

Induced Pluripotent Stem Cell Repository

# The **CIRM iPSC Initiative** — is Designed to —

Give scientists new tools to understand and develop treatments for:

- \* Heart disease
- \* Lung disease
- \* Liver disease
- \* Blinding eye disease
- \* Childhood neurological disorders
- \* Neurodegenerative disorders

The **Induced Pluripotent Stem Cell (iPSC) Repository** is a major effort from CIRM to create a collection of stem cells developed from thousands of individuals.

CIRM is creating the iPSC bank so that scientists can use the cells, either in a petri dish or transplanted into animals, to study how disease develops and progresses and develop and test new drugs or other therapies. **The iPSC bank is now open and cell lines are available at [catalog.coriell.org/CIRM](http://catalog.coriell.org/CIRM).**

The large size of the collection will provide researchers with a powerful tool for studying genetic variation between individuals, helping scientists understand how disease and treatment may vary in a diverse population like California's.

### Learn About CIRM's iPSC Repository:

**What is the iPSC Repository?**

**How does it work?**

**Why iPS cells?**

**Who is generating the cells?**

**Which diseases will be represented?**

**How many samples are being collected for each condition?**

**What is the iPSC Repository?**

The Human Induced Pluripotent Stem Cell (hiPSC) Repository is one of the California stem cell agency's major efforts to provide valuable resources to the research community. The goal is to create a bank of high quality stem cell lines developed from thousands of individuals for use in research.

**How does it work?**

Blood or skin samples collected from approximately 3,000 individuals will be turned into stem cell lines. These lines will be made available to researchers throughout California and around the world.

### Why iPS cells?

iPS cells are generated from cells easily obtained from living humans, i.e. blood or a small piece of skin; they have unlimited expansion potential in the petri dish, so huge numbers of cells can be generated for research studies or drug development; and they can be coaxed into the types of cells affected in various diseases, such as heart or brain disorders. This provides an unprecedented opportunity to study the cell types from patients that are affected in disease but cannot otherwise be easily obtained in large quantities from them.

### Who is generating the cells?

Seven clinician scientists from four California institutions recruit tissue donors who suffer from one of the included diseases or are healthy controls. Some blood or a small piece of skin is collected from those donors, and these samples are shipped to the company [Cellular Dynamics International](#) (CDI). CDI generates iPS cells from the samples, and then transfers the iPS cells to the [Coriell Institute for Biomedical Research](#). Coriell operates a cell bank that will distribute the iPS cells to interested researchers at academic and other non-profit institutions, and also to pharmaceutical companies that may want to use them to find new drugs for the diseases that are included in this bank. While CDI and Coriell are located outside California, they have set up facilities at the Buck Institute in Novato, CA, where they generate and bank the iPS cells for this Initiative.

### Which diseases will be represented?

The stem cell lines created will represent a variety of diseases or conditions that affect brain, heart, lung, liver or eyes. Grantees come from a variety of California-based institutions:

Principal Investigator	Institution	Disease Area
Joseph Gleeson	UCSD	Neurodevelopmental Disorders of Children (epilepsy, autism, cerebral palsy)
Joachim Hallmayer	Stanford	Idiopathic Autism
Brigitte Gomperts	UCLA	Idiopathic Pulmonary Fibrosis
Jacquelyn Maher	UCSF	Viral Hepatitis, Nonalcoholic Steatohepatitis
Joseph Wu	Stanford	Cardiomyopathies
Douglas Galasko	UCSD	Alzheimer's Disease
Kang Zhang	UCSD	Blinding Eye Diseases (age-related macular degeneration, primary open angle glaucoma, diabetic retinopathy)

### How many samples are being collected?

Below is a table that outlines CIRM's collection goals for each condition, along with control samples.

Disease Area	Number of Disease Samples	Number of Control Samples
Neurodevelopmental Disorder of Children (epilepsy, autism, cerebral palsy)	450	200
Autism Spectrum Disorders	200	
Cardiomyopathies	650	30

Viral Hepatitis	132	-
Nonalcoholic Steatohepatitis (NASH)	34	20*
Idiopathic Pulmonary Fibrosis	250	150*
Alzheimer's Disease	235	
Blinding Eye Diseases (age-related macular degeneration, primary open angle glaucoma, diabetic retinopathy)	500	
<b>Totals</b>	<b>2451</b>	<b>550</b>

\* these control donors will be specifically tested for the absence of lung disease

**iPSC Repository in the News:**

CIRM's New Stem Cell Bank Up, Running (California Healthline)

**Find Out More:**

iPSC Repository Brochure [PDF]

Stem Cell FAQ

How do scientists model disease with iPSC's [video]

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**Source URL:** <https://www.cirm.ca.gov/researchers/ipsc-repository/about>