



RETINA RESEARCH FOUNDATION NEWSLETTER

Foresight for Sight

November 2013

Issue Number 3 / Volume 35

Retina Research Foundation Newsletter is published three times per year: Spring, Summer and Fall.

*Thanksgiving
Greetings
and
Best Wishes*

The Board of Directors
and
Advisory Trustees
Retina Research Foundation

2013 RRF Award Recipients and International Fellows



Kang Zhang, MD, PhD
RRF Macula Research Project
*Administered by the
Macula Society*



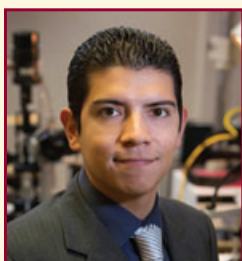
Cynthia A. Toth, MD
RRF Award of Merit
*Presented at the
Retina Society Annual Meeting*



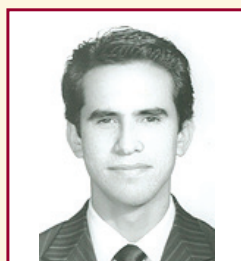
George A. Williams, MD
RRF Pyron Award
*Presented at the
American Society of Retina
Specialists Annual Meeting*



Lawrence A. Yannuzzi, MD
**Charles L. Schepens,
MD/AAO Award**
*Presented by RRF and SIS
at the Academy of Ophthalmology
Annual Meeting*



David Rivera de la Parra, MD
**ICO Helmerich International
Fellowship**
*Retina Fellow at
Jules Stein Eye Institute*



Carlos Quesada Ruiz, MD
Gillingham Fellowship
*Ocular Pathology Fellow
at McGill University*



Eduardo Buchele Rodriguez, MD
Inaugural Paul Kayser/RRF Global Award
*Alice McPherson, MD presented the award
at the biennial Pan-American Congress*



RRF Lawrence ARVO Travel Scholarships
*Eighteen travel scholarships for young researchers
to attend the ARVO Annual Meeting*

*For a complete list of RRF Award recipients and
International Fellows, please view our website:
retinaresearchfnd.org*



November 2013

Dear Friends,

We are anticipating the closing of our fund drive on December 31, 2013. This fall marks our 44th year of funding research to cure retinal disease.

Retina Research Foundation is well prepared to meet the challenges ahead, and we step forward with great hope. Scientists around the globe are zeroing in on the causes and cures of retinal disease. RRF supports a wide variety of research programs advancing this mission, including pilot study grants, ongoing research, established awards, international fellowships, and educational programs.

Much progress has been made, and new promising research findings will result in improved patient outcomes in the future. The scientists count on us and on our many friends and supporters to make their work possible.

You can be a part of this exciting mission of hope. If you have not yet given to RRF, we ask that you do so now. We thank you for your ongoing interest and support as we work to achieve our mission of vision preservation worldwide.

This will be our last Newsletter of 2013, so let us take this opportunity to wish you a very happy Thanksgiving, healthy and joyful holidays, and all the best in the New Year and for many years to come.

With best regards,

Frank K. Eggleston, DDS
Frank K. Eggleston, DDS
Chairman of the Board

H. Richard Walton
H. Richard Walton
Fund Drive Chair

Suzanne L. Miller
Suzanne Miller
Fund Drive Vice-Chair



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*Retina Research Foundation is dedicated to the eradication of
retina disease through programs in research and education.*



New Version of Gene Therapy Vector AAV

Led by David Schaffer, PhD, scientists at University of California at Berkeley have created a new version of the gene therapy vector adeno-associated virus (AAV) that can deliver genes deep into the retina through intravitreal injection. These findings were published online in Science Translational Medicine. Such a vector could improve therapeutic gene delivery to target cells and lead to safer and less invasive gene therapy treatments.

“This is a beautifully planned, executed, and powerfully presented paper,” said Jean Bennett, MD, PhD, a professor of ophthalmology at the University of Pennsylvania in Philadelphia. “It shows the results of a very clever system to evolve AAV to target cells in the retina efficiently from an intravitreal injection.” Although not involved in the study, Dr. Bennett has developed a number of strategies for gene therapy-mediated treatments for retinal disease.

Injection into the eye’s vitreous, the intravitreal injection technique, has not been possible in trials of gene therapy for retinal degeneration thus far. Current AAV vectors are incapable of penetrating deep into the retina where the target cells for retinal diseases are located. Patients receiving gene therapy now undergo a direct intraretinal injection, requiring hospitalization and general anesthetic. Intravitreal injections are performed under local anesthetic in a doctor’s office.

With the aim of getting gene delivery to the target cells in the retina through AAV injection into the vitreous instead of directly into the retina, Schaffer and colleagues evolved AAV to be better at tissue penetration. Dr. Schaffer injected regular AAV into the vitreous of mouse eyes and one week later collected photoreceptor cells from deep within the retina. Only a tiny percentage of AAV vectors made it into those cells but were then amplified, repackaged into virus particles, and injected into the vitreous again. The researchers repeated the injection, recovery, and amplification a total of six times, finally isolating 48 AAV variants for sequencing. Two thirds of those isolates turned out to be the same variant, and Schaffer and colleagues named it 7m8.

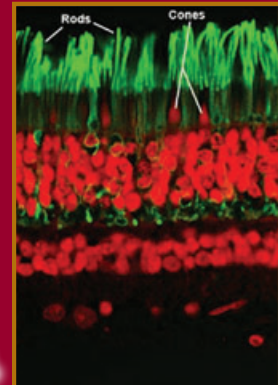
The team then performed intravitreal injection of the 7m8 AAV vector to deliver missing genes into two mouse models of retinal degeneration: retinoschisis and Leber’s congenital amaurosis. The mice treated with the evolved AAV vector showed improved retinal function. Mice receiving their missing genes via intravitreal injection of the standard AAV vector did not show improvement.

To determine whether the 7m8 vector would be likely to show similar deep penetration in the human retina, Schaffer injected the vector into the vitreous of macaque eyes. Primate retinas are considerably thicker than those of mice. Importantly, 7m8 did effectively target photoreceptor cells of the fovea in the primate retinas, which is the center-most part of the macular and essential for sharp detailed vision.

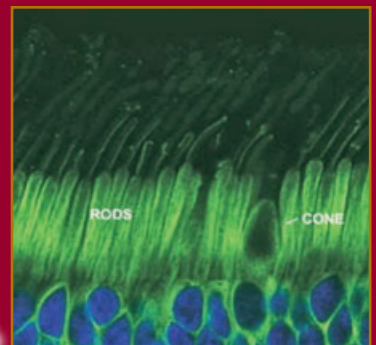
www.the-scientist.com



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1. *David Schaffer, PhD*

2. *Normal Retina*

3. *Rods and Cones*



How the Retina Heals Itself After Laser Surgery

Alexander Sher, PhD, of University of California, Santa Cruz, has received a National Eye Institute grant totaling \$2.5 million over five years for his research on how the retina heals itself after laser surgery. Dr. Sher contributed to recent research showing that light-sensitive photoreceptors can migrate into retinal lesions caused by selective laser photocoagulation and reconnect with retinal neurons to fill in blind spots. The new grant provides major funding for his ongoing investigation of the potential to restore retinal function after injury or disease.

“Our earlier findings demonstrated that the retina has the potential for constructive plasticity that was never observed or even suspected before,” Dr. Sher said. “Our goal is to establish the mechanism and the limits of this new and exciting phenomenon.”

Laser photocoagulation is widely used to treat retinal diseases, but retinal scarring and blind spots are some side effects of the current standard method. A new approach, using shorter pulses of laser light, destroys photoreceptor cells but leaves underlying retinal neurons intact. The laser photocoagulation procedures will be conducted in collaboration with Daniel Palanker, PhD, of Stanford University. The microarray



system Dr. Sher uses is one he helped develop as a postdoctoral researcher working with physicist Alan Litke, PhD, at the Santa Cruz Institute for Particle Physics (SCIPP).

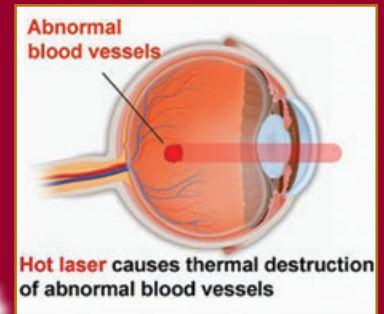
The newly funded research will contribute to the development of selective photocoagulation as a novel treatment for retinal diseases without the side effects of the current standard of care. The research will also provide insights into how the connectivity of photoreceptors and other neurons develops in the adult retina and how transplanted stem cells can integrate into the retina.

<http://news.ucsc.edu/>

Daniel Lavinsky, MD, PhD, was one of the two RRF Gillingham Fellows of 2012



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4. Alexander Sher, PhD

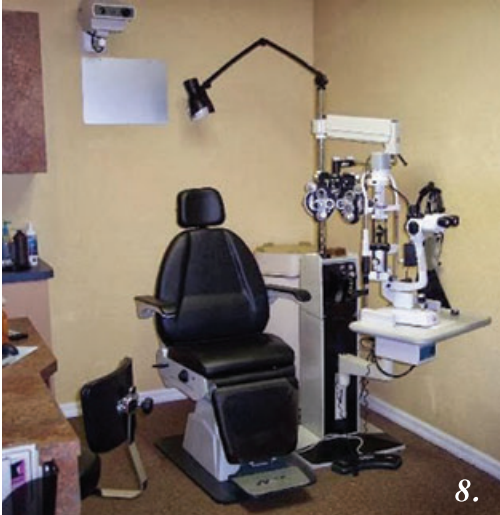
5. Laser Surgery for Abnormal Blood Vessels

6. Dr. Sher, Dr. Daniel Lavinsky, and Dr. Daniel Palanker



Genetic Testing Guidelines for Complex Eye Disorders

The American Academy of Ophthalmology (AAO) does not currently recommend routine genetic testing for complex eye disorders such as age-related macular degeneration (AMD).



AAO strongly believes that a comprehensive eye exam is significantly more effective than any currently available genetic test for identifying treatable disease. Although several genotypes are associated with increased risk of AMD, researchers' understanding of how genetic components interact with disease factors in AMD is incomplete.

Until clinical trials can demonstrate that AMD patients

with specific genotypes benefit from specific types of therapy or exam regimens, the Academy will continue to recommend that genetic testing provides no proven advantage in preventing or treating the disease.

New Online Source of Information

The American Academy of Ophthalmology (AAO), in collaboration with several subspecialty societies, including American Society of Retina Specialists (ASRS), The Macula Society, and The Retina Society, has made available to the public an online encyclopedia of eye health and eye disease, written by ophthalmologists.

This website, Eye Wiki, is organized in a way that is easily accessible by patients looking for current and accurate information about a particular condition, test or treatment. For example, there are 70 topics listed under "Retina/Vitreous."

<http://eyewiki.aao.org>



7.

Look and you will find it - what is unsought will go undetected.

Sophocles

(Greek writer, 496 - 406 BC)

7. Genetic Testing

8. Exam Room



Meet the Advisory Trustees

J. Donald Squibb

Grew up in the Dallas area, has lived in Houston for extended periods three different times; graduated from S.M.U.; law degree from the University of Texas; Master's Degree in Business from Harvard University; served in the Air Force as a legal officer; a widower, has two daughters and four grandchildren; parents were dear friends of Fred and Lillian Wallace (he was one of the founders of RRF); a lawyer by training with a career in finance.

Career Highlights:

- Founding executive of the Cullen Center Bank & Trust, now Frost Bank;
- Headed the trust and investment department at the Houston National Bank and then at the Republic National Bank of Dallas;
- Director of Development for the M.D. Anderson Cancer Center;
- Treasurer of the Southwestern Legal Foundation, and a trustee for many years;
- Currently does consulting and writing, estate planning, health care delivery, management, career direction for young people, and astrology.

Patricia K. Boyd

A fifth-generation Texan, born and raised in Tyler, Texas; graduated from the University of Texas at Austin with a BBA degree; married Don R. Boyd, another Tylerite and UT grad, in 1957; moved to Corpus Christi in 1959; a fulltime mother and community volunteer; after Don's death in 2000, moved to Houston in 2004; three children and seven grandchildren (one granddaughter has Stargardt Disease); a lifelong Methodist, now a member of St. Luke's United Methodist Church in Houston; has had a family ranch in Goliad County, Texas, for 45 years – a working and hunting ranch, plus a wonderful family spot. Other interests are travel, reading, Mah Jongg, theater, golf, and music.

Memberships and Affiliations:

- The University of Texas - President's Associates, Chancellor's Council, Littlefield Society, Hill Society;
- M. D. Anderson President's Circle;
- The Houston Symphony;
- Ima Hogg Ceramic Circle;
- Zeta Tau Alpha.



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9. J. Donald Squibb

10. Patricia K. Boyd



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Managing Editor: Margaret Farese

Retina Research Foundation Is a Nonprofit Organization.

FREE MATTER
FOR THE
BLIND OR
HANDICAPPED

Address Correction Requested

Please indicate changes in boxes and make any corrections needed next to your name and address, then clip and return entire address label in an envelope.

- ☐ Change name or address as shown on address
- ☐ Remove name from mailing list.

Safe Driving Reminders for the Holidays

Age-related vision conditions may cause difficulty when driving, but there are ways you can be safe on the road as long as you are able to drive.

Common hindrances are:

- Maintaining a clear view of the road in spite of the glare of headlights in oncoming traffic at night;
- Accurately judging distances and speed of your vehicle in relation to other cars on the road;
- And quickly distinguishing road signs or construction obstacles.

These are a few things you can do to improve your safety on the road:

- Especially when driving at night or during inclement weather, make sure your windshield is clean;
- Know your route in advance of your journey;
- And get regular eye exams.

www.dmv.ca.gov

Special Rememberances

IN MEMORY OF

Fred Bankston

Pauline D. Bankston

Anthony Mierzwa

Frances Ross

Saunders Gregg

The Elkins Foundation

Fred E. Wallace

Reuben H. Wallace

Lillian B. Wallace

Gilbert F. Haberer

Dorothy Lee Henderson

Alfred Haberer

Ryland Nicole Moore-Pyron

Mr. and Mrs. William Wahlberg

IN HONOR OF

Theodore Mermer's birthday & family

Jerry and Rebeka Schonbrun

Arthur Willis, MD

Betty Whitt

ESTATE GIFTS

Ricardo H. Barrera

John Van Ramshorst, Jr.



RRF accepts credit cards for donations securely online at www.retinaresearchfnd.org
Call the office for more information: 713-797-1925



Additional memorials received will appear in the next issue.