

Vision *for the* Future

University of Rochester Eye Institute

Volume IV, Issue i

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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



Eye Institute administrator Karen Keefer officially opens the new clinical space with Dr. Feldon.

When I arrived at the University of Rochester Medical Center in 2001, I was challenged with accommodating a future world-class eye institute in the clinical space originally built for four physicians. As I pondered, I would look out my office window. The view was the roof of the James P. Wilmot Cancer Center.

In November, we opened the doors to the new University of Rochester Eye Institute clinical offices – directly above the Cancer Center. Where I once gazed out the window onto a rooftop there now is a welcoming and spacious reception area lit by a fabulous skylight and contemporary glass art specially designed for the space.

Opening these new clinical facilities signals the start of a new era:

- With state-of-the-art equipment and capabilities, we are a tertiary care eye institute with the expertise to handle the most complex eye conditions;
- We can attract outstanding faculty members with specialty training in the care and investigation of both common and rare eye diseases;
- Patients have access to about 20 NIH and industry-sponsored clinical trials; and
- We are among a select few eye institutes focused on technology transfer—swiftly bringing our scientific discoveries to clinical application.

We are very proud of our new clinical space, which is one more step in our quest to be among the top 10 eye institutes in the nation. Now we embark on construction of 20,000 square feet of research facilities to house basic and translational research faculty and their promising projects. We are deeply appreciative to all of our donors, and corporate partners who are making our ambitious plan a reality.

A handwritten signature in cursive script that reads "Steven E. Feldon".

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



*Dr. Feldon and Bausch & Lomb CEO
Ron Zarrella*

The University of Rochester Eye Institute is most grateful to its donors for their generous gifts and ongoing support. The following gifts were received between July 1 and December 31, 2004.

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

Sharing the Vision



"The Eye Institute's clinical space represents what we hope to accomplish across the University of Rochester Medical Center—a welcoming, soothing environment patients will love. It shows great foresight in planning for the future."

C. McCollister Evarts, M.D., Senior Vice President and Vice Provost for Health Affairs, CEO, Medical Center and Strong Health



Virginia and Richard Eisenhart

Elinor and Hobart Lerner, M.D. (R'49)



Ralph DeStephano

"Steve Feldon has captured the imagination of senior leadership with his vision for a top 10 eye institute that can have an impact on eye health around the world. This clinical unit is one part of the plan, helping us attract the best ophthalmology residents and faculty."

David Guzick, M.D., Ph.D., Dean, School of Medicine and Dentistry



A week-long celebration marked the opening of the new Eye Institute clinical facilities, culminating on November 19 with the ceremonial ribbon cutting by the Institute's dedicated administrator, Karen Keefer.

The week began with over 100 people attending educational seminars presented by: **David DiLoreto, M.D., Ph.D.**, on macular degeneration; **James Aquavella, M.D.**, on dry eye syndrome; and **Matthew Gearing, M.D.**, on what parents need to know about children's eye health.

Friends of and contributors to the Eye Institute attended a preview dinner earlier on Sunday, November 7. The evening provided faculty and staff the opportunity to offer special thanks for the support that has contributed to the Institute's rapid progress. If you haven't seen our new facility yet, please call us to arrange a tour!

Alumni Council Launched

In October 2004, the Eye Institute convened its first-ever Alumni Council during the American Academy of Ophthalmology annual meeting. Donald Grover (M'66, R'73) was elected president. Its members are working to strengthen relationships with alumni while taking on endeavors that will financially support the Ophthalmology Residency Program.

Alumni Council Members

Donald Grover, President (M'66, R'73)
Dennis Asselin (M'81, R'82)
Percival Chee (M'62)
Steven Ching (M'74, R'81)
Frederick Dushay (R'61)
Jacqueline Leavitt (R'82)
Hobart Lerner (R'49)
Karl Marchenese (M'74, R'79)
Henry Metz (R'66)
Bryant Shin (R'02)
Diane Singer (R'97)

Ways to Share the Vision

For more information on opportunities to make a gift to the Eye Institute, contact **Brian Hendrick at 585-275-3594 or Brian_Hendrick@urmc.rochester.edu**.

Taking a look at, and learning more about... Diabetic Retinopathy

by David DiLoreto, Jr., M.D., Ph.D.



David DiLoreto, Jr., M.D., Ph.D., is a retinal specialist and assistant professor at the Eye Institute. He specializes in diabetic retinal complications and is involved in two national clinical trials. Dr. DiLoreto earned his medical degree as well as his doctorate in neurobiology and anatomy from the University of Rochester School of Medicine and Dentistry. He completed an ophthalmology residency at the University of Southern California/Doheny Eye Institute and a retina fellowship at the Wilmer Ophthalmological Institute at Johns Hopkins University. He is the recipient of many distinguished awards and a member of the American Academy of Ophthalmology.

What is diabetic retinopathy?

Diabetic retinopathy is a complication of diabetes that is caused by high blood sugar levels. It occurs when diabetes damages small blood vessels (capillaries) inside the retina, initially causing them to dilate and eventually to leak.

Are there different forms of diabetic retinopathy?

There are two types. The first, nonproliferative retinopathy, varies in severity. In the early stages, retinal capillaries may dilate (micro-aneurysms) with no significant changes in vision. More severe forms of nonproliferative retinopathy (macular edema and macular ischemia) cause a deterioration of central vision. Macular edema is the most common cause of visual loss in people with diabetic retinopathy. It results from blood vessels leaking fluid into the central retina. Macular ischemia occurs when blood vessels close and reduce blood supply to the eye. The second type, proliferative retinopathy, is the most severe form of the disease and affects both central and peripheral vision. Due to reduced blood flow in the retina, the damaged walls will begin to form new, abnormal vessels (neovascularization). These new vessels are fragile and may result in scar tissue or vitreous hemorrhage, which can cause severe vision loss.

How prevalent is this disease?

Retinopathy is a major health issue for people suffering from diabetes. Nearly half of the people known to have diabetes have some degree of diabetic retinopathy and it is the leading cause of blindness in the U.S. in patients under 50 years of age. The National Eye Institute estimates that 4.1 million U.S. adults over the age of 40 suffer from retinopathy. These estimates indicate that 40 percent of people with diabetes have diabetic retinopathy; 8 percent suffer from vision-threatening retinopathy.

Who is at risk?

All people with diabetes, type I and type II, are at risk. The longer you have diabetes, the more likely it is that you will develop diabetic retinopathy. Because many people with type II diabetes are diagnosed later in life and are unaware of how long they have had the disease, they are at high risk. Additional risk factors besides poorly controlled blood sugars are high blood pressure, high cholesterol, pregnancy, obesity, and kidney disease.

Are there any visual symptoms?

There are often no early warning signs. People may notice gradual visual changes such as a “dull, fuzzy spot” or seeing straight lines as curved. In more advanced retinopathy, people will notice more severe symptoms including “floaters” or darkness.

How is diabetic retinopathy detected?

It can be diagnosed through a comprehensive eye exam with the use of an ophthalmoscope. If retinopathy is detected, a diagnostic procedure called fluorescein angiography may be performed to identify leaking blood vessels.

How is diabetic retinopathy treated?

Macular edema is treated with focal laser treatment to slow leakage and reduce fluid in the center of the retina. The main goal is to prevent further vision loss, but it is uncommon for vision to improve. Proliferative retinopathy is treated

New Faculty

with “scatter” laser treatment. This procedure helps to shrink abnormal vessels and can reduce the chance of vitreous hemorrhage. If bleeding is severe, it may need to be treated with a vitrectomy, a surgical procedure in which blood is removed from the center of the eye.

Can it be prevented?

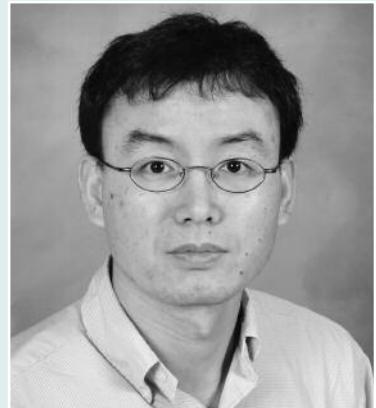
Every person with diabetes should have a comprehensive eye exam at least once a year. Early detection and treatment are the best protection against severe vision loss. The National Eye Institute estimates that people with proliferative retinopathy can reduce the risk of blindness by 95 percent with timely treatment and followup care. Controlling blood sugar levels, blood pressure, and cholesterol may also delay the onset and slow the progression of retinopathy.

What research is taking place at the Eye Institute?

We are currently part of two national clinical trials sponsored by the National Institutes of Health as part of its diabetic retinopathy clinical research network. The first involves testing a new laser treatment for macular edema to reduce the number of treatments over a lifetime and improve the visual outcomes. The second trial involves the use of intraocular steroids to treat macular edema. With reduced damage to the retina, vision may be not only preserved but possibly improved. In addition, we are involved in a study sponsored by Eli Lilly and Company to test the early intervention of a drug to treat macular edema. Rather than performing laser treatment, we will administer the new pill and follow the progression.

Diabetic retinopathy patients from Rochester and the upstate New York region choose the Eye Institute because of its specially trained retinal specialists and long-term commitment to research. Expansion of the Eye Institute is greatly benefiting patients with diabetic retinopathy through new state-of-the-art technology and facilities to accommodate the advancement of retinal research and treatment.

Lin Gan, Ph.D. **Assistant Professor**



Lin Gan, Ph.D., joins the Eye Institute from the University of Rochester’s Center for Aging and Developmental Biology, where he is an assistant professor of neurobiology and anatomy. He completed his doctorate in biochemistry and molecular biology at the University of Texas, Houston, Graduate School of Biomedical Science and a postdoctoral fellowship with the University of Texas M.D. Anderson Cancer Center. Dr. Gan’s research interests include developmental and degenerative disease of sensory neurons and the underlying mechanisms of gene regulation. He is currently investigating genetic factors responsible for retinal neurogenesis and survival. It is hoped that this research will lead to new treatments and prevention of retinal diseases such as glaucoma, macular degeneration, and retinitis pigmentosa.

2004–2005 Visiting Professor Series

For more information on this continuing education series at the Eye Institute, contact Karen Pestlin at 585-273-3954. To learn more about earning credit, call 585-275-4392.

February 5, 2005

Glaucoma
Richard K. Parish II,
M.D.
University of Miami

March 19, 2005

*Cornea/External
Disease/Refractive
Surgery*
Christopher J.
Rapuano, M.D.
Wills Eye Hospital
Philadelphia

April 23, 2005

Retina Vitreous
Thomas A. Weingeist,
M.D., Ph.D.
University of Iowa

May 20–21, 2005

*Cataract/Refractive
Surgery*
Annual ROS Conference
Samuel Masket, M.D.
UCLA Jules Stein
Los Angeles
(See our “Save the Date”
announcement on the back page.)

June 18, 2005

Cornea
Steven C. Pflugfelder, M.D.
Baylor University
Cullen Eye Institute
Houston

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.



Fundus Photography Reading Center Established

The Eye Institute will establish the Fundus Photography Reading Center for a clinical trial sponsored by Boehringer-Ingelheim. **Steven Feldon, M.D.**, and **Mina Chung, M.D.**, will direct the reading center for a multicenter study that aims to determine if there is any difference in the presence of retinal deterioration in Parkinson's patients treated with two different drugs, pramipexole IR versus ropinorole. Dr. Chung will be doing readings from 300 patients during the two-year study funded for up to \$350,000.

Eye Institute Holds First Midyear Resident Research Forum

Krystel Huxlin, Ph.D., **Mina Chung, M.D.**, and residency program coordinator **Karen Pestlin**: As part of the Eye Institute's vision to develop a top 10 residents' program in ophthalmology, we recently held our first Midyear Resident Research Forum. The goal was to provide resources for residents to enhance the depth and quality of their research and strengthen future presentations. We encouraged first-year ophthalmology residents to present the projects they will be doing during their six-week research rotations in early 2005. Second- and third-year residents used the forum to present results from ongoing research. Presenting to both clinical and research faculty, the forum gave residents a chance to sharpen their research focus and receive feedback on their work before presenting at external meetings. Plans are underway to make this an annual event, with an expanded format in 2005.

Participating this year were:

First-Year Residents

- **Saima Jalal**: "Backscatter and Curvature Analysis of Donor Eyes Using OCT." *Mentor: Jianhua Wang, M.D., Ph.D.*
- **Anna Rothstein**: "Objective Measurement of Corneal Light-Backscatter and Posterior Corneal Curvature after LASIK, Using Optical Coherence Tomography." *Mentor: Steven Ching, M.D.*
- **Patricia Dimanlig**: "Do Corneal Myofibroblasts Contribute to the Increase in Optical Aberrations after Laser Refractive Surgery?" *Mentor: Krystel Huxlin, Ph.D.*

Second- and Third-Year Residents

- **Ying Qian**: "Expression of COX2, PPARGamma in Orbital Fibroblasts, Orbital Tissue and T-Lymphocytes from Graves Ophthalmology Patients." *Mentors: Steven Feldon, M.D., and Richard Phipps, Ph.D.*
- **Matilda Chan**: "The Life and Death of Retinal Ganglion Cells — A Molecular Analysis." *Mentor: Lin Gan, Ph.D.*
- **John Karth**: "A Case Report on Progressive Retinal Necrosis." *Mentor: Mina Chung, M.D.*
- **Greg McCormick**: "Symptomatic Higher Order Aberrations." *Mentor: Scott MacRae, M.D.*

Studying the Relationship between Dry Eyes and Eyelid Spasms

Jianhua (Jay) Wang, M.D., Ph.D.: The Benign Essential Blepharospasm Research Foundation (BEBRF) has awarded the Eye Institute a one-year grant to investigate the correlation between dry eye syndrome and essential blepharospasm, a condition in which the eyelids close involuntarily. It generally involves both eyes and can last just a few seconds or as long as hours. Advanced stages of the condition can cause limited vision and interfere with everyday activities. Using real-time optical coherence tomography, the study seeks to capture and analyze the processes of the tear film cycle from blink to blink. Results confirming that dry eye is a cause of eyelid spasms could lead to new treatments.

Eye on the News

- **Scott MacRae, M.D.**, recently performed the first phakic intraocular lens (IOL) implant surgery in the region using the Verisyse™ Phakic IOL from Advanced Medical Optics (AMO). The procedure gives hope to people who are legally blind, greatly enhancing the range of treatments for nearsightedness. The delicate surgery involves placing a tiny corrective lens between the eye's cornea and natural lens. Phakic IOLs have been successfully used in other countries but have been only recently approved by the FDA for use in the U.S. Dr. MacRae consulted on the AMO proposal that won approval from the FDA's Ophthalmic Devices Panel.
- **Steven Feldon, M.D., M.B.A.**, has received a U.S. patent for a new tonometer, a device that physicians and optometrists use to measure pressure in the eye as a way of detecting glaucoma. Dr. Feldon previously developed the Tono-pen™, a portable tonometer that revolutionized glaucoma screening methods. The new portable device, the Newton™, keeps the portability of the Tono-pen™ but promises accuracy similar to the "gold standard" Goldman Tonometer.*

* Dr. Feldon is an officer of Eye-Deas LLC, which has a financial interest in Newton™.

Save the Date!

May 20-21, 2005

Celebrate the 50th anniversary of the Annual Rochester Ophthalmology Conference. It's a great opportunity to see our new clinical space, network, and learn the latest from our panel of experts. Speakers include:

Snell Lecturer:

Hilel Lewis, M.D., Chairman of the Division of Ophthalmology and Director of the Cole Eye Institute, Cleveland Clinic Foundation

Bausch & Lomb Visiting Professor:

Samuel Masket, M.D., Clinical Professor of Ophthalmology, Jules Stein Eye Institute, University of California at Los Angeles Center for Health Sciences

Thomas A. Bersani, M.D., SUNY Upstate Medical Center

Terence Devine, M.D., Guthrie Health

Jeffrey Odel, M.D., Edward S. Harkness Eye Institute, Columbia University

James Reynolds, M.D., SUNY Buffalo School of Medicine and Biomedical Sciences

For more information, please call 585-275-4392.

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.
Krystal Huxlin, Ph.D.
William Merigan, Ph.D.
Jianhua (Jay) Wang, M.D., Ph.D.
Geun-Young Yoon, Ph.D.

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

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