The UCSB Laboratory for Stem Cell Biology and Engineering

Grant Award Details

The UCSB Laboratory for Stem Cell Biology and Engineering

Grant Type: Shared Labs

Grant Number: CL1-00521-1.2

Project Objective: Goal is to provide support, facilities and expertise for the Santa Barbara stem cell research community.

Investigator:

Name:	Dennis Clegg
Institution:	University of California, Santa Barbara
Type:	PI

Human Stem Cell Use: Adult Stem Cell, Embryonic Stem Cell, iPS Cell

Award Value: $1,638,357

Status: Closed

Progress Reports

Reporting Period: Year 1

View Report

Reporting Period: Year 2

View Report

Reporting Period: Year 3

View Report

Reporting Period: Year 4

View Report

Reporting Period: Year 5

View Report

Reporting Period: Year 6

View Report

Reporting Period: NCE (Year 7)

View Report

Grant Application Details

Application Title: Laboratory for Stem Cell Biology and Engineering

Public Abstract: Regenerative medicine is an emerging area that will only realize its great potential through novel collaborative research approaches, and the University of California at Santa Barbara (UCSB) is well positioned to make significant contributions by leveraging fundamental biomedical research efforts with enabling technologies in materials, microfluidics and bioengineering. This proposal details plans for the development and renovation of shared-use laboratory facilities for the culture of human embryonic stem cells (hESC). The Laboratory for Stem Cell Biology and Engineering will be designed to promote stem cell research by investigators at UCSB, as well as those at neighboring universities and research institutions on the California central coast. Availability of a core stem cell laboratory will facilitate expansion of current stem cell studies at UCSB and stimulate new investigations into the biology and engineering of stem cells. The Laboratory will be embedded within a new UCSB Center for Stem Cell Biology and Engineering that is planned for the 3rd and 4th floors of Biological Sciences 2 building. Our clientele will include researchers in 13 different Departments and Institutes at UCSB, as well as nearby institutions. Research supported by the facility will include: investigations of the molecular mechanisms of hESC proliferation and differentiation; translational bioengineering to study novel methods of hESC culture, sorting, and delivery; and studies in regenerative medicine that test hESC derivatives in animal models of disease.

Statement of Benefit to California:	California, like much of the United States, is facing a staggering challenge to its health care system. Increasingly physicians are treating chronic, debilitating, and therefore expensive diseases with organ specific impairments. Examples include diabetes, cardiovascular disease, and Parkinson's disease. The demographic wave of the Baby Boomers will accelerate many of these issues. By 2020 they will average 64 years of age. As a result, the percentage of the elderly in California is expected to grow from what was 14 percent in 1990 to 22 percent in 2030. Treatment of chronic degenerative diseases of an aging population, which is proportionally a high percentage along the Central Coast, is an imperative. Degenerative diseases are those diseases caused by the loss or dysfunction of cells. Examples include cardiovascular disease, osteoarthritis, Parkinson's disease, osteoporosis, and macular degeneration. Among these, stem cell work at UCSB would leverage a strong existing program in macular degeneration, a condition that is not being addressed in the stem cell field nationally or in California. Stem cell work for eye disease holds the promise of being a poster child for the entire field. There is no doubt that an early clinical success will benefit the state. In terms of advanced biomedical research our geographic region is not well represented, but its engineering sector is primed with enabling technology. The area is ripe for growth in biotechnology that would serve as a pipeline to large pharmaceutical corporations as stem cell technologies move toward the clinic. The proposed Laboratory for Stem Cell Biology and Engineering will promote this movement and enhance the research stature of The University and attract leading researchers to California.