Sightings

Schepens Eye Research Institute

Through the eyes of a child

New strategies to protect children's vision

Spring 2008

An affiliate of
Harvard Medical School

From the Chairman

Creating a legacy of supporting vision research.

As parents, we all want a better world for our children. So much of our energy is spent making sure that their lives are easier than ours have been, and that the door is open to every opportunity.

Supporting vision research is one way to make the future brighter for the next generation. Whether by removing the obstacle of childhood blindness, or by finding new therapies and cures for conditions that they may face later in life, securing vision for our children is a significant legacy.

Also, by talking to our children about supporting causes that are meaningful to them, we teach them the critical importance of philanthropy and volunteerism in building a better society. Philanthropy is woven into the very fabric of American life. By passing on the value of giving back to society, we ensure that the children of today will be the leaders of tomorrow.

Two such emerging leaders are Kelsey and Liam. In 2005, Kelsey, a middle school student from suburban Chicago, contacted Schepens Eye Research Institute to learn how she could help support research on Stargardt disease. An inherited form of juvenile macular degeneration, Stargardt disease had impaired the vision of her cousins, Emma and Nathan. So Kelsey decided to sell "vision for the future" wristbands to raise money for research.

The next generation of leaders—Liam and his dad at an event for Schepens Eye Research Institute in Florida.

Now, at the ripe old age of 15, she has raised more than $23,000 for clinical research leading to earlier and better diagnosis of macular degeneration, thereby allowing for sight-saving intervention.

At the end of 2007, Liam was turning 13 and was preparing for his Bar Mitzvah. As part of this coming-of-age ritual, he wanted to do something significant that would both honor his family and enable him to make his own mark as a force for good in the world. Liam decided he would ask his friends and family to donate to Schepens Eye Research Institute in support of macular degeneration research to honor his grandmother, whose vision has been impaired by the disease. To date, he has raised nearly $13,000 to support the development of new regenerative therapies to rebuild the retina and restore vision.

Kelsey and Liam's support of vision research is, of course, important for all those struggling with blinding eye disease. It also illustrates the power of young people when they decide to shape the world around them for the better.

Join Schepens Eye Research Institute in creating a visionary legacy.

Sincerely,

Kennett F. Burnes
Chairman of the Board
Schepens Eye Research Institute

From the President

It is a shocking fact that a child goes blind every minute worldwide, and that the children most at risk are younger than five years of age. Though clinical resources are light-years ahead of where they were even 10 years ago, pediatric ophthalmologists are looking to researchers for new treatment options for young eyes. Schepens Eye Research Institute – building on a 50-year commitment to research improving patient care – is delivering.

Retinoblastoma, a type of cancer that forms in the retina, usually occurs in children under the age of five. Thankfully, in recent years, early diagnosis and timely treatment have saved lives, but chemotherapy, radiation and surgical removal of the eye and optic nerve are hardly low-impact interventions. Addressing this challenge, senior scientist Bruce Ksander has developed a vaccine that could teach a child's body to identify and kill the cancer cells, shrinking the tumor down to a size small enough to be treated with low levels of radiation. For the smallest patients, the future of treatment may soon be as simple as a shot in the arm and a Spiderman Band-Aid.

In babies born significantly premature, a potentially blinding disorder called retinopathy of prematurity, or ROP, can develop, usually in both eyes. One of the most common causes of visual loss in childhood, ROP can lead to lifelong vision impairment and blindness. Clinician and assistant scientist Kameran Lashkari has found that the scar tissue removed from these patients during retinal reattachment surgery may hold the key to rebuilding their damaged retinas. Nerve stem cells isolated from this tissue can be stimulated to divide and grow retina-like tissue, which when transplanted could form the building blocks needed to restore vision.

Though not blinding, amblyopia, or "lazy eye," affects 3 percent of children under six years of age and can cause significant vision impairment and social discomfort. Existing treatments often are ineffective because they are missing a critical element – fun. With that in mind, associate scientist Peter Bex has created an innovative new way to diagnose and treat this disorder. His solution reaches a completely new level of sophistication by artificially correcting the image given to the lazy eye, thereby getting the brain to correct the visual distortion. The best part, however, is the treatment format – a video game that combines fun with therapy, so children can "play" away amblyopia.

While these advances are important for children's vision, the problems that appear in childhood are not the whole story. For many diseases, genetics is the number one risk factor, and eye disease is no different. The Institute's research into diseases like macular degeneration, glaucoma and diabetic retinopathy is also important for children. With earlier and better intervention, we can save our children and grandchildren from the struggles of limited vision that their parents and grandparents had to endure.

Research is building a better future for children. Your support can quicken the pace.

Sincerely,

Michael S. Gilmore, PhD
President, CEO and
DeWalt and Marie Ankeny Director of Research

Through the eyes of a child

New strategies to protect children's vision

"Every day we are engaged in a miracle which we don't even recognize: a blue sky, white clouds, green leaves, the black, curious eyes of a child – our own two eyes. All is a miracle."
—Thich Nhat Hanh

Seeing the world through the wonder of a child's eyes is often described as the key to human happiness. It is difficult to imagine childhood without those "curious eyes" or all the images of the world that fill them. Although eye disease is typically thought of as a plague of old age, the truth is that every year thousands of infants and children in the United States and millions worldwide fall victim to eye disorders. If not diagnosed and treated early and effectively, they can cause severe vision loss, and even blindness, that lasts a lifetime.

While adults often recognize vision changes or abnormalities and can report them to a doctor, uncovering eye disorders in children is not as simple.

"One of the difficulties with kids is that they are not always capable of assessing what they can and cannot see, and infants are too young to communicate," says Dr. Peter Bex, an associate scientist at Schepens Eye Research Institute, who is looking for new ways to evaluate and treat children with amblyopia, commonly known as "lazy eye."

Even retinoblastoma, a childhood retinal cancer, may not exhibit obvious symptoms, according to Dr. Bruce Ksander, a senior scientist at the Institute who is developing a vaccine to improve treatment of this disease, which primarily affects children under the age of five.

"One of our most important commitments as parents, ophthalmologists and vision scientists is to advocate for early eye examinations and treatment for any eye problem," says Dr. Kameran Lashkari, an assistant scientist and a vitreoretinal clinical specialist at Schepens Eye Research Institute. To that end, he is exploring ways to help the youngest victims of eye disease: tiny infants with retinopathy of prematurity (ROP).

To Drs. Bex, Lashkari and Ksander, ensuring the best possible vision for our children is the most important goal of eye research today. Their research is opening doors to new treatments for children who face vision disorders.

Retinoblastoma, a cancer of the retina, occurs mostly in children younger than five years of age.

Transplanted stem cells communicate with the optic nerve and form new nerve cells – the first steps to repairing damage.

Shrinking tumors, saving sight

A vaccine to ease and improve treatment for childhood's most common eye cancer – retinoblastoma – will soon be available, if Dr. Ksander has anything to say about it.

Each year, 11 in one million children under the age of five develop retinoblastoma, or RB, a cancer of the retina that can invade the optic nerve and brain and, if not treated, lead to death.

Inherited by some children, this cancer also can evolve spontaneously in any child and affect one or both eyes. RB is caused by a mutation in the retinoblastoma gene that stimulates normal retina formation in the developing fetus, and was discovered by Dr. Thaddeus Dryja, a clinical professor of Ophthalmology at Harvard Medical School and a Corporator of Schepens Eye Research Institute.

"RB was considered a death sentence a century ago, but today the picture is much brighter," notes Dr. Ksander. Most children with RB today survive with at least some vision intact. Small tumors in either one or both eyes can be destroyed by low-dose radiation, which typically preserves at least partial vision in these children.

However, he adds that large tumors are much more difficult to treat and require an intensive chemotherapy regimen plus radiation. Even this stringent treatment may fail, requiring the removal of the eye. "Our strategy is to replace chemotherapy with a vaccine that will shrink the tumor to a small enough size to use radiation," explains Dr. Ksander.

To create a vaccine, Dr. Ksander and his team are using tumor cells from eyes that have been removed from children with very large tumors. The team deactivates the cells, so that they no longer can form a tumor. Then they insert new genes into the tumor cells, which will stimulate an immune response from the patient's own body. These reconfigured tumor cells can then be used to vaccinate the child and trigger protective immunity, which will kill the active tumor cells in the eye, but not damage the surrounding normal retina.

Dr. Ksander has already developed a similar treatment for melanoma of the eye, which is nearing clinical trials; and he has great hopes for the retinoblastoma vaccine, which he is now developing in the laboratory.

Going back to the source— New hope for preemies

Re-implanting a baby's own cells to regrow parts of the retina is what Dr. Kameran Lashkari believes may help tiny victims of a disease that can steal their sight just as life begins.

Each year, thousands of premature infants weighing less than 2¾ pounds are born with a number of potential problems, including retinopathy of prematurity, or ROP, a disease that damages the retina and that, in advanced forms, can leave a baby blind for life.

In a premature baby, the blood vessel network in the eye is not yet fully formed and remains unformed as the baby receives lifesaving oxygen after birth. In a small number of cases, vascular scar tissue forms and pulls at the retina and detaches it, making reattachment surgery necessary. In advanced cases, the doctor removes the scar tissue during surgery and discards it. Although surgery helps some patients, it is rarely successful in restoring full vision. Most patients are left with rudimentary vision,

Lazy eye can present in various ways – esotropia (left) and exotropia (right) are examples – and can cause distortion and blur (right).

called "motion vision." As a result, they can only detect movement of an object, but cannot see the object itself.

To give new hope to these babies and their families, Dr. Lashkari is exploring ways to use the scar tissue removed during reattachment surgery. He has discovered that this tissue contains "progenitor" cells, which are similar to stem cells and can be stimulated to reproduce and form new retinal tissue. Dr. Lashkari believes that isolating and re-implanting these progenitor cells in a baby's own eye may restore some sight.

Already, he has achieved some success. "When we cultured these cells, we were able to coax them into becoming retina-like tissue," notes Dr. Lashkari, who witnessed the same transformation in the eyes of mice and chicks.

"The big question is, 'Do these cells communicate with the optic nerve and transmit images to the brain?'" This is exactly the sort of data he will need to move this critical discovery closer to the clinic.

Dr. Lashkari and his team believe that if they can regenerate retinal tissue in babies, they can use the same technique to regrow damaged retinas in adults as well.

Lazy Eye—A High-Tech Solution

Computer and video games could be a high-tech solution for the diagnosis and treatment of amblyopia, or lazy eye, and Dr. Peter Bex is ready to create them.

"What has been lacking in the diagnosis of this most common of childhood eye disorders is a precise way to measure the extent of the problem, as well as a truly effective treatment," says Dr. Bex, adding that the arrival of new technology is opening up treatment possibilities that did not exist even 10 years ago.

Three percent of children under the age of six have some form of amblyopia, which can cause a child to lose three or more lines on a reading chart during an eye examination. Experts suspect that amblyopia likely is caused by any situation that consistently prevents clear vision in one eye and not the other, such as in strabismus, where one eye is turned inward. Because in normal vision the eyes work together and transmit images to the brain in stereo, amblyopia confuses the brain, which then shuts vision in the troubled eye. If not treated, vision may never reach normal levels in the "lazy" eye.

Typical treatment has involved a patch on the eye with clear vision or drops to blur its vision, to give the "lazy" eye a chance to normalize. Compliance with the patch is hard to monitor, however, and drops can impede sight in an emergency situation. Moreover, even when treatment provides good vision in each eye, it rarely restores the stereo cooperation of normal vision.

Dr. Bex's new therapy will consist of a pair of video glasses attached to a computer and controlled by computer software that can display the same or different images to each eye.

"Because competition between the two eyes is causing the amblyopia, if we artificially correct the image given to the lazy eye, we believe that the brain will correct the visual distortion," says Dr. Bex. Over time, he adds, the two eyes will begin to work together.

This system will also make it easier to measure the amount of distortion in the lazy eye, monitor compliance with treatment and assess the progress of therapy. Each day, there will be a computer record of the child's participation in treatment and visual status.

"The natural offshoot of this will be to create age-appropriate computer games that will keep kids engaged in the process without feeling burdened by it," explains Dr. Bex, who hopes to interest some leading computer software companies in his mission.

The Future

The World Heath Organization and the International Agency for the Prevention of Blindness in 1999 jointly launched an ambitious program to eliminate unnecessary blindness and to promote good vision throughout the world. Called "Vision 2020 – the right to sight," it includes the control of blindness in children as one of its first five priorities.

Why is childhood blindness such a priority? The patient with blindness due to macular degeneration will have a limited number of years of visual loss, but the child who goes blind today is likely to still be with us in 2050. The concept of "blind years saved" helps to quantify the significant impact that new treatments can have on children's blinding diseases.

"For many children facing vision loss, our research is making the future look much brighter," says Dr. Michael S. Gilmore, president of Schepens Eye Research Institute. "However, there is still much to be done. Through partnerships with individuals and organizations dedicated to preserving children's vision, this vital work will soon be in the clinic, changing young lives for the better."

Caring for Children's Eyes

Question: My daughter is having a baby this year. She wants to know the best way to take care of her child's eyes.

Answer: Your daughter can begin to care for her baby's eyes right now, even before the baby is born, with good prenatal care and a healthful diet during her pregnancy. Continuing her nutritional habits while nursing and providing balanced meals when her baby moves on to solid food will further nourish young eyes. As her child grows, age-appropriate toys, games and books, and sun and athletic eye gear will foster normal visual development and shield eyes from ultraviolet light and injury.

Regular eye exams are also essential to good eye health. According to the American Academy of Ophthalmology and the American Association for Pediatric Ophthalmology and Strabismus, children should receive a thorough eye evaluation at any age when a problem is suspected, as well as periodic screenings at certain age milestones.

Your daughter's baby will be examined for general eye health right after birth and during well-baby follow-up visits with the pediatrician. If her child is premature, a pediatric ophthalmologist will examine the baby for retinopathy of prematurity, which can permanently damage the retina. Babies with family histories of retinoblastoma (cancer of the retina), childhood glaucoma or cataracts also need special early attention.

By six months, your grandchild should have received a comprehensive eye evaluation by a pediatrician to make sure the eyes are developing and tracking normally.

At age three, it will be time to check the alignment of the toddler's eyes and his or her visual acuity using an Allen picture chart. A more formal acuity test is essential and is recommended shortly before first grade. At this point, the public schools take up the job of monitoring vision, providing regular screenings at set intervals.

If a child exhibits abnormalities during routine screenings, the school or pediatrician will ask the advice of a pediatric ophthalmologist to rule out:

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Amblyopia ("lazy eye"), in which the eye has mild to significant loss of fine vision. This is usually the result of misaligned eyes, eyes having different

focusing power or anatomical abnormalities with the eye or the optic nerve.

•

Strabismus (crossed eyes), when eyes do not line up. If crossed eyes are not treated, amblyopia can result.

•

Myopia (nearsightedness), where the eyeball is too long for the normal focusing power of the eye. As a result, images of distant objects appear blurred. A recent study linked the use of night-lights to this condition.

•

Hyperopia (farsightedness), in which the eyeball is too short for the normal focusing power of the eye. Most children are slightly hyperopic, and the condition corrects itself as they age. Advanced hyperopia can cause headaches or misaligned eyes.

•

Astigmatism, in which the cornea, the transparent tissue covering the front of the eye, has an irregular shape more like a football than a basketball. This condition can also cause blurred vision and can coexist with either myopia or hyperopia.

Your daughter should also be aware that many children develop viral or bacterial infections, known as conjunctivitis, on the surface membrane of the eye. Ocular allergies are also common and can mimic conjunctivitis, all of which leave eyes red and weeping. Bacterial conjunctivitis can be treated with topical antibiotics, while some viral forms such as herpetic diseases respond to topical or oral antiviral drops. Most other types of cold-induced conjunctivitis are treated supportively and have a self-limiting course. Allergies to substances in the environment usually respond to antihistamine drops.

In addition to keeping a close eye on her new baby's eyes, your daughter should also be prepared for any emergency and be aware of the best services in her community. In many parts of the country, specialized eye hospitals provide optimal emergency care.

Dr. Kameran Lashkari is an assistant scientist at Schepens Eye Research Institute and an instructor of Ophthalmology at Harvard Medical School. A practicing clinician specializing in vitreoretinal disorders, Dr. Lashkari has focused his research on finding treatments for blinding retinal disorders, including retinopathy of prematurity and age-related macular degeneration.

John Jeffrey

John Jeffrey is no stranger to eye disease. Born with congenital cataracts, he required surgery at the age of six, and needed very thick and heavy glasses throughout his childhood. Fortunately, he had sufficient sight in his youth to attend college and graduate with an engineering degree from the University of Michigan.

Shortly after graduation, John started to experience a significant loss of vision. His doctors in Milwaukee diagnosed John's condition as a retinal detachment in both eyes. In the 1950s, retinal detachment meant near-certain blindness. John's best shot at retaining his vision was to receive treatment in Boston, where research conducted at the Retina Foundation (the predecessor to Schepens Eye Research Institute) had led to innovative surgical techniques that could reattach the retina and restore sight. In Boston, John spent several months in treatment under the care of Dr. Schepens and his associate, Dr. Okamura, who managed to save the vision in his left eye.

With his sight restored, John was able to live a happy and productive life, enjoying a long career as an industrial engineer until his retirement in 1990.

Throughout his adult life, John and his wife, Shirley, contributed to Schepens Eye Research Institute in honor of Drs. Schepens and Okamura, to further research in treating and preventing blinding eye disease. In 2007, John was able to take advantage of a temporary tax provision that allowed him to transfer funds from his individual retirement account (IRA) to the Institute without having to recognize taxable income. The tax benefits of this gift allowed him to make a larger contribution than he otherwise would have been able to make.

John, like many of his contemporaries, has discovered the power of using retirement funds as a source of charitable contributions. According to the Employee Benefit Research Institute, assets held in IRAs were valued at $3.48 trillion as of 2004. Although the tax provision that allowed John to make his gift last year has expired, there are significant tax-saving opportunities for individuals who want to make charitable gifts from their IRAs upon death. Unlike other assets that may be inherited, IRAs not only are subject to estate (death) taxes, but also are taxed as income to the individual beneficiaries who receive them. Therefore, some tax-savvy donors choose to give family members non-retirement fund assets from their estates and name Schepens Eye Research Institute as the beneficiary of their IRA. This provides their estates with a charitable estate tax deduction, and at the same time reduces the income-tax liability of their heirs. The Institute does not bear any tax liability because of our tax-exempt status – allowing us to use all of the funds for eye research.

To learn more about naming Schepens Eye Research Institute as a beneficiary of your retirement accounts, please call the Development Office at 877.724.3736 or send an email to: george.constant@schepens.harvard.edu.

Major Thomas Przybelski, shown on Mount Rainier (left) and deployed in Iraq (right), looks to research to restore his vision.

Champions of Vision Research

The day began like any other in Iraq. Major Thomas Przybelski, a 35-year-old native of Spartanburg, South Carolina, was on foot patrol with his "transition team." Composed of an Iraqi Security Force and 11 U.S. Marines, the unit aided the transition of power between American and Iraqi forces. In an instant, his life changed forever. While on a routine walk, an improvised explosive device suddenly detonated, causing a wave of destruction.

"Thankfully," says Przybelski, "military care in Iraq is like having a life flight available to you 24/7." Within 10 minutes of the explosion, he was in a mobile emergency room. Following the assessment of wounds sustained to his legs and eyes, it took medics under an hour to transfer Przybelski to a Level 1 care facility. There, doctors determined that his left eye suffered corneal damage, and the right eye was so traumatized that it had to be removed. Once stateside, Przybelski was treated at Bethesda Naval Hospital for six weeks by Commander Joseph Pasternak, an ophthalmologist with the National Naval Medical Center. While in recovery, he was visited by the Commandant of the Marine Corps, who personally awarded him a Purple Heart for military merit.

While recovering at home, Przybelski did what everyone does when given a diagnosis – he got on the Internet to learn more. Online, he discovered the Schepens Eye Research Institute website, where he read about the Institute's groundbreaking work in regenerative medicine. This research gave him hope that, one day, he and many others like him could regain 20/20 vision even after a devastating injury. Inspired to be a part of the solution, he decided to make a donation. With that gesture, Przybelski became part of the push for progress. For him, research has now become a personal commitment.

Przybelski soon returned to Camp Lejeune in North Carolina. A 13-year career Marine who already had completed two tours in Iraq and a tour in Afghanistan, he requested to return to Iraq for another tour of duty despite his injuries. His commanding officer asked if he had the three

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Ask the Expert • Eli Peli, PhD

Question: I have macular degeneration. When I watch television, I mostly just listen because I have difficulty seeing the details of the video image. Is there something that will help me?

Answer: You are not alone. Four million Americans have eye diseases—like macular degeneration—that impede their central vision and their ability to comfortably view television images, cutting them off from a significant source of information and entertainment enjoyed by most people. Like you, they often cannot see the faces of characters or other details that make a program understandable. You may find special telescopic glasses helpful, although these spectacles often cut off parts of the image, lessening context, and some people find them uncomfortable. You could sit closer to the screen, which can block the view of other family members, or buy a large-screen television, which can be quite costly. Clearly, these actions can help, but none are ideal.

With the addition of image enhancement technology (above), digital television can make details easier to see for those with vision impairment.

Enhancement (shown on the right side of each image at right) makes television images clearer, even for normally sighted viewers.

The goal of my laboratory is to change aspects of the images themselves, working within the television technology to make details more visible. Several years ago, we successfully developed such a device that would allow a person to enhance the visibility of some details in an image by using a remote control. Though we found it to be effective, it was designed for analog television, which is on its way out of the market. That is because digital (compressed) TV technology is taking over the industry due to government mandate. By using the compressed digital signal, the same TV or cable spectrum can serve to provide many more channels.

Recently, we created and tested a new technique for digital television. We published the results of our study to test the technique in a special issue of the *Journal of the Optical Society of America*.

Working within the "decoder" that makes digital television images possible, we made simple changes that could give every digital TV special contrast-enhancing capabilities, thereby making small details clearer. We then presented digital video segments to 24 subjects with vision impairment and six with normal vision. Each person was given a remote control, which allowed the subject to increase or decrease the contrast of the image. From time to time, the computer overenhanced or degraded the images, forcing the patient to retune the enhancement for best clarity.

We found that even people with normal sight selected some level of enhancement. Additionally, the amount of enhancement selected by those with visual problems varied depending upon the level of impairment (contrast sensitivity loss) they experienced due to their disease. This means that our device is both usable, and useful even to those without vision problems.

We are now working with Analog Devices Inc., a local high-tech company, to create a prototype chip that could be included in all future generations of digital television and Internet video. Our hope is that this enhancement technology will be available when you are ready to buy your next digital television set or digital set-top box.

Dr. Eli Peli is a senior scientist and the Institute's low vision expert. He is also the Moakley Scholar in Aging Eye Research and a professor of Ophthalmology at Harvard Medical School. He has devoted his life's work to developing rehabilitative techniques and devices to help those afflicted by low vision.

Champions of Vision Research—continued from page 11

essential capabilities required to serve as a Marine, "Shoot, Move and Communicate." Przybelski assured him he could fulfill the last two, and was confident that, despite the difficulty, he could remaster his riflery skills and learn to shoot left-handed. Eventually, he succeeded and qualified to rejoin his unit.

Following that final tour of duty, Major Przybelski noticed that the scarring on his left cornea was causing his vision to become hazier. The scar tissue was removed from his cornea, and he now wears a hard contact lens to help shape his cornea and maximize the quality of his vision.

As a career Marine, impaired sight is an immense hurdle, but Przybelski remains optimistic about the future. It is his hope that Schepens Eye Research Institute's research will lead to a day when the entire human eye can be created in a laboratory, restoring vision to people like himself. As an annual donor, he plans to help push research forward. "Supporting the Institute's research is the only way to make this happen, and I want to do everything I can to help."

Currently, Przybelski is recruiting the next generation of Marines in West Virginia, Maryland and Virginia, traveling upwards of 5,000 miles each month. He credits his recovery in part to staying athletic. An avid kayaker, Przybelski completed a trip from Beaufort, North Carolina, to Myrtle Beach, South Carolina, via the Intercoastal Waterway last year and ran the Marine Corps Marathon in Virginia last October.

If you would like more information or if you would like to make a donation to Schepens Eye Research Institute, please contact the Development Office at 877.724.3736 or visit us online @ http://www.schepens.harvard.edu.

Drs. Keeta and Michael Gilmore with Monika and John Preston

Laurie Silvers and Mitchell Rubenstein

Kathryn and Leo Vecellio

Florida Friends Put the Spotlight on Research

More than 1,500 guests attended the Annual Eye and Vision Research Symposia Series hosted by Schepens Eye Research Institute on the east and west coasts of Florida in January and February. Attendees learned about the latest innovations in vision science and the most important new treatments for macular degeneration and other eye diseases. The popular complimentary symposia were held in Ft. Meyers, Naples, Boca Raton, West Palm Beach and Vero Beach.

On the west coast, physicians from Retina Consultants of Southwest Florida discussed the latest treatments currently available to patients, including new findings on combination therapies. Symposia attendees also learned about the cutting-edge research taking place at Schepens Eye Research Institute through a virtual guided tour of the state-of-the-art headquarters.

On the east coast, Dr. Michael S. Gilmore, president of Schepens Eye Research Institute, was joined at the podium by renowned angiogenesis researcher Dr. Patricia A. D'Amore and volunteer patient liaison Richard A. Godfrey. Clinical partner Dr. David Snyder of Delray Eye Associates presented reports on current treatments to the audiences in Boca Raton and West Palm Beach, while Dr. Roger Meyer and Dr. Thomas Baudo of the Florida Eye Institute gave clinical updates at the Vero Beach venue.

In addition to new advances in understanding and treating macular degeneration, Dr. Gilmore presented an overview of current sight-saving research conducted at the Institute before turning the podium over to Dr. D'Amore, who is exploring the relationship between new blood vessel growth (angiogenesis) and eye disease. A senior scientist at Schepens Eye Research Institute and a professor of Ophthalmology and Pathology at Harvard Medical School, Dr. D'Amore's research and that of her colleagues was instrumental in the development of the newest generation of clinical products on the market today to treat macular degeneration, namely Avastin™ and Lucentis™.

Dr. David and Marsha Snyder

Robert and Beverly Robb with Richard Godfrey

Dr. Thomas Baudo, Richard Godfrey, Dr. Patricia D'Amore, Dr. Roger Meyer and Dr. Michael Gilmore

Presented as a public service, the symposia series included a display of low-vision aids courtesy of Magnifying America, a sponsor of the event. Retina Consultants of Southwest Florida sponsored the west coast events, while Florida Eye Institute sponsored the Vero Beach event. Grand benefactors of the symposia series were Ms. Victoria McCullough of Wellington, Judge Eielson of Boynton Beach, the Daphne S. Culpeper Memorial Foundation, and Mr. and Mrs. Leo A. Vecellio of Palm Beach.

Prestons honor Schepens Eye Research Institute at Reception

Dr. Michael S. Gilmore, president of Schepens Eye Research Institute, was the guest of honor when John and Monika Preston hosted an evening reception at their Palm Beach estate on February 5th as a prelude to the Institute's 2008 Eye and Vision Research East Coast Symposia Series.

More than 40 guests attended the event to learn about the latest research initiatives at the Institute. Standing on the steps leading from the Prestons' loggia to their courtyard, Dr. Gilmore provided a brief overview of recent research on macular degeneration and other blinding eye disorders ongoing at the Institute before introducing Institute scientist Dr. Patricia D'Amore, who served as the keynote speaker at the symposia series.

Dr. David A. Snyder of Delray Eye Associates, who trained at Schepens Eye Research Institute, and Richard A. Godfrey, the Institute's patient liaison, joined Drs. Gilmore and D'Amore as guests of honor.

Among those attending were: Dr. Keeta Gilmore, Judy Grubman and Dr. Irwin Kudman, Kathryn and Leo Vecellio, Babbette Wolff, Rita Krosner, Kay and Peter Lyons, Laurie Silvers and Mitchell Rubenstein, Judge Rodney Eielson and Barbara Messier, Anne Moran, Marsha Snyder, Cherie and Dr. Ahmad Toufanian, Rosalie and Bertram Cohen, Aileen and Scott Newquist, Joanne and Geoff Stringer and Kenneth M. Fischer, chief operating officer at the Institute.

To make a contribution to advance eye research, or for more information on Schepens Eye Research Institute, the largest independent eye research institute in the nation, please visit: www.schepens.harvard.edu, *or call Schepens Eye Research Institute toll-free at: 877.724.3736.*

May 21, 2008

The Boston Macular Degeneration Symposium at Schepens Eye Research Institute

Learn about:

- the latest insights from vision research
- developing new therapies to repair the retina and restore vision
- state-of-the-art interventions from our clinical partners

The symposium is free and open to the public. Due to limited seating, however, advance registration is required.

Location:

Schepens Eye Research Institute

Starr Center, 185 Cambridge Street, Charles River Plaza, Boston, MA

For more information or to register, call 877.724.3736 or email *annmarie.ware@schepens.harvard.edu.*

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