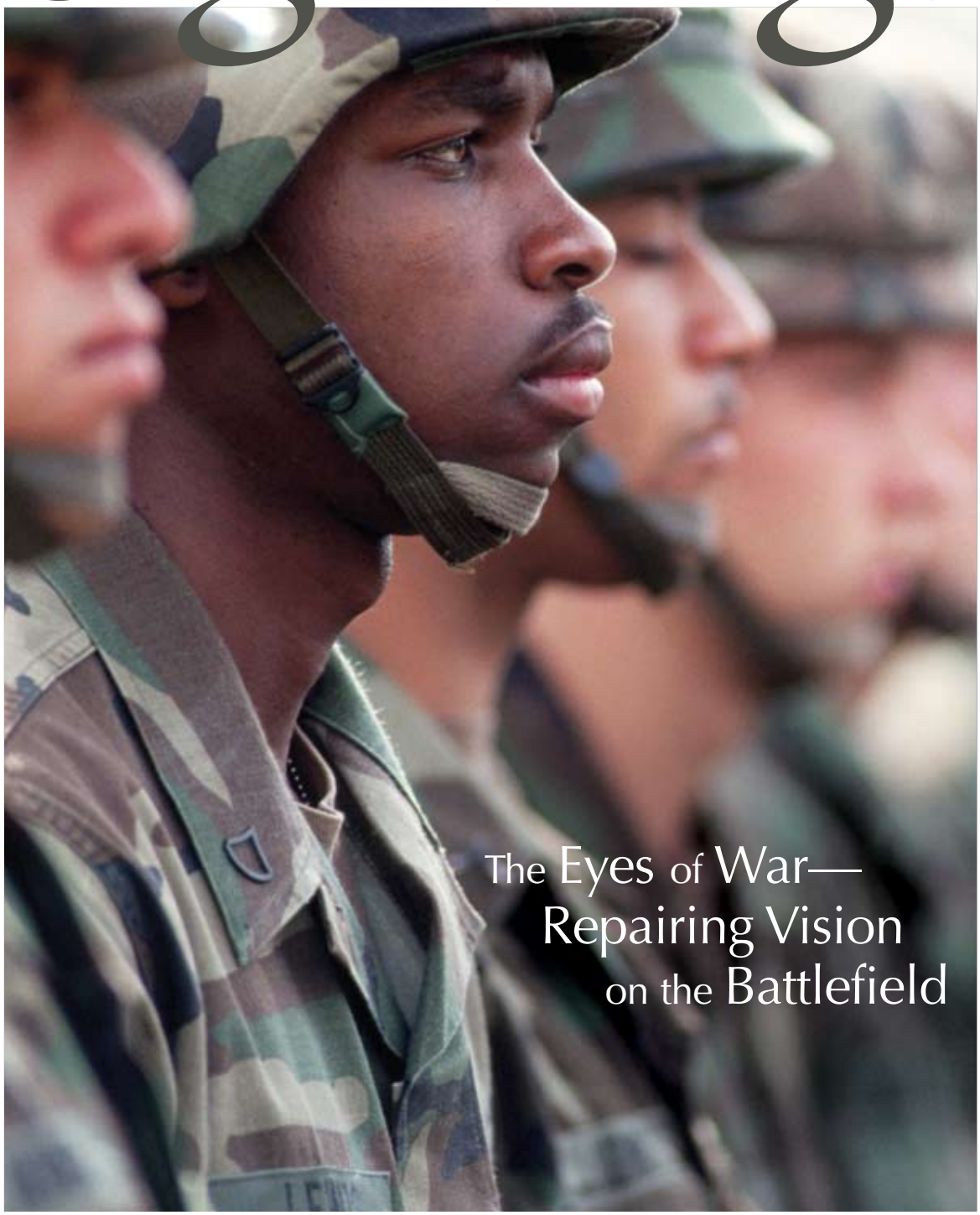
Sightings

Fall 2005



The Eyes of War—
Repairing Vision
on the Battlefield

The Schepens Eye
Research Institute

From the Chairman

This is a time of new energy at The Schepens Eye Research Institute. Over the past year, The Schepens has seen the arrival of the new Director of Research and Acting Chief Executive Officer Dr. Michael Gilmore; the dedication of its newly renovated, award-winning research facility; and the launch of the Corporate Alliances program under its new Director Ms. Mary Chatterton. Also, the research program has been enhanced by the acquisition of several new pieces of cutting-edge research equipment. I am delighted to have assumed the role of chairman at such a time of opportunity for advancement of the Schepens mission to fight blindness by developing new technologies, knowledge, and treatments to preserve and restore the miracle of sight.

Change brings opportunity, but only to those who are poised to take advantage of it. Last fall, under the leadership of acting CEO Dr. Michael Gilmore, the Institute embarked on a strategic planning process with the goal of forging a new vision for the future of The Schepens Eye Research Institute. Building on the impressive legacies of former SERI president Dr. J. Wayne Streilein, and SERI founder Dr. Charles L. Schepens, Dr. Gilmore initiated a comprehensive review and reassessment of the Institute and the broader vision research landscape. The process has involved all of the Institute's stakeholders —faculty, board members, and management—in a review of the Institute's operations, scientific enterprise, and governance. Based on that review, a set of internal recommendations emerged for how the Institute could capitalize on its strengths to maintain its position as the world's pre-eminent eye research institution.

Self-assessment is a tricky business—when we hold up the mirror we often focus on the best or worst features without seeing the whole. In order to get another perspective, the internal recommendations were sent on to an external blue-ribbon panel composed of leaders of other vision research institutes, internationally recognized scientists, businesspeople, and philanthropists. Dr. David W. Parke II, President and CEO of the Dean A. McGee Eye Institute, generously agreed to chair the panel, and worked with members to develop a set of consensus recommendations.

The Board has now received these recommendations and is in the process of evolving a new strategic plan that charts an exciting and successful future for The Schepens Eye Research Institute. And what will success look like? A world in which blindness is relegated to the dustbin of history, along with smallpox and polio. And, as a Board, we are excited to chart the course to that better world.

Sincerely,

Kennett F. Burnes

From the Acting CEO

Success has a way of breeding more success. Some say you make your luck. Others believe that chance favors the prepared mind. As an integral part of the Harvard Medical School affiliate system, The Schepens Eye Research Institute faculty and staff have wonderfully prepared minds. They also have an exemplary record of success and accomplishment in finding new treatments for eye diseases. Maybe this has positioned us well to be lucky. Undoubtedly, Wayne Streilein's vision for the future of SERI positioned us well for success, as did that of its visionary founder Charles Schepens. Whatever the cause, right now Fortuna's wheel is spinning sharply upward for The Schepens Eye Research Institute!

What if, at no cost, SERI could suddenly add three times its size in state-of-the-art research capability—three times the number of scientists, three times the number of research facilities? Just imagine how its mission of developing new technologies for preserving the miracle of sight could be advanced! As I write this, several hundred of the world's leading scientists are moving into the new Massachusetts General Hospital (MGH) Simches Research Center. This new cutting-edge research facility will occupy over 350,000 square feet in new floors immediately above SERI in the Charles River Plaza. Like the SERI faculty, each MGH scientist is a member of the Harvard Medical School faculty. A number of them are members of the very prestigious National Academy of Sciences.

How will their presence just an elevator ride away benefit SERI? Many of the technologies SERI scientists use to develop new ways to preserve and restore sight—for example, stem cell and nerve regeneration technologies, which we are using to develop new treatments for retinal degenerations, including Age Related Macular Degeneration, Retinitis Pigmentosa, and Stargardt disease—are also being used by other Harvard scientists to develop new treatments for heart, lung, brain, and pancreatic disease. In fact, some of these technologies were developed by them. Since my arrival, my own research group has had monthly lab meetings with MGH specialists in infectious diseases. We exchange ideas and techniques. We have learned that MGH has fabulous research assets, which, as collaborators, we have been allowed to use to advance our research on infectious diseases of the eye. Now, most of these scientists will be just down the hall!

MGH specialists in genetics and genomics, stem cell and regenerative medicine, bioinformatics, molecular biology, and other fields—who are using these talents to find new cures for Alzheimer's disease, kidney failure, heart disease, and diseases of the gut and skin—will now be upstairs! Many of these scientists have made discoveries that could benefit vision, but because they are less familiar with diseases in the eye, they may not be fully aware of this. SERI scientists have the critical insights into vision problems that will bridge this gap. Through interaction, through collaboration, SERI scientists will actively work with MGH scientists to find ways to bridge these gaps.

Associate Director of Research Pat D'Amore and I recently attended a meeting of the MGH Center Directors who will be occupying the beautiful new laboratories of the MGH Simches Center. I am delighted to report that they fully share our enthusiasm to work together to find new applications of their technologies that could advance cures for diseases of the eye. Over the next year I look forward to an explosion of new collaborations between SERI and MGH scientists, and as a result, unprecedented breakthroughs for vision.

Sincerely,

Michael S. Gilmore, Ph.D.

The Eyes of War

Repairing Vision on the Battlefield

"War has always been dangerous for the human eye, but today the risk of vision loss during military service is greater than ever," says Colonel Thomas Ward, M.D., consultant to the Surgeon General in Ophthalmology. "More than 15 percent of those injured in recent conflicts have had eye injuries, often resulting in permanent vision loss and blindness," adds Ward, who is the lead military contact for SERI's work with the Telemedicine & Advanced Technology Research Center (TATRC), the division of the Department of Defense (DOD) that funds medical research.

While eye injuries in combat are usually not life threatening in the traditional sense, they do threaten lives. By impairing vision, they make soldiers more vulnerable in combat situations, increasing the risk of fatality. Also, permanent damage and blindness affect the long-term quality of life of veterans.

Twenty-first Century soldiers face more risks than ever before. Combat-related eye injuries have increased exponentially as a result of the use of newly developed body armor. This armor is very effective in protecting the vital organs, but does not shield soldiers from injuries to the face and extremities inflicted by bomb debris. Detonation often propels glass, nails, rocks, and spikes to inflict maximum harm to the unprotected body, making eye injuries the unfortunate hallmark of contemporary warfare.

Indeed, as advanced treatments and technologies are deployed to meet the challenges of the combat environment, soldiers are facing new threats to their vision. Currently LASIK surgery, a procedure commonly performed on military personnel, eliminates the need for contact lenses, glasses and visual enhancements, but can also be accompanied by dry eye syndrome, causing discomfort and distortion of vision. Also, lasers, invisible to the naked eye, are becoming the weapon of the future. Used as weapons and in detection devices such as range finders and optical sensors, lasers have the potential to burn holes in the retina, causing blinding damage. Even advances in cockpit displays present challenges, as the various screens, maps and gauges compete for attention, sometimes leaving the pilot "blind" to critical information.

Darlene A. Dartt, Ph.D.

Through its ongoing program with TATRC, The Schepens Eye Research Institute has committed itself to finding innovative solutions for some of the most pressing vision needs of our armed forces. And, through these discoveries, SERI scientists will also gain insight into the vision challenges facing the civilian population as a result of injury and disease.

"We believe this essential collaboration holds great promise not only for those who are in battle zones and are at risk of eye injuries, but also for civilians dealing with vision loss," says Darlene A. Dartt, Ph.D., Director of Scientific Affairs and SERI Senior Scientist, who is heading up the SERI/DOD partnership. "Whatever knowledge we gain or

technologies we create as part of this partnership will ultimately be available to the general public."

History of SERI's DOD Connection

The SERI/DOD collaboration began in the late 1990s, before 9/11 and the current combat in the Middle East. Dr. Donald Korb, O.D. a SERI Trustee, was able to interest the Massachusetts congressional delegation in working with Schepens scientists on projects that could benefit soldiers in combat. Over the years, SERI and TATRC began to refine the research they would do together. In 2003, SERI held a two-day conference to hear directly from practicing military ophthalmologists and optometrists about the challenges they faced caring for soldiers in the field and returning veterans. As a result, SERI scientists have embarked upon a number of highly targeted projects pinpointing these challenges and yielding impressive results.

Highlights of SERI/DOD Collaboration

Here are a few of the projects now underway.

Preventing Dry Eye Syndrome after LASIK

In recent years many soldiers have undergone refractive surgery (one type is LASIK), which reshapes the cornea to eliminate the need for glasses or contact lenses. The Department of Defense has encouraged members of the armed forces to undergo this procedure so that corrective lenses—which can be broken, lost or mixed up in the field—are no longer needed. This procedure has also been used to prolong the careers of older, highly trained officers by addressing the refractive error that normally occurs as the eye ages. One of the downsides of this trend, however, has been an increased incidence of dry eye syndrome, a common complication of LASIK surgery, among military personnel. This potentially debilitating syndrome, characterized by significant discomfort and visual distortion, can be exacerbated by a dry, desert climate and by the high wind velocity in and around helicopters and other aircraft.

Dr. Darlene Dartt and her team are conducting studies to find a method to predict who is likely to develop dry eye syndrome, so that surgeons can pre-screen candidates for the condition before operating. This would allow them to reconsider surgery for a particular soldier or to provide pre-operative treatment to prevent dry eye syndrome from developing.

One study tested the tear production in patients undergoing LASIK surgery with a diagnostic tool called the Schirmer test. Those with a high level of tear production before and during surgery were less likely than those with low levels to develop chronic dry eye syndrome after the procedure. Increasing tear production with the use of artificial tears could short-circuit the onset of dry eye syndrome, according to Dartt.

At a time when undergoing LASIK surgery is as common as getting braces in America, this research has clear non-military relevance. Dry eye syndrome is the number one reason given for visits to the ophthalmologist's office, and this work could help prevent LASIK-related cases.

Repairing the Damage

"When a soldier's retina or optic nerve is destroyed or damaged, there is very little we as ophthalmologists can do," says Ward, "and vision loss or blindness is permanent." Bombs, lasers or chemicals can devastate these delicate and essential tissues, leaving untreatable blindness in their wake.

Repairing laser damage is the goal of the team led by Dr. Dong Feng Chen, Assistant Scientist, whose collaborators are SERI scientists Drs. Michael Young, Joan Stein-Streilein,

Andrew W. Taylor, Bruce Ksander, and Kameran Lashkari.

According to Chen, the retina is the part of the body most vulnerable to laser damage because when laser light reaches the retina, it has been focused by the refractive media of the eye, a process that increases its power by a factor of well over 10,000. Consequently, even small amounts of energy produced by relatively low-power laser devices can significantly damage the retina.

"Many of the major blinding eye diseases confronting the civilian population...are diseases of the retina and optic nerve."

Laser injuries happen in two phases, according to Chen. First, energy from the laser damages the retina by breaking and killing retina cells. As the cells die they release noxious agents. In response to these agents, the eye mounts an all out immune attack, or inflammation, which spreads the damage to adjacent areas of the retina and signals to nearby cells to commit suicide. By interrupting these signals with drug therapies, working with stem cell therapies to promote healing and repair, and by controlling inflammation and the damage it creates, SERI scientists are addressing laser damage to the retina from many angles.

Many of the major blinding eye diseases confronting the civilian population, especially the growing number of healthy seniors, are diseases of the retina and optic nerve. Finding ways to effectively calm inflammation and promote healing in the retina will significantly expand our arsenal in the fight against age-related macular degeneration, diabetic retinopathy and other diseases that threaten the independence and quality of life of seniors.

Keeping Distractions from Becoming Disasters

A pilot has many things to watch simultaneously—the scene straight ahead outside the plane, guidance systems, maps, and other elements of the cockpit display. Being able to see all the essential features of each image at once is invaluable, according to Russell Woods, Ph.D., SERI Investigator. "Missing a vital change in one image could cost a pilot's life," he adds.

Woods, who leads a project on image detection with Eli Peli, O.D. M.Sc., Senior Scientist, is attempting to find ways to display images so that soldiers don't miss critical events that might cost lives.

From studies they and others have conducted, Woods and Peli say there is evidence that concentrating on one image may cause a person to totally miss other important information. "Even when the unexpected event is right in front of you, and imaged on your retina, your brain may not perceive it," says Woods. He gives the example of a pilot in a flight simulator who focused so intently on an image on the cockpit display that he missed another plane on the virtual runway and literally "flew" through it.

To assist people with restricted visual fields and poor night vision, Woods and Peli have developed low vision devices that display multiple images in different ways. Those devices have provided insights into how the brain processes images that will help Woods and his team to address the challenges faced in military situations in which vision

is impaired by environmental conditions. In one study they are presenting a different image to each eye to determine if it makes a difference in perceiving unexpected events. In another study they are modifying images so that only the edges of shapes (a technique called "cartooning") are visible. "By simplifying the image, we believe that the brain can attend to it more easily," says Woods.

A Living Bandage for the Human Eye

When an eye injury occurs in combat, there is often a delay—sometimes as long as two weeks—between initial diagnosis and full treatment in a hospital. Keeping the wound covered, clean, and free from infection will increase the chances that sight will be saved.

"We believe that the more natural the bandage applied right after injury, the less likely there will be complications and infections," says James Zieske, Ph.D., SERI Senior Scientist. Creating a living bandage that could be applied right on the battlefield is the focus of Zieske and his team—Drs. Nancy Joyce, Jeff Ruberti and Michael Gilmore.

For the past several years, Zieske, Ruberti and Joyce have been working on the creation of an artificial cornea, which they believe may ultimately replace donor corneas for corneal transplantation. Each is working on growing one of the three layers of the cornea. Joyce is working on the innermost layer, called the endothelium. Zieske is focused on the outer layer, known as the epithelium. And Ruberti and Zieske are developing an artificial stroma, which is the middle layer.

The team has had success in growing all three layers, and is now working to unite the layers to form an artificial, but living replica of a human cornea. The team agrees that Ruberti and Zieske's stroma layer is the most likely candidate for the living battlefield bandage. "This layer is the strongest and the most structured," says Zieske, who adds that it also seems to be the easiest to grow and reproduce.

"We believe that the more natural the bandage applied right after injury, the less likely there will be complications and infections..."

For his part, Gilmore, an expert in infectious disease, is determining the best ways to prevent infections from taking hold before the soldier gets to the base hospital for acute treatment.

The Future

These are just a few of the SERI research projects that focus on the urgent needs of the armed forces, but will have immediate benefit for civilians as well.

"As you can imagine, the needs of the young people in military service are changing constantly as warfare continues to evolve," says Gilmore, SERI's Acting CEO, "And, we need to keep abreast of what their needs are so that we can help them deal with whatever they encounter in these difficult times."

To stay on track, SERI and TATRC will hold another conference in September. "The more we talk, the closer we will come to addressing the needs of both soldiers and civilians dealing with the potential for and the realities of vision loss," says Ward.

Ask the Expert: Dr. Patricia A. D'Amore

Angiogenesis and How It Relates to the Treatment of AMD

Patricia A. D'Amore, Ph.D., MBA

Dr. Patricia A. D'Amore is a senior scientist and Ankeny Scholar of Retinal Molecular Biology at The Schepens Eye Research Institute, Professor of Ophthalmology and Pathology at Harvard Medical School, and Research Associate in Surgery at Boston's Children's Hospital.

In the United States alone, over 1.6 million Americans age 50 and older have late-stage age-related macular degeneration (AMD), and it has been estimated that diabetic retinopathy affects over 5.3 million Americans age 18 and older. Dr. D'Amore has devoted much of her career to exploring the relationship between the control of blood vessel growth and eye disease, particularly in AMD and diabetic retinopathy. The research conducted by D'Amore, her colleagues at The Schepens Eye Research Institute, and other external collaborators has laid significant groundwork for the current development of drug treatments for these prevalent degenerative retinal diseases.

Q: I have heard a lot about angiogenesis in the treatment of cancer and cardiovascular disease. I have also heard that it can cause blindness. Can you tell me what angiogenesis is and how it relates to the latest treatments for AMD?

A: Angiogenesis is the process by which the human body grows new small blood vessels called capillaries. Usually, the motivations for the body to make new vessels are good. For instance, angiogenesis is part of the body's response to injury because nutrients and oxygen in the blood are needed for the wound to heal. In addition, the body may grow new blood vessels (called collaterals) when the blood vessels of the heart are blocked by atherosclerosis.

On the other hand, there are times when angiogenesis can do a lot of damage. Tumors, which also need oxygen and nutrients to survive, have the ability to stimulate new blood vessels to grow into the tumor. These vessels then feed the cancer and allow it to grow.

In the case of the eyes, angiogenesis most likely occurs because the eye has perceived damage and is trying to heal itself. But, the effort backfires and the new abnormal blood vessels end up destroying delicate tissues, thereby compromising vision. Basically this is what happens in diabetic retinopathy and some forms of macular degeneration.

The study of angiogenesis in the eye began in the 1950s when scientists studying new vessels in diabetic retinopathy first speculated about the presence of a molecule that they called "factor X." They suggested that the retinal tissue damaged by diabetes was producing this factor to stimulate new blood vessels and heal itself.

However, it took until the late 1980s for us to identify a protein called vascular endothelial growth factor (VEGF) as the prime culprit. Drs. Joan Miller (Chief of Harvard Medical School's Ophthalmology Department, and a Clinical Senior Scientist at SERI), Tony Adamis, Dave Shima (both now at Eyetech), and I demonstrated that VEGF levels increased in retinas of animals that were treated to mimic diabetic retinopathy.

We also found that injecting antibodies that bind and block the action of VEGF could halt vessel growth.

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Your Eye Health

Eye Allergies

Mark Abelson, M.D., C.M., F.R.C.S.

Dr. Mark Abelson is a Senior Clinical Scientist at SERI and a Clinical Associate Professor of Ophthalmology at Harvard Medical School. He is also the founder of Ophthalmic Research Associates, a 50-member ophthalmic clinical research group based in Andover, MA, that conducts research in the screening and development of new drugs for the treatment of eye allergies, dry eye syndrome, glaucoma, cataracts, and ocular infection. Abelson is the author of more than 300 publications, including *Allergic Diseases of the Eye*. He is also editor of the pharmacology section of *Principles and Practice of Ophthalmology*.

A pioneer in the field of eye allergies, Abelson was the first to identify the role of histamines and other chemicals in the development of ocular allergic reactions and, with colleagues at SERI, built the foundation for the development of current treatments.

Q: I have swollen itchy eyes all year round, not just in the spring or summer. Is it possible that I have eye allergies? If so, what can I do about it?

A: Yes, it is possible to have eye allergies throughout the year. You may be allergic not only to seasonal pollens, but also to dust, mold, animal dander, and other chemicals in the atmosphere. You are not alone. Millions of Americans, nearly 20 percent of the U.S. population, suffer from some kind of chronic eye allergy.

What are Allergies?

Allergic reactions are an example of a good thing gone awry. They are actually leftover immune responses from a time when human beings were fighting organisms such as parasites and other "worms" that regularly invaded their bodies. Now these ancient responses are triggered by harmless substances that for some reason the body perceives as harmful. While some allergies are merely nuisances, others can be life-threatening, such as asthma and some food allergies. Seasonal and perennial eye allergies, while not life- or sight-threatening, can severely impact quality of life if left untreated.

What Happens During an Eye Allergic Reaction?

While an allergic reaction is a complicated immune response, here is a simple overview of what happens: Particles of the offending substances (known as allergens) bind with cells on the surface of the eye called mast cells, which start to release numerous substances that cause the symptoms of the allergy. Probably the most important of these are histamines, which trigger tearing, swelling, redness, and, in particular, itchiness.

Most substances that cause allergies in the eye are airborne, although eyes can react to chemicals in some cosmetics or to drugs such as antibiotic eye drops.

Finding Relief

Avoidance is the first line of defense. Stay away from whatever triggers your allergies. Keep your home free of pet dander, mold, and dust. Stay inside with the air conditioner on when the pollen count is high, and clean your air conditioner filter frequently. Apply cold compresses and eyewashes to reduce swelling and itching.

continued on back cover

Champions of Vision Research

Having a Ball

Rosalie and Bertram Cohen

Rosalie Cohen has established a distinguished reputation as someone who can move people to do great things—in a most enjoyable way. Through her prowess in orchestrating memorable charitable events, Rosalie has been making an impact on Boston area educational and health services programs for more than 25 years. The Schepens Eye Research Institute (SERI) has been fortunate enough to benefit from her unique talents since its 50th Anniversary Gala six years ago.

Although originally introduced to the Institute by an honorary trustee, the late Evelyn Axelrod, someone she met while vacationing on Martha's Vineyard, Rosalie actively became involved due to the persuasion of a very close friend, Judy Brodkin. In addition to serving on the Board of Trustees as a Corporator, she also volunteered to spearhead the efforts to organize a gala fundraiser to honor the work of founder Dr. Charles Schepens. The event was so successful that Rosalie has chaired the event each year since, including the 6th Annual EyeBall Gala held at the Fairmont Copley in Boston on Friday, October 14, 2005. To date, Rosalie and the committees that she organized have raised more than $400,000 to perpetuate the important research conducted at the Institute to restore and retain vision.

Her fundraising philosophy entails introducing people with the desire and means to make a difference to a worthy cause—whether that means finding cures to blinding diseases, providing opportunities for children to participate in the performing arts, or supporting education—and showing them that philanthropy can be a joyous endeavor. Rosalie's approach inspires others to participate, creating an ever-growing network of people generating a greater impact on the services those organizations deliver.

Always by her side, Rosalie's husband Bertram Cohen is also a great advocate of SERI. Slightly more than ten years ago, Bert was in danger of losing his driver's license as a result of severe vision loss caused by cataracts. He was referred to a specialist through his optometrist, also a SERI Trustee, and through the excellent treatment he received, his vision was restored. This event threatened his independence, but it also gave him a deep and lasting appreciation for vision research and a cause to champion.

When the Cohens aren't enjoying their retirement, family and friends, Rosalie is searching for ways to help by recruiting sponsors, introducing new individuals, selling tickets, and securing auction items to ensure that everyone will leave the next fundraiser with knowledge and enthusiasm for the SERI mission. She does all of this while maintaining her mantra that everyone needs to enjoy themselves—after all, it is a party.

SERI is deeply grateful for her grace, compassion, and dedication that motivate many to support its sight-saving research.

For more information on how to make a contribution to the annual fund or to participate in our next event, contact Melanie Saunders at 617-912-2564 or saunders@vision.eri.harvard.edu.

E. Blanche Smith

Blanche and Bill Smith

For the last seven years Blanche Smith has been plagued by macular degeneration—the currently incurable disease that robs its victims of their central vision. The impact of this affliction on the otherwise spirited 90-year old has been immense. Blanche has been blessed with a wonderful life that has included a gratifying career with the U.S. Public Health Service, a 38-year marriage to her high school sweetheart Bill Smith, and countless close friends. However, some of Blanche's favorite activities have been eliminated or severely diminished by her loss of vision.

Coming of age in the early days of the automobile, Blanche became enamored of the open road. Blanche simply adored the feeling of freedom that driving afforded her. Even in her later years, Blanche enjoyed driving from her home in West Covington, Kentucky, to her winter home in Florida on an annual basis. Unfortunately, as her macular degeneration progressed she had to give up her driver's license, her Florida home, as well as the sense of independence that she had known for so many years.

For as long as she can remember, Blanche has been a die-hard Cincinnati Reds fan. Growing up just outside Cincinnati in northern Kentucky, it was only natural for Blanche to develop an affinity for this baseball team, but her devotion to the Reds remains strong to this day. In the early years, Blanche would listen to games on the radio. Since baseball is considered a game of inches, Blanche's enjoyment of the Reds was enhanced by the arrival of televised games in the 1950s. Blanche was thrilled that she could see some of the finer nuances of the great American pastime. Although Blanche's macular degeneration has left her unable to see any of the details that appear on a television screen, her passion for the Reds has not diminished. In the summer months, she plans her days so as to catch the games on the radio.

Few things would make Blanche happier than to be able to watch a baseball game or read a newspaper. Despite the great medical advances of the last century, those who are afflicted with macular degeneration cannot be cured. However, the groundbreaking research at The Schepens Eye Research Institute provides hope for the future. For example, SERI's stem cell research has lead to discoveries that are a step closer to developing a cure for macular degeneration. In order to push this promising line of research forward, Blanche is providing a bequest from the William and Blanche Smith Trust to support the Institute's research. We are grateful for Blanche's foresight and generosity as well as that of all William Wolff Society members who wish to give future generations the gift of sight.

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.

VECELLIOS HOST SECOND "NIGHT FOR SIGHT" ABOARD THE LADY KATHRYN III

The elegant Lady Kathryn III made a special stop at Rowes Wharf in Boston Harbor on Wednesday, September 14 when Kathryn and Leo Vecellio hosted "A Night for Sight" to honor Dr. Michael S. Gilmore and SERI supporters. The couple, ardent benefactors of the Institute for over 20 years and members of The Palm Beach Friends of The Schepens, opened their 148-foot motor yacht to The Schepens during their cruise throughout New England.

Joining Kathryn and Leo in welcoming guests were members of the Boston committee, many of whom have winter homes in Palm Beach. Serving on the committee were Barbara and Kennett Burnes, Carol and John Casey, Rosalie and Bertram Cohen, Caroline and Robert Collings, Anne Moran and Bill Dougherty, Alfred Fiandaca, Susan and Paul Flynn, Jerre, Cheryl and Curt Gowdy, Patricia and Brad Griffiths, Ann and Desmond Heathwood, Sandra and Bob Krakoff, Kay and Peter Lyons, Bryan Ranfanelli, and Laura and Robert Reynolds.

Over 120 guests attended the event to learn about the latest research initiatives at SERI, the nation's largest independent eye research institute. Dr. Gilmore provided a brief overview of recent research on age-related macular degeneration and other blinding eye diseases ongoing at SERI.

"Our mission is a simple one," said Dr. Gilmore in his presentation aboard the yacht. "It is to fight blindness by developing new knowledge, therapies, and technology to retain and restore vision. Private individuals can have an enormous impact on a noble cause. With your help, the battle against blindness can be won."

From left: Michael and Keeta Gilmore; Kathryn and Leo Vecellio

Tiffany & Co. served as the corporate benefactor of the event.

Earlier this year, the Vecellios hosted a similar reception aboard The Lady Kathryn III in Palm Beach as the kickoff for the Annual Eye and Vision Research Symposia Series, presented as a community service by The Schepens Eye Research Institute in Boca Raton, Vero Beach, Sarasota, Fort Myers, and Naples, Florida.

"SERI is grateful to Katie and Leo Vecellio, not only for hosting two lovely receptions on their yacht, but for their years of leadership as trustees and as chairpersons. In fact, the newly remodeled Vecellio Laboratory for Dry Eye Research will be dedicated in their honor as an acknowledgement of their generosity," noted Dr. Gilmore before the event. "The continued success of our work depends on private philanthropy from supporters who are committed to the Institute."

PALM BEACH FRIENDS TO HOST LUNCHEON & SYMPOSIUM AT MAR-A-LAGO

The Palm Beach Friends of The Schepens will present a "Vision of Beauty" luncheon in the Grand Ballroom at the Mar-A-Lago Club in Palm Beach on Tuesday, November 29. A special highlight of the event will be a fashion presentation by Neiman Marcus Palm Beach. Proceeds from the event will be used to support vision research at The Schepens. Last year's luncheon at Mar-A-Lago drew over 400 guests who made a difference for vision research while enjoying the fashion and fun of this very special event.

Michael S. Gilmore, Ph.D., Acting CEO and president of The Schepens, will be the guest of honor. Kathryn Vecellio and Judith Murat Grubman are co-chairing the event, which will open with a reception by the pool. Serving on the committee are: Herme deWyman Miro, immediate past chairwoman; Blanche Benton, Renate Dreyfoos, Mary Fairbanks, Cheryl and Jerre Gowdy, Vicki Halmos, Jean Hamm, Susan Keenan, Sandra Krakoff, Patricia Lebow, Kay Lyons, Michele Millard, Anne Moran, Monika Preston, Nancy Raquet, Laurie Silvers, Joanne Stringer, Cherie Toufanian, Debra Vasilopoulos, and Babbette Wolff.

Lydian Bank & Trust, a division of Lydian Private Bank, has generously agreed to serve as a sponsor of this event.

"At this year's Palm Beach event, we are honoring Palm Beach supporters who have kept our vision alive over the years, through their own generosity of time and philanthropy," noted Dr. Gilmore.

From left: Marilyn Connor, public relations manager of Neiman Marcus Palm Beach; Kathryn Vecellio, co-chairman of the Mar-A-Lago benefit luncheon for The Schepens; Judith Murat Grubman, co-chairman of the benefit, and Beth Pine, vice president of Neiman Marcus Palm Beach in the living room at the Mar-A-Lago. (Photo by Lucien Capehart Photography.)

"This year, we are truly fortunate to celebrate the occasion with new Florida Friends as well," said Dr. Gilmore.

Seating at the event is limited and reservations are being accepted on a first-come, first-serve basis. Tickets for the luncheon are $200 each.

Reservations for the luncheon at the Mar-a-Lago Club are available by calling The Schepens Eye Research Institute at 1-877-724-3736 toll free.

The Business of Science

Dr. Linus Pauling once stated that *"the best way to have a good idea is to have a lot of ideas."*

Ideas are for sharing. Ideas are never in short supply at The Schepens Eye Research Institute. In fact, top quality research ideas are so plentiful that a program has been established for efficiently managing, expanding and marketing them through matching our interests with those of carefully selected corporate partners. With government research dollars always in shorter supply than demand, SERI has devised a plan to realize the huge potential for sharing and cross-pollinating our great ideas with those of leading corporate scientists.

Companies are different. While research collaborations have always been common within the academic community, stories abound of how "cultural" differences have been known to impede or derail projects crossing corporate-academic boundaries. Institutional or corporate background and culture influence ideas and help define or expand a scientist's perception of what is achievable. Recognizing that there are basic differences between the goals of academic and industry researchers, SERI is determined to avoid episodes of "culture shock" that may interfere with academic-corporate relationships. As we develop working relationships with our industry partners we recognize that corporate scientists are motivated by the desire to rapidly discover and develop products to solve unmet medical needs and also to return value to company shareholders. Academic scientists measure career success by the number and quality of publications, teaching, and inventions. The corporate "need for speed" in research is a foreign concept to many academics as is the thought of keeping valuable commercial ideas proprietary. As with most things in life, with a good plan compromise is possible and both scientists can achieve their goals.

The safety net is in place. Recent news stories have caused concern about the influence of corporate funding on the traditional freedom and purity of the scientific endeavor. Some companies allow collaborating scientists at universities to publish only good research results and prohibit publication of bad ones. Some don't allow the scientist publication rights at all, preferring secret research. Other corporations might insist on controlling inventions that result from sponsored research agreements. Just imagine an academic scientist who discovered a disease cure but was blocked from bringing it to the world because he accepted research funding from a company that preferred to hide the cure to sell a lucrative treatment instead. What if he or she discovers something dangerous about a widely used drug and is prevented from warning doctors and their patients? An individual academic scientist dealing with pharmaceutical company lawyers without institutional business advice or support may unknowingly accept such notorious terms. Unlikely to read all the small print in a legal agreement and untrained in business practice, a scientist may be anxious to start the research without noticing such potential problems.

At SERI, such terms are not accepted under any circumstances. While Institute and industry scientists together work out the nature and scope of planned research, all sponsored research contract negotiation and administration occurs through the new Office of Corporate Alliances. SERI retains absolute publication and intellectual property rights to our research. Our carefully chosen corporate partners are companies similarly dedicated to our mission of discovering and developing new technologies to fight blindness. Sharing similar scientific values, Founding Partner companies such as *Johnson & Johnson Vision Care* encourage publication of all sponsored research projects and partner with us to bring new technologies to vision patients as rapidly as possible. Only the most elite and ethical companies in vision research will be invited to partner with Schepens, assuring a continued legacy of embracing only the highest standards of academic and ethical excellence.

Ask the Expert *(continued from page 8)*

Macular Degeneration Reaps the Benefits

Although we conducted the initial research for diabetic retinopathy, those with macular degeneration have benefited primarily from our particular discoveries. Currently, there is a reasonably effective way to destroy unwanted vessels in diabetic retinopathy when the vessels grow on top of the retina. This treatment, called *panretinal photocoagulation,* involves using a laser to destroy the new vessels and certain defective areas of the retina.

However, this laser treatment was not effective for "wet" macular degeneration, where abnormal blood vessels grow beneath the retina, and are more difficult to reach and are apt to leak. Although there is a treatment available (called *photodynamic therapy*), only a small proportion of patients with this form of macular degeneration are candidates for the therapy. Further, with the exponential increase in the aging population, macular degeneration will reach epidemic proportions, elevating the necessity for an effective treatment.

In light of that growing need, scientists have used a similar model mimicking macular degeneration in mice, and have found that inhibiting VEGF hindered growth and blood leakage of new vessels and had potential for improving vision in humans. Evidence from these and other studies motivated the pharmaceutical industry to focus on anti-VEGF therapies and develop drugs that could block this growth factor. Eyetech's Macugen obstructs VEGF's ability to bind to its natural receptor, inhibiting abnormal vessel growth and blood vessel leakage. Genentech, the company that pioneered the first successful VEGF-blocking drug for cancer, called Avastin, is now testing a variation called Lucentis in AMD patients.

Next Steps—The Link Between Dry Macular Degeneration and VEGF

The other form of macular degeneration, called the "dry" or atrophic form, is not associated with angiogenesis. However, it is quite likely that in some cases, the dry form can progress into wet macular degeneration. Unlike the unwanted growth of abnormal vessels in wet AMD, the dry form results in the disappearance of normal, needed vessels. Currently we are seeking to understand the relationship between VEGF and blood vessel loss in dry macular degeneration, with the hopes of developing drug therapies for this form of the disease.

Your Eye Health *(continued from page 9)*

Medication is the next step if you can't avoid the allergens in your everyday life. There are four major types:

- Antihistamines (such as Benadryl, Tavist, Claritin, and the eye drops Livostin and Emadine) block histamines from binding to receptors located on your nerves (causing itching) and blood vessels (causing swelling and redness). Note, however, that systemic antihistamines may cause ocular drying and it is best to treat localized surface disease (i.e., eye allergies) topically.
- Mast Cell Stabilizers (such as the pill Crolom, the nasal spray Nasocrom, and the eye drops Alamast, Alocril, or Crolom) prevent a certain type of cell from releasing its irritating contents.
- Immunosuppressants (such as the steroid nasal spray Flonase and the steroid eye drop Alrex) keep the immune system from reacting to allergens.
- Anti-histamine/Mast Cell Stabilizer Combinations (such as the eye drops Patanol and Zaditor) block histamines from binding to nerve receptors and stop mast cells from releasing irritants.

A word of warning, however. Be sure to consult your physician before taking any of these medications, even those you can purchase over the counter.

The Future

While we have made tremendous progress in treating eye allergies, research continues to discover even better treatments. Current research in the ocular allergy arena is focusing on the eye/nose connection, with the possibility that topical ocular allergy medication may also benefit nasal allergies. Other research is looking at the combination of systemic and ocular allergic medications. Additional anti-allergy agents are in the pipeline that may offer further benefit to allergy patients in the future.

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