eye clinic and included patient problem rounds and lectures.

Mid-1950s: The Snell Lecture was established as a memorial to Dr. Albert Snell, Sr., creating the first ophthalmology lectureship of its kind in Rochester.

Early 1960s: Area ophthalmologists formed the Rochester Ophthalmology Society (ROS), which later started its own annual ophthalmology Spring meeting.

Mid-1970s: James Aquavella, M.D., formed a "nonprofit organization dedicated to education and research," and he began an annual Spring meeting.

Late 1980s: The Snell Lecture, the ROS course, and Dr. Aquavella's meetings were merged and became one annual Rochester Ophthalmology Conference. Over the years it has drawn dozens of exhibitors, hundreds of doctors and technicians, and expert speakers from around the globe.

2001: Steven Feldon, M.D., was recruited and the University of Rochester Eye Institute was formed. It has assumed responsibility for the continued growth and prominence of what is now called the annual University of Rochester Eye Institute Ophthalmology Conference, featuring the Snell Lecture.

"Thanks to the foresight of the Rochester ophthalmic community, a solid foundation is in place for the Eye Institute to achieve national prominence," said Dr. Feldon. "We are proud to host and carry on the tradition of the Rochester Ophthalmology Conference."

Alumni Council April Meeting Report

On April 19, the Eye Institute Alumni Council convened and reviewed the current residency program and the various financial needs faced by our residents during their education. The Council has agreed to take on the lead fundraising role in support of those resident expenses not funded by other sources.

More information on these efforts will be forthcoming.

Save the Date! October 17, 2005 • 7-9 p.m.

Join us for the Department of Ophthalmology Alumni Reception at the American Academy of Ophthalmology (AAO) meeting at the Fairmont Hotel in Chicago.

Watch for more information in the mail.

Taking a look at, and learning more about... Corneal Disease



James Aquavella, M.D., is a Professor in the Department of Ophthalmology. He founded the Cornea Research Laboratory at the University of Rochester and was its Director for more than 20 years. Dr. Aquavella received his AB degree from Johns Hopkins University and his medical degree from University of Naples. He is an internationally recognized author, lecturer, and researcher. A recipient of both the American Academy of Ophthalmology's Honor and Senior Honor Awards, Dr. Aquavella has been included in the Best Physicians in America and the Best Physicians in the Northeast.

The Cornea and External Disease Team

The Eye Institute's cornea and external disease team is comprised of **James Aquavella, M.D., Steven Ching, M.D., Ronald Plotnik, M.D., and Jianhua (Jay) Wang, M.D., Ph.D.** Groundbreaking, collaborative work in corneal disease and surgery are among Rochester's most productive areas of investigation.

There are few institutions with the depth of experience in corneal disease that is a cornerstone of the University of Rochester Eye Institute.

Leading the Way in Keratoprosthesis

In the early 1960s, the very first fellowship-trained corneal surgeon at the Massachusetts Eye and Ear Infirmary at Harvard University, and in the United States, was James Aquavella, M.D. After helping to establish the Corneal Fellowship training program in Rochester in the 1970s, he directed it through the 1990s. Under his direction more than 50 corneal surgeons and researchers have been trained and are now in practice or conducting research across the country.

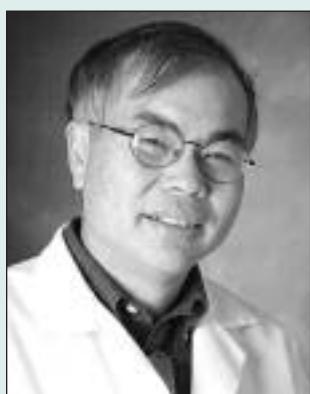
Corneal transplant surgery is a sub-specialty that attracts people from around the world to Rochester, especially patients in need of keratoprosthesis. As a resident at the Brooklyn Eye & Ear Hospital, Dr. Aquavella was exposed early to the use of these innovative plastic implants in corneal transplant surgery while working with Dr. Ramon Castroviejo.

This procedure is rare and only performed in very specific circumstances, including when there is likelihood of repeated failure with traditional corneal transplants, extremely severe dry eye, chronic inflammation of the cornea, or scarring from explosions. For people who have lost their vision, keratoprosthesis may be the one hope for restoring enough vision to function independently.

The latest news in keratoprosthetic procedures is its success in rare cases among very young children. In fact, only a few infants have ever had this procedure, and Dr. Aquavella has been at the forefront of that work.

Earlier this year, Brieyana Kika was born with a genetic disorder called "Peter's Anomaly," which is associated with scarring of the corneas. It affects as few as one in one million babies and can lead to permanent blindness. Just eight weeks into Brieyana's life, Dr. Aquavella and his associates at the Eye Institute were making medical history. She is the youngest person in the world to have keratoprosthesis. In the procedure, a dime-sized plastic cornea was placed inside Brieyana's own cornea. Then, a little hole was made in the back half of her cornea so that light rays can be focused on the back of her eye. Once healed, she will undergo another operation to make a hole in the front of her cornea to allow light to pass through to the back and help her see.

A pioneer in corneal and external disease, Dr. Aquavella is also well known for his work in the development of the therapeutic contact lens and the collagen shield.



Steven Ching, M.D., is Professor and Director of the Ophthalmology Cornea Fellowship and medical student training. He is a 1974 graduate of the University of Rochester School of Medicine and Dentistry.



Ronald Plotnik, M.D., is Associate Professor. He earned his BS and medical degrees at the University of Michigan and joined the University of Rochester faculty in 1991.

The Latest in Corneal Transplantation

One of the newest technologies in corneal transplantation is posterior lamellar keratoplasty. Led by Steven Ching, M.D., the Eye Institute is one of a limited number of centers nationally that is conducting clinical trials. Surgeons and researchers have learned that most diseased corneas are diseased only in the back layer, paving the way to posterior lamellar keratoplasty. In this revolutionary procedure, with just a small side incision, only the diseased back layer is replaced, about 20 percent of the cornea. Early results show that this new technology allows patients to heal faster with less risk of rejection and less astigmatism.

Treating Advanced Cancer, Restoring Vision

*In the words of one grateful patient . . .
"They gave me back my life and my sight."
—Duane Wrisley, resident of Burlington, PA*

"When I was diagnosed with advanced lymphoma, my doctors said I only had a few months to live. My son learned about a new drug being studied and we sought the help of hematologists at the Wilmot Cancer Center at the University of Rochester. That was more than two years ago. Although my tumors responded well to the therapy, the medication caused a rapid loss in my vision. I believed the doctors could save my life but was ready to accept being blind. They gave me back my life and my sight when Dr. Jonathan Friedberg at the Wilmot Cancer Center called in Dr. Ronald Plotnik from the University of Rochester Eye Institute. Together they worked to find a delicate balance between the maximum benefit of the drug and the best shot at complete recovery of my vision. Within days, I was able to start reading again. That's the value of a cancer center and eye institute within a medical center — doctors trained in many specialties are all working under the same roof. It was scary but I knew I was in good hands."

Currently Enrolling Patients in Innovative Studies

Diabetic Retinopathy Clinical Research Network

A Randomized Trial Comparing Intravitreal Triamcinolone Acetonide and Laser Photocoagulation for Diabetic Macular Edema (D. DiLoreto, M.D.)

A Pilot Study of Peribulbar Triamcinolone Acetonide for Diabetic Macular Edema (D. DiLoreto, M.D.)

The SCORE Study

The Standard Care vs. Corticosteroid for Retinal Vein Occlusion Study (CRVO/BRVO) (D. DiLoreto, M.D.)

Pediatric Eye Investigator Group (PEDIG)

Bilateral Refractive Amblyopia Treatment Study (M. Gearinger, M.D.)

Identification of Cone Photoreceptor Cells in Macular Vision Loss Using Multifocal ERG and Adaptive Optics Imaging

(M. Chung, M.D.)

A Study of Headache Disability in Patients with Pseudotumor Cerebri

(D. Friedman, M.D.)

Pediatric Glaucoma: A Study Comparing Two Drugs Approved by the FDA to Treat Adult Ocular Hypertension

(M. Gearinger, M.D.)

Dry Eye: Study Comparing an Investigational Eye Drop to a Placebo in Adult Patients with Moderate to Severe Dry Eye

(J. Aquavella, M.D.)

Bacterial Conjunctivitis (Pink Eye): Comparing an Investigational Antibiotic Eye Drop to Tobramycin

(J. Aquavella, M.D.)

Migraines: Periodic Research Studies for Adults with Migraine Headaches

(D. Friedman)

For more information about the studies and eligibility requirements, please call (585) 273-3085 or 275-1604.

Focus on Collaboration

This column is dedicated to the collaborative endeavors of bench scientists and physicians—work aimed at swiftly bringing basic science discoveries and new technologies to improved diagnostics and treatment of eye disease.

National Institutes for Health RO3 Grant Awarded to Study New Method for Measuring Tears

Jianhua (Jay) Wang, M.D., Ph.D.: Despite its critical importance in vision, comfort, and corneal integrity, the tear film remains one of the most neglected components of the eye. This neglect is due in large part to the extreme difficulty of quantitatively measuring tears over the ocular surface since they change as we blink. This process is called tear dynamics. The purpose of this study is to create a highly innovative, rapid, and comprehensive measure of tear quality and quantity using the Eye Institute's newly developed real-time optical coherence tomographer (OCT). This method may be the first to provide reliable information on the characterization of tear dynamics in the most challenging cases. For instance, the study may focus on individuals such as the elderly or patients with dry eye syndrome who have difficulty with holding their eyes steady or blinking properly. Development of this novel technology holds the promise of advancing other areas of investigation, including the role of tears in producing astigmatism that induces optical distortions called higher order aberrations. It may also lay the groundwork to new approaches in the treatment of dry eye syndrome.



This study was published in and featured on the cover of Development, Vol. 132(4), February, 2005.

Cover Article Published on Retinal Neurogenesis

Co-Authored by Researchers in the Eye Institute, Center for Aging and Development Biology, and Department of Neurology and Anatomy

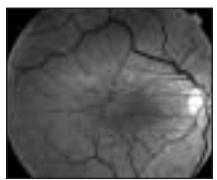
Lin Gan, Ph.D.: In collaboration with Ling Pan, Zhiyong Yang, and Liang Feng, a genetic study was conducted related to the degeneration of retinal ganglion cells (RGCs), which leads to loss of visual function in eye diseases such as glaucoma. Currently, genes and genetic pathways essential for the survival and protection of RGCs remain poorly understood. Previous genetic studies in mice have shown that certain genes (Brn-3a, 3b and 3c) play critical roles in preventing death of sensory neurons including RGCs. In this report, the authors demonstrated that Brn-3a functionally improves the survival of RGCs in the absence of Brn-3b. This study implies a potential regulatory mechanism of Brn-3 in maintaining the survival of different neurons, and findings could potentially be used to identify the disease mechanism of RGC degeneration in glaucoma and other conditions.

Testing Custom Contact Lenses for the Visually Impaired

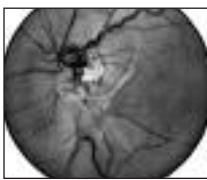
Geunyoung Yoon, Ph.D.: Even with the best available surgical techniques, contact lenses, and glasses, some people will still have poor eyesight. In a four-year study, the Eye Institute is working with 30 adults who have had corneal transplants or have keratoconus, an abnormal cone-shaped cornea. These patients generally have to learn how to live with poor vision. Using optical technology that was developed in Rochester, a large dynamic range wavefront sensor is being developed to reliably measure imperfections that can be massive in patients with keratoconus or following corneal transplant. A laser is used to custom tailor a contact lens to counter each patient's higher order aberrations. The Eye Institute is collaborating with Bausch & Lomb, which is making some of the revolutionary prototype lenses for our study.

Eye on the News

- **Dorothea Castillo** and **Julie Tutko** were recently honored by the AAO for outstanding photography that they submitted to the Ophthalmic Photographers Society's contest.



Julie Tutko



Dorothea Castillo

Each year hundreds of submissions are judged by a panel of experts in conjunction with the AAO meeting. Tutko's winning photograph will appear in an upcoming issue of *EyeNet* magazine, and Castillo's will be featured in *EyeNet* and the AAO calendar.

- **David DiLoreto, M.D., Ph.D.**, met with regional ophthalmologists in March to present recommendations on the potential benefits and use of Macugen to treat wet age-related macular degeneration as an alternative to the proven treatment, photodynamic therapy with Visudyne.

New Location for Comprehensive Practice

The Eye Institute has an outstanding comprehensive ophthalmology practice under the guidance of **Shobha Boghani, M.D.**, and **Rebecca Lockemann, O.D.** Together they bring routine vision care to the community, triage patients who need sub-specialty care, help train residents, and recruit patients for clinical trials vital to the advancement of medicine.

In June, the growing practice will move from its current Brighton location to the Eye Institute's new clinical offices at the University of Rochester Medical Center. In addition to open slots for same-day appointments and shorter visits (thanks to an increased number of exam facilities), visitors will benefit from:

- Free curbside parking at the 210 Crittenden Boulevard entrance
- Shorter waiting times for appointments
- Better access to sub-specialists who can assist with diagnosis and treatment of the most complex ophthalmic cases
- Access to the most complete array of state-of-the-art diagnostic equipment and dedicated diagnostic technicians
- A spacious and comfortable waiting environment
- Two dedicated contact lens fitting rooms

The date for an open house for referring physicians, including tours of the Eye Institute, will soon be announced. For more information, call 585-273-EYES.

StrongVision Faculty Practice

Comprehensive Eye Care

Shobha Boghani, M.D.
Rebecca Lockemann, O.D.

Contact Lens Services

Rebecca Lockemann, O.D.

Cornea and External Disease

James Aquavella, M.D.
Steven Ching, M.D.
Ronald Plotnik, M.D.

Neuro-Ophthalmology and Orbit

Steven Feldon, M.D., M.B.A.
Deborah Friedman, M.D.

Pediatric Ophthalmology

Matthew Gearinger, M.D.

Refractive Surgery

Scott MacRae, M.D.
Joseph Stamm, O.D.

Retina and Vitreous

Mina Chung, M.D.
David DiLoreto, M.D., Ph.D.
Donald Grover, M.D.

Research Faculty

Lin Gan, Ph.D.
Krystel Huxlin, Ph.D.
William Merigan, Ph.D.
Jianhua (Jay) Wang, M.D., Ph.D.
Geunyoung Yoon, Ph.D.

For more information about the Eye Institute or one of our professionals, contact:

University of Rochester
Eye Institute
601 Elmwood Avenue
Box 659
Rochester, NY 14642
www.stronghealth.com/eyeinstitute

585-273-EYES

University of Rochester Eye Institute
Box 659
601 Elmwood Avenue
Rochester, NY 14642

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