
Masters of Science Specialization in Stem Cell Technology

Grant Award Details

Masters of Science Specialization in Stem Cell Technology

Grant Type: Bridges

Grant Number: TB1-01175

Project Objective: The prime objective of any Bridges Award is to create a program where trainees are imparted with the principles of stem cell biology and the opportunity to apply them during an internship.

Investigator:

Name:	Trevor Cardinal
Institution:	California Polytechnic State University, San Luis Obispo
Type:	PI

Award Value: \$3,480,357

Status: Closed

Grant Application Details

Application Title: Masters of Science Specialization in Stem Cell Technology

Public Abstract:

We propose an Master's of Science degree specialization in Stem Cell Research that will provide ten trainees with a foundation for successful careers in stem cell research. Graduates of our program will be well prepared to matriculate into stem cell-focused doctoral programs or to begin employment as research specialists in stem cell labs at for-profit or non-profit institutions. In order to achieve this goal, trainees will progress through a Master's degree program that provides them with an opportunity to gain 1) broad technical skills, 2) critical thinking and problem solving skills, 3) familiarity with current research, 4) familiarity with the ethics and theory of stem cell investigation, 5) presentation and communication skills, and 6) professional connections in the stem cell field. Trainees will acquire these skills and competencies while completing the specialization program that involves three main components: coursework, a research internship, and a thesis project. The courses are designed to provide students with training in cell culture, immunohistochemistry, animal surgery, cell delivery, and fluorescent microscopy. These courses will not only provide students with a broad set of technical skills, but prepare them to achieve maximum productivity during their internship. In addition to these laboratory courses, students will also enroll in the course focusing on the theory & ethics of stem cell research and a Stem Cell Research Seminar to gain an appreciation for the biological, medical, and societal implications of stem cell research as well as current research in the stem cell field, respectively. Following completion of their coursework, students will complete a week-long stem cell techniques course at a partner institution, before beginning their nine-month internship in stem cell research labs at one of our partner institutions. The nine-month internship will allow students to further develop their laboratory and critical thinking skills in a research-intensive environment. After their internship, trainees will implement their laboratory skills and further develop their independence and problem-solving skills through a thesis project. Through the completion of their MS degree in Stem Cell Research, students will be well-prepared to begin careers in stem cell research by pursuing additional education through a doctoral program or beginning employment as research specialists in stem cell research labs.

Statement of Benefit to California:

The proposed Master's of Science degree specialization in stem cell research will benefit the state of California and its citizens in several ways. First, establishing the training program will provide our state's citizens with a previously unavailable opportunity to gain practical training in stem cell research and advance their careers. This benefit will become increasingly important as additional commercial ventures are established to support the effective use in stem cells for treating disease. In a related fashion, this program will provide California with an increased number of highly-trained employees to manage and participate in the research and development of stem-cell based therapeutics. Success of these stem-cell based therapeutics will in turn support effective health-care for California's citizens by providing us with the latest in disease treatments. Furthermore, this program will support the growth of the California economy by training of highly-skilled stem cell researchers to assist in the development of medically efficacious and financially lucrative stem-cell based therapeutics. Through these aspects and more, our proposed Master's of Science degree specialization in stem cell research will be of substantial benefit to the state of California and its citizens.

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