

SPRING/SUMMER 2005

THE WILMER EYE INSTITUTE
AT JOHNS HOPKINS



Wilmer Scientists
Pioneer Stem
Cell Research

PAGE 6

SIGHT LINE

WILMER'S
STEM CELL
TEAM

The View from Wilmer Development



There is so much going on at the Wilmer Eye Institute at any given time, it is quite a challenge to select the few stories that can be contained in one publication. Even by doubling the number of pages, which we have done with this issue, we are only able to scratch the surface of what you might enjoy learning about Wilmer. We want to tell you about the dozens of new and ongoing basic and clinical research investigations, (such as gene therapy, stem cell regeneration, and artificial corneas), to share exciting new advances being made in the treatment of blinding eye diseases (such as glaucoma and macular degeneration), and also to recognize and thank just a few of the many donors who have made such progress possible. We think you should know about the educational side of Wilmer as well, so we have included a section on courses and lectures at the Institute. Of course, what would Wilmer be without our exceptional faculty, alumni and staff—see our Ironman Triathlon article on page 22.

I think the best news is that there is so very much to share with our readers. With your continuing interest and support, there is no limit to what can be accomplished by the truly extraordinary men and women of Wilmer. ■

Sincerely,

Laurette L. Hankins

Director of Development

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MISSION STATEMENT

The mission of the Wilmer Eye Institute is to contribute to ophthalmic knowledge and to continue to reduce suffering from blindness and loss of vision at home and around the world, through leadership and excellence in research, education, and patient care.

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ON THE COVER: (from left to right) Roy Chuck, M.D., Ph.D., Associate Professor; Ruben Adler, M.D., Arnall Patz Distinguished Professor of Ophthalmology; Harry A. Quigley, M.D., A. Edward Maumenee Professor of Ophthalmology; Albert Jun, M.D., Ph.D., Assistant Professor.
Cover photo by Rob Smith.

FROM THE DIRECTOR

Having the best job in the world is a good thing! Being the sixth Director of the Wilmer Institute is certainly the most satisfying and challenging position in academic ophthalmology that I can imagine. It is exhilarating because Wilmer is full of brilliant and hard-working physicians, scientists, and dedicated staff members, each of whom is determined to improve our ability to prevent or treat blinding diseases.



I feel strongly that Wilmer's success is the direct result of its people. The challenge for me as Director is to provide the environment that these exceptional individuals and teams need to permit them to explore their best ideas. In our case, that involves two main items: seed money

allowing faculty to perform the small studies to generate the "preliminary data" required to obtain large grants from the NIH and other grant agencies, and the space required for performing these experiments.

Endowed professorships, usually awarded to faculty after establishing distinguished academic careers, allow our senior scientists and physician-scientists to explore new avenues of research. We are grateful that two distinguished Americans, noted author Tom Clancy and famous "oilman" and business leader Boone Pickens, have decided to establish professorships at Wilmer this year. Faculty in earlier stages of their careers benefit from other funds. The Morton F. Goldberg, M.D. Director's Discovery Fund, when completed, will help provide important funding for our faculty at a key early stage of their careers. The Maumenee Scholar Fund and The Niuta and Roy Titus Fund are examples of support crucial to junior faculty, allowing them time to begin their research

programs and obtain the grant support necessary to sustain their work. Completing the Director's Discovery Fund and securing funds to help the "best and brightest" young faculty pursue their best ideas are a top priority for Wilmer.

Our other major challenge is space. Wilmer ranks among the top four in departments at Johns Hopkins in grant funding per square foot of research space, and we are at the point of being restricted in what we can pursue, due to space limitations. Our ability to attract and help ensure the success of the best people will depend upon our ability to provide them with the space they need to accomplish their goals, hopefully in close proximity to other scientists who can help them achieve much more than they might on their own. Completing the funding for Wilmer's next building remains Wilmer's other crucial priority.

Working with the special people at Wilmer is what makes this position so rewarding. Providing them with the space and support they need is a worthwhile challenge. I extend my thanks to all those grateful patients, alumni, corporations, foundations and friends for their continuing generosity to Wilmer. ■

Peter J. McDonnell, M.D.

*William Holland Wilmer Professor
and Director*

FOCUS ON PHILANTHROPY

LEAVING A LEGACY

Philanthropist Frieda Bambas Celebrates Century Mark



Frieda Bambas, Ph.D.

Throughout her life, Dr. Frieda Bambas has enjoyed traveling to different points around the world. On January 2, 2005, she arrived at an even more significant turning point—the age of 100. The noted educator celebrated her birthday quietly in her hometown of Norman, Oklahoma.

The scope of her philanthropy has created an enormous impact at colleges and institutions across the country, including the Wilmer Eye Institute.

In appreciation for the care she received at Wilmer during treatment for macular degeneration in 2002, Dr. Bambas established a charitable gift annuity to benefit Wilmer. In addition, she has made provisions in her will to establish the Dr. Frieda Derdeyn Bambas Professorship in Ophthalmology, which will support research for the treatment of age-related macular degeneration (AMD), which affects the retina and can ultimately cause blindness.

Dr. Bambas, the youngest of eight, emigrated with her family to the United States from Belgium prior to World War I. The family settled first in Illinois and then in Oklahoma, where Dr. Bambas graduated from the University of Oklahoma before going on to receive graduate degrees from Middlebury College (M.A.) and the University of Oklahoma (Ph.D.). According to her nephew, Conrad Derdeyn of Austin, Texas, Dr. Bambas “fit in very well in the university environment. She has always been a very sociable

person, full of personality, as well as a dedicated teacher.”

During her academic career as a professor of French, Dr. Bambas taught at the University of Oklahoma and the University of Central Oklahoma before retiring in 1974. Following the passing of her husband, Rudolph Bambas, a professor of English, in 1998, she established scholarships at a number of colleges, including the University of Oklahoma, Carnegie Mellon, and Middlebury College.

Speaking on behalf of the entire Wilmer community, Peter J. McDonnell, M.D., Wilmer’s Director and William Holland Wilmer Professor of Ophthalmology, notes, “We’re delighted to congratulate Dr. Bambas on reaching the century mark. We’re also very grateful that her legacy will help identify new treatments for blinding retinal diseases. Her name will be associated in perpetuity with all of the discoveries made by the scientists who will benefit from her gift.” ■

Jones Bequest Endows Research Fellowship in AMD

When Thomas O. Jones passed away in December at the age of 88, he left an important legacy at the Wilmer Eye Institute — a bequest of \$1 million to endow the Thomas O. Jones Fellowship in research and treatment of age-related macular degeneration (AMD). Mr. Jones came to Wilmer in 1999 for treatment of his cataracts, glaucoma and AMD. Unfortunately, he was already in an advanced stage of AMD and had lost much of his vision. Wilmer physicians were able to prevent further vision loss and to assist him with low vision aids.

Mr. Jones was eager to support future generations of physicians who will have an impact on the treatment and eventual cure for AMD. He wrote to Dr.



Former Wilmer Director, Dr. Morton F. Goldberg, presents Thomas O. Jones with a Legacy Society membership certificate in June 2002.

Morton Goldberg about his decision to make a gift, “I would like to comment on the remarkable therapy I have received for my macular degeneration from you at the Wilmer Institute and my gratitude for it which continues.”

A true Renaissance man, Tom Jones loved

literature and the musical theater. His mother wrote children’s books as did his sister, Elizabeth Orton Jones, who was awarded the Caldecott Medal for her illustrations. His father was a violinist and wrote a book on the violin. Later in life, Tom Jones earned a reputation in the Washington, DC area for his roles in local productions of Gilbert and Sullivan. He was also a dedicated volunteer with Alcoholics Anonymous.

Mr. Jones, an English literature major from Harvard, was drafted before the war and later became an officer assigned to counter-intelligence. He went from his quiet upbringing in his hometown of Highland Park, Illinois to overseeing security of the Manhattan Project’s weapons development program at Los Alamos, New Mexico, including testing of the world’s first atomic bomb. He spent most of his subsequent career with the Atomic Energy Commission with responsibilities related to the peaceful uses of nuclear energy.

At an intimate memorial service held in Washington, DC in January, friends gathered to play his favorite music and remember. Mr. Jones’ close friend, Kathleen Shea, spoke of his generosity to Wilmer and his conviction that a cure for AMD was possible. By endowing the Thomas O. Jones Fellowship, Mr. Jones has brought his conviction closer to reality. ■

THE WILMER LEGACY SOCIETY

The Wilmer Legacy Society recognizes and honors the commitment of its members who have provided for the Wilmer Eye Institute under their estate or financial plan.

STRENGTH. ENDURANCE. WILL POWER.



You’ve achieved a great deal. Your financial picture looks strong and enduring. Perhaps you’re planning for retirement. Now you’re ready to use your Will Power.

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HEIRS FROM UNNECESSARY ESTATE TAXES. PROVIDE FOR THE INSTITUTIONS CLOSE TO YOUR HEART.

Planned Giving experts at Johns Hopkins can furnish information about tax-wise giving, which you can share with your estate advisor, and provide sample language for a bequest to the Wilmer Eye Institute. When you are ready, please contact us.



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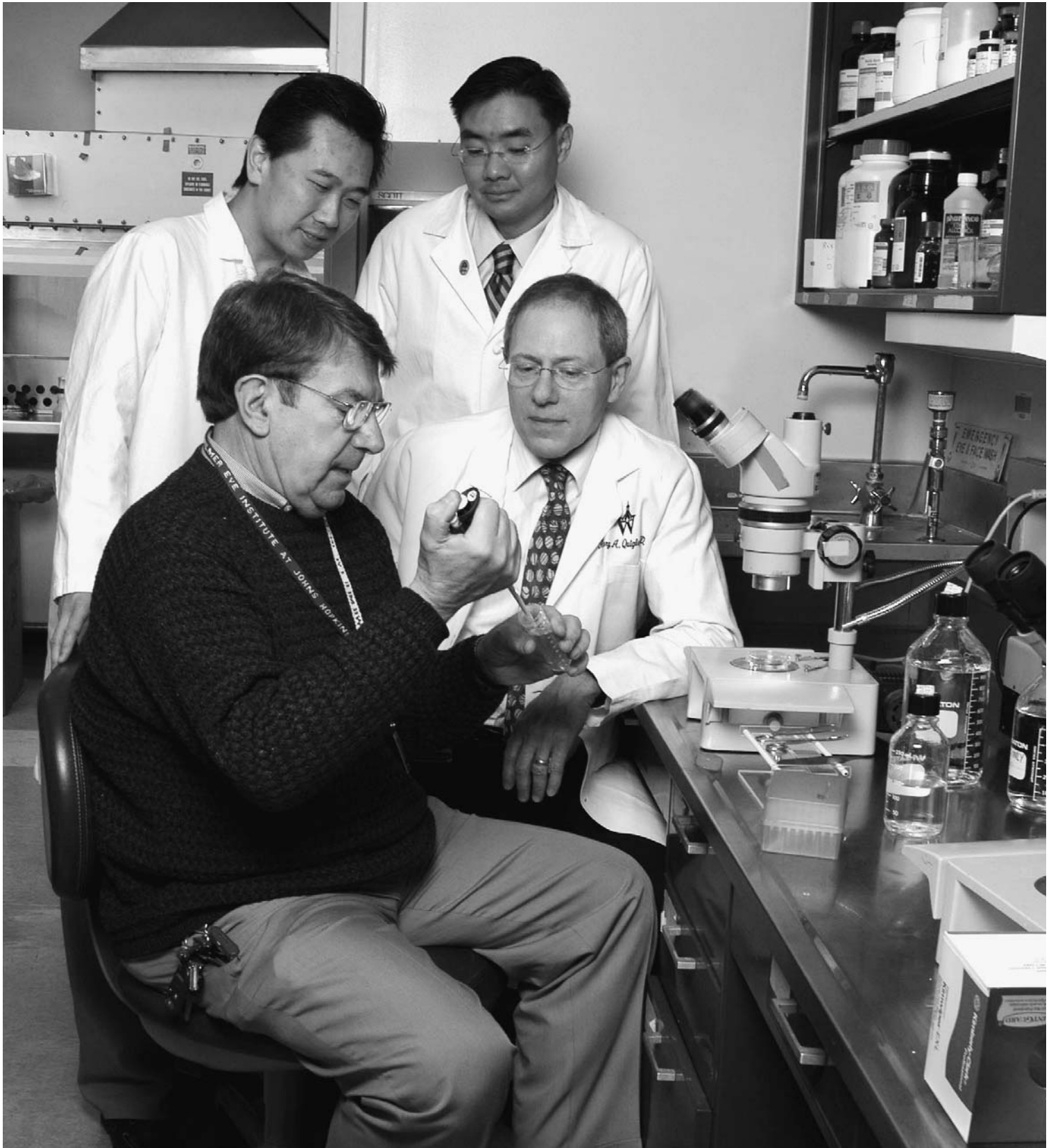
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If you have already included the Wilmer Eye Institute in your Will but have not notified us, we would greatly appreciate hearing from you.

BREAKING NEW



GROUND

Wilmer Scientists Pioneer Stem Cell Research

Quick—name the one area in current medical research that could most resemble the hunt for the Holy Grail. For many, the answer would be stem cells. And with good reason. As with the Grail legend, today’s seekers are looking to pinpoint the true location of the enormous potential that stem cells possess. While the path to discovery is challenging, scientists are already catching tantalizing glimpses of the future of stem cell research.

Nowhere does that future look more promising than at the Wilmer Eye Institute, recognized throughout the world as the leader in innovative and groundbreaking ophthalmic research. Wilmer’s collective experience, world-class faculty, and advanced technological resources give the institution a unique advantage in discovering new treatments and cures thought impossible just a few years ago. In particular, much of this work now focuses on the study of stem cells.

Defining Stem Cells

What are stem cells? Unlike the trillions of dedicated cells throughout the human body, stem cells possess two unique qualities. When cultured, these cells will continue to self-renew by dividing, creating a steady supply of new cells. In addition, under properly prepared conditions, stem cells can be made to take on

Clock-wise from top left: Drs. Roy Chuck, Albert Jun, Harry Quigley, and Ruben Adler, members of Wilmer’s stem cell team in Dr. Adler’s lab.

the characteristics of other specialized cells in the body, such as the muscular tissue of the heart. In short, stem cells have the potential to

regenerate those critical cells lost to disease or injury, and speculatively, even replace whole organs. In terms of their impact in treatments for such eye diseases as glaucoma, cataract, and macular degeneration, the implications are enormous. And, even though their study is a relatively new focus in eye research, four Wilmer investigators are already taking the lead in understanding the mechanism of stem cells and their application to specific treatments of the eye.

The Embryonic Code

“The key issue in stem cell applications for treatment,” says Ruben Adler, M.D., “is in how do you make them do what you want them to do?” It’s a seemingly simple question, but deceptively so. Dr. Adler, the Arnall Patz Distinguished Professor of Ophthalmology and Professor of Neurosciences at Wilmer, has been focusing on finding answers to this query for years. As lead investigator of the Retinal Degeneration Center of Wilmer, Dr. Adler and his laboratory team are pursuing research aimed at the pre-

vention and treatment of Retinitis Pigmentosa (RP), a hereditary eye condition that causes tunnel vision and eventual blindness. Specifically, RP attacks and destroys the rod and cone photoreceptor cells in the retina that transmit visual information to the optic nerve. Through studies with chick embryos, Dr. Adler is finding the clues that eventually could lead to stem cell transplantation therapies to reverse RP's effects.

The challenge, according to Dr. Adler, is being able to replicate the process by which a stem cell can transform itself into a photoreceptor cell and then “rewire” itself successfully to surrounding cells in the eye. “We need to understand how stem cells are induced in the embryo to go through all of the transformations necessary to become, for example, a photoreceptor cell,” says Dr. Adler. “Only the embryo can teach us how to do this. So our goal is to copy that biomolecular process that takes place in the embryo, apply it to cultured stem cells, and then transplant them into the diseased eye.”

While there are “no magic bullets,” Dr. Adler is optimistic about his progress. “The number of tools that are available for testing is growing very rapidly and the techniques are extremely powerful,” he notes. “For example, we are already isolating individual retinal cells and comparing their genetic composition as they mature into photoreceptor cells.”

New Approaches To Corneal Surgery

At the Walter J. Stark, M.D. and Margaret C. Mosher Center for Cataract and Corneal Diseases at Wilmer, two researchers under the direction of Dr. Walter

Stark are looking at new surgical approaches to repairing the cornea, the curved transparent tissue that covers and protects the front of the eye.

Roy Chuck, M.D., Ph.D., a formally trained biomedical engineer and Associate Professor of Ophthalmology, is developing a remarkable treatment to help those thousands of Americans who suffer injuries to the outer surface of the cornea (called the epithelium) due to disease, flames, or chemical accident. Such trauma can lead to blindness caused by

depletion of the cornea's limbal stem-cell region, the outer rim that is the source of cells which keep the cornea clear and lets light into the eye. Through a surgical procedure, Dr. Chuck first removes the damaged layer from the patient's eye, then takes a new limbal ring from a donor cornea and stitches it into

place on the patient's cornea. Afterwards, it takes just a few weeks for the new stem cells to regenerate and cover the cornea. Due to such issues as tissue rejection, this novel surgery's success rate is still only about 50 percent, but as Dr. Chuck notes, “fifty percent is better than zero.” In the meantime, he is pursuing a second research track to more readily identify and grow stem cells from donated eye bank corneas for surgical transplantation and, in his words, to produce “even greater success rates.”

The corneal endothelium is the research focus for Albert Jun, M.D., Ph.D., Assistant Professor of Ophthalmology. This inner lining of the cornea acts as a barrier to prevent water inside the eyeball from flowing into the cornea, which would cause blurred sight. However, a disease like Fuch's dystrophy can cause endothelial cells to die off gradually, leading to dis-

“The key issue in stem cell applications for treatment is how do you make them do what you want them to do?”

—RUBEN ADLER, M.D.

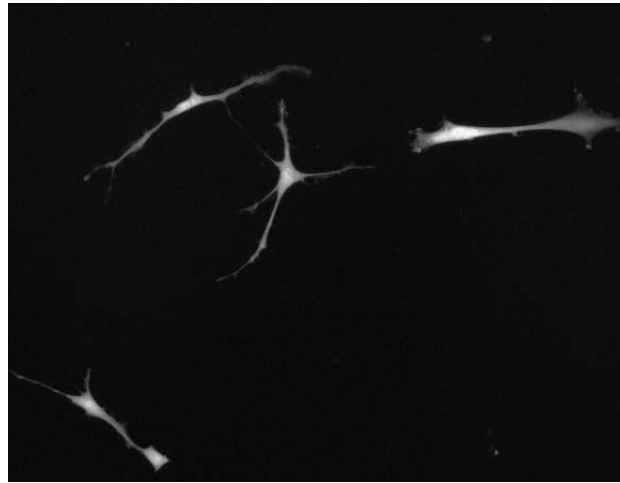
“There are only two or three other places in the world where the kind of research we’re doing now would be possible.”

—HARRY A. QUIGLEY, M.D

torted vision. In collaboration with Hopkins’ new Institute for Cell Engineering (ICE), Dr. Jun is taking endothelial cells from donated corneas and successfully growing them in a controlled culture in his lab. “There probably aren’t five labs in the world that can get these cells to grow reliably,” he says. “Our resources here are tremendous.” When he has generated a sufficient quantity, Jun eventually hopes to transplant the cultured cells to regenerate the endothelium, a less invasive option than a complete corneal transplant. “While our process is not an exclusive stem cell technique,” he notes, “it is a cell replacement technique that potentially can include stem cells.”

Pushing Back Glaucoma

Today, glaucoma is the leading cause of permanent blindness around the world, affecting more than three million people in the U.S. alone. The disease causes increased fluid buildup and pressure inside the eye and can destroy the retina’s ganglion cells, causing diminished sight. But the statistics may be about to change, thanks to a research breakthrough by Harry A. Quigley, M.D., A. Edward Maumenee Professor of Ophthalmology and director of both Wilmer’s Glaucoma Service and the Dana Center for Preventive Ophthalmology.



Stem cells growing in culture from human eyes.

By harvesting a special type of stem cell, called progenitor cells, from the eye of an animal, Dr. Quigley and his team found that they could culture a larger sample in the lab. This critical mass of progenitor cells was then reinserted into the affected eye, with startling results. “We have produced experimental glaucoma in rat eyes and have found that the transplanted progenitor cells

go straight to the areas of damaged retina to locate themselves where we need them to repair the tissue,” says Dr. Quigley. “The progenitors incorporate even better into glaucoma eyes than into normal rat eyes.” He also notes that because progenitor cells originate in the patient, the possibility of transplant rejection is eliminated.

Dr. Quigley cautions that there are a number of investigative questions that must be answered in this study. “We haven’t produced anything that looks identical to a retinal ganglion cell at all yet,” he says. “We have to tell the cell through different chemical treatments how to turn into a ganglion cell—or how to link properly with the brain.” Still, he is proud of the progress he and his team have made. “There are only two or three other places in the world where the kind of research we’re doing now would be possible,” he notes. “That’s largely due to the Hopkins’ environment in general and Wilmer’s tradition specifically.” ■

CLANCY ENDOWS NEW PROFESSORSHIP



Tom Clancy

Acclaimed Author Delivers Real-Life Thrills By Funding Chair In Ophthalmology

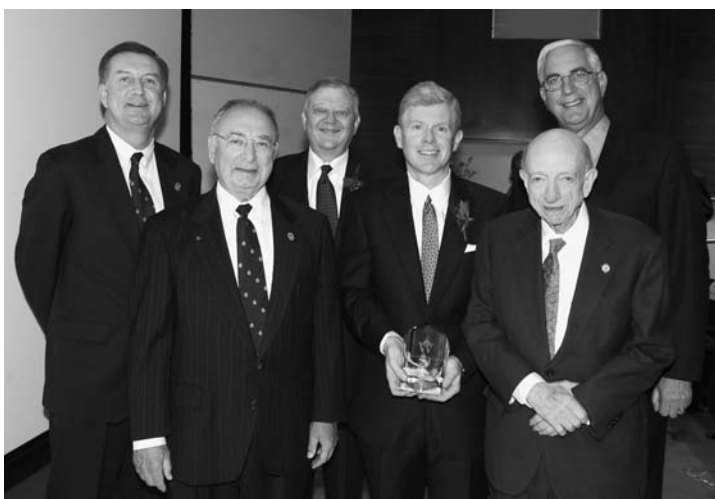
As the acknowledged inventor of the techno-thriller, celebrated author Tom Clancy has kept readers on the edge of their seats through the pages of such best sellers as *The Hunt for Red October* and *Patriot Games*. But for pure excitement, the Maryland-born novelist outdid himself on Friday, April 8. That day, before a packed audience, he shared his experience as a patient at the Wilmer Eye Institute and his motive for funding a \$2 million professorship in ophthalmology.

The event, a formal dedication ceremony for the Tom Clancy Professorship in Ophthalmology, featured an Irish dancer and a dramatic reading from Mr. Clancy's works. Also included in the program was a roster of such distinguished guest speakers as Cornelius McCole, M.D., Director Emeritus, Department of Ophthalmology at Henry Ford Hospital in Detroit; and Kazuo Tsubota, M.D., Chairman of the Department of Ophthalmology at Keio University in Tokyo. Wilmer's past Direc-

“Coming to Wilmer, and to Hopkins in general, is like visiting the 82nd Airborne. They’re elite troops, they know it, and they plan to stay that way.”

—AUTHOR TOM CLANCY

tor, Morton F. Goldberg, M.D., Joseph E. Green Professor of Ophthalmology; Peter J. McDonnell, M.D., Wilmer’s current Director and William Holland Wilmer Professor of Ophthalmology; and Terrence P. O’Brien, M.D., the inaugural Tom Clancy Professor in Ophthalmology, also spoke.



Dr. Peter McDonnell, Dr. Morton Goldberg, Tom Clancy, Dr. Terrence O'Brien, Dr. Arnall Patz, Dean Edward Miller

Fiction Turned Fact

In a case of nature imitating art, Mr. Clancy’s involvement with the Wilmer Eye Institute has its roots in the author’s own fiction and was, according to him, “a mistake.” “One of the continuing characters in my novels, Cathy Ryan, is an ophthalmologist at Wilmer,” notes Clancy. “Dr. Morton Goldberg, the former director of the Institute, read a couple of my books and asked me if Cathy’s character was based upon Wilmer surgeon Dr. Julia Haller. She was not, but through Dr. Goldberg, I got to meet Dr. Haller as well as a number of physicians, including Dr. O’Brien.”

Through his growing relationships at the Institute and its physicians, Clancy began to reflect upon his own vision, compromised by a rare form of near-

sightedness called pathological myopia, a condition that can lead to profound vision loss. In his initial discussions with the writer in the late 1990s, Dr. O’Brien recalls Clancy’s keen interest in corrective surgery. “Mr. Clancy was extremely knowledgeable about his own ocular condition as well as the advances in technology, so we had some very sophisticated discussions about

the possibilities,” he says. “We discussed both the advantages and disadvantages of these options, which he weighed very carefully. What also impressed me was his decisiveness once he made up his mind.” In 2001, Clancy underwent a corrective LASIK procedure conducted by Dr. O’Brien, which both writer and surgeon have characterized as a “complete success.” As Dr. O’Brien notes, “Mr. Clancy’s dramatic results with the highly successful outcome, as well as his impressions of Wilmer, obviously made him favorably inclined to consider this major gift.” Clancy expresses his gratitude more succinctly: “Not being blind anymore is a fairly major gift in itself.”



An Eye For The Exceptional

Recognized internationally as a leading expert in refractive eye surgery, Dr. O'Brien is a skilled ophthalmic surgeon and researcher whose practice at Wilmer addresses disorders of the anterior segment, including corneal transplantation and complicated cataract and intraocular lens cases. He is the founder and director of the Institute's Ocular Microbiology Laboratory, a multidisciplinary group of scientists who are investigating rapid diagnostic techniques and improved treatments for severe, potentially blinding eye infections—and one of a few labs in the world devoted to the study of such ocular infectious diseases. In addition, Dr. O'Brien serves as the medical

director of Wilmer's Refractive Eye Surgery Service, and is on the faculty of the Johns Hopkins School of Medicine, where he has co-directed the Wilmer Current Concepts in Ophthalmology courses with Walter J. Stark, M.D. for more than a decade.

Dr. O'Brien firmly believes that the new Clancy Professorship will accelerate his work even further. "This magnificent gift will fortify my own efforts to concentrate on my research by affording me more academic freedom to explore studies that will ultimately benefit patients and their vision," says Dr. O'Brien. "Without such time for free thinking and discovery, all of us at Wilmer would be at a major disadvantage; there would be no medical advances due

"An endowed chair is a tremendous driver of research and innovation."

– PETER J. MCDONNELL, M.D.



1. Dr. Masako O'Brien, Tom Clancy, Dr. Terrence O'Brien, Joseph Roziner
2. Drs. Peter and Jan McDonnell, Helen Osssofsky Iliff, and Carol Veronda
3. Dr. Morton Goldberg, Patti Guerrieri, Brooks Robinson



- 4. Carolyn Fugett, Dr. Terrence O'Brien, and Jean Fugett. The Fugetts are Wilmer Advisory Council members.**
- 5. Tom Clancy, Alexandra Clancy, Brooks Robinson.**
- 6. Patti and Alan Guerrieri, Wilmer Advisory Council members.**
- 7. Miles McLennan, Director of U.S. Marketing, announces Allergan Inc.'s \$30,000 gift to support a corneal research fellow in honor of Terrence O'Brien, M.D.**

to the insufficient time to conduct these important investigations.”

Dr. McDonnell agrees. “Through the endowment income, such professorships provide support for faculty to take their academic work in new directions much faster, in ways that can result in additional grant funding,” he says. An endowed chair, Dr. McDonnell notes, is a “tremendous driver of research and innovation” not only at Wilmer, but also throughout Hopkins.

“Of course, it’s particularly exciting to have a professorship in the name of such a prominent leading citizen as Mr. Clancy,” he continues. “We are very

appreciative of the signal that sends—that someone so successful in his profession would see the importance of the work that we do here, and choose to support it such an important way.”

For his part, Clancy hopes that the long-term potential of his gift is realized. “I want this professorship to drive more research, that in turn pushes out the frontiers of knowledge even further,” he says. “Because that’s about the best thing anyone can do.” ■

THE MORTON F. GOLDBERG, M.D. DIRECTOR'S DISCOVERY FUND

A SPRINGBOARD TO TOMORROW'S CURES



**Dr. Emily West in
Tanzania examining
young village residents.**

For scientists at the Wilmer Eye Institute, finding funding for promising research can lead quickly into a classic double bind. In order to qualify for larger, sustaining grants, they first must produce compelling data to justify further support for their projects. However, the cost of developing such pilot studies is often out of reach. The only option remaining for researchers is to seek “angel” or start-up support, which can prove just as challenging.

“We couldn’t have moved forward on our study without this grant. It really gives researchers access to financial support at a time when it can be the most useful.”

—NATHAN CONGDON, M.D., M.P.H.

However, thanks to the Morton F. Goldberg, M.D. Director’s Discovery Fund, this support for Wilmer’s best and brightest is being maintained. The Fund, created in 2003 by the friends and colleagues of Wilmer’s former Director, enables the current Director to provide critical funding to a select number of research projects at Wilmer where, in Dr. Goldberg’s words, “pioneering breakthroughs are most likely.”

Receiving awards from the Director’s Discovery Fund in 2005 are Nathan Congdon, M.D., M.P.H., Associate Professor of Ophthalmology, Glaucoma Service and Associate Professor of International Health, Bloomberg School of Public Health; James Handa, M.D., Associate Professor of Ophthalmology, Vitreoretinal and Ocular Oncology Service, and Assistant Chief of the Retina Division; and Emily S. West, Ph.D., Assistant Professor at the Dana Center for Preventive Ophthalmology.

Announcing their selection, Peter J. McDonnell, M.D., Director and William Holland Wilmer Professor of Ophthalmology, says, “These three investigators, while early in their careers, are engaged in studies that could dramatically change the way we understand and treat certain eye diseases.” Dr. McDonnell notes that the Director’s Discovery Fund



Dr. Nathan Congdon conducting research in the areas of cataract, refractive error, and glaucoma.

has never played a more crucial role in supporting new research. “Given our economy, the funding rate at the NIH is only half of what it was just a few years ago,” he says. “Our Fund is a way to invest in those studies that could transform current medicine, and at the same time, to develop data that will encourage larger grants.”

Making A World Of Difference

Ever since he was a first-year medical student, Dr. Nathan Congdon has been interested in saving the world from blinding diseases. Today, with a research focus in public health ophthalmology, studying issues that affect blindness prevention from a global perspective, he’s doing just that, especially in the areas of cataract, refractive error, and glaucoma. “Each of these studies involve a more theoretical, research component with a long horizon,” he says, “and also a more practical component looking at how these diseases are prevented, detected, and treated now.” A current investigation now underway involves conducting a genome-wide scan of nearly 800 elderly siblings on the Eastern Shore of Maryland for cataract and glaucoma. By comparing the results of this study with a second set of control data from the Netherlands, Dr. Congdon hopes first to identify those genes that may be associated with those



Dr. James Handa researches the genes that trigger dry AMD.

eye diseases, and then determine whether there may be environmental “rules” that genetically trigger the onset of the disease.

Uncommon Causes For Common Blindness

Affecting more than 1.7 million older Americans today, age-related macular degeneration (AMD) is the most common cause of vision loss in those over 60. Of the disease’s two forms, Dr. James Handa is concerned with the more prevalent “dry” AMD, which causes the pigmented tissue under the retina (called the retina pigment epithelium or RPE) to wither away and stop functioning, leading to failing eyesight. In two studies, involving mice models and a micro-array analysis of donated RPE cells, his team is working to find the means to suppress the overproduction of certain genes that transport fats to RPE cells, which he

believes is the trigger to the biochemical sequence that causes dry AMD. “We’re using a gene therapy approach where we deploy a very targeted probe that we hope will normalize the production of a fat-processing gene,” says Dr. Handa. “Then we will see if that changes the behavior of the RPE tissue. If we could reduce the number of genes being produced by the pathologic disease condition, we might be able to slow down the development of this disease, and prevent many more people from having any sort of significant vision loss.”

A New Look At Corrective Surgeries

When is a cure itself suspect? For Dr. Emily West, the pursuit of answers to that question has led her around the world to the East African nation of Tanzania. There, Dr. West is preparing a six-month study

“The Fund gives you a competitive advantage. If you have a really interesting idea, this kind of money is more immediately available to move your scientific program forward.”

—JAMES HANDA, M.D.

of the effects of corrective surgery on individuals suffering from trichiasis or ingrown eyelashes. While trichiasis can be corrected by a simple surgery, the procedure itself has a high rate of failure. About 20 percent of corrected eyelids are found to turn back in again. Through her pilot study, Dr. West will attempt to find out why, by examining a control group of patients both before and following the surgery. “One hypothesis we have is that the angle the surgeon’s hand takes in making the incision during the original corrective surgery has something to do with whether the lid turns back in again or not,” she notes. “These simple manual mechanics may well determine the long-term success of the operation.”

“A Powerful Mechanism”

All three researchers voice similar praise for the Director’s Discovery Fund and its importance. “It simply was essential to me,” says Dr. West. Dr. Congdon agrees: “We couldn’t have moved forward on our study without this grant. It really gives researchers access to financial support at a time when it can be the most useful.”

“The Fund gives you a competitive advantage,” says Dr. Handa. “If you have a really interesting idea, this kind of money is more immediately available to move your scientific program forward. That’s a very powerful mechanism.” ■

Morton F. Goldberg, M.D. Director’s Discovery Fund Contributors

To date, leading contributors to the Morton F. Goldberg, M.D. Director’s Discovery Fund have committed more than \$2.1 million toward a goal of \$3 million. As of 4/01/05, commitments of \$5,000 and greater include:

\$500,000 AND ABOVE

Abraham* and Virginia Weiss

\$250,000 TO \$499,999

Ms. Helen E. Day*

Mr. William T. Young, Sr.*

\$100,000 TO \$249,999

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Mr. and Mrs. William Bell

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Dr. James H. Gray

Susan and Sanford Greenberg, Ph.D.

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Mrs. Agnes Nixon

Mr. Boone Pickens

Louis Slesin, Ph.D. and Lesli Rice

Mr. and Mrs. Marshall Wishnack

*deceased

PHILANTHROPY PASSES TO A NEW GENERATION



Diane and Robert Levy

Levy Gift Underwrites Pioneering ADHD Project

Thanks to a family tradition of giving, a Wilmer Eye Institute researcher is well on his way to producing a breakthrough screening device for a serious childhood ailment. The researcher is David L. Guyton, M.D., Zanyl Krieger Professor of Pediatric Ophthalmology and Director of Wilmer's Krieger Children's Eye Center. His device, an Eye Fixation Monitor, is designed to provide a quick and effective test that will allow pediatricians to know with certainty whether a child is afflicted with attention deficit hyperactivity

disorder (ADHD) or related ailments. Now, with the generous support of Robert and Diane Levy of Chicago, Dr. Guyton's monitor is undergoing a major round of clinical testing that could lead to a working prototype within the next two years.

Attention deficit hyperactivity disorder (ADHD) today poses a significant public health problem, affecting upwards to 16% of all school-aged children. Characterized by inattention, hyperactivity, and impulsivity, ADHD compromises a child's ability to learn, often resulting in long-term emotional trauma due to academic failure and peer rejection. While treatments for ADHD exist, its diagnosis is often missed until after the emotional damage has been done. "What pediatricians have lacked up to this point is an objective measure that correlates with ADHD's disease processes," says Dr. Guyton. "If we can create a means that allows us to come up with an objective score for the first time, it can help with initial diagnoses and in addition, test the effectiveness of certain medications during treatment."

The Eye Fixation Monitor seeks to provide that accurate diagnosis. Using a non-invasive technique called retinal birefringence scanning (RBS), which senses the direction of the nerve fibers in the back of the eye, the Monitor can track the shifting motion of an eye within a half-degree. This precise means of measurement is especially critical, says Dr. Guyton, in testing children for ADHD. "The Monitor will keep a running score on how accurately a child can visually fixate on a target," he explains. "Children with ADHD cannot look steadily at a single object very well. Their eyes always jerk away." Simply by staring through the Monitor's viewer for a few seconds, says Dr. Guyton, a child can be assessed objectively for the presence of ADHD.

Bob Levy is no stranger to Wilmer's reputation for innovative medicine; his own mother once received treatment here for an eye condition. "My parents and I were both struck by the outstanding skill set of Wilmer's physicians," he recalls. "Not only were they extraordinarily gifted in dealing with the medical issues, but also sensitive to the broader human issues such as aging. That powerful combination creates the strongest possible relationship." His parents were so impressed with Wilmer that they began, in Levy's words, "a pattern of giving" that resulted in the founding of the Barbara F. Levy Laboratory of Visual Development, where Dr. Guyton and his team currently conduct research.

Though his parents have since passed away, Levy feels that his family's connection with Wilmer remains strong. "My family established a philanthropic interest at Wilmer out of respect for the physicians and the institution itself," he notes. "My wife and I have continued this tradition at the Institute through our own philanthropic interest in educational issues."

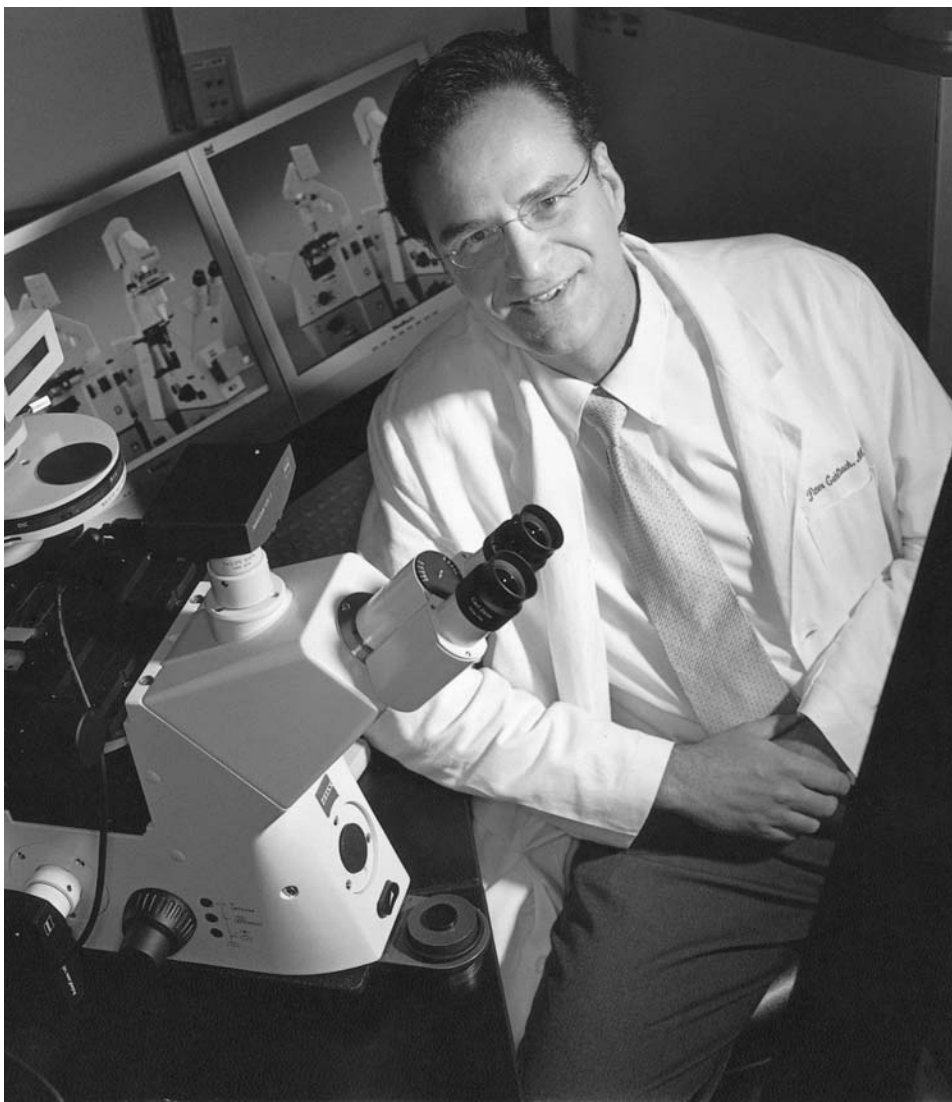
Dr. Guyton's ADHD screening research struck a chord for the Levys. "When we heard that Dr. Guyton was doing a study on attention deficit disorder, we felt that this initiative could have a positive impact on the behavioral and educational development of children," says Levy. "Being able to perform a successful diagnosis on kids who have this problem could make an enormous difference."

The Levy's gift will underwrite the cost of further technical development of the Eye Fixation Monitor, while supporting an extensive two-year study involving test subjects both with and without early stages of ADHD. This research will be conducted in cooperation with the Kennedy Krieger Institute in Baltimore. By the end of the study, Dr. Guyton's team hopes to produce a final working prototype of the Eye Fixation Monitor along with conclusive research supporting its success.

For Dr. Guyton, the Levy gift carries with it an even greater long-term impact. "Of course, we're excited about the Levy's support, because this project is one of our top priorities here," he says. "However, such philanthropy accomplishes a larger mission. Seeding pilot projects like ours can lead to substantive data, which in turn allows us to apply for larger funding from the NIH and other national foundations. Having this stepping stone to additional financial support is often required to get these big projects completed."

Wilmer's Director Peter J. McDonnell, M.D., William Holland Wilmer Professor of Ophthalmology, agrees. "ADHD is a real heartache for children—and for their parents," he notes. "Dr. Guyton's pioneering work could give those affected with this disease the opportunity to live happier and more productive lives. This new and generous gift made by the Levy family will make a critical difference in the realization of this research." ■

GIPSON GIFT FUNDS GENE THERAPY UNIT



Dr. Peter Gehlbach in the new Gene Therapy Vector Core Unit.

In the medicine of the 21st century, researchers at the Wilmer Eye Institute are looking to a new approach that will attack disease on molecular and cellular levels. Gene therapy does just that by altering the genetic program of cells to prevent or treat specific diseases. How? Working within a laboratory manufacturing facility called a “core,” scientists take a particle capable of gaining entry into cells (usually an inactive virus) and place within it a carefully engineered set of molecular instructions required to make a specific protein. The result is a gene therapy vector that, when injected into the body, can enter into diseased or other target cells and deliver the instructions for making a protein. The impact of such engineered proteins on a disease is the source of current gene therapy research, with the goal of identifying potential therapeutic agents and even cures.

With an increasing number of studies utilizing gene therapy, Wilmer and other Hopkins researchers have had to tap outside sources for the complex capabilities to create such viral vectors or have had to invest substantial resources to create their own. But no longer—now, thanks to a \$1.5 million leadership commitment from Mr. James Gipson, the

“James Gipson has been supporting work in gene therapy for several years, and was impressed with the opportunity to help jumpstart a major initiative here at Johns Hopkins.”

—PETER J. MCDONNELL, M.D.

ahead and incorporate those into grant proposals and pilot studies, which they might not be able to do otherwise.”

Wilmer Eye Institute has produced its first lot of vector products at its new Gene Therapy Vector Core Unit.

Mr. Gipson, who is the President and Portfolio Manager of Pacific Financial Research, Inc., is widely considered one of the leading minds of today’s investment industry, and is credited for the continuing success of the popular Clipper Funds.

“James Gipson has been supporting work in gene therapy for several years, and was impressed with the opportunity to help jumpstart a major initiative here at Johns Hopkins,” says Peter J. McDonnell, M.D., Wilmer’s Director and William Holland Wilmer Professor of Ophthalmology. “His gift will help Wilmer accelerate its work on gene therapy for eye disease, and more broadly, promote research in other departments at Hopkins as well.”

The Gene Therapy Vector Core Unit, located in Wilmer’s Jefferson Street Research Building, will provide added support and a cost savings for Wilmer and Hopkins researchers, according to Peter Gehlbach, M.D., Ph.D., Assistant Professor of Ophthalmology in the Retina Division, and Director of the new state-of-the-art facility. “We want to provide the unit as a service, so that other Hopkins labs won’t have to duplicate the capacity that we will have in place,” says Dr. Gehlbach. “We can pass along this cost savings, as well as know-how. In turn, our presence will allow labs that want to utilize a gene therapy vector to go

Dr. Gehlbach sees the arrival of the Gene Therapy Vector Core Unit as a unique situation in itself. “It’s not always possible for an eye institute to lead the way in the direction of science for an entire university community,” he notes. “It’s a phenomenal opportunity that is the product of the shared visions of Mr. Gipson and Dr. McDonnell. Mr. Gipson has stepped forward boldly to make this unit possible. I think he recognizes that Wilmer is up to the task of launching this program, which is high praise for the Institute and for Dr. McDonnell. This is a level of confidence that you do not see every day.”

James Handa, M.D., assistant chief of the Retina Division and a researcher at the Wilmer Eye Institute, sees himself as someone who will heavily utilize the new unit. “The gene therapy core approach allows us to break down the mechanism of disease development,” he notes. “If our theories are right on particular genes, then they suddenly can become potential treatment options that we can design for patient use. That’s where the real power is in having this facility—having that in-house expertise so that we can use it as a tool to further individual research. The new unit will accelerate Wilmer’s research efforts across the board.” ■

WILMERNEWS

“Ironmen” Add Extra Muscle to Wilmer Community

When one thinks of faculty at the Wilmer Eye Institute, one thinks of brilliant researchers, caring physicians and dedicated teachers. Physical fitness does not immediately come to mind. Believe it or not, Wilmer has two Ironmen in the family! They ran the equivalent distance from Wilmer to Annapolis, swam to Camden Yards and biked to Rehoboth Beach – and did it all, one after the other, in about twelve hours.

The first, Dr. James Pitzer Gills II, former Wilmer resident and member of the Wilmer Advisory Council, has completed five Hawaii Ironman Triathlon World Championships. He is so dedicated to the sport that he purchased the Ironman name in 1989 and created the World Triathlon Corporation to ensure the race’s growth. Entering its 27th year, Ironman holds events around the world and enjoys an international reputation as the most difficult physical endurance challenge.

Dr. Gills is the founder and director of St. Luke’s Cataract and Laser Institute in Tarpon Springs, Florida. He was the first ophthalmologist in the United States to dedicate his practice to the treatment of cataracts through the use of intraocular lens implants and has since performed more cataract and lens implant surgeries than anyone else in the world. St. Luke’s Cataract and Laser Institute is known for providing an exceptional amount of charitable care to patients around the globe. In addition to his medical pursuits, Dr. Gills has been successful in real estate and is the author of eight books of Christian principles and inspiration.

Dr. Henry Jampel, professor of ophthalmology in the glaucoma division, completed his first Ironman Triathlon on October 23, 1999 in Kona, Hawaii. The

“Wilmer is without a doubt the best place in the world to be trained.”

—JAMES PITZER GILLS, M.D.



Dr. Henry Jampel competing in his second Ironman Triathlon.

grueling race includes a 2.4-mile swim, 112-mile bike, and 26.2-mile marathon. Dr. Jampel trained for months, adding 20 hours of training a week to his already busy schedule to prepare for this event.

He participated in his second Ironman race on July 25, 2004, in Lake Placid, New York, where his wife and son cheered him on. This accomplishment is amazing, considering the odds he had to overcome. A sudden cardiac arrest stopped his heart for 27 minutes after a swimming workout in May 2000. Fortunately, he was working out with physician friends who administered CPR until the emergency team arrived. Dr. Jampel immediately began thinking of returning to competition, and within 17 months, he was rehabilitated enough to run the 2001 Baltimore Marathon.

Many former residents and faculty say that they never worked harder than when they were at Wilmer. Balancing patients, research and teaching duties is a triathlon of its own, requiring a high level of organization and dedication. "Wilmer is without a doubt the best place in the world to be trained," says Dr. Gills. Whether racing or practicing ophthalmology, Drs. Jampel and Gills are Wilmer's true Ironmen. ■

Academic Offerings

Continuing Medical Education and Lectures sponsored by the Wilmer Eye Institute

Patient-Oriented Research Seminar

Friday, June 24, 2005, 4:30 – 6:30 p.m.

Maumenee 5 Conference Room, Wilmer Eye Institute

Current Concepts in Retina: Celebrating a New Decade of Preventions and Treatments; 35th Anniversary: The Retina Division of The Wilmer Eye Institute

Thursday, June 30, 2005 – Saturday, July 2, 2005

Glacier Park Lodge, East Glacier Park, Montana

What's New in Diabetic Retinopathy and Venous Occlusive Disease

Friday, October 28, 2005, 8:00 a.m. – 5:00 p.m.

Johns Hopkins University School of Medicine

Uveitis Conference

First Friday of each month, 10:00 a.m. – 12 noon

550 N. Broadway, 7th floor conference room

Johns Hopkins University School of Medicine

(call 410-955-1966 to confirm dates)

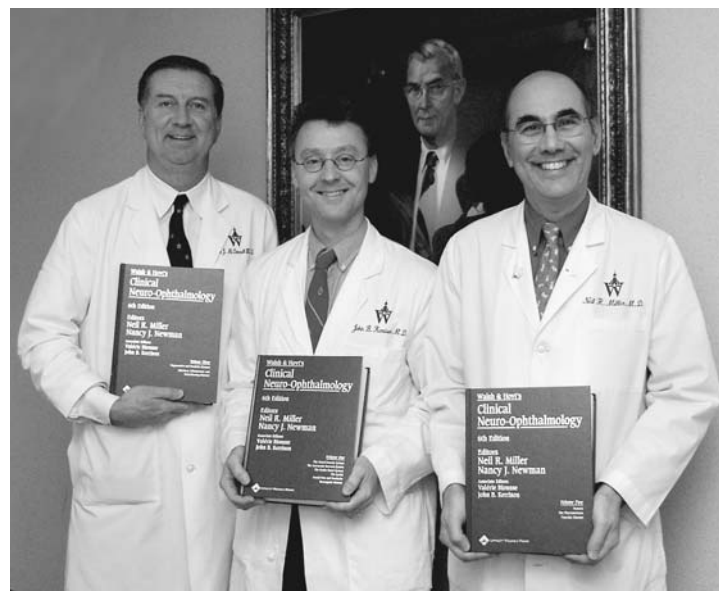
Faculty Lecture Series

Monday through Friday, 7:30 a.m. – 9:30 a.m.

Johns Hopkins University School of Medicine

Open to health care professionals

NEW TEXTBOOK EDITED BY DRS. MILLER AND KERRISON SETS THE STANDARDS IN NEURO-OPHTHALMOLOGY



Walsh and Hoyt's *Clinical Neuro-Ophthalmology, 6th edition*, edited by Wilmer physicians Neil Miller and John Kerrison, is the largest textbook in the field of neuro-ophthalmology and is considered to be the reference standard in this area with appeal not only to ophthalmologists, but also to neurologists and neurosurgeons. Thoroughly revised and updated in December 2004, this classic work is the most comprehensive reference on diagnosis and treatment of neuro-ophthalmologic diseases.

Friday Afternoon Research Meeting

Each Friday, 4:30 – 6:30 p.m.

Patz Lecture Hall, Johns Hopkins University School of Medicine

18th Annual Current Concepts in Ophthalmology

Thursday, December 1, 2005 –

Saturday, December 3, 2005

Johns Hopkins University School of Medicine



This newsletter is published by:
The Wilmer Eye Institute
 Johns Hopkins School of Medicine

Peter J. McDonnell, M.D.
*William Holland Wilmer Professor
 and Director*

Laurette L. Hankins
Director of Development



PHOTO BY L. HANKINS

ABOUT WILMER

The Wilmer Eye Institute provides diagnostic, medical, and surgical care for adults and children and is a referral center for all eye problems. Wilmer provides routine preventative care, and evaluates and treats patients with specific complaints or those with a family history of eye disease. Treatment for eye emergencies is available 24 hours a day through Wilmer's Eye Emergency Service, a designated Maryland eye trauma center.

Wilmer Services and Locations:

General Information and Referrals	410-955-5080
Emergency Services	410-955-5347
Johns Hopkins Hospital	410-955-5080
Bayview Medical Center	410-550-2360
Columbia (Charter Drive)	410-910-2330
E. Baltimore Medical Center	410-522-9800
Frederick	301-620-9268
Green Spring Station	410-583-2800
Wilmer Laser Vision Center	410-583-2802
Odenton	410-519-2425
White Marsh	443-442-2020
Wyman Park	410-338-3169
Toll-Free Directions	877-477-9519

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