CALIFORNIA'S STEM CELL AGENCY

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

hiPSC Derivation Award Supplement

Agenda Item #9

CIRM hiPSC Derivation and Banking Initiative

CALIFORNIA'S STEM CELL AGENCY

Establish a high quality disease-specific hiPSC resource

Tissue Collection from 3000 Individuals
- Prevalent, genetically complex diseases
- Broad consent of tissue donors
- Tissue donor medical information

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hiPSC line generation by a single deriver and single derivation method

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CIRM hPSC Repository → **Disease modeling**
→ **Target discovery**
→ **Drug discovery and development**

hiPSC Initiative - Awardees

Tissue Collection for Disease Modeling	hiPSC Derivation Thomas Novak, CDI	hPSC Repository Steven Madore, Coriell

Joseph Gleeson	UCSD	Neurodevelopmental Disorders of Children
Joachim Hallmayer	Stanford	Idiopathic Autism
Brigitte Gomperts	UCLA	Idiopathic Pulmonary Fibrosis
Jacquelyn Maher	UCSF	Viral Hepatitis, Nonalcoholic Steatohepatitis
Joseph Wu	Stanford	Idiopathic Familial Dilated Cardiomyopathy
Douglas Galasko	UCSD	Alzheimer's Disease
Kang Zhang	UCSD	Blinding Eye Diseases

3000 Tissue Donors

- 2450 affected individuals
- 550 healthy control individuals

hiPSC Derivation Supplemental Activity

- Advisory group of 7 independent human genetics, genomics and stem cell experts recommended genomics analysis (SNP analysis) on all tissue samples and derived cell lines
- SNP (single-nucleotide polymorphism) analysis detects DNA sequence variations throughout the genome
- SNP analysis will facilitate:
  - Case-control sample matching
  - Analysis of genetic ancestry and genetic diversity
  - Identity matching of derived cell and original tissues
  - Determination of cell line genomic integrity
  - Identification and analysis of disease-associated markers
- SNP data will be deposited and available through dbSNP (NCBI)
- Whole genome SNP data will significantly increase the value and utility of the CIRM hiPSC collection

hiPSC Derivation Award Supplement

Supplemental funds will enable whole genome SNP analysis of DNA from the 3000 tissue samples and 9000 derived hiPSC lines.

$2.0 million is requested as a supplement to hiPSC Derivation Award (ID1-06557) to Cellular Dynamics International (CDI), Thomas Novak, PD to support this advanced genomic analysis.