

Eyes Only

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NEW ADVANCE IN STEM-CELL STUDY

There is new hope for regenerating a human retina that has been damaged by disease or injury. Scientists at the prestigious Schepens Eye Research Institute in Boston have discovered what chemical in the eye triggers the dormant capacity of certain non-neuronal cells to change into progenitor cells, a stem-like cell that can generate new retinal cells.

The discovery, published recently in *Investigative Ophthalmology and Visual Science (IOVS)*, offers new hope to victims of diseases

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that harm the retina, such as macular degeneration.

“This study is very significant. It means it might be possible to turn on the eye’s own resources to regenerate damaged retinas, without the need for transplanting outside retinal tissue or stem cells,” said Dr. Dong Feng Chen, associate scientist at Schepens Eye Research Institute and Harvard Medical School.

Dr. Chen, also the principal investigator of the study, went on to say, “If our next steps work in animal disease models, we believe that clinical testing could happen fairly quickly.”

Scientists have long been aware of Müller cells (which exist in great abundance in the eye) and have generally

assumed that they were responsible for keeping retinal tissue protected and clear of debris.

In recent years, however, researchers have reported that these cells sometimes exhibit progenitor cell behavior and re-enter the cell cycle, dividing and differentiating into other types of cells. Progenitor cells are similar to stem cells but are more mature and are more limited in the number of cell types they can become.

But until this study, scientists have not understood what triggers the transformation. In their study, Chen and her team of scientists observed that, when the naturally occurring chemicals known as glutamate and amino adipate, which is a derivative of glutamate, were injected into the eye, the Müller cells began to divide and proliferate. Not certain if these chemicals directly signaled the transformation, they tested them in the laboratory and in mice.

The team added each chemical separately to

cultures of pure Müller cells and injected each into the space below the retina in healthy mice. In both cases, the cells became progenitor cells and then changed into retinal cells. And with amino adipate, the newly minted retinal cells migrated to where they might be needed in the retina and turned into desirable cell types.

Specifically, they showed that, by injecting the chemical below the retina, the cells give rise to new photoreceptors – the type of cells that when lost, as in macular degeneration, lead to severe loss of central vision.

The team's next step will be to test this process in animals that have been bred to have diseases that mimic macular degeneration. The goal would be to learn if damaged retinas regenerate and vision

improves. The team will likely use just amino adipate because it binds with Müller cells without the side effects of glutamate, large doses of which can actually harm retina cells.

“We believe that a drug created from the chemical aminoadipate or a similar compound has great potential for healing damaged retinas,” said Chen.

COMPARISON OF AMD TREATMENTS TRIALS

In February, the National Eye Institute (NEI) of the National Institutes of Health (NIH) announced the start of a multi-center clinical trial to compare the relative safety and effectiveness of two drugs currently used to treat wet age-related macular degeneration (AMD). The two drugs are Lucentis (ranibizumab) and Avastin (bevacizumab).

Lucentis was approved by the U.S. Food and Drug Administration (FDA) in June of 2006 for the treatment of neovascular, or wet, AMD. The approval was based on evidence from clinical trials showing that Lucentis slows the progression of vision loss from wet AMD. In addition to slowing vision loss, approximately one-third of

patients treated in these trials had some improvement in vision at 12 months.

Avastin is a drug closely related to Lucentis. It was approved by the FDA in 2004 as an intravenous treatment for patients with advanced colorectal cancer and therefore has been available for what is called off-label use for other health conditions. It has been widely used off-label to treat wet AMD. Avastin is thought to remain in the eye longer than Lucentis and therefore may allow for less frequent injections.

Wet AMD occurs when abnormal blood vessels behind the retina start to grow under the macula, damaging the macula and causing a rapid loss of vision. The Lucentis/Avastin trial will determine the relative safety and effectiveness of treating wet AMD in 1,200 patients who will be treated with one of the following:

- Injection of Lucentis on a fixed schedule of once every four weeks;**

- Injection of Avastin on a fixed schedule of once every four weeks;
- Injection of Lucentis on a variable schedule depending on the patient's response to treatment;
- Injection of Avastin on a variable schedule depending on the patient's response to treatment.

The primary outcome measure will be change in visual acuity. Secondary outcome measures will include number of treatments, anatomical changes in the retina, adverse events, and cost.

This clinical trial will be conducted at more than 40 clinical centers across the country. For a list of clinical centers, eligibility recruitments, and other information, go to <http://www.nei.nih.gov/CATT> or call the CATT Coordinating Center at 1-215-615-1500.
Maureen G. Maguire, Ph.D.
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LOW-VISION LIVING TIPS

Here is another group of low-vision living tips, this time from the Office for the Blind and Visually Impaired in Wisconsin's Department of Health and Family Services. They employ concepts of color contrast, large print, labeling, and organization to be used with many activities of daily living.

Labeling medications

- Use a pill organizer.
- Label bottles with different colors of tape.

- Use rubber bands around certain prescription bottles.
- Mark bottle with large print, e.g. C for calcium.

Brushing Teeth

- Put toothpaste on your finger; then place it on the toothbrush.
- Use toothpaste from a pump dispenser.
- Squeeze toothpaste directly into your mouth.
- Squirt toothpaste into

a wide-mouth jar; then dip the toothbrush in as needed.

Distinguishing Shampoo From Conditioner

- Put rubber bands around one bottle.
- Paint one bottle cap.
- Label in large print.
- Use a brand that combines shampoo and conditioner.

Keeping Track of Phone Numbers

- Write each number on an index card in bold print.
- Create on a computer, or have it done for you, a large-print list of phone numbers you need to have on hand.

Writing Checks

- Use large-print checks that are available at all banks.
- Use a check-writing guide made especially to fit over your checks.
- Use magnification or enhanced lighting.

Cleaning House

- Store all cleaning

supplies in a bucket and carry it with you when cleaning.

- Wear an apron with large pockets for carrying cleaning supplies.
- When wiping flat surfaces (tables, windows, counters), wipe up and down, then left to right to cover the entire area.

Inserting an Electrical Plug into an Outlet

- Place two fingers of

one hand around the wall plate to guide the electrical plug held in the other hand.

- Put bright tape around the outlet.
- Replace wall socket covers and light switch covers with covers that contrast in color with the wall.

Using Appliances

- Use tactile markings, where available, on the dials to identify different settings. Typically, tactile cues are safer and faster.
- Put brightly colored tape on the dials.
- Use good lighting around the appliance and

keep a flashlight handy.

- Use hand-held magnifiers where helpful.

Kitchen Safety

- Before cooking or baking, organize all ingredients and utensils on a tray. Professionals cook this way.

- Use scissors more frequently than knives, e.g., cutting herbs, portioning a

pizza, opening packages, etc.

- To easily locate and remove baked potatoes from the oven, bake the potatoes in a muffin tin.

- Use a timer with an audible signal to complete a cooking cycle.

- Use oven mitts as often as possible.

Eating and Drinking

- Pour liquids into contrasting colored containers, e.g., white mug for coffee, dark mug for milk. Insert index finger inside glass to determine top of glass when pouring cold liquids or use a liquid leveler that buzzes in your glass when the liquid is near the top of the glass.

- Serve food on plates with contrasting colors, e.g., darker colored foods on a light colored plate. Use the face of a clock to indicate the location of food on a plate, i.e., carrots at 6:00 o'clock, hamburger at 11 o'clock, potatoes at 2:00 o'clock.

- Put salt and pepper in clear dispensers for color contrast. For opaque containers, compare the weight of the shakers; salt is heavier than pepper.

- Pour seasoning into the palm of your hand first, then sprinkle a pinch at a time over food.

- Use solid color tablecloths, avoiding patterns.

- Use a cutting board that contrasts in color with the food, e.g., a white board for meat, dark board for cheese or onions.

- When reaching for an item on the table, keep fingers downward lightly touching the table top to avoid over-turning items.

Sewing

- Use a magnet to pick up needles or pins from the floor.

- Thread several needles with different colored threads to keep readily available.

- When sewing a button that is the same color as the garment, put contrasting

tissue paper between the fabric and the button.

- Use a tactile ruler or measure.

- To sew a straight seam with a sewing machine, use a magnetic seam guide or put masking tape on the feeder as a guide.

- Anchor self-threading or wire-loop needle threader by inserting it into a cork or bar of soap.

constantly growing. He updated the membership lists, sent out renewal notices every month, and thank-yous for membership checks and donations. He bought a cart and made daily drop-off and pick-up runs to the post office. By phone and mail, he answered inquiries about membership, about macular degeneration, and about where to get help – always with a warm, personal touch.

GOT A DATE WITH AN ANGEL

Murray Rose (officially Maurice Anthony Rose) died this year at the age of 97. He spent a great many of those 97 years helping other people; both he and his wife, Sarah, were active in a number of nonprofit organizations.

Murray was Membership Chairman of this Association for many years and he took the job very seriously. With great effort and dedication, he kept the membership

He was tireless, a stickler for accuracy, and a pleasure to work with. He told jokes and stories, or played country music, while we piled up the

mailings, and he smiled with every load of envelopes he ran through the postage machine.

You never had to ask Murray for a favor. Whenever he saw

you, he would ask, “Is there anything you need today?”

As a widower, he lived in a Veterans Home in Jamaica NY for several years before he died. The Home’s social worker took the trouble to call

and tell us that, on the day he died, Murray said, “I have to pack my bags. I’m checking out. I’ve got a date with my wife.” That was vintage Murray Rose.

Eleanor Taub

Are you a member? If not, join us!

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***We wish you a sunny and happy
summer season***