Chicago Alliance to Fund Retinal Research

SIGHT QUEST NEWSLETTER

Spring 2017

A publication of SEARCH FOR VISION
1011 S. Waiola Avenue, LaGrange, IL 60525 - 847-673-0017 Marla Chorney (Information)
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Recipient of 2016 SFV Funds

It is with honor that the Search for Vision Board members donated its 2016 funds at the University of Illinois Foundation to Dr David Pepperberg, a researcher at the Department of Ophthalmology and Visual Sciences at U of I College of Medicine at Chicago.

Dr. Pepperberg and his colleagues are conducting two lines of study. These concern, respectively, (1) studies of “amyloid-beta” protein in eye tissues, and (2) the use of gold nanoparticles in a new approach for vision restoration. Both projects are aimed at advancing knowledge that will lead to new therapies for age-related macular degeneration (AMD) and other retinal degenerative diseases.

The amyloid-beta project is motivated by the fact that amyloid-beta, a family of proteins found in brain tissues, is known under certain conditions to have toxic effects on nerve cells that contribute to the development of brain neurodegenerative disease such as Alzheimer’s. Amyloid-beta is present also in tissues of the eye, raising the possibility that this protein may contribute also to the progression of retinal degenerative disease such as AMD. Dr. Pepperberg and his colleagues are conducting biochemical and physiological experiments on amyloid-beta of the eye tissues in experimental animals. They hypothesize that information gained in this work will advance progress toward therapies that retard or prevent amyloid-beta toxicity in AMD, in other retinal diseases, and possibly also in Alzheimer’s.

The gold nanoparticle project concerns the development of a new molecular therapy for advanced-stage AMD. AMD and certain other retinal diseases largely target and destroy the function of the retina’s rod and cone photoreceptors, which are the light-sensing nerve cells that initiate visual processes in the retina. In many cases of AMD, retinal nerve cells to which the rods and cones ordinarily send visual signals – specifically, the ganglion cells of the retina – remain healthy. However, because of the loss of rod and cone function in AMD, the

ganglion cells fail to receive light-dependent signals and are unable to relay these signals to the brain. In work being conducted in close collaboration with colleagues at the University of Chicago, Dr. Pepperberg is developing preparations of light-absorbing gold nanoparticles that, upon delivery to the eye, can interface with the ganglion cells to make them directly sensitive to light. This research is currently focused on studies of the molecular and cellular neural processes enabled by the gold nanoparticles. However, success in this early work holds the possibility of leading ultimately to clinical application in which intra-ocularly delivered gold nanoparticles, by conferring light sensitivity to the ganglion cells, restore significant visual function to the AMD-impaired retina.

Parent Petroleum Golf Classic and Search for Vision Benefit

The 20th Parent Petroleum Golf Classic and Search for Vision event to benefit eye research at the U of Illinois College of Medicine at Chicago Department of Ophthalmology and Visual Sciences will be held on August 24, 2017.

The golf classic is joined by a silent auction and a $5,000 raffle. More details on this affair will be in the summer issue of Sight Quest.

The SFV silent auction needs good prize donations from all of us to be successful. SFV has only two fundraising events and we need to do well in both of them.

Time goes by fast and obtaining auction items takes persistence. The more and better the prizes offered the more enhanced will be the auction's results. The prizes can be merchandise, gift certificates, restaurant certificates, service certificates, etc... These auction rewards can be obtained from any business dealing with the public such as big box stores (general and home), clothing stores, restaurants, etc. In addition, the companies that employ us may contribute.

The best of luck and we are working for a great cause.

We are ready to assist in any way. You can call Jay or Lorraine Popek at 708 652-4614 or email us at popek@att.net, also Ann Rasch at 708 354-4620 or email at ARasch1761@aol.com.

Please have all donations sent to:

Search for Vision1011 S. Waiola
LaGrange, IL 60525

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Memorial

Joyce Pollakoff, nee Zimbler, 88, devoted wife of the late Arthur for 63 years; loving mother of Leslee (Morrie) Goldman and Mitchell Search for Vision is grateful for her bequest.

Usher Syndrome Coalition USH Connections Conference

The Usher Syndrome Coalition's 2017 USH Connections Conference will be held in Chicago on Saturday, July 15th, at the Chicago Marriott Downtown Magnificent Mile, 540 North Michigan Avenue.

At this educational and life expanding annual conference, doctors and scientists in ophthalmology and related fields will present their latest updates on the progress being made in Usher Syndrome research.

This year's Conference will feature Keynote Speaker Edwin M. Stone, MD, PhD. Dr. Stone, named to the Top 100 Most Influential People in Ophthalmology, is a professor of ophthalmology and visual sciences at the University of Iowa and the director of the Wynn Institute of Vision Research, home of the William Kimberling Usher Research Laboratory.

Nowhere else will you find the opportunity to connect and share with other families from around the world living with the same disease.

The conference will be an all-day event starting at 8:00am finishing at 5:00pm with a social gathering after the seminars.

Registrations for the conference must be made before June 2, 2017.
REMINDER: All special requests (interpreters, sighted guides, assistive listening devices, Braille materials, childcare, dietary restrictions, etc.) must be received no later than June 2, 2017.

Adult Attendee -$100

Child Attendee -$25

For more information contact:

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(978) 637-2625

Alternatively, you can register ONLINE at www.usher-syndrome.org

Discounted rooms are available for a special rate of $209/night for USH Connections
Conference participants. Please note that you must reserve your room by June 23, 2017 to receive the discounted rate for this conference.
To reserve your room online, visit or call Group Reservations:
Online Reservations: http://bit.ly/USH2017hotel
Reservations Toll Free: 1-877-303-0104

RETINA ENews from Retina International
Editor: Claudette Medefindt

RESEARCH NEWS

THE IMPOSSIBLE MAY SOON BE POSSIBLE
Scientists in Pittsburgh have taken the first steps towards the holy grail of ocular therapy- transplantation of a complete human eye. The eye's complex web of muscles, blood vessels and nerves which connect directly to the brain has doomed all past attempts to reconnect them successfully. Dr Kia Washington at the University of Pittsburgh has had moderate success in the transplantation of a donor rat eye into another rat. The eye was alive and healthy up to 2 years after transplantation. The next stage is to regenerate the optic nerve and to actually restore sight in rodent models. The research is being funded by the American Department of Defense as eye injuries are the most common cause of vision loss in war veterans.

STEM CELL UPDATE
California-based regenerative medicine company jCyte has completed enrollment in a phase I/IIa trial to study the safety of its stem cell therapy candidate for retinitis pigmentosa (RP). The trial included 28 patients with advanced RP, eight of whom have completed the one-year study. Early safety results have been promising. "We have successfully completed four DSMB (Data Safety Monitoring Board) reviews," said jCyte co-founder Henry Klassen, MD, PhD. "So far, trial participants have had no significant side effects, with good tolerance of the injected cells. We are quite gratified by the results."
The company's investigational therapy, called jCell, uses injected retinal progenitor cells, which are intended to rescue dying retinal cells (rods and cones) and possibly to regenerate new ones. The treatment requires a single intravitreal injection, which can be performed in an ophthalmologist's office under local anesthesia. See www.jcyte.com

3 Patients have now received RST-01 the photoswitch therapy by Retrosense Therapeutics. They were given the lowest dose in this Phase 1/2 safety trial and no adverse ocular events were observed. Furthermore, the treatment showed some biological activity, though RetroSense did not provide details about what that activity was or what it meant. RST-01 is a gene therapy that uses a modified adeno-associated virus (AAV) to deliver a gene that encodes channelrhodpsin-2, a light-sensing protein, to the retinal ganglion cells to encourage them to become light sensitive. A benefit of the therapy is that it has the potential to work regardless of the gene mutation causing the patients' vision loss. The company plans dose escalation studies shortly.

CRISPR GENE-EDITING UPDATE.

A research group in China has become the first to deliver cells whose genes were edited using the revolutionary CRISPR/Cas9 technique into a person. This controversial gene editing technique was used by researchers at Sichuan University in Chengdu. The team delivered the modified cells into a patient with an aggressive form of lung cancer — metastatic non-small cell lung cancer— as part of a clinical trial at the West China Hospital, which is affiliated with Sichuan University.

AMD NEWS

The clinical trial of a new drug, known as 'SF0166' was recently launched in the USA. The twin study will involve 40 patients with diabetic macular oedema (DMO), alongside a second group for those with wet age-related macular degeneration (AMD). A feature of the new drug, which was developed by SciFluor Life Sciences, is that it is able to reach the retina in high concentrations when used topically – in contrast to current anti-vascular endothelial growth factor drugs that must be injected. 'SF0166' works by interrupting the body's response to the "abnormal signals" of DMO and wet AMD, which the eye interprets as a lack of oxygen. Patients are self-medicating the drug in one of 3 doses- low high or nil, for a period of 28 days - Editor. This is known as a blind study, where the patients do not know if they are receiving the treatment or a placebo.

THE ROLE OF HIGH FAT DIET IN AMD

New research reveals that microbes in the gut play an important role in the development of neovascular or wet age-related macular degeneration. In the journal EMBO Molecular Medicine, researchers report that a rodent model of AMD showed that a high-fat diet can cause an imbalance in gut microbes that leads to more permeable intestines, chronic low-grade inflammation, and ultimately increased formation of new blood vessels under the retina - a feature of advancing wet age-related macular degeneration (AMD).

The results showed that high-fat diets appear to hasten the formation of new blood vessels in the wet AMD mice by altering the gut microbiome. The researchers suggest the altered gut microbiome leads to increased permeability of the intestines and chronic low-grade inflammation. This is accompanied by raised

production of pro-inflammatory cell signaling proteins (cytokines) and ultimately leads to generation of new blood vessels seen in advanced wet AMD.

ALZHEIMER'S PROTEINS IN THE RETINA

Previous studies have shown that the beta-amyloid proteins found in Alzheimer's disease also accumulate in the retinas of people with age-related macular degeneration. Now, a new study reveals insights that help to better understand how the retina becomes damaged in this way. One change that occurs in the retina of people with AMD as the disease progresses is an increase in the number and size of fatty deposits called drusen. Other studies have found aged and AMD retinas also show accumulation of the types of beta-amyloid proteins that are found in toxic plaques in the brains of people with Alzheimer's disease, and for which there appears to be no clear genetic basis. The research team is now planning to evaluate how the beta-amyloid proteins actually enter the retinal cells and set about causing internal damage. The hope is the work will lead to measures to prevent or treat AMD and that this this novel discovery could open up new possibilities to understand how the aging retina becomes damaged. This may help to develop better AMD treatments in the future.

DIETARY NEWS

The three types of omega-3 fatty acids involved in human physiology are αlinolenic acid (ALA) (found in plant oils), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA) (both found in marine oils).

DHA is a key nutritional component in vision and needs to be supplied by the diet. It is found in significant amounts in the retinal and neuronal cell membranes. It is believed to have anti-inflammatory properties and to reduce the risk of Cardio Vascular Disease. Consumption of DHA appears to reduce the risk of depression, bipolar disorder, schizophrenia and mood disorders. Loss of DHA from the nerve cell membrane leads to dysfunction of the central nervous system in the form of anxiety, irritability, and susceptibility to stress, dyslexia, impaired memory and cognitive functions. DHA plays an important role in ensuring healthy ageing, by thwarting macular degeneration, Alzheimer's disease, and other brain disorders while at the same time enhancing memory and strengthening neuroprotection in general. A reduced level of DHA is associated with cognitive decline during ageing.

Another study investigated diet and Diabetic Retinopathy. The study published in the Journal of the American Medical Association concluded that a diet rich in Omega 3 Fatty acids and Walnuts, Hazelnuts and Almonds are important to fight the complication of Diabetes. A diet rich in Omega 3 fatty acids is also recommended for patients with AMD.

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NOTICE

Anyone wishing to receive Sight Quest Newsletter can contact Jay or Lorraine Popek at popek@att.net or call 708-652-4614.