

DISCOVERY

EYE FOUNDATION

~ FOUNDED IN 1970 ~

SUPPORTING WORLDWIDE EDUCATIONAL PROGRAMS AND RESEARCH LABORATORIES AT UC IRVINE AND CEDARS-SINAI MEDICAL CENTER

SPRING/SUMMER 2005

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The Discovery Eye Foundation newsletter is currently published twice annually. It serves to bring you the latest information about our eye research and patient outreach programs, organizational achievements, and profiles our supporters, patients and friends of DEF.

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DISCOVERY ACCELERATES 35 IN YEAR 35

35

THIRTY FIFTH ANNIVERSARY

Anniversary Celebrates a Rich History, Important New Accomplishments in Sight-Saving Research and Education

A strong desire to support scientific discovery and to help people suffering from debilitating eye diseases is what originally inspired the creation of the Discovery Eye Foundation (DEF). On its 35th anniversary in the year 2005 that same desire to help others continues to make DEF an important resource for thousands of patients and scientists today.

Back in 1970, Rita and Morris Pynoos became interested in helping people by supporting scientific research, in part because over the years, they had become familiar with several scientists spearheading cutting edge research of the day. Additionally, their son Jon had just been diagnosed with keratoconus by family friend and budding researcher, Dr. Anthony B. Nesburn. Little was then known about this corneal eye disease that now afflicts one out of every 2,000 Americans.

"It really was a confluence of events that led us to begin building the fund," said Rita Pynoos. "Morry saw an opportunity to use his special talents to encourage people we knew to support scientific discovery. By doing so, we were able to create something that could not only help the people we loved, but the many others depending on research to find treatment for their illnesses."

Today, Jon sits on the DEF board of directors and Anthony is the medical director. Jon is also the president of the National Keratoconus Foundation, a patient outreach program formed by DEF. Through the support of DEF and many other organizations, about 90 percent of the people diagnosed with keratoconus can now lead normal, productive lives. Some benefit from the use of corrective contact lenses, while others eventually need cornea transplants to maintain their visual productivity.

Finding answers through research for people like Jon proved to be just the beginning for the founders of DEF. Within the organization, the Pynoos and Nesburn families discovered a common cause that would later become a legacy of patient-oriented eye disease research and service.

Over its 35-year history, the DEF has helped tens of thousands of people cope with debilitating eye disease. For some, new treatments have been found that have helped remedy or stop the advance of their illnesses. For others, DEF-inspired patient outreach programs like the National Keratoconus Foundation or the Macular Degeneration Partnership have

provided support services that enable them to live fuller, more enjoyable lives.

"It was Morry's inspiration and vision that led to the founding of the Discovery Eye Foundation and the National Keratoconus Foundation," said Mrs. Pynoos, "but the generosity shown by all those who have contributed has built these organizations into something more powerful than we imagined. There aren't too many things that compare to the satisfaction that comes from being involved in this kind of work."

Significant progress has been made at DEF in the search for treatments for macular degeneration, diabetic retinopathy, keratoconus, ocular herpes and many other sight-robbing diseases. "Our laboratories have been increasingly productive over the years," said Dr. Anthony Nesburn. "In 2003 and 2004, over 50 papers were presented at meetings, published or are now in press, and we nearly doubled our NIH funded research grants. With the generous help of our contributors, I am happy to report that our stated goal of doubling research output in five years has been achieved in just three years."

Important new collaborations with leading researchers promise still more scientific progress. In 2004, renowned mitochondrial geneticist Douglas Wallace, Ph.D. at UC Irvine and stem cell expert Henry Klassen, M.D., Ph.D. of the Children's Hospital of Orange County started close collaborations with DEF scientists.

The new field of mitochondrial research works to understand how to prevent the cell death found in aging and various diseases. This research holds particular promise for breakthroughs in the diagnosis and treatment of diseases like keratoconus and age-related macular degeneration.

At Cedars-Sinai Medical Center, a DEF grant awarded to Dr. Kenneth Wright resulted in an important breakthrough in treating retinopathy of prematurity, the leading cause of blindness in newborn children (see article, page ?). Dr. Wright's findings are helping to save the sight of countless children, as hospitals around the world begin to adopt his protocol.

By supporting the stem cell research of Dr. Klassen, DEF believes it will soon be able to offer new hope to patients with no other therapeutic options. Stem cells represent an extremely promising strategy for restoring lost sight by replacing eye cells lost to diseases such as retinitis pigmentosa or age related macular degeneration.

In the area of public outreach and education, the National Keratoconus Foundation and the Macular Degeneration Partnership programs now serve thousands of people with these conditions worldwide and continue to add new members. New opportunities are opening up for more collaborative research and funding as the reputations of these two organizations continue to grow.

As the success of DEF builds, its leaders have determined to maintain the original mission to help people that originally inspired Morris and Rita Pynoos. That mission is what drives the many generous philanthropists, scientists and staff who continue to make the organization work today.

On this 35th anniversary, the board of directors and staff of DEF wish to sincerely thank Rita J. and Morris S. Pynoos, the Iris and B. Gerald Cantor Foundation, the Henry L. Guenther Foundation, Jane and Norman Neely, Dr. Henry and Lilian Nesburn, The Skirball Foundation and all the other contributors - large and small - who have given what they can to find answers for people suffering from debilitating eye disease. ▲

FROM THE DIRECTOR



Anthony B. Nesburn, M.D., F.A.C.S.
Medical Director

Dear Friends,

As you can see in our redesigned newsletter, The Discovery Fund for Eye Research, is not only celebrating its 35th anniversary in 2005, but it is also undergoing extraordinary growth and refinement. It even has a new name that better characterizes its activities: The Discovery Eye Foundation (DEF). Our newsletter and other communications materials are taking on a fresh and progressive new appearance that we hope will inspire you to take a fresh look at us and help us reach our expanded goals.

DEF has made excellent progress in its retinal and corneal research, patient care and public education programs, as you will read in our anniversary article and milestones. We are extremely proud of these accomplishments. We are energized to keep working to expand our impact by supporting even more promising research, by stepping up our board participation and by focusing on fund- and friend-raising. Our chairman, Jack Schoellerman, has some important things to say on this topic in the article about DEF's great new strategic direction.

On a personal note, I would like to take this opportunity to salute the contributions of my dear mother, whose philanthropy continues to inspire me, my own family and our extended family at DEF. You have left us, but you will never be forgotten.

On behalf of the Discovery Eye Foundation's board of directors, scientists, staff members and all the people who benefit from our work, I wish to thank you for your ongoing generosity. We are excited and looking forward to the next thirty-five years of increasing success in combating blindness and helping patients.

Kind regards,

Anthony B. Nesburn, M.D., F.A.C.S.
Medical Director

STRATEGIC PLAN EXPANDS

DEF Role in Corneal & Retinal Research and Advocacy, Patient Education & Outreach Benefit from Improved Focus



Jack Schoellerman,
Chairman and President.

Discovery Eye Foundation (DEF) Chairman and President Jack Schoellerman knows exactly what it's like to be a patient looking for answers to a troubling eye disease. At the age of 19, he began to suffer the effects of keratoconus. It wasn't until many years later, however, that doctors would accurately diagnose his problem.

"Not knowing what is happening to your eyesight is very disturbing," said Schoellerman. Since the mid 1980s, Jack has worked with DEF corneal research and

patient advocacy programs to help thousands of patients in similar circumstances. Originally trained as a lawyer, he has served on the board of directors for DEF and several other charitable organizations. Founder Morris S. Pynoos himself asked Jack to carry on the work at DEF.

"It's always been a privilege to work with the high caliber of people at DEF who give their very best to support our cause," said Schoellerman. "Morris was a very inspiring person. He had an inquiring, entrepreneurial mind and was willing to work hard to find better solutions for patients with vision problems."

"The caliber of our medical professionals and staff at DEF is world class, when I needed a corneal transplant years ago, I knew I would receive the best medical care available when our medical director, Tony [Nesburn], performed the surgery. It is our goal to facilitate that kind of confidence and care to patients and their families worldwide. As chairman, I intend to do everything I can to strengthen our organization and expand our roles in retinal and corneal research and patient education," said Schoellerman.

As featured on the masthead of this newsletter, DEF has recently developed a new name and logo. New collateral materials are also being created to help spread DEF's message, enabling people to better understand and support its goals. "Our immediate goals are to work closely with UC Irvine and other organizations to support the best patient-oriented studies available in corneal and retinal research, while at the same time continuing to build our endowment."

Steps are being taken to merge the National Keratoconus Foundation (NKCF) with DEF to provide operational efficiencies. However, NKCF will retain its distinct identity while benefiting from the growing resources of DEF.

In addition, the DEF, NKCF and Macular Degeneration Partnership websites, so frequently accessed by patients and doctors, will be brought together and redesigned to reflect the full scope of the DEF vision for patient education and eye research.

"When I first started looking for help with keratoconus, I couldn't even find someone else who had it," said Schoellerman. "Now, doctors can diagnose the condition quickly and immediately hand our booklet to their patients. Patients can then access our websites and support services, find out about the latest research and treatments, and talk with other patients about KC or other corneal or retinal disorders. Until cures are found for these devastating eye disorders, we are committed to supporting research and patient education programs worldwide." ▲

LILIAN NESBURN

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Center - Beverly Hills Mayor Vickie Reynolds presents certificate to a beaming Lilian Nesburn declaring June 4, 2000 as Lilian Nesburn Day. Pictured from left to right, Lara and Matt Nesburn, Cristina Kenney, Kristin Nesburn and Anthony Nesburn

A Legacy of Encouraging People To Reach Their Potential

Lilian Harpel Nesburn, a Discovery Eye Foundation (DEF) board member for over 30 years, passed away peacefully in her home in Beverly Hills on February 22, 2005 at the age of 96. In spite of severe deafness, Mrs. Nesburn created a legacy of helping others that inspired her family and will continue to help people far into the future.

"My mother and father were extremely dedicated philanthropists who really believed in what they were doing," said DEF Medical Director, Anthony B. Nesburn, M.D. "She felt it was important to encourage people and

"Lilian Nesburn continued"

set up programs to do just that."

Born in Salem, Massachusetts, Lilian received her bachelor's degree from Simmons College in Boston and did graduate work at Radcliffe. "Later in life, travel and philanthropy were mother's two great loves," said Anthony. "She managed to combine them by donating her commissions as a travel agent to her client's charity of choice. She and dad enjoyed traveling the world together."

Lilian's husband Henry started an ophthalmology practice in Los Angeles in the early 1930's which was carried on by their son Tony, daughter-in-law Cristina Kenney and granddaughter Kristin. Henry suffered from severe macular degeneration for 30 years, so it is natural that their greatest philanthropic commitment was to eye research.

Henry and Lilian created and funded numerous vision research and education programs with the DEF. Altogether, they gave about one-third of their personal savings to the organization. They also created and funded vision-related programs through the Foundation for the Junior Blind and Los Angeles County Museum of Art. They supported the low vision testing facility at the Los Angeles Braille Institute that is named in their honor.

Lilian's severe deafness inspired her to join the first board of the "Hope for Hearing" at UCLA. Additionally, she created and funded programs for the Big Sisters of Los Angeles, the Jewish Federation, the Jewish Home for the Aging, and the Maple Counseling Center. She was a supporter of the UCLA Iris Cantor Women's Health Center and the Skirball Cultural Center.

She and Henry created and endowed in perpetuity the "Dr. Henry and Lilian Nesburn Award" program which gives money and recognition annually to the best research paper done by residents in ophthalmology from UCLA, USC or UCI. Lilian also funded a theater program through the Beverly Hills Theater Guild which brings Shakespearean and other theatrical programs to schools throughout Los Angeles.

"We all loved Lilian. Her generosity, vitality and determination were an inspiration to everyone who knew her," said DEF Co-Founder Rita Pynoos. "She was a very strong person and an outspoken supporter of philanthropic and community causes."

In honor of her good works for the community, the City of Beverly Hills proclaimed June 4, 2000, to be "Lilian Nesburn Day." ▲

MACULAR DEGENERATION PARTNERSHIP

Vision Rehab Focus Receives National Attention

Since 1998, the Macular Degeneration Partnership (MDP) has been dedicated to providing accurate, timely information about age-related macular degeneration (AMD) with a unique focus on low vision rehabilitation. Now, that focus is receiving national emphasis due to Healthy People 2010, an initiative sponsored by the US Department of Health and Human Services (DHHS).

Every aspect of living becomes more difficult due to sight impairment. Vision rehabilitation helps people with AMD and other vision problems to maximize their remaining

eyesight through consulting services and the many innovative assistive devices now available.

"It has been very satisfying to see the progress we've been able to help our members achieve," said Judith Delgado, director of MDP. "Healthy People 2010 is amplifying our voice in a way that will help many more people benefit from our programs."

Healthy People 2010 is a national disease prevention initiative that identifies opportunities to improve the health of all Americans. A key objective of the program is to increase the use of vision rehabilitation services and devices now widely available. The DHHS recommends MDP as a key source of such services on its website list of organizational resources at www.healthyvision2010.org/rehabilitation/index.asp. For those who join MDP, regular communications in the form of support group meetings, email alerts, and a monthly newsletters are available.

"When common eyeglasses or contacts no longer give people the quality of life they need, support groups and assistive devices can really help," said Delgado. "Recent studies have proven the value of the support MDP offers."

People with significant vision loss, especially those who suffer from depression due to their blinding condition, benefit significantly from self-management and support groups, according to a recent study at the UC San Diego Shiley Eye Center and School of Medicine. For those who started the study with measurable depression, a marked improvement in mood and function were measured after participation.

Judith Delgado, who leads a support group as part of her work with MDP, said, "Steps as simple as improving the lighting in your home can make a world of difference. We try to help people not to become discouraged if they don't get immediate results. Many of our members try multiple devices before seeing an improvement. Remarkable inventions like video magnifiers, reading machines and assistive software are delivering marked improvement." ▲ www.amd.org

KERATOCONUS PATIENT EDUCATION SEMINAR AT UC IRVINE

The National Keratoconus Foundation (NKCF), sister organization to the Discovery Eye Foundation, presented a Keratoconus Patient Educational Seminar on Saturday, May 21st, 2005 at the Beckman Conference Center at UC Irvine (UCI). Sponsored by the Allergan Foundation, it was well attended. Over 100 patients and their family members arrived from Southern California and from as far away as Seattle, Washington.

The seminar consisted of presentations by five renowned physicians and researchers that spoke to the various aspects of keratoconus (KC) and its effects. The audience was given an opportunity to ask questions after each speaker. Many commented on the outstanding value of the event.

MARK YOUR CALENDAR

AMD Seminar & Vision Fair
September 17, 2005; 9:00am to 1:00pm
Cedars-Sinai Medical Center
Harvey Morse Conference Center

Get ready for the Fall 2005 AMD Patient Education Seminar and Vision Fair. From 10:00am to 12:00pm, a seminar will feature presentations by retinal specialists and low vision specialists. Topics will include the latest information about AMD, therapies, research and how to make the most of your vision. The Vision Fair, held 9:00am to 10:00am and 12:00pm to 1:00pm, will offer hands-on demonstrations of assistive devices, resources from local agencies like the Braille Institute, the Center for the Partially Sighted, California Telephone Access and the California Department of Rehabilitation. Contact us at: 310-423-6455 for more information. See you there!

AMD AWARENESS WRISTBAND



Raise awareness, raise funds and be part of a fashion trend. The Macular Degeneration Partnership has created a rich purple awareness wristband to highlight macular degeneration and to lead visitors to our award winning website, www.AMD.org. Wear your wristband proudly and know that you are helping our cause. Wristbands are \$3.00 each or you can order 10 for \$30 and share them with family and friends. All proceeds go to macular degeneration program services. Contact us at: 310-423-6455 for more information.

MDP RUNNER SCORES BIG AT BOSTON MARATHON



Take a look at Nicole Britvan's stylish running jersey, with the www.AMD.org logo on the sleeves! The back of the shirt reads, "26.2 miles to a cure for macular degeneration." Because Nicole's mother, Elaine, has AMD, she wanted to help raise awareness and funds for research. Nicole is a registered dietitian, so she understands the importance of nutrition and macular degeneration.

She finished the marathon in the top fourth of her class, with a time of 3 hours, 49 minutes and 32 seconds. In the process, she raised over \$7,000 for Dr. Cris Kenney's AMD research. We are proud of her achievement in the race and grateful for the support. Thank you, Nicole!

John Affeldt, M.D. from the University of Southern California began the presentation with a comprehensive overview of keratoconus and how it is diagnosed. The audience was fascinated by his slide presentation that demonstrated what a doctor sees through the microscope while performing an examination to diagnose KC. Timothy Edrington, O.D., from the Southern California College of Optometry, covered the topic of contact lenses for KC and discussed the various designs and materials available today. Next, Ronald Gaster, M.D., from UC Irvine's Department of Ophthalmology, presented a lecture and video about corneal transplant surgery. Then, David Schanzlin, M.D., from the Shiley Eye Center at UC San Diego, reported on new surgical treatment options for keratoconus. He described Intacs, new intracorneal rings that can be used to help KC patients gain improved vision and a better contact lens fit. He also discussed the use of the newly introduced Intralase laser and how it can assist surgeons with corneal transplant surgery. The final presenter, Cristina Kenney, M.D., from the UC Irvine Ophthalmology Laboratory, updated attendees on advancements in research related to the causes and treatments of keratoconus. ▲

www.nkcf.org

NKCF AT ARVO

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National Keratoconus Foundation board member, M. Cristina Kenney, M.D., Ph.D. and Saurabh Luthra, M.D. at ARVO Conference presenting a scientific research poster to the nearly 10,000 ophthalmology researchers and clinicians attendees.

Earlier in May, the NKCF research meeting was held at the Association of Research in Vision and Ophthalmology in Ft. Lauderdale, Florida. This roundtable discussion brought together ophthalmology researchers and clinicians from the United States, the Netherlands, Germany, the United Kingdom, Mexico and New Zealand. The meeting topics ranged from molecular science to new contact lens designs and new surgical interventions for keratoconus. A number of new researchers attended for the first time, allowing them to network for future collaborations. Among the attendees was Keith Meek, Ph.D., from Oxford, whose research was funded by NKCF in 1987.

The researchers and clinicians appreciated the informal setting for this conference that fostered productive discussions and interactions. In the end, they are all hoping to find linkages encouraging new research breakthroughs. ▲

PROTOCOL HELPS PREMIES SAVE EYESIGHT



Kenneth W. Wright, MD
Director, Wright Foundation for Pediatric Ophthalmology
Director, Pediatric Ophthalmology Cedars-Sinai Medical Center
Clinical Professor of Ophthalmology, USC - Keck School of Medicine

They are the smallest and most helpless of victims - sometimes weighing in at less than one pound. Premature babies are surviving at younger ages than ever before only to battle with a blinding illness called retinopathy of prematurity. ROP is now the #1 cause of blindness in infants.

"We struggle so hard to keep these babies alive and then they lose their sight. It's really a tragedy," said Dr. Kenneth Wright, director of the DEF Infant's and Children's Program.

Ironically, better technology is behind the rise of ROP. Hospital intensive care units have gained the technical ability to sustain very low birth-weight babies. Assisted fertilization procedures have also increased the number of multiple, low-weight births. Thankfully, Dr. Wright and the team at the Cedars-Sinai Neonatal Intensive Care Unit appear to have found a low-tech solution for a high-tech problem.

For many years people knew that too much oxygen could cause ROP. Wright's studies indicated that despite precautions many premies were still getting too much oxygen. This landmark publication was co-authored by Dr. Wright and supported by DEF. Results showed that severe ROP could be dramatically reduced by carefully controlling the oxygen dosage.

"Premies really are not babies, they are fetuses out of the womb," Wright said. "By recreating womb-like oxygen levels, we can facilitate more appropriate eye growth."

Conventional wisdom tells many hospitals to feed enough oxygen to babies to turn their skin pink. Doctors still worry that lower oxygen levels could cause insufficient

YOU ARE CORDIALLY INVITED TO THE DISCOVERY EYE FOUNDATION 3RD ANNUAL GOLF TOURNAMENT

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Beautiful View Overlooking the Monarch Beach Golf Links.

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The Grand Lawn Gazebo and Fountain at Sunset.

The 3rd Annual Golf Tournament at the beautiful Monarch Beach Golf Links in Dana Point, California is being held on Monday, August 15th. For sponsorship opportunities and player registration, please contact Tournament Director, Tom Hebert at **310 576-3359**. All are invited to play!

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development of the lungs and other organ systems, as well as cerebral palsy.

However, for 6 years Cedars-Sinai Medical Center has been delivering oxygen levels to premies that are 5 to 15 percent below what a normal person should receive. As a result, the hospital has seen ROP decline from 7.6 to 0.6 percent. Only three babies have had severe ROP requiring laser surgery, and no babies were blinded.

Blood vessels in the retina and other body tissues of premature babies are not fully developed. Sudden exposure to higher levels of oxygen aborts the normal growth of those vessels, according to Wright.

After a while, retinal tissue with no blood vessels sends out molecular signals demanding blood vessel growth. Instead of normal growth, however, fragile blood vessels sprout inappropriately, starting a cascade of events that can lead to retinal detachment and blindness.

"Once premies lose their sight in this process, they don't get it back," Wright said. The best that doctors can do is try to save what sight is left by using lasers that can stop aberrant vessel growth. About half of babies treated this way end up legally blind.

Wright said that at Cedars-Sinai, no statistically significant differences have been observed in mortality or in cerebral palsy among the children getting low oxygen compared with those babies treated with standard levels. However, he is seeking approval to conduct a study to prove this result by collecting data about the developmental outcomes of babies treated with the protocol some two years ago.

Since Wright helped start the low-oxygen protocol at Cedars-Sinai Medical Center, the County Hospital at USC, Good Samaritan Hospital and Singapore National Hospital have adopted it with very good results. Many more hospitals are following suit. Many doctors still believe, however, that a highly oxygenated, pink baby is less susceptible to developmental problems.

For now, Dr. Wright suggests that parents ask hospitals if they will follow a low-oxygen protocol in the interests of preventing ROP. "We haven't completed all our studies," says Wright, "but at this point it appears that an ounce of prevention is worth any known treatment for ROP." ▲

Discovery Eye Foundation (DEF)

is a 501(c)3 dedicated to finding cures and treatments for corneal and retinal eye diseases. It supports scientists participating in groundbreaking eye research particularly in the areas of diabetic retinopathy, macular degeneration, ocular herpes, keratoconus and other sight threatening conditions. For 35 years, DEF research has produced unprecedented results, attracting some of the best in their fields our research centers located at UC Irvine and Cedars-Sinai Medical Center in Los Angeles. The DEF Medical Advisory committee is committed to expanding its future research funding to more worldwide collaborations.

DEF also supports two excellent outreach programs, Macular Degeneration Partnership (MDP) and the National Keratoconus Foundation (NKCF). These programs uniquely serve a growing population affected by eye disease with opportunities for Internet interaction, free printed educational materials and telephone access to a healthcare professional. Both programs have been recognized for their contribution to patient care and their award winning websites.



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The New Discovery Eye Foundation Mission Statement:

Discovery Eye Foundation exists to facilitate the development of cures and improve patient care through corneal and retinal research and educational programs for eye disease.

DISCOVERY EYE FOUNDATION MEDICAL MILESTONES

1987 - Discovered that one gene, called LAT, remained active in between attacks of the ocular herpes virus.

1989 - Proved increased enzyme activity in keratoconus corneas, which leads to corneal thinning that cause the cone shaped cornea and visual distortion associated with keratoconus.

1990 - FDA approved clinical trials began for the VISX laser to correct vision. The technology is now used worldwide for laser vision correction.

1994 - Demonstrated that the LAT gene was essential in reactivation of ocular herpes virus infections and results in recurrent "cold sore" lesions of the skin and eye. When the LAT gene was missing from a herpes virus there was almost no reactivation.

1996 - Found unique structural changes in diabetic retinal blood vessels that are associated with the development of diabetic retinopathy.

Conducted clinical study to prove the safety and effectiveness of the Autonomous Technology "star wars" eye-tracking laser for use in laser eye correction. This technology is now used throughout the world.

1997 - Set up long-term collaboration with the renowned genetics department at the Cedars-Sinai Medical Center in Los Angeles and later with leading macular degeneration experts, David Boyer, M.D. and Kent Small, M.D. With the DNA samples from age-related macular degeneration (AMD) patients, we began our examination into the genetics of AMD.

1998 - Vitrase, an enzyme we helped to characterize, is approved for clinical trials in the United States and worldwide. This enzyme clears blood from the eye (vitreous) without surgery. If proven safe, this treatment will be a major breakthrough for the over 500,000 patients a year with diabetic retinopathy and hemorrhage in the United States.

Developed a therapeutic vaccine that reduces recurrence of ocular herpes in an experimental model and may pave the way for a human vaccine against this blinding eye disease.

A revolutionary herpes virus is constructed. Originally designed to fight off ocular herpes, the virus also destroys brain cancer cells. Nicknamed the "cancer eating" virus, it seeks out and kills brain cancer cells and malignant brain tumors. In experimental systems, it could be used in clinical trials in humans with brain cancer.

1999 - A powerful experimental model was created to better understand the risk factors of age-related macular

degeneration (AMD). This novel research approach examines the risk factors associated with AMD such as cholesterol, tobacco smoke, and genetic background.

The first all-inclusive and testable hypothesis about the causes and progression of keratoconus is presented summarizing the last 25 years of keratoconus research. Developed a novel technique to analyze gene abnormalities in diseased human corneas such as keratoconus and pseudophakic bullous keratopathy (PBK). This is a key to the discovery of treatments or a cure.

Successfully completed LASIK clinical trials of the Autonomous Technology eye-tracking laser. Showed it was safe and effective for both nearsightedness and farsightedness-we were one of only five centers nationwide in the laser vision correction trial.

2000 - Discovered a new "protective" gene in humans that may help in preventing AMD. this gene is also known to be associated with cardiovascular disease.

Found specific factors that promote growth of unwanted abnormal blood vessels in human diabetic retinas. Inhibitors of these factors might stop the growth of blinding abnormal blood vessels in patients with diabetic retinopathy.

Published in Science our findings established that the LAT gene functions by keeping ocular herpes infected nerve cells from being killed by the body's natural defense system. This explains how the virus survives to cause recurrent infections and it opens a new avenue for treatment of ocular herpes.

2001 - Discovery Eye Foundation collaborates with the Pasteur Institute on a herpes vaccine that may translate into one powerful enough to protect against recurrent herpes eye infections.

2002 - Discovery Eye Foundation labs move to UC Irvine, to establish the Morris S. Pynooos Eye Research Laboratories, a state-of-the-art eye research facility.

2003 - Discovered that differences in progesterone hormone receptors in some AMD patients, proved to protect patients from developing AMD.

Discovered new vaccine factors that improve defense against herpes infection.

2004 - Stem cell study begins to increase the success of corneal transplants. Retinal stem cell study begins.

Discovered new vaccine factors that improve defense against genital herpes infection.

2005 - Mitochondria shown to be abnormal in keratoconus corneas.

A GLANCE AT WHAT'S INSIDE

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in Year 35



Lilian Nesburn



Also inside:

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91 YEARS YOUNG

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Lupe and Jim Kindel. Jim enjoys his sight as a result of a successful corneal transplant.

Cultural Lion Still Working and Enjoying Life

Enjoying a full and active life at the age of 91 is an accomplishment in itself. This is just one of the amazing things, however, about Jim Kindel. Two years ago he married his current wife Lupe, who is 73 years young. To keep himself in good shape, he visits the gym every day.

Despite appearances, however, Jim has had his share of difficulties. Early in childhood, his vision was damaged by an accident. Working with one glass eye and poor vision in his remaining eye, Jim built a successful tax law practice in Los Angeles at Kindel & Anderson.

Some 15 years ago, vision in his remaining eye started to deteriorate and resulted in a bad fall when he was overseas on business. That's when he called on DEF doctors for help.

"Jim is an amazing man," says Dr. Anthony Nesburn. "After he came to us, we determined that he would need a cornea transplant. After his surgery he has continued to work, travel and contribute much to the LA educational, cultural and scientific community."

"As soon as I came out of surgery, I could tell my eyesight was greatly improved," said Mr. Kindel. "Thanks to the skilled doctors at the Discovery Eye Foundation, I've continued to enjoy my life to the full. I've always led a very active life. My wife and I still enjoy attending many cultural events together, and regularly stay at the beach where we take long walks next to the crashing surf. Above all, I am grateful for the successful surgery which has made it possible for me to lead an almost normal life." ▲