UC SANTA BARBARA
THE Current

November 15, 2010
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UC Santa Barbara Part of International Research Collaboration Focusing on Age-Related Macular Degeneration Cure

An international collaboration between UC Santa Barbara, the Keck School of Medicine of the University of Southern California (USC), and several other research institutions, is bringing together leaders in the fields of stem cell biology, basic science, and ophthalmology to develop a treatment for blindness caused by age-related macular degeneration.

The California Project to Cure Blindness (CPCB) was formed with a $16 million California Institute for Regenerative Medicine (CIRM) "disease team" grant awarded in late 2009 to fund development of a stem cell-based treatment for age-related macular degeneration. As part of the CIRM Disease Team partnership program, an additional $4.1 million from Britain's Medical Research Council funds collaborative work at University College of London.

"UCSB scientists in the Center for Stem Cell Biology and Engineering and the Center for the Study of Macular Degeneration are excited to provide the basic research that will allow translation of stem cell research to the clinic," said Dennis Clegg, professor in UCSB's Department of Molecular, Cellular, and Developmental Biology, and co-director of the UCSB Center for Stem Cell Biology and Engineering. Both centers are

part of UCSB's Neuroscience Research Institute. Grant funds totaling $2.5 million for this work were assigned to UCSB through USC.

The overall grant was awarded to principal investigator Mark Humayun, professor of ophthalmology, cell and neurobiology and biomedical engineering at the Keck School, and David R. Hinton, professor of pathology and ophthalmology at the Keck School. Co-investigator is Martin Pera, director of the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.

"With this collaboration, we hope to accelerate research on a stem cell-based therapy for age-related macular degeneration," said Humayun. "Age-related macular degeneration is the leading cause of irreversible vision loss, affecting one in three people age 75 or older. The CIRM grant enables us to work with numerous researchers and experts who are dedicated to finding the cure to this devastating medical condition."

The cause of blindness in age-related macular degeneration is the death of retinal pigment epithelial cells, which provide critical support of photoreceptor function and health. The project objective is to replace damaged retinal epithelium with healthy tissue derived from human embryonic stem cells to prevent loss of vision.

Stem cell therapy offers the possibility of a wider range of options for age-related macular degeneration patients, said Keck School Dean Carmen A. Puliafito. "While exciting new pharmaceuticals to treat age-related macular degeneration are now available, these are effective only in a select group of patients, and can be used only during a narrow time window," said Puliafito, an ophthalmologist whose academic focus is macular degeneration. "In contrast, stem cell therapy promises to be broadly applicable. The potential is tremendous."

CIRM President Alan Trounson noted that the disease team approach exemplified by the California Project to Cure Blindness could transform the direction of future research.

"Scientists have talked for years about the need to find ways to speed the pace of discovery," said Trounson. "CIRM, through the Disease Team Award Program, has encouraged applicants to form teams composed of the best researchers from around the world. The partnership between the California Project to Cure Blindness and Britain's Medical Research Council is a great example of CIRM's vision of a new standard for funding translational research."

The California Project to Cure Blindness also includes Keck and USC Viterbi School of Engineering researchers, the California Institute of Technology, University College London, and City of Hope.

For more information go to the CIRM website at http://www.cirm.ca.gov.

Related Links

The Center for the Study of Macular Degeneration (CSMD)

Center for Stem Cell Biology and Engineering at UCSB

California Institute for Regenerative Medicine

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