

Center of Excellence for Stem Cell Genomics - UCSC

Grant Award Details

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Grant Type: Genomics Centers of Excellence Awards (R)

Grant Number: GC1R-06673-C

Project Objective: 6/1/16: The Data Center Management (DCM) group is responsible for collecting, storing, and displaying sequencing data with metadata produced by all the projects within the Center of Excellence in Stem Cell Genomics (CESCG). The CIP4 Data Curation Group (DCG) is responsible for developing the metadata standard, the Minimum Information about a Stem Cell Experiment (MISCE), and developing bioinformatics tools to analyze molecular networks in cells.

Investigator:

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|---------------------|--------------------------------------|
| Name: | Joshua Stuart |
| Institution: | University of California, Santa Cruz |
| Type: | PI |

Disease Focus: Brain Cancer, Cancer, Developmental Disorders, Solid Tumors, Toxicity

Award Value: \$4,000,000

Status: Active

Progress Reports

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|--------------------------|--------|
| Reporting Period: | Year 1 |
| View Report | |
| Reporting Period: | Year 2 |
| View Report | |
| Reporting Period: | Year 3 |
| View Report | |
| Reporting Period: | Year 4 |

Grant Application Details

Application Title: Center of Excellence for Stem Cell Genomics

Public Abstract: The Center of Excellence in Stem Cell Genomics will bring together investigators from seven major California research institutions to bridge two fields – genomics and pluripotent stem cell research. The projects will combine the strengths of the center team members, each of whom is a leader in one or both fields. The program directors have significant prior experience managing large-scale federally-funded genomics research programs, and have published many high impact papers on human stem cell genomics. The lead investigators for the center-initiated projects are expert in genomics, hESC and iPSC derivation and differentiation, and bioinformatics. They will be joined by leaders in stem cell biology, cancer, epigenetics and computational systems analysis. Projects 1-3 will use multi-level genomics approaches to study stem cell derivation and differentiation in heart, tumors and the nervous system, with implications for understanding disease processes in cancer, diabetes, and cardiac and mental health. Project 4 will develop novel tools for computational systems and network analysis of stem cell genome function. A state-of-the-art data management program is also proposed. This research program will lead the way toward development of the safe use of stem cells in regenerative medicine. Finally, Center resources will be made available to researchers throughout the State of California through a peer-reviewed collaborative research program.

Statement of Benefit to California: Our Center of Excellence for Stem Cell Genomics will help California maintain its position at the cutting edge of Stem Cell research and greatly benefit California in many ways. First, diseases such as cardiovascular disease, cancer, neurological diseases, etc., pose a great financial burden to the State. Using advanced genomic technologies we will learn how stem cells change with growth and differentiation in culture and can best be handled for their safe use for therapy in humans. Second, through the collaborative research program, the center will provide genomics services to investigators throughout the State who are studying stem cells with a goal of understanding and treating specific diseases, thereby advancing treatments. Third, it will employ a large number of “high tech” individuals, thereby bringing high quality jobs to the state. Fourth, since many investigators in this center have experience in founding successful biotech companies it is likely to “spin off” new companies in this rapidly growing high tech field. Fifth, we believe that the iPS and information resources generated by this project will have significant value to science and industry and be valuable for the development of new therapies. Overall, the center activities will create a game-changing network effect for the state, propelling technology development, biological discovery and disease treatment in the field.

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