UC San Diego Health

Three at UC San Diego Receive Stem Cell Research Grants from California Institute for Regenerative Medicine (CIRM)

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The second round of grants focused solely on human embryonic stem cell research has been approved for funding by the 29-member Independent Citizens Oversight Committee (ICOC), governing board of the California Institute for Regenerative Medicine (CIRM). Three of those grants, totaling more than $7.5 million, have been awarded to researchers at the University of California, San Diego (UCSD).

The ICOC today approved 26 grants totaling approximately $74.6 million over four years to researchers at 11 academic and non-profit research centers throughout the state. These Comprehensive Grants support advanced, ongoing studies on human embryonic stem cells by scientists with a record of accomplishment in the field. Grantees were selected from among 70 applications from 23 California institutions. San Diego area institutions received a total of six of these grants, with the Burnham Institute for Medical Research receiving two and The Salk Institute for Biological Studies, one.

"We are extremely pleased that CIRM has once again recognized the caliber of research being conducted by scientists at UC San Diego, research that promises much hope to those suffering from otherwise untreatable disease or injury," said Marye Anne Fox, Chancellor, UC San Diego. CIRM previously awarded UCSD researchers seven Leon J. Thal SEED grants, totaling nearly $4.4 million, in the initial round of stem cell research funding announced in February.

The ICOC approved Comprehensive Grants to the following UCSD researchers:

Larry Goldstein, Ph.D., professor in the Department of Cellular and Molecular Medicine, Howard Hughes Medical Institute Investigator and director of UCSD's Stem Cell Program, will receive $2,512,664 over four years for research in Alzheimer's disease, a progressive, incurable disease that robs people of their memory and ability to think and reason. Currently, there is no effective treatment for this disease, and there is a tremendous need to better understand the cellular basis of Alzheimer's disease so that such treatments can be developed. Goldstein is studying key genetic clues that come from a rare familiar form of the disease, which suggest that early defects

in the physical transport system responsible for long-distance movements of information in neurons can cause neuronal dysfunction. This failure of the neurons is predicted to initiate a series of events that results in the classic plaques and tangles that characterize the disease. Goldstein's lab will use human embryonic stem cells to generate human neuronal models of hereditary Alzheimer's disease in order to test various hypotheses about the cause of the disease, as well as test new drugs for its treatment.

Martin Marsala, MD, professor in the Department of Anesthesiology at the University of California, San Diego (UCSD) School of Medicine, will receive $2,445,716. Marsala hopes his research with human embryonic stem cells will one day soon allow people who are suffering from spinal ischemic injury to improve their motor function. Ischemia-induced paraplegia, often combined with spasticity and rigidity of muscles, is a serious complication that sometimes occurs when patients undergo a surgical procedure to repair an aortic aneurysm. These symptoms also occur in many patients with traumatic spinal injuries, and currently there is no treatment that leads to a permanent improvement in symptoms and ambulatory function. Marsala's recent animal studies have demonstrated that spinal transplantation of rat and human neurons leads to significant improvement in motor function. The CIRM grant will fund additional experiments to characterize the therapeutic potential of human blastocyst-derived neuronal precursors when grafted to areas of spinal ischemic injury.

Yang Xu, PhD, associate professor in UCSD's Division of Biological Sciences, will receive $2,570,000 to investigate two major mechanisms that are thought to maintain genetic stability in human embryonic stem cells. His research is aimed at identifying pathways that promote efficient DNA repair as well as pathways that regulate self-renewing capabilities of these stem cells in the absence and presence of DNA damage. The goal is to promote efficient self-renewal of human embryonic stem cells with minimum genetic instability – critical for the development of human therapeutics. A major objective of Xu's proposed research is to improve the genetic manipulation technologies of human embryonic stem cells, including transgenic and gene-targeting technologies, in order to significantly improve scientists' capability to generate disease-specific human stem cell lines.

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In March 2006, UCSD joined with The Burnham Institute for Medical Research, the Salk Institute for Biological Studies and The Scripps Research Institute to establish the San Diego Consortium for Regenerative Medicine. The alliance is designed to marshal the intellectual resources of four world-leaders in life sciences research, bringing scientists from each institution together to develop and conduct joint research and training programs in stem cell research.

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