

AN EYE TO THE FUTURE

The Department of Ophthalmology
The University of Arizona
Health Sciences Center

Winter 2003-2004

Marmorsteins Join Southwest Age-Related Macular Degeneration Research Program



▲ Lihua Marmorstein, PhD



Alan Marmorstein, PhD ►

Renowned cell biologists Lihua Y. Marmorstein, PhD, and Alan D. Marmorstein, PhD, have joined the Southwest Age-Related Macular Degeneration (ARMD) Research Program at the UA Department of Ophthalmology. Lihua Marmorstein also has been appointed assistant professor of ophthalmology and Alan Marmorstein has been appointed associate professor of ophthalmology at the UA College of Medicine.

The Marmorstein's research interests include the causes of age-related and inherited forms of macular degeneration, new diagnostic and imaging techniques and new medications for treatment and prevention. Their research involves identifying the metabolic processes that lead to ARMD and the proteins involved that could be targeted by medications. They also are developing a new non-invasive imaging device for diagnosing ARMD.

"Lihua and Alan Marmorstein each have made unique and significant discoveries in the area of ARMD," says Robert W. Snyder, MD, PhD, professor and head, UA Department of Ophthalmology. "They bring highly regarded expertise and new hope for

us to leap forward in our quest to understand and treat ARMD."

Prior to joining the UA, the Marmorsteins were with the Cleveland Clinic Cole Eye Institute Department of Ophthalmic Research in Cleveland, Ohio, where both were assistant staff members. Alan also had a secondary appointment in the Cleveland Clinic Lerner Research Institute Department of Cell Biology.

Lihua Marmorstein's research, which is funded by the National Institutes of Health, focuses on the molecular basis of malattia leventinese (ML), an inherited macular degenerative disease similar to ARMD, and its associated gene EFEMP1. She has demonstrated that mutant EFEMP1 is abnormally accumulated beneath the retinal pigment epithelium (RPE), a layer of cells behind the retina, in both ML and ARMD. Her work for the first time links defective proteins and the translation of genetic information to the development of ARMD.

Her genetic research is extremely valuable in studying the development of macular degeneration and developing and testing treatment strategies for ML and ARMD. Her research program strengthens and brings new direction to the Southwest ARMD Research Program by bringing in an active project focusing on ARMD and other macular degeneration disorders.

She received her doctorate from the State University of New York Health Science Center in Brooklyn and her postdoctoral training at the Mount Sinai School of Medicine in New York and the University of Pennsylvania in Philadelphia.

Alan Marmorstein's research, which is funded by the National Institutes of Health and the Phillip Morris External Research Program, focuses on finding a cure for ARMD by understanding the basis of inherited macular degeneration, specifically Best Macular Dystrophy, and on finding tools for the early diagnosis of ARMD. He believes that developing tools for early diagnosis and identifying new preventative therapies is the best strategy to combat blindness due to ARMD.

He received his doctorate from the State University of New York Health Science Center in Brooklyn. As a postdoctoral fellow at Cornell University Medical College in New York City, he introduced and defined cell culture systems for studying the function of proteins in the RPE and pioneered a new method of studying the molecular physiology of RPE cells. Since finishing his postdoctoral studies, he has held faculty-level appointments at Merck Research Laboratories in West Point, Pa., and the Cleveland Clinic Foundation's Cole Eye Institute.

He was a recipient of a Kirchgessner award in 2000, and is a long-standing member of the American Society of Cell Biology, the American Association for the Advancement of Science, the International Society for Genetic Eye Diseases, and the Association for Research in Vision and Ophthalmology.

From the Chairman

As the Department of Ophthalmology closes out the 2003 calendar year, it's a great time to reflect upon the support of many who have helped us develop our research programs and make great strides in our pursuit of the best possible vision care for all people.

In particular, the Lions of Arizona continue to provide equipment and resources to pursue new research projects and support ongoing activities, including a \$65,000 grant from the Lions Foundation of Arizona for new research equipment. As in the past, our faculty will be good stewards of these gifts and use this equipment to develop new knowledge and new methods for diagnosis and treatment of diseases of the aging eye.

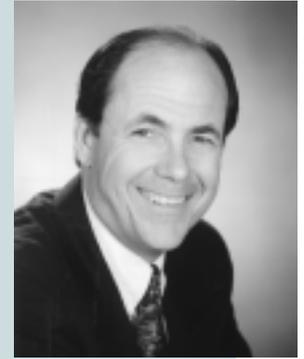
We continue to be blessed with support from Research to Prevent Blindness (RPB), a national foundation that supports emerging departments of ophthalmology. We have received a RPB challenge grant that allows us to provide seed money for innovative research projects that otherwise may not be possible to pursue. These monies have been awarded to numerous residents, graduate students, undergraduates and faculty members in the Department and in other interdisciplinary programs within the UA.

RPB has provided funds for Career Development Awards for Jim Schwiegerling, PhD; W. Daniel Stamer, PhD; and most recently, Lihua Marmorstein, PhD. These awards of \$50,000 per year in unrestricted funds for four years can be used for technical, equipment and salary support to further the careers of promising young scientists. Dr. Marmorstein actively is pursuing new avenues of research in macular degeneration, which we believe hold great promise in advancing our understanding of this disease.

We thank our numerous benefactors, who are so essential to our mission. Contributors of more than \$5,000 include Allergan Pharmaceuticals, Arizona Foundation for the Eye, Biomedical Research Foundation, Friends of the Congressional, Estate of Josephine McLeroy, Linda Moore, Mrs. Ghislaine Polak, Promedica International, Tucson Breakfast Lions Club Foundation, and Verna Winegar, as well as several anonymous donors.

Thanks to all of you who have supported the Department of Ophthalmology. We are on target and have developed a critical mass of research in diseases of the aging eye, including ongoing projects in the basic cell biology of glaucoma and macular degeneration. As the year 2004 unfolds, we look to a bright future. Thank you for your support.

Robert W. Snyder, MD, PhD



▲ *Robert Snyder, MD, PhD*

Upcoming Events

Thursday, Feb. 26, 2004

Road Apple Roulette

9-10 a.m. (during the Tucson Rodeo Parade)

Ajo Way at Park Ave., Tucson

Fundraiser benefiting the Arizona Lions Eye Center and other Lions Sight and Hearing charities. Fifty dollars per grid; three cash prizes; grid purchase deadline, Monday, Feb. 23. For more information, visit the web site, <http://www.roadappleroulette.com>, or contact Sandy Shiff, (520) 790-3221, sanfordshiff@cox.net.

Wednesday, March 10

Science of Eye Disease Seminar

5:00-6:30 p.m.

UA Department of Ophthalmology Administrative Offices, 655 N. Alvernon Way, Ste. 108, Tucson.

Hors d'oeuvres and beverages provided. Continuing Medical Education (CME) credits given. For more information, contact W. Daniel Stamer, PhD, UA Department of Ophthalmology, 626-7767.

Visit our web site for event updates: www.eyes.arizona.edu.

University of Arizona Department of Ophthalmology

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AN EYE TO THE FUTURE is published by the UA Department of Ophthalmology to share news and showcase research activities. Correspondence or inquiries should be addressed to: Newsletter, UA Department of Ophthalmology, 655 N. Alvernon Way, Suite 108, Tucson, AZ 85711; phone (520) 322-3800 ext. 200.

Prescott Lions Clubs Host Eye Research Update: Glaucoma and Macular Degeneration

More than 300 people attended the first free public seminar offered during a Lions Clubs of Arizona statewide conference.

The Prescott Lions Clubs hosted "Eye Research Update: Glaucoma and Macular Degeneration," during the Arizona Lions Leadership Forum on Nov. 15 at the Prescott Conference Center & Casino. Many Prescott community residents attended the event, which featured an ophthalmologist and research scientists from the Arizona Lions Eye Clinic and Southwest Age-Related Macular Degeneration Research Center at the UA Department of Ophthalmology.

"For the first time many Lions from around the state were able to learn about the history of the Arizona Lions Eye Clinic and the ongoing research by the UA

ophthalmology department," said Sandy Shiff, current president of the UA Department of Ophthalmology Advisory Board and a member of the Tucson Breakfast Lions Club.

Speakers, who also answered questions following the talk, included UA ophthalmology department members Harold E. Cross, MD, PhD, ophthalmologist and clinical professor; Alan Marmorstein, cell biologist and associate professor; Lihua Marmorstein, cell biologist and assistant professor; Pamela Farthing-Nayak, PhD, cell molecular biologist, geneticist and assistant professor; and Ramesh C. Nayak, PhD, physiologist, immunologist and associate professor.

The department's information booth in the Conference Center lobby attracted considerable attention, distributing Amsler grid tests for macular degeneration.



▲ Past Council Chairman Lion Richard O. Brown, left, presents a check for more than \$65,000 to Harold Cross, MD, PhD, clinical professor, UA Department of Ophthalmology, during the Arizona Lions Leadership Forum. The check, from the Lions Club International Foundation, matches the funds raised by Arizona Lions during the past year.

After the seminar, Sandy Shiff received more than a dozen requests to bring the program to other Arizona communities, and more than 100 people were added to the department's newsletter mailing list.

Department Advisory Board

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Opportunities to Support Vision Research

Vision is a gift that cannot be taken for granted — once lost, it cannot be replaced. One of the best ways to care for our gift is to support vision research that will improve diagnosis, treatment, prevention or find a cure for conditions that can rob us or our loved ones of sight. What we do today determines what we will see — and how others will see us — tomorrow.

There are many opportunities to support vision research at the UA Department of Ophthalmology. Some of the department's equipment needs include:

Age Related Macular Degeneration

(Lihua Marmorstein, PhD; Alan Marmorstein, PhD)
 96 well plate format liquid scintillation counter (approx.) \$26,000

Diabetic Retinopathy

(Pamela Farthing-Nayak, PhD; Ramesh C. Nayak, PhD)

Epifluorescence microscope	\$16,000
REVCO Ultima II Ultra Low Temperature Freezer	\$12,639
Refrigerated centrifuge	\$ 8,000
Cell culture hood	\$ 6,300
Cell culture incubator	\$ 5,000
Microplate washer	\$ 4,800
Spectrophotometer	\$ 4,320
Cell culture microscope	\$ 3,000
Mettler Analytical Balance Model AB104-S	\$ 2,575
Mettler Top Pan Balance Model PB1502-S	\$ 1,655
Beckman pH Meter Model 340	\$ 650

Glaucoma (W. Daniel Stamer, PhD)

Cell culture incubator \$ 5,000

Oculoplastics Surgical Research (Lynn Polonski, MD)

Surgical tool set \$ 2,200
 Hyfreator 2000 Electrosurgical Unit \$ 1,000

Surgical Training Program (Robert Snyder, MD, PhD)

Surgical wet lab video camera \$ 4,000
 Surgical tray \$ 4,500
 Surgical wet lab monitor \$10,000

Vitreoretinal Surgical Research (Robert Park, MD)

Leica/Wilde Operating Microscope Model 691 \$27,500
 Bauch and Lomb Retinal Surgical Instrumentation Set \$44,200
 (This set can be broken down into smaller purchases)

For more information about how you can help meet these needs and others, contact Gloria Flett-Lemon, Arizona Health Sciences Center Development Office, (520) 626-1530.

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Our Mission Is to Benefit the People of Arizona, the Southwest and Beyond

Entering the 21st Century:

◆ In the United States, one child in 20 may suffer abnormal eye development. These children are at risk for serious vision problems that may lead to permanent vision loss.

◆ Glaucoma is the leading cause of preventable blindness in the United States, affecting an estimated 3 million Americans. It is a silent villain that with little or no warning robs a person of their ability to see. Once destroyed, vision lost to glaucoma cannot be restored.

◆ Age-related macular degeneration is the leading cause of irreversible blindness and vision impairment in people over age 50 in the United States and the western world. About 13 million Americans have evidence of ARMD, according to Prevent Blindness America. An estimated 1.7 million Americans over age 65 have visual impairment caused by ARMD, according to the National Eye Institute.

With the latest laser applications, computers and other new technologies, we enter the 21st century with far greater hope for preservation of vision. However, we continue to seek better answers for eye conditions, such as glaucoma and retinal diseases, which still are major causes of blindness.

UA Department of Ophthalmology

The UA Department of Ophthalmology is dedicated to preserving healthy eyesight and preventing blindness through innovative research and comprehensive eye care for all patients whose vision is threatened by eye disease or injury.

Become an Annual Member of the VISIONaries

We invite you to support the exciting work of the UA Department of Ophthalmology. Gifts of all sizes have been utilized throughout the Department, in the clinics and in the research laboratories, helping the Department increase medical knowledge and offer the best possible vision care.

◆ **Donors of \$1,000 or more will have their name listed on the permanent donor recognition wall at the Lions Eye Care Center.**

To find out more about the many other ways you can participate in our mission, contact Gloria Flett-Lemon, Arizona Health Science Center Development Office, (520) 626-1530.

Enclosed is my fully tax-deductible gift of \$ _____
to UA Foundation, Ophthalmology Department.

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