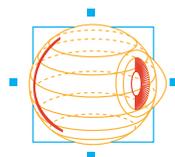
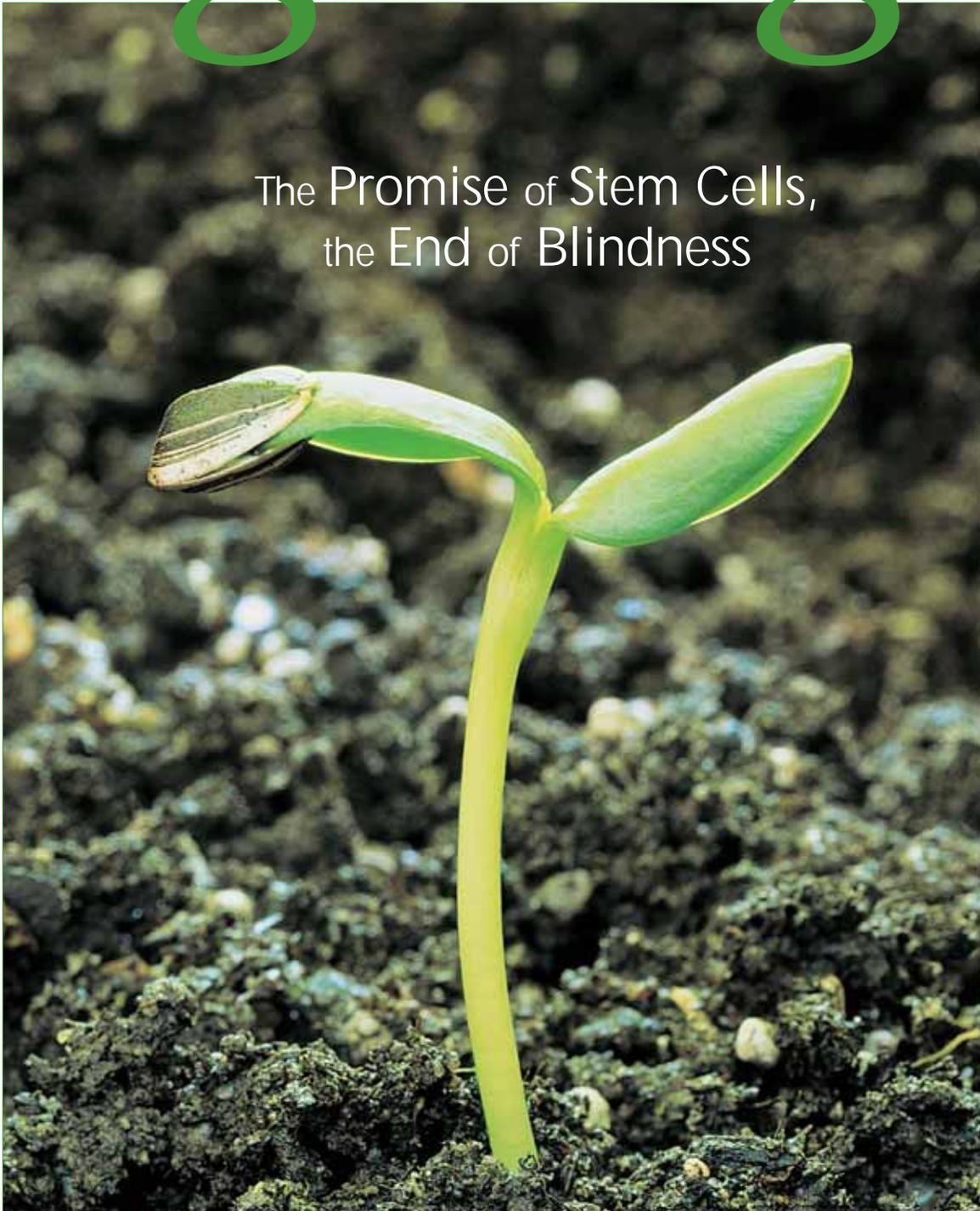


Sightings

Spring 2005

The Promise of Stem Cells,
the End of Blindness



The Schepens Eye
Research Institute



From the Chairman

This spring, The Schepens Eye Research Institute enjoyed a long-awaited celebration—the dedication of the newly renovated laboratory facility. After several years of intensive fundraising efforts, and several more years of dust, noise and vibrations, the Institute has been transformed into a state-of-the-art research facility of impressive beauty. The open and colorful laboratory design was awarded *R&D* magazine's Lab of the Year award for 2005 with Highest Honors. To commemorate the completion of this impressive project, a ribbon-cutting ceremony was held on March 30. Senator Edward M. Kennedy, a long-time champion of the Institute, generously agreed to act as the keynote speaker, and was joined by Congressman Michael E. Capuano and Massachusetts Senate President Robert E. Travaglini. All three speakers shared reflections on the importance of continued medical discovery to treat chronic and debilitating diseases such as those leading to blindness, and the important role that Schepens has to play. All of us who work to

further The Schepens mission were grateful for their presence, and for their ongoing support of vision research.

With the conclusion of the renovation, more than 14,000 square feet of new laboratory space has come on line—enough for 7 to 10 new laboratories. This has opened the exciting possibility of recruiting new faculty members to both strengthen current areas of research and to begin to explore new topic areas. A strategic planning process was begun in the fall of 2004 in anticipation of this opportunity, which will help provide a roadmap for the future. As the Board of Trustees works to insure that The Schepens Eye Research Institute is well positioned to meet the challenges facing an aging population, I look forward to working with you and other supporters of the SERI mission to solidify the Institute's leadership in developing new technologies, knowledge and treatments for preserving the miracle of sight. 🍷

Sincerely,

A handwritten signature in black ink that reads "Kennett F. Burnes". The signature is fluid and cursive.

Kennett F. Burnes



From left, Dr. Michael Gilmore, Senator Edward Kennedy, Massachusetts Senate President Robert Travaglini, Congressman Michael Capuano and Chairman Kennett Burnes.



From the Acting CEO

On March 31, 2005, the Massachusetts State House of Representatives overwhelmingly approved a bill that promotes stem cell research in the Bay State. As a scientist and leader in the campaign to develop new treatments for the blinding diseases—diseases that affect everyone from premature newborns to retirees struggling to enjoy their golden years—I have followed this debate with profound interest.

Health researchers dedicate their careers to developing new treatments to preserve life, and to better the quality of life for their fellow man. Stem cell technology holds great promise for the field of regenerative medicine—medicine focused on regrowing and repairing (rather than transplanting) damaged organs and tissues, including the retina and optic nerve. In this issue of *Sightings*, we explore the potential of stem cell technologies for vision research by talking with the scientists carrying out stem cell research at The Schepens Eye Research Institute. Though the researchers at SERI do not currently use human stem cells derived from embryonic tissue, they understand that regenerative medicine holds out hope for many currently incurable diseases, including age-related macular degeneration and other diseases of the retina. We at SERI will watch eagerly as the nation's leaders grapple with this important issue, and establish appropriate safeguards to allow the potential of stem cell technology to be developed for new cures in a way that is well regulated and morally grounded.

Not all regenerative medicine involves the introduction of stem cells. One recent breakthrough has important implications not only for blind-

ness, but also for injuries to the brain and spinal cord. In an article published in the *Journal of Cell Science* on March 1, Dr. Dong Feng Chen showed that her laboratory was able to regrow a nerve, in this case the optic nerve, by disabling two “locks” that normally keep nerve cells from regenerating. This remarkable discovery, revealing the body's own dramatic power to heal itself, offers great hope not only to those suffering from limited vision resulting from damage to the optic nerve, but also to those struggling with the effects of damage to other parts of the central nervous system, such as the spinal cord or brain. Dr. Chen is now searching for a way to turn this discovery into a therapy—in this case a drug that could be used by patients to achieve the same remarkable results.

This is an exciting time for vision research. Our scientists are making incredible advances that are nothing short of spectacular. At SERI, we are developing the new technologies and therapies needed to meet the vision needs of a rapidly aging society. Our progress in optic nerve regeneration, stem cell therapies and other areas of research hold great promise for advancements on macular degeneration, glaucoma, diabetic eye disease, cataract, and ocular surface diseases. Your support allows SERI to provide the scientists making these discoveries with the state-of-the-art laboratory facilities needed. On behalf of these scientists, we are delighted that you are our partners in discovery. 🧐

Sincerely,

Michael S. Gilmore, Ph.D.

The Promise of Stem Cells, The End of Blindness

As the debate over stem cell research continues across the nation, we sometimes lose sight of those who stand to be most affected by the debate's eventual outcome—the victims of disabling chronic illness and those who search for the cures. For The Schepens Eye Research Institute, they are the millions with macular degeneration, diabetic retinopathy, glaucoma, retinitis pigmentosa, and traumatic eye injuries and our dedicated researchers.

What could this research mean for them?

For Rich Godfrey, long-time victim of macular degeneration, and others like him, “It could mean the possibility of seeing normally again, recognizing faces, reading and driving, even—as in my case—late in life,” he says.

For those with even more profound vision loss, “it might mean seeing for the first time or perhaps preventing blindness in the next generation,” says Godfrey, who, as the Institute's patient advocate for 20 years, hears daily from people seeking help and hope in their battle against blindness.

For scientists like Dr. Michael Young, who has dedicated his life to finding cures for retinal and other blinding diseases, it would mean an unlimited supply of building materials to re-create, regrow and renew parts of the precious organ responsible for bringing light and images to the brain and mind—the human eye.

“Stem cells, especially embryonic stem cells, have the unique ability to be anything they want and we need them to be, and to constantly renew themselves,” he says. “The ultimate scenario: From one stem cell, you could grow a whole organ or billions of identical cells to patch or repair any part of the eye, or even grow a complete new eye,” adds Young, who is an Assistant Scientist at Schepens Eye Research Institute.

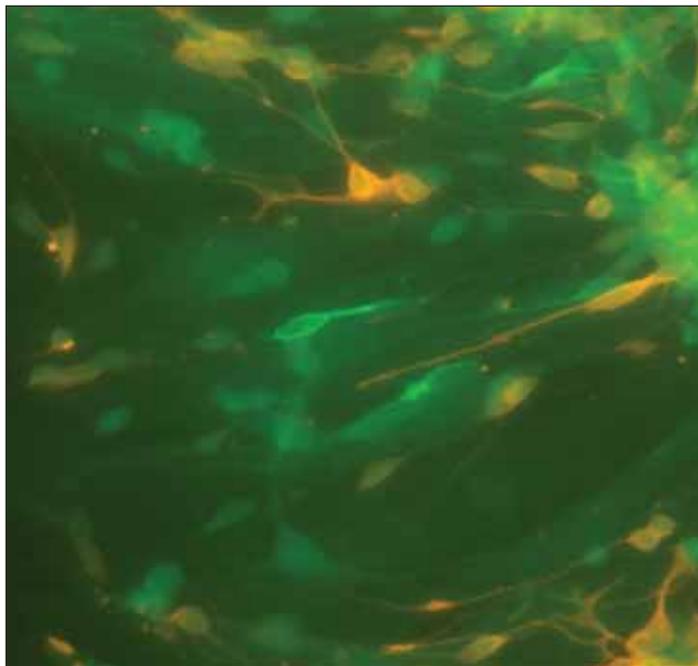
Of course, along with excitement about its potential, there is concern over the ethical and political issues surrounding human embryonic stem cell research, which has led to controversy—controversy that has cut federal funding and limited the progress of human research in this field.

THE WORK HAS ALREADY BEGUN

Even as this important debate continues, scientists are making great strides and laying the groundwork

for the time, in what many hope will be the not-too-distant future, when the questions regarding the ethical use of stem cells in research have been answered, and well-regulated research is allowed to go forward.

Many of these scientists are at The Schepens Eye Research Institute. They and the Institute are taking a leadership role in exploring the potential of animal stem cells and human stem cells taken from non-embryonic sources. In addition to embryos, stem cells are found in umbilical cords and many adult tissues, but embryonic stem cells



are by far the most versatile, according to the scientific and medical communities.

“Because of the truly remarkable potential of stem cells to help fulfill our mission, the Institute is strongly supporting the development of adult and embryonic stem cell therapies,” says Dr. Michael Gilmore, Acting CEO of The Schepens Eye Research Institute. “Our position is that all avenues for saving vision and restoring sight should be explored, but with proper oversight to insure that all of our research is ethical and humane.”

In fact, the Institute was the first eye research center to see the promise of stem cells for curing blinding diseases, and today has more vision-related stem cell research projects, either in the works or on the drawing board, than any other eye research institute in the world.

Following are some highlights:

A GIFT OF STEM CELLS—TRANSPLANTS REGROW RETINAS

For the past five years, Dr. Michael Young’s goal has been to regenerate retinas that have been destroyed. To do this he has implanted stem cells found in the brains and retinas of young animals into the eyes of others of the same species with damaged retinas. He has watched as these stem cells transform into retina cells, migrate to where they are needed in the damaged eyes and wire themselves into the optic nerve.

In recent months, he and his research team have published a landmark study that proves for the first time that transplanted stem cells can regenerate damaged retinas in mice and, most importantly, can cause those mice—whose vision has been damaged by retinal disease—to see better.

The retina is the tissue-thin membrane at the back of the eye responsible for sending light and images from the outside world through the optic nerve to the brain. When damaged or destroyed, vision can be impeded or completely lost.

“From one stem cell, you could grow a whole organ or billions of identical cells to patch or repair any part of the eye, or even grow a complete new eye.”

Young was able to prove that the stem cells made this leap into retinal cells by taking them from “green mice”—mice bred so that all their tissue are fluorescent green—and then tracking and watching their activity in the eyes of normal-colored mice.

To learn whether these mice with transplanted green stem cells could actually see better, Dr. Young placed them and

the control mice (without the transplants or with non-stem cell transplants) in dark cages and flashed a series of increasingly lower-level light at both groups over a period of time. Mice are photophobic and stop their normal activity when they detect light. Young and his research team took full advantage of this natural response. They found that the mice with the transplanted tissue continued to respond to the light as it reached the lowest levels. The control mice did not.

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Schepens Stem Cell Scientists



Michael Young, Ph.D.



Dong Feng Chen,
M.D., Ph.D.



Nancy Joyce, Ph.D.



James Zieske, Ph.D.



Jeffrey Ruberti, Sc.D.



Darlene Dartt, Ph.D.

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Young and his team are now investigating the same phenomenon in pigs, whose eyes are larger and more like human eyes. He also has created and is now using a more organized way of delivering the stem cells to larger eyes. It involves the use of tiny scaffolds, made of a biodegradable material called polymers. After using the tiny polymer scaffolds to grow the stem cells into an organized layer of retinal tissue in a culture, he implants them into the eye, where the scaffold eventually melts away, leaving the stem cells behind.

Young believes that human cells could also be transplanted into pigs to see if they regenerate.

WITH THEIR OWN EYES—WAKING UP SLEEPING STEM CELLS

When the retina of a fish is damaged, it can completely regenerate itself. This is true of many lower vertebrate animals. It has been shown that these animals can regenerate damaged retinas because there are stem cells that lie dormant in the eyes of these creatures which automatically awaken, transform into retinal cells, and regenerate the retina when their eyes are injured by trauma or disease.

While automatic regeneration does not happen in higher vertebrates, such as mice and humans, scientists have discovered that there are stem cells in the eyes and brains of mice (and suspect they are in humans) that lay quietly dormant after the eyes are fully formed during physical development. But unlike in the case of fish, these cells are not awakened by injury or disease. Instead they keep on sleeping.

Dr. Dong Feng Chen, Assistant Scientist at Schepens Eye Research Institute, has a theory about why. “We are now searching for the magic potion—chemical, drug or other signal—to arouse

these cells and put them back to work creating, or, in this case, re-creating the retina,” says Chen.

WINDOWS ON THE ASSEMBLY LINE

For three years, Senior Scientists Nancy Joyce, Ph.D., and James Zieske, Ph.D., and Adjunct Assistant Scientist Jeffrey Ruberti, Sc.D., have been working together to build an organic “artificial” cornea of human cells.

The cornea, known as the window of the eye, is the round thin clear tissue that covers the center of the front of the eyeball and protects the eye from injury, bacteria and other assaults. It has three layers, each with its own purpose and each essential to its smooth functioning—the outer layer known as the epithelium, the middle layer known as the stroma, and the inner layer known as the endothelium.

Each scientist is working on creating one layer by taking normal cells from that layer in a healthy human cornea and stimulating those cells to grow into tissue that mimics nature. Ultimately, the team hopes to put the three layers of artificially grown tissue into a sandwich-type structure, which would then be shaped to form a cornea (see *Sightings* Fall 2003 for more information).

“While this may be a way to build an initial model, we are now considering stem cells as a more efficient method for mass producing it once we have initial success. We could grow these layers and then bank them for the future,” says Zieske.

REPAIRING THE WHITES OF THE EYES

The white part of the eye known as the conjunctiva protects the cornea and ultimately the whole eye from dryness and outside trauma, producing mucins that keep the cornea lubricated and providing a barrier against intruders such as dirt, bac-

teria and dust. Drugs go through the conjunctiva to get to other parts of the eye, and because it has a blood supply, it also supplies the eye with water and electrolytes to further protect it. The whites of the eye can be damaged by injury, leaving the cornea and the retina exposed.

Dr. Darlene Dartt and her research team are trying to isolate stem cells in the conjunctiva of human eyes that could be used to repair that part of the eye following injury.

“We have found some cells that look like stem cells. The next step will be to see if under the right circumstances we can get these cells to transform into conjunctival cells and repair damage to the ‘whites of the eyes,’” says Dartt.

To do this, Dartt and her team are injecting the cells they have found into “nude” mice or mice bred without immune systems—which will not reject cells from another species—to see if these cells transform into human conjunctiva cells and reproduce to form conjunctiva tissue.

Although in the very early stages of this research, “We are very hopeful,” says Dartt.

THE FUTURE

These are just a few of the projects underway and anticipated at The Schepens Eye Research Institute that explore the healing potential of stem cells.

Says Gilmore, “With every new day comes new and creative thinking about and directions for this exciting area of medicine and science. We are glad to be a part of it and are looking forward to seeing the ultimate results of our work, which we believe will be the spring board for future cures for blindness.” 

Ask the Expert: Dr. Eli Peli

Making the Most of Peripheral Vision



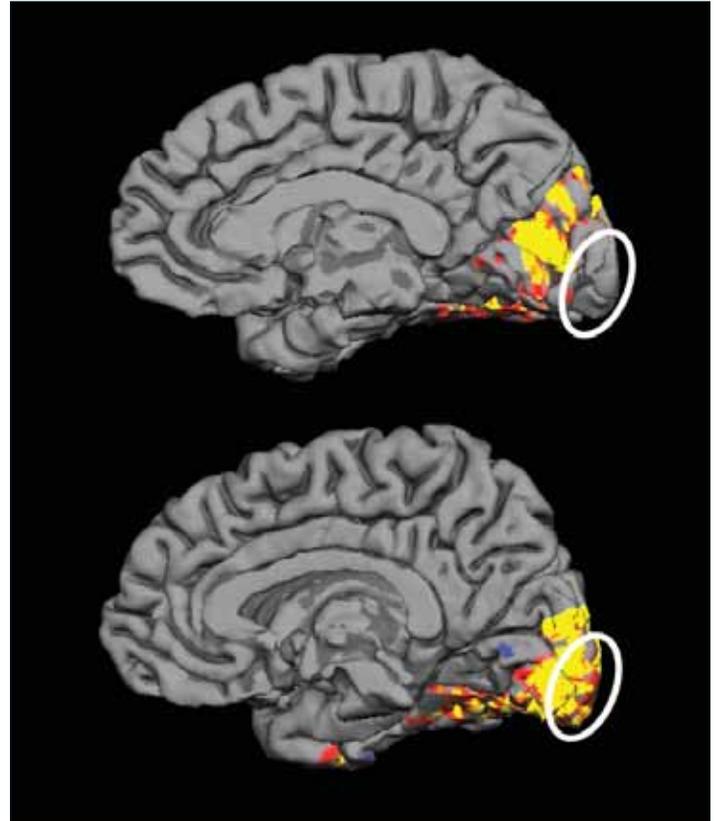
Dr. Eli Peli

Dr. Eli Peli is a Senior Scientist and the Moakley Scholar in Aging Eye Research at The Schepens Eye Research Institute, and a Professor of Ophthalmology at Harvard Medical

School. He also serves on the faculty of the New England College of Optometry (Adjunct Professor of Optometry and Visual Sciences). Since 1983 he has been caring for visually impaired patients as the Director of the Vision Rehabilitation Service at Boston's New England Medical Center Hospitals. Peli is a Fellow of the American Academy of Optometry, a Fellow of the Optical Society of America, and a Fellow of the SID (Society for Information Display). He has committed his life to developing low vision aids for people suffering from eye diseases.

Q: I have macular degeneration and have completely lost my central vision in both eyes. I am forced to use my peripheral, or side vision, to do many tasks. Is it possible that my peripheral vision could be improving over time?

A: This question is of great interest to scientists in my laboratory here at The Schepens Eye Research Institute and to our distinguished colleagues—Dr. Nancy Kinwisher and Dr. Chris Baker—at the McGovern Institute at MIT. While the damage is occurring in your eyes, we believe that the brain could be working double time with the information it gets from peripheral vision, trying to compensate for the loss of central retinal vision. If our hypothesis is correct, then there must be some reorganization or shift going on in the brain that we could measure. And if so, our next step would



This image shows regions of the brain activated by peripheral visual stimuli in a person with normal vision (top) and a person with macular degeneration, i.e., who lacks central vision (bottom). The area at the back of the brain (marked by the white ovals) was strongly activated by peripheral stimuli in the person with macular degeneration, but not in the person with normal vision. This region normally responds only to central visual stimuli, and its activation by peripheral visual stimuli in macular degeneration shows that there has been reorganization of visual processing in the brain.

be to harness this shift so that it happens sooner and/or better to maximize a person's vision.

With these hypotheses in mind, our Schepens/MIT team has been focused initially on three goals: first, to determine if the portion of the brain's visual cortex that, with normal sight, is only assigned to central vision is activated by peripheral vision in people whose fovea (the tiny center of the retina) has been destroyed by disease; second, to explore whether these changes, if they do

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Your Eye Health

Women can protect their vision and their families' eye health by following simple guidelines



Ilene K. Gipson is Professor of Ophthalmology in the Department of Ophthalmology, Harvard Medical School, and the Ocular Surface Scholar at The Schepens Eye Research Institute. As a cell biologist, Gipson is currently studying the role of protective molecules on the surface of the eye, known as mucins. Her ultimate goal is to discover ways to stimulate production of mucins and other protective substances produced naturally on the healthy surface of the eye in order to treat conditions such as dry eye syndrome.

In recent years, Gipson has taken on the leadership of the Women's Eye Health Task Force (WEHTF), a national organization formed to educate women about the prevalence of blindness and visual impairment in women and how to prevent it.

WHY CONCENTRATE ON EYE HEALTH FOR WOMEN?

For two major reasons: First, in absolute terms, there are more blind and visually impaired women than men. Visual impairment and blindness increase with age, and in many parts of the world women outlive men. Second, women are more often responsible for the health care and health care choices for their family, including eye health and treatment decisions.

Three years ago, a group of scientists from The Schepens Eye Research Institute, along with scientists from other institutes and universities, took a close look at research on gender and blindness. The group was impressed by an analysis of 70 population-based blindness prevalence studies from around the world that suggested two-thirds of the world's blind or visually impaired persons are women. More recently, a study in Los Angeles showed that visual impairment increased with age and was greater in women.

Although age appears to be a major reason for the prevalence of blindness and visual impairment in women, it is not the entire story. Other reasons include factors particular to women such as hormonal and autoimmune conditions. In addition, access to treatment and information may not be widely available to women, and in many parts of the world, services to them may be blocked for economic or cultural reasons.

Finally, a number of risk factors play an important role in visual impairment and blindness in both men and women. These factors are: obesity, a risk factor for diabetes (diabetic retinopathy); smoking, a risk factor for age-related macular degeneration and cataract; and over-exposure to sunlight (cataract).

Given all these factors, there are still some simple steps women can take to protect themselves and their families from eye disease. It is interesting to note that some of these steps are the same steps medical and public health professionals suggest to prevent heart disease and other chronic and debilitating illnesses such as cancer, stroke and diabetes.

The Women's Eye Health Task Force Recommends:

- **Know Your Family History:** Women need to find out about any family history of visual

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In Memoriam—Marie Ankeny

SERI Has Lost a Dear Friend and Benefactor



Marie Ankeny

It is with sadness that we note the passing of Marie Hamm Ankeny, longtime benefactor of The Schepens Eye Research Institute, who died on December 7, 2004, at the age of 101. An identical twin, Marie and her late twin sister Theodora “Pinky” Lang were born on November 5, 1903, to William and Marie Scheffer Hamm in St. Paul, Minnesota. Marie was a granddaughter of Theodore Hamm, the founder of Theo Hamm Brewing Company in St. Paul.

A member of one of the city of St Paul’s most prominent families, Marie was very devoted and supportive of her family, friends and community. Imbued by her family with a strong sense of philanthropy, she was a founding member of the Hamm Foundation. Marie had numerous philanthropic interests including the Hamm Memorial Psychiatric Clinic and Radio Talking Book at the Communication Center for the Blind. However, none of her philanthropic interests was closer to her heart than her support of The Schepens Eye Research Institute (SERI) in Boston.

Marie’s ties to Massachusetts were long-standing and went back to her college years when she attended Wellesley College. In 1958, when Marie’s late husband DeWalt was threatened with vision loss due to retinal detachments, the Ankeny’s

came to Boston to see Charles L. Schepens, M.D., a pioneer in retinal surgery and SERI founder, who was able to reattach Mr. Ankeny’s retinas and save his sight. Since then, Marie Ankeny and her family have been stalwart supporters of Dr. Schepens and the Institute. She helped fund some of Dr. Schepens early research efforts, including the Scanning Laser Ophthalmoscope. Decades later, Marie herself experienced the trauma of a detached retina that was successfully operated on by Dr. Schepens and his associates, restoring her vision as well.

Marie was an integral part of the SERI family and wholeheartedly believed in the Institute’s mission to fight blindness by developing new knowledge, therapies and technology to retain and restore vision. In addition to her generous philanthropy, Marie was an honorary member of the SERI board of trustees. In 1978, a year after her husband’s death, she established and funded the DeWalt and Marie Ankeny Director of Research position at the Institute. She leaves a lasting legacy of hope for all who suffer from debilitating eye disease.

Marie leaves a rich family legacy: her four children and their spouses Kendall Mix, Sally Anson (Peter), DeWalt H. Jr. “Pete” (Margaret), and Michael H. (Nuch), 17 grandchildren, and 36 great-grandchildren survive her. She will be greatly missed by everyone who knew her. 🕯

Champions of Vision Research

Kelsey's "Vision for the Future"

Kelsey Hutten is an 11-year-old in Chicago with a vision for the future—a vision to eradicate Stargardt's Disease, a form of juvenile macular degeneration. At her young age, Kelsey has identified a cause to champion. She not only possesses youthful optimism, but also understands that she, too, can be an agent of change by working in her community, in this case to help support the scientific research that will one day fulfill her "vision."

Schepens Eye Research Institute (SERI) scientists are working on new therapies to treat macular degeneration that bring hope for a treatment that will eradicate Stargardt's Disease. The disease is usually diagnosed before the age of 20 and occurs in one in 10,000 children and in boys and girls equally. Today, over 25,000 Americans have this disease, which destroys central vision and is needed to focus on details necessary for reading, driving and other daily activities.

Kelsey discovered The Schepens Eye Research Institute when her mother Patricia wrote to SERI about Kelsey's desire to honor her cousins (ages 9 and 11) who were recently diagnosed with Stargardt's Disease. "Finding a cure for that disease is very close to her heart," says her mom. A sensitive girl with unusual initiative and follow-through, Kelsey decided on her own that she would organize a fundraiser in her cousins' honor and donate the proceeds to SERI to support research on Stargardt's Disease.

Kelsey searched the Internet to learn about the disease as well as to determine what kind of fundraiser to undertake. In her quest to support SERI research to find new treatments and

ultimately a cure for Stargardt's Disease, Kelsey decided to design a bracelet to market and sell as a primary means to raise funds. She has chosen to sell a trendy blue rubber bracelet imprinted with the SERI slogan, "Vision for the Future." With determination and an entrepreneurial spirit beyond her years, Kelsey has secured the backing of her principal to sell the bracelets at school, and has already sold more than 250 of them.

Not only is her family proud of Kelsey, her community is proud of her as well. Kelsey has been awarded the Kohl's "Kids Who Care" award for the State of Illinois, and is now being considered for the regional "Kids Who Care" award. The regional award includes a \$1,000 scholarship. Kelsey is a perfect example of how one determined individual can make an impact on her world, and in this case, the world of vision research. Information on how to purchase Kelsey's bracelets can be found on The Schepens Website at www.theschepens.org.

For more information about making a gift to benefit the annual fund, contact Karen L. Tefft at (617) 912-2570 or (877) 724-3736 (toll free), or ktefft@vision.eri.harvard.edu. 📞



Kelsey (seated, left front) and a friend sell "Vision for the Future" bracelets to classmates.

Larry's Legacy

Although Larry Gordon lost sight in his left eye in World War II, he retained vision in his right eye throughout most of his adult life. Instead of focusing on what he had lost, Larry's experience gave him a greater appreciation for what he still had—his remaining vision. "I was one of the lucky ones," Larry says, recalling how many of his friends came back from the war paralyzed or with missing limbs. Meanwhile, Larry's war injury did not prevent him from having a productive career, nor did it diminish his ability to enjoy travel to interesting and exotic locales. "I was privileged to take these trips while I had my vision," says Larry as he speaks of encountering ring-tailed lemurs in Madagascar, and seeing Siberian tigers in Manchuria.

Larry became familiar with The Schepens Eye Research Institute in the early 1980s when he came to Boston to be treated for glaucoma, which he had developed in his good eye. Fortunately for Larry, glaucoma does not result in blindness if it is identified at an early enough stage. Therefore, Larry was able to retain his vision and continue his travels for many years to come.

Unlike glaucoma, there are a number of visual afflictions for which modern medicine has no treatment or cure. One such disease is macular degeneration—the leading cause of blindness in the developed world. As macular degeneration

progresses, it robs individuals of their ability to read, drive or even recognize the faces of their loved ones. A couple of years ago, Larry Gordon was diagnosed with macular degeneration and today he is legally blind. Since he knows that there is no present cure, Larry has decided to support research that offers hope for the future. That is why Larry and his wife Judy have named The Schepens Eye Research Institute as the primary beneficiary in their wills.



It was with great reluctance that Larry agreed to be featured in this article. "I don't want to be portrayed as a hero," says Larry, displaying the humility and spirit of obligation for the greater good that epitomizes his generation. When asked why he and his wife chose to leave the bulk of their estate to support the Institute's research, Larry simply responded, "so that others may be able to see in the future." This sentiment, if shared by enough

people, has the potential to be the greatest gift that one generation can make to those that follow.

To learn more about how you can provide for The Schepens Eye Research Institute in your will or trust, please contact George Constant, at (617) 912-2572, (877) 724-3736 (toll free), or constant@vision.eri.harvard.edu.

The William Wolff Society recognizes and honors those who include the Institute in their estate plans. 🐼

Friends of The Schepens

Nearly 4,000 year-round and seasonal Florida residents crowded into six venues throughout Florida to hear the very latest update on research during SERI's ninth annual "Eye and Vision Research Symposia Series" in February.

At events held in Boca Raton, Vero Beach, Sarasota, Ft. Myers and Naples, Schepens Eye Research Institute CEO Michael S. Gilmore, Ph.D., and Volunteer Patient Liaison Rich Godfrey were joined by outstanding clinicians including Dr. David Snyder of The Delray

Eye Associates; Drs. Roger Meyer and Tom Baudo of The Florida Eye Institute; Dr. Keye Wong of The Sarasota Retina Institute; and Drs. Joseph Walker, Glenn Wing, Paul Raskauskas, and Donald Fletcher of The Retina Consultants of Southwest Florida.

Topics included new treatment options for age-related macular degeneration (AMD), breakthroughs in eye research and "living with low vision."

In addition to our clinical partners, the series was generously underwritten by The Magnifying Center (John Palmer, trustee), Victoria McCullough (trustee) and The Daphne S. Culpepper Foundation.



Leo and Kathryn (Katie) Vecellio (trustee) with Dr. Michael Gilmore and his wife, Dr. Keeta Gilmore, aboard The Lady Kathryn III in Palm Beach, Florida.

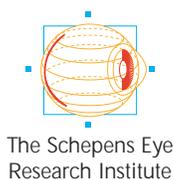
The highlight of the week-long Florida activities was a special reception, generously and graciously hosted by Leo and Katie Vecellio aboard their magnificent motor yacht, The Lady Kathryn III at The Palm Beach Yacht Club. This wonderful reception was held in honor of The Schepens Eye Research Institute to introduce its new CEO, Dr. Michael S. Gilmore, to new Palm Beach friends and longtime SERI supporters. 

The Business of Science

Corporate Alliances at The Schepens Eye Research Institute

"From theory to therapy, discovery to commercialization, our business begins with science."

This statement, taken from the 2003 annual report of Johnson & Johnson, recognizes the important role of a leading company in utilizing the best ideas from their own and other academic labs to create health care products to help patients.



Johnson & Johnson
Vision Care, Inc.

...SERI and Johnson & Johnson Vision Care will partner to bring marketable ideas and technologies from Schepens labs through development and into commercialization.

In recent years, funding an "ivory tower" research institute like SERI has become an ever-increasing challenge to scientists and administrators. Young scientists beginning their academic careers expect to have responsibility for research, teaching, publications and inventions. They quickly learn that in order to make a career in science, they will also be responsible for obtaining funds to operate their laboratories. To accomplish this, they apply for grants from the National Institutes of Health and other government agencies, as well as philanthropic sources such as foundations that support research.

A remarkable 30 years of sustained growth in research funding by NIH has now ended, making it more difficult for junior scientists to compete successfully for their first grants. At the same time, philanthropic sources face reduced earnings due to the economic downturn making fewer dollars available for research grants.

A logical solution to this funding dilemma was to establish a program to partner with the foremost companies in vision care. Selecting a leader in research and innovation, SERI invited Johnson & Johnson Vision Care to be a Founding Sponsor of a newly established Corporate Alliances program. Johnson & Johnson responded generously to the invitation, providing support that will be utilized by SERI to fund young scientists and create new faculty positions. Through the alliance, SERI and Johnson & Johnson Vision Care will partner to bring marketable ideas and technologies from Schepens labs through development and into commercialization. The partnership will benefit vision patients through sharing knowledge and unique capabilities to bring new products to market to conquer vision problems.

For more information, contact Mary M. Chatterton, MBA, JD, Director of Corporate Alliances, at 617-912-2550 and chatterton@vision.eri.harvard.edu.

Ask the Expert: Dr. Eli Peli

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occur, actually give a person better than normal peripheral vision to make up for the loss of the central retina; and third, to learn at what stage in a person's disease the brain begins to reorganize, and whether this reorganization happens only in the young.

We have already made some progress on the first goal. In a study published earlier this year in the *Journal of Neuroscience*, our team took MRI scans of two adult men whose central vision had been completely destroyed by macular degeneration. The scans were taken while the men were inside the MRI machine and as they performed visual tasks using their peripheral vision. In both cases the "central vision" part of the brain showed vigorous activation. From this, our team concluded that the brain was apparently shifting its central vision resources to respond to peripheral vision information. Control experiments with normally sighted subjects showed no such activation at all.

With this evidence in hand, we are now investigating if the shift actually improves peripheral vision, and when brain reorganization begins. For instance, does it occur early in the disease process or only after the total destruction of central vision? Or does it happen after many years of peripheral vision practice on central vision tasks such as reading and face recognition, or does it start shortly after the loss of vision in the second eye?

If we are able to figure out the when, why and how of this brain reorganization, we hope to then develop ways to stimulate it to happen as soon as possible in the life of someone dealing with the devastating effects of retinal disease. This stimulation could take the form of medications, or perhaps new rehabilitation devices or training techniques. Further research will then permit monitoring and assessment of the effectiveness of any such proposed therapies. 🧐

Your Eye Health

(continued from page 9)

impairment or blindness for themselves and for other family members as well.

- **Quit Smoking:** Quit smoking or never start smoking, since smoking has been directly linked to age-related macular degeneration and cataract. Encourage children never to start smoking.
- **Eat Healthy Foods:** Women need to eat and provide for their families a diet rich in vegetables and fruits, which contain antioxidants known to protect the body.
- **Maintain a Healthy Body Weight:** Women need to keep a healthy body weight and encourage (teach) their family to as well.
- **Have Regular Eye Exams:** Having regular age-appropriate eye exams (keep glasses and contacts updated) helps maintain a high quality of life, particularly in the elderly.
- **Wear Sunglasses:** UVB and UVA protective sunglasses help prevent cataract.
- **Heed Warning Signs:** Everyone should be aware of the warning signs of eye disease (see WEHTF Website: www.womenseyehealth.org).
- **Seek Immediate Medical Care** if warning signs of eye disease appear.

Finally, we recommend that women follow these guidelines themselves, and share them with their parents, their children and their husbands.

According to Dr. Joan Miller, a member of WEHTF Advisory Board and Chairman of the Department of Ophthalmology at Harvard Medical School, "Following these simple rules will ensure that we enjoy good vision as long as possible and remain healthy and active members of the community." 🧐

SERI in the News

Kennedy Celebrates Opening of Institute's New Laboratories

On March 30, 2005, Senator Edward M. Kennedy was the guest of honor and keynote speaker at the dedication of the newly renovated Schepens Eye Research Institute laboratories.

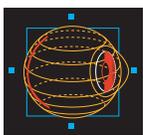
“As the population ages, the work of The Schepens Eye Research Institute becomes more and more indispensable. Blinding eye disease is a chronic illness, and the search for new methods of prevention, treatment and cure is an increasingly urgent challenge. Research at Schepens is opening up new opportunities for landmark progress in this field and it deserves strong support, because its benefits will bring new help and hope to millions of Americans,” said Kennedy, who was joined at the podium by Massachusetts Senate President Robert E. Travaglini and Congressman Michael E. Capuano.

For the past two years, the Institute has undergone a \$37 million expansion and renovation project to create a research complex of 89,000 square feet abutting the new Massachusetts General Hospital research laboratories.

The dedication of the laboratories received mention in two Boston Globe articles the following day.

During the past several months, the Institute has also received press coverage around the world for its scientific breakthroughs. Dr. Dong Feng Chen's research on the first ever regrowth of the optic nerve was highlighted in *Businessweek*, *the BBC News*, *The New Scientist*, *WBZ radio*, *The Journal of the American Medical Association (JAMA) News*, *Science Daily*, *Eurotimes*, among many others. Dr. Michael Young's work on stem cell regeneration of the retina was featured in the *Boston Globe* as well as on numerous science and medical websites. Young's work was also highlighted on a special *New England Cable News* program on stem cells. Dr. Deborah Schaumberg's work on vision loss and lead was featured on *CNN*, and in many other media outlets.

For more information about SERI in the news, to get copies of press releases, or for other media inquiries, please contact Nina Collins at nina@vision.eri.harvard.edu or 617-912-2527.



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