USC Center for Stem Cell and Regenerative Medicine: Shared Research Laboratory and Course in Current Protocols in Human Embryonic Stem Cell Research

Grant Award Details

USC Center for Stem Cell and Regenerative Medicine: Shared Research Laboratory and Course in Current Protocols in Human Embryonic Stem Cell Research

Grant Type: Shared Labs

Grant Number: CL1-00524-1.1

Investigator:

Name:	Martin Pera
Institution:	University of Southern California
Type:	PI

Award Value: $1,724,015

Status: Closed

Grant Application Details

Application Title: Center for Stem Cell and Regenerative Medicine: Shared Research Laboratory and Course in Current Protocols in Human Embryonic Stem Cell Research

Public Abstract:

To realize the potential of human embryonic stem cells (hESC) in research and medicine, it is essential to disseminate state of the art technology in this field to the scientific community at large. The Shared Research Laboratory (SRL) of the Center for Stem Cell and Regenerative Medicine (CSCRM) at the University of Southern California will aim to provide a comprehensive support service for hESC researchers at our University and at neighboring institutions. The mission of the SRL will include the following goals: 1) to supply scientists with quality controlled stem cell lines for use in their research, including cell lines that are not eligible for use in NIH-funded projects; 2) to provide space and equipment for scientists new to the field to carry out pilot projects, in order to help them to integrate the hESC platform technology into their own research programs; 3) to develop and validate new and improved methods for growing hESC in the laboratory; 4) to operate a formal practical course in hESC laboratory techniques to scientists from throughout the region.

The facility will be situated in the new Harlyne Norris Cancer Center tower on the USC medical school campus. The laboratory will have sufficient work stations to support training, collaborative projects, and research and development programs for evaluation of new stem cell culture techniques, and it will be equipped with specialized instruments required to monitor stem cells. The operation of the facility will be overseen by the Program Director and the Manager of the CSCRM Core Facility. Advice on access and management will be provided by a subgroup of the CSCRM Stem Cell Advisory Group comprising stem cell researchers from USC, Children's Hospital of Los Angeles, and California Institute of Technology.

The SRL will support the work of CSCRM scientists and their colleagues at neighboring institutions involved in basic research on hESC, including international collaborations on standards for this research. The facility will also enable many groups involved in translational work at the USC medical school to gain experience and training in the use of hESC in their work in areas such as neurology, liver disease, cardiology, and ophthalmology. These scientists will be able to conduct preliminary studies in the facility under the guidance of experienced staff.

The SRL will offer a 5-day course on Current Protocols in Human Embryonic Stem Cell Research, to provide a comprehensive practical training for investigators wishing to use hESC lines in their research programs. Laboratory instruction will include demonstration of the most commonly used methods for cultivating hESC, methodology for assessing the purity and quality of hESC cultures, and methods for converting hESC into specific cell types such as nerve or blood cells. The training course will be available to scientists from institutions throughout the Los Angeles area and will be held 3-4 times per year.

Statement of Benefit to California:	The California Institute of Regenerative Medicine has as its goal the development of stem cell and related research for the treatment of disease. Human embryonic stem cells (hESC) could provide an indefinitely renewable source of any type of healthy human cell for use in research and therapy, and are therefore the focus of widespread scientific excitement. However, because the development of hESC technology is still at an early phase, significant technical barriers exist for new workers entering the field. The proposed Shared Research Laboratory (SRL) in the Center for Stem Cell and Regenerative Medicine (CSRCM) at the University of Southern California will act as a hub for dissemination of state-of-the-art technology in hESC research throughout the region. By training students and established investigators in the practical skills required for hESC use, and by providing shared space for pilot and collaborative projects, the SRL will vastly accelerate stem cell research in Southern California. The SRL will also carry out research and development aimed at evaluating new technologies for hESC research, and will incorporate new discoveries by participanting scientists into validated protocols for maintenance and differentiation of hESC. This role, which will include participation in international collaborative efforts for assessment of hESC methodology, will ensure that the SRL scientists benefit from the most recent advances in hESC research, and that their own discoveries are integrated into best practice for hESC research globally. California, and the greater Los Angeles area, will thus become an international focal point for hESC research. As workers involved in translational and clinical research learn to apply hESC in their studies, basic discoveries in stem cell biology by SRL trained researchers will move towards clinical application. The availability of the SRL will also provide a needed boost to the development of biotechnology in the Los Angeles area.