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ACT Announces Europe's First Human Embryonic Stem Cell Transplant in Patient with Stargardt's Disease

Moorfields Eye Hospital in London Initiates Clinical Trial Using hESC-derived RPE cells

MARLBOROUGH, Mass. – Jan. 23, 2012 - Advanced Cell Technology, Inc. (“ACT”; [OTCBB: ACTC](#)), a leader in the field of regenerative medicine, today announced treatment of the first patient in its Phase 1/2 clinical trial for Stargardt's macular dystrophy (SMD) using retinal pigment epithelial (RPE) cells derived from human embryonic stem cells (hESCs). The surgery was performed on Friday, Jan. 20, at the Moorfields Eye Hospital in London by a team of surgeons led by Professor James Bainbridge, consultant surgeon at Moorfields and Chair of Retinal Studies at University College London. The patient successfully underwent the procedure without any complications. ACT and Moorfields Eye Hospital received clearance in September from the U.K.'s Medicines and Healthcare products Regulatory Agency (MHRA) to begin this trial in Europe.

“Our clinical trial program for hESC-derived RPE cells has taken another critical step as we move forward with treating patients at Moorfields Eye Hospital,” said Gary Rabin, chairman and chief executive officer of ACT. “The treatment of the first patient in Europe is tangible evidence that stem cell research and development of cell therapies is making progress. It is a milestone for scientists, stem cell advocates and patients hoping for cures as well as much as it is one for ACT. Stargardt's macular dystrophy affects up to 100,000 patients in Europe and North America, and causes progressive vision loss often ending with blindness. We are honored to be working with Professor Bainbridge at Moorfields Eye Hospital, and are very pleased with the smooth progress of the trial thus far.”

Professor James Bainbridge, the study's principal investigator, said, “The patient, who is severely sight-impaired, underwent transplantation of fully differentiated retinal pigment epithelial (RPE) cells derived from human embryonic stem cells. There were no complications, and the patient has tolerated the surgical procedure well. We will be regularly monitoring the safety and tolerability of the transplanted cells. While this is primarily a safety trial, we will have the opportunity to image engraftment of RPE cells non-invasively and to assess any changes in sight. We are very excited to be working with ACT on the first human embryonic stem cell trial in Europe. Stargardt's macular dystrophy is a serious and progressive disease that usually starts between the age of 10 and 20 years. It includes degeneration of RPE cells in the macula at the center of the retina, the region specialized for high acuity vision. With the loss of RPE cells in the macula comes the eventual loss of light-sensitive photoreceptor cells, leading to blindness at the prime of life. We hope that transplantation of healthy RPE cells might also help in other significant degenerative eye diseases affecting the retina for which there are no effective treatment options – particularly dry age-related macular degeneration which is the leading cause of blindness in Europe.”

The Phase 1/2 trial will involve 12 patients, with cohorts of 3 patients each in an ascending dosage format and is similar in design to the FDA-approved U.S. trial that was initiated in July 2011. The open-label study is designed to determine the safety and tolerability of hESC-derived RPE cells following sub-retinal transplantation in patients with Stargardt's macular dystrophy at 12 months, the study's primary endpoint.

“Stem cells provide the possibility of providing new treatment strategies for currently incurable retinal degenerative diseases,” said Robert Lanza, M.D., chief scientific officer of ACT. “Although these initial studies are designed to determine the safety and tolerability of hESC-derived RPE, we eventually hope to treat patients earlier in the course of the disease, further increasing the likelihood the new cells will rescue photoreceptors and prevent visual loss. We recently initiated two clinical trials in the U.S. and are very pleased to be starting the first clinical trial in Europe. To-date, our preclinical and clinical data relating to the safety and effectiveness of this approach is very encouraging. We look forward to working with Professor Bainbridge and Moorfields Eye Hospital to obtain additional clinical data and to enroll further patients in this trial. As a scientist, it is satisfying to see years of benchside research finally moving into the clinic. We believe RPE is just the first of many different vital differentiated cell types that may help patients suffering from a wide spectrum of eye disorders caused by conditions ranging from diabetes to vascular and autoimmune diseases.”

About hESC-RPE Cells

The retinal pigment epithelium (RPE) is a highly specialized tissue located between the choroids and the neural retina. RPE cells support, protect and provide nutrition for the light-sensitive photoreceptors. Human embryonic stem cells differentiate into any cell type, including RPE cells, -- and have a similar expression of RPE-specific genes compared to human RPE cells and demonstrate the full transition from the hESC state.

About SMD, Dry AMD and Degenerative Diseases of the Retina

Stargardt's macular dystrophy (SMD) is one of the most common forms of macular degeneration in the world. Stargardt's causes progressive vision loss, usually starting between 10 to 20 years of age. Eventually, blindness results from photoreceptor loss associated with degeneration in the pigmented layer of the retina, called the retinal pigment epithelium or RPE cell layer.

Degenerative diseases of the retina are among the most common causes of untreatable blindness in the world. As many as 30 million people in the United States and Europe suffer from macular degeneration, which represents a \$25-30 billion worldwide market that has yet to be effectively addressed. Approximately 10% of people ages 66 to 74 will have symptoms of macular degeneration, the vast majority suffering from the “dry” form of AMD – which is currently untreatable. The prevalence increases to 30% in patients 75 to 85 years of age.

About Advanced Cell Technology, Inc.

Advanced Cell Technology, Inc. is a biotechnology company applying cellular technology in the field of regenerative medicine. For more information, visit <http://www.advancedcell.com>.

Forward-Looking Statements

Statements in this news release regarding future financial and operating results, future growth in research and development programs, potential applications of our technology, opportunities for the company and any other statements about the future expectations, beliefs, goals, plans, or prospects expressed by management constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any statements that are not statements of historical fact (including statements containing the words “will,” “believes,” “plans,” “anticipates,” “expects,” “estimates,” and similar expressions) should also be considered to be forward-looking statements. There are a number of important factors that could cause actual results or events to differ materially from those indicated by such forward-looking statements, including: limited operating history, need for future capital, risks inherent in the development and commercialization of potential products, protection of our intellectual property, and economic conditions generally. Additional information on potential factors that could affect our results and other risks and uncertainties are detailed from time to time in the company’s periodic reports, including the report on Form 10-K for the year ended December 31, 2010. Forward-looking statements are based on the beliefs, opinions, and expectations of the company’s management at the time they are made, and the company does not assume any obligation to update its forward-looking statements if those beliefs, opinions, expectations, or other circumstances should change. Forward-looking statements are based on the beliefs, opinions, and expectations of the company’s management at the time they are made, and the company does not assume any obligation to update its forward-looking statements if those beliefs, opinions, expectations, or other circumstances should change. There can be no assurance that the Company’s clinical trials will be successful.

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