CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

The state stem cell agency

President's Report

Alan O. Trounson

ICOC Meeting -- February 2010

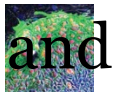
Agenda Item #5

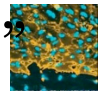
The California Stem Cell Initiative: Persuasion, Politics and Public Science

J W Adelson & J K Weinberg, *APHA* Jan 2010

- "The shift of a major focus for stem cell research to California will have a significant effect into the future on the geographic distribution of biological science and biotechnology infrastructure in the United States; on the location of university, biotechnology, and pharmaceutical research and start up firms; and on the investment of venture capital. Evidence for this is the $300 million the CIRM has invested in stem cell facilities, already leveraged to more than $1 billion in linked donations."

- "California is host to a steadily growing cadre of world-class scientists, dedicated state-of-the-art facilities, training programs, and support programs… leading from basic stem cell research findings in the laboratory to treatments and cures."

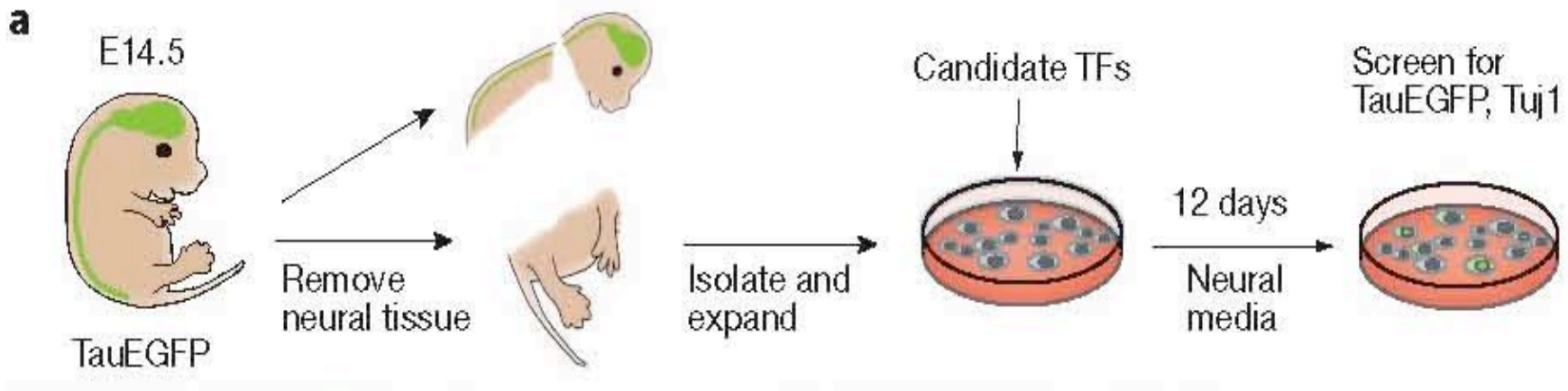




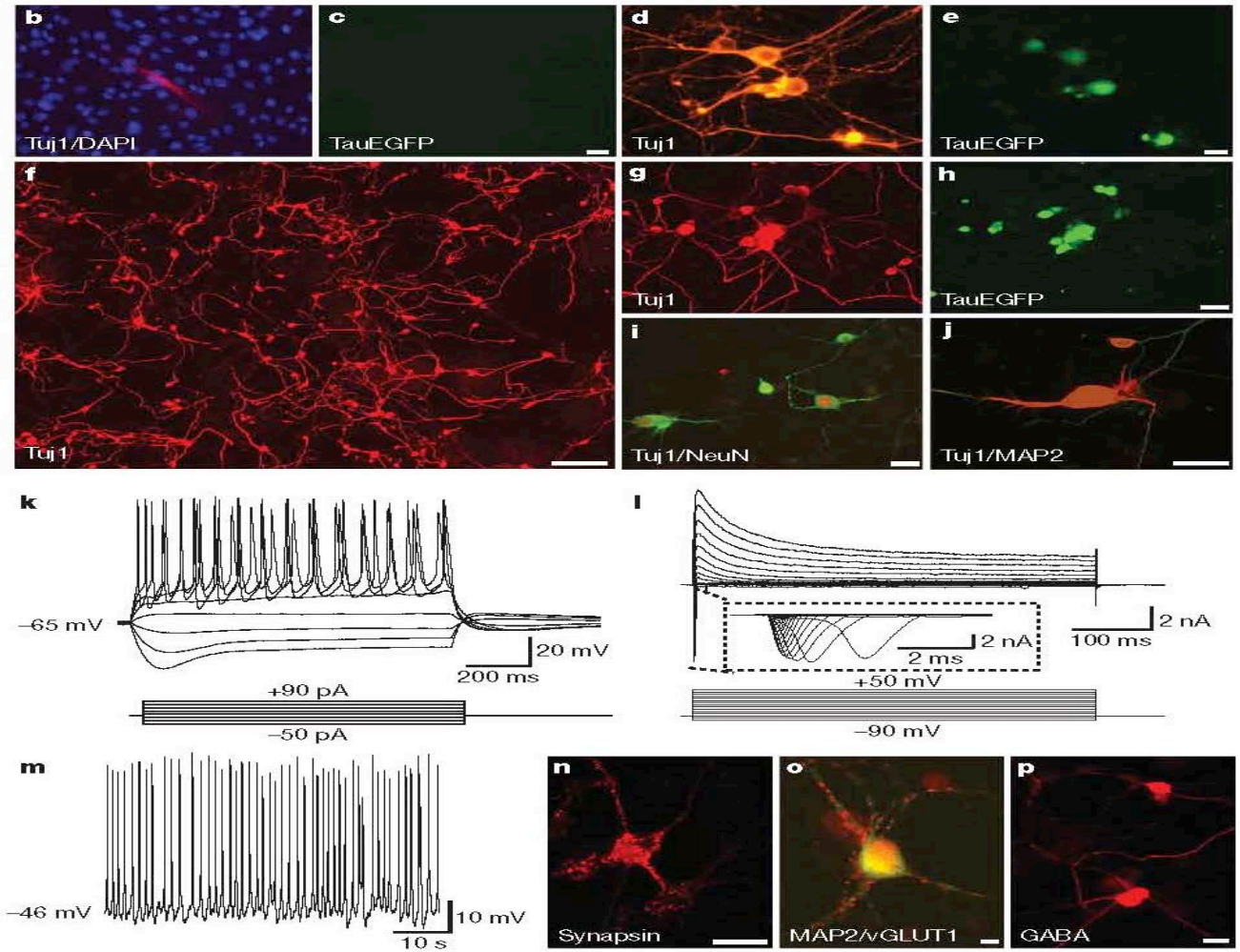
Direct Conversion of Fibroblasts to Functional Neurons by Defined Factors

Vierbuchen, Ostermeier, Pang et al.; Marius Wernig's Lab Stanford University. *Nature* 27th Jan. 2010

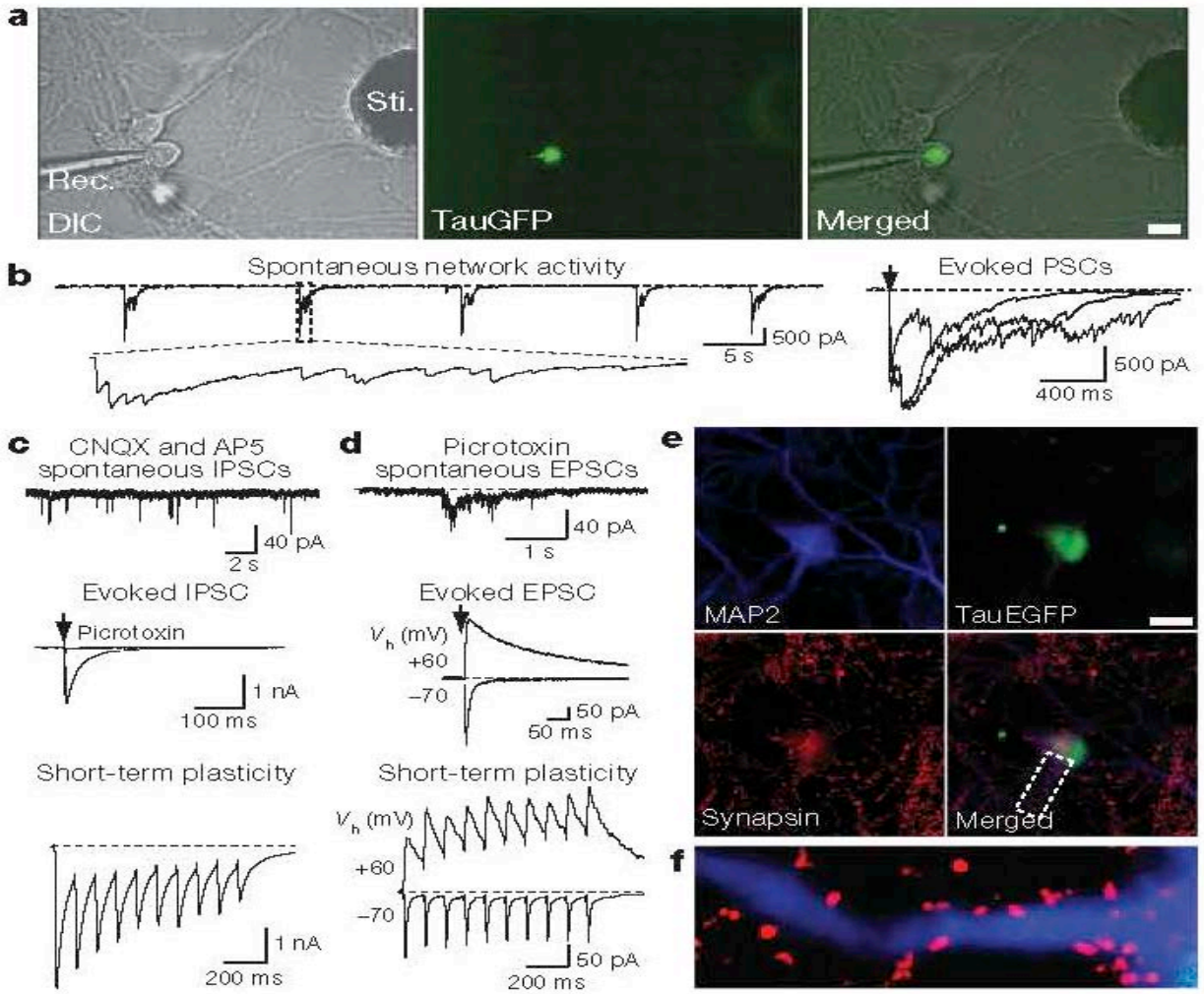
- Hypothesized that a panel transcription factors would convert skin cells directly to neurons (iNs)
- Pool of lentiviruses containing 19 genes critical for neurons used to infect skin fibroblasts from TauEGFP KI mice (fluorescent green neurone marker



- The gene *Asd1(Mash1)* could induce green Tuj1+ cells
- The genes *Brn2, Brn4 (Pou3/4), Mytl1, Zic1 and Olig2* potentiated the neuron forming property of *Asd1*
- *Asd1, Brn2 and Mytl1* were sufficient to efficiently convert fibroblasts to functional neurons

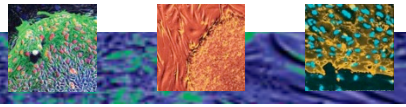


- The efficiency of conversion to neurons was 1.8% from MEF and 7.8% from TTF iNs
- iNs have normal membrane properties and form functional synapses in vitro



Implications

- Possible that only one gene is really necessary to activate the conversion of fibroblasts to neurons
- Why isn't this a mechanism for neural regeneration in vivo?
- Can this direct conversion be used clinically? – cell numbers may be inadequate
- Can other tissues be formed in a more direct conversion using other transcription panels? – note Doug Melton's induction of insulin production using 3 transcription factor conversion of endocrine cells in vivo.



Somatric Sex Reprogramming of Adult Ovaries to Testes by FOXL2 Ablation Uhlenhaut etal., EMBL Germany, MRC Natl Instit Med Res, Baylor Coll Med, Uni Cologne- M Treier

Cell 139, 1130, Dec 2009

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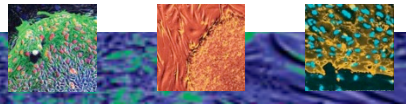
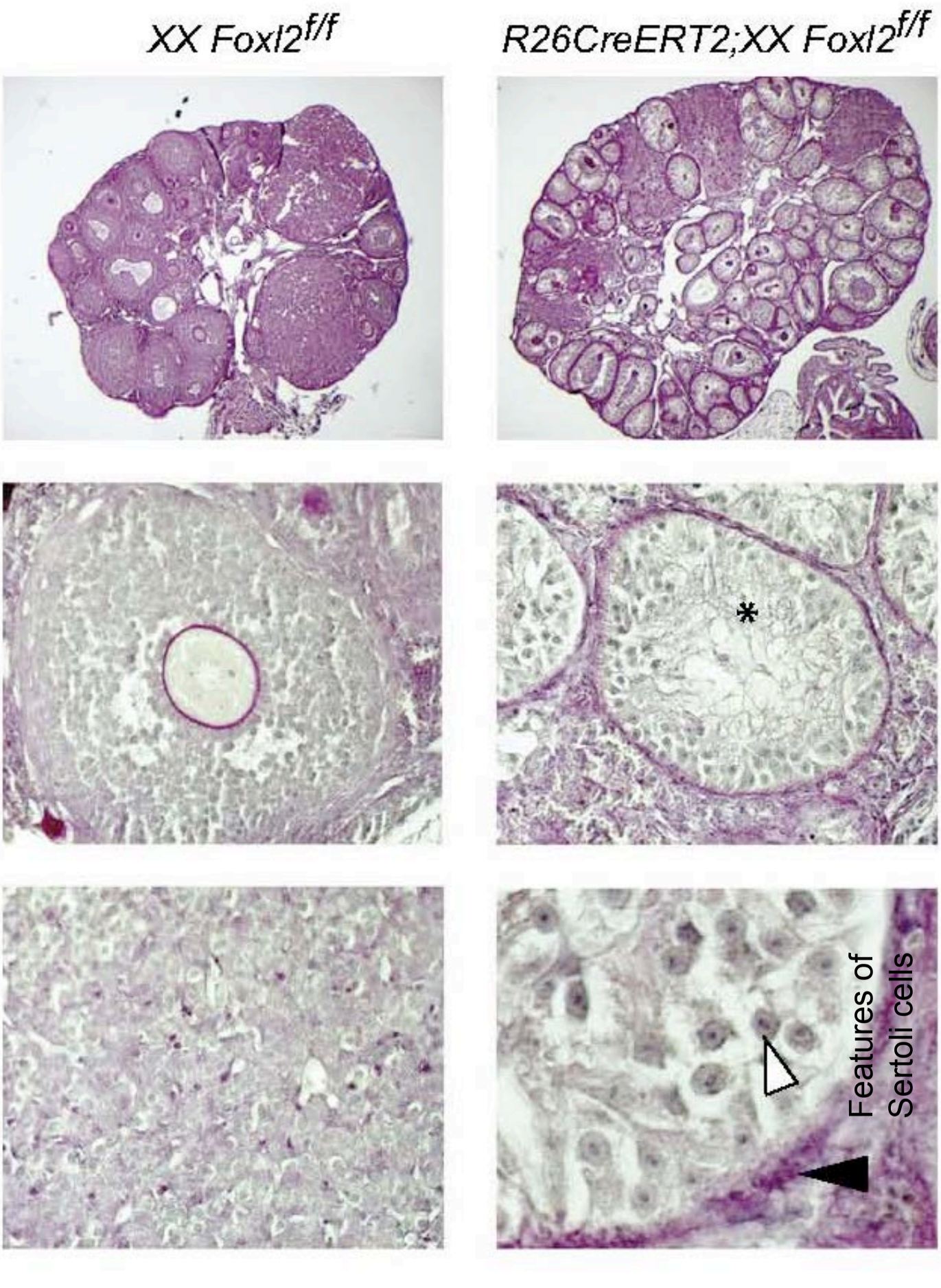
- In the mouse, the forkhead transcription factor FOXL2, is required to prevent transdifferentiation of an adult ovary to a testis
- Inducible deletion of foxl2 in adult ovarian follicles leads to immediate upregulation of testis-specific genes
- Also reprogramming of follicle granulosa and theca cells into Sertoli -like and Leydig-like cell types with testosterone levels comparable to normal XY males

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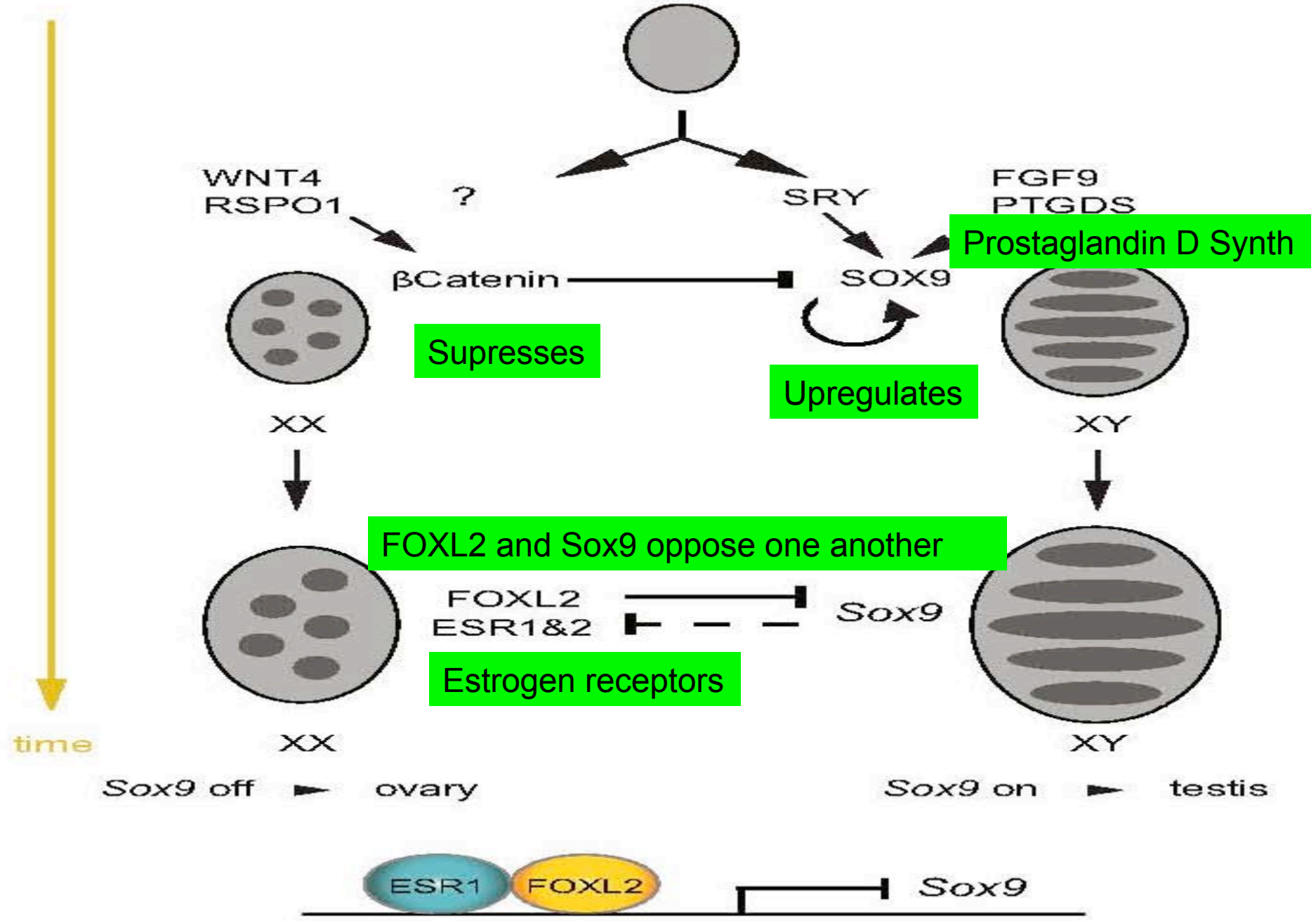
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Sox9
Estrogen receptors
XX
XY
time
Sox9 off
ovary
Sox9 on
testis
ESR1
FOXL2
Sox9

Opposing microRNA families regulate renewal in mouse embryonic stem cells. Melton, Judson & Robert Blelloch UCSF *Nature* Jan 6 2010

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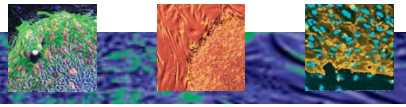
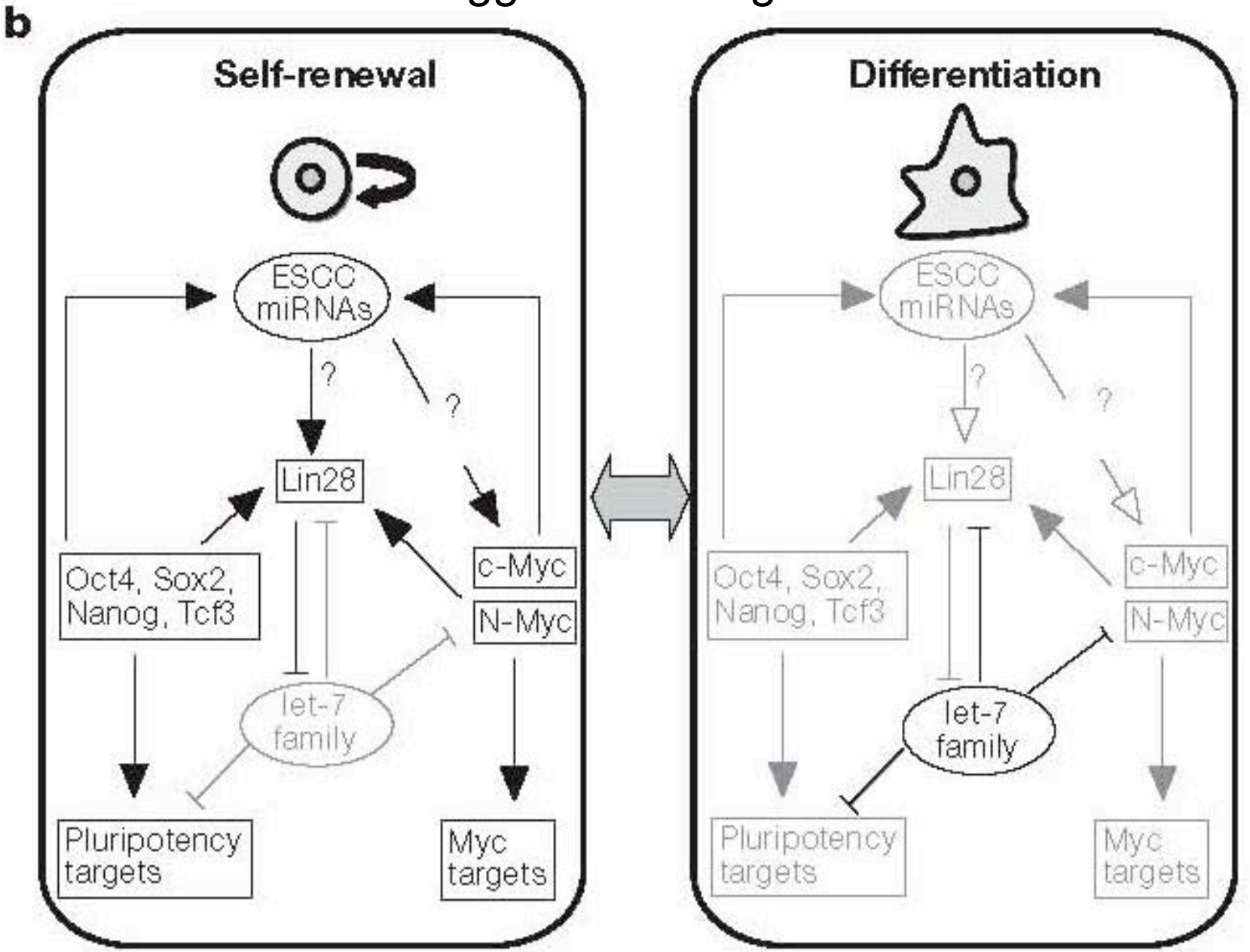
- In the absence DGCR8 – protein required for miRNA synthesis – mouse ES cells are unable to silence self renewal.
- Let-7 miRNA can suppress self renewal in the absence of DGCR8
- Showed that Let-7 inhibits, whereas ESCC(ES cell cycle regulating miRNA) indirectly activate activate numerous self-renewal genes.
- Inhibition of Let-7 family genes promotes dedifferentiation to iPS cells

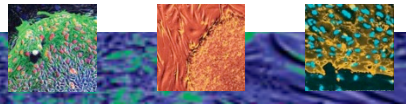


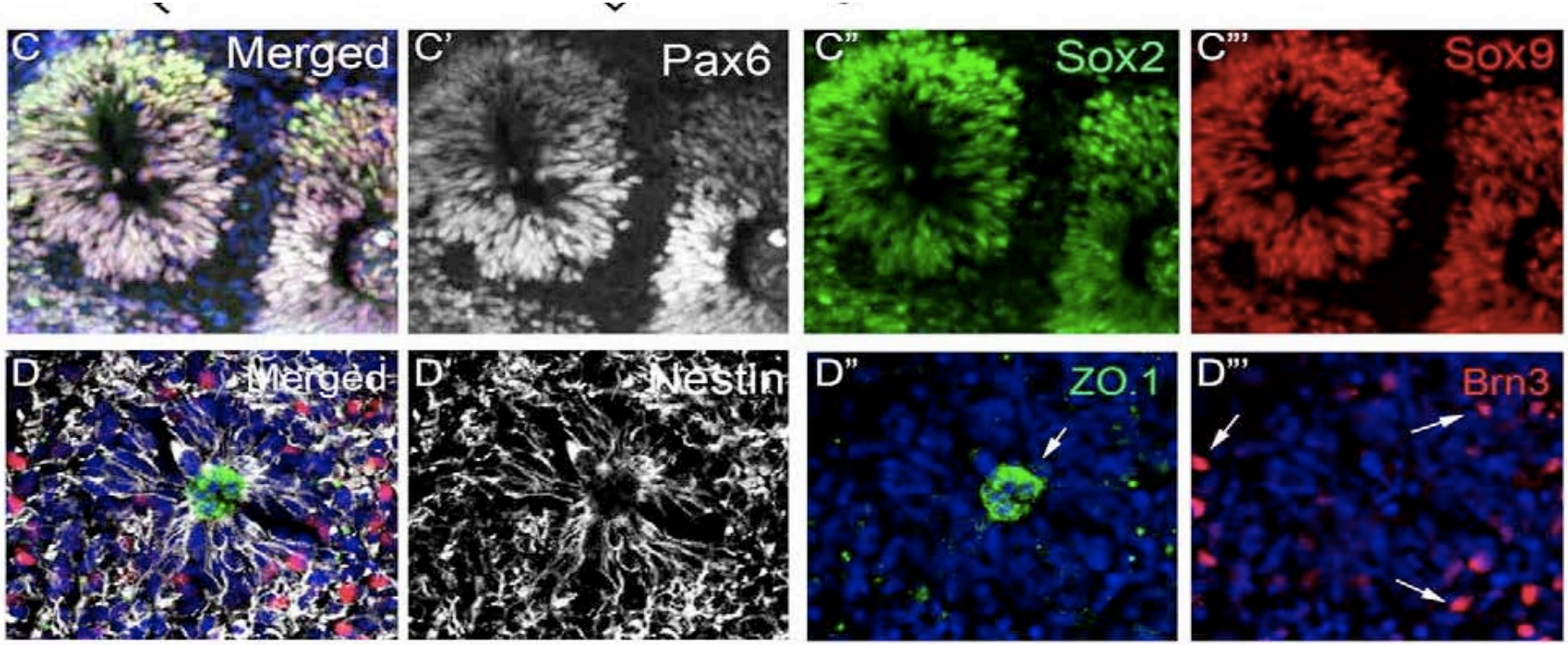
Toggle-Switching



Generation purification and transplantation of photoreceptors derived from human induced pluripotent stem cells. Lamba etal. Uni Washington Seattle. PLoS one Jan 20 2010

- Made iPSC from human fibroblasts
- Differentiated iPSCs to retinal progenitors – competent to generate photoreceptors
- Purified photoreceptor fraction by FACS)GFP
- On transplantation integrated in mouse retina expressing photoreceptor markers

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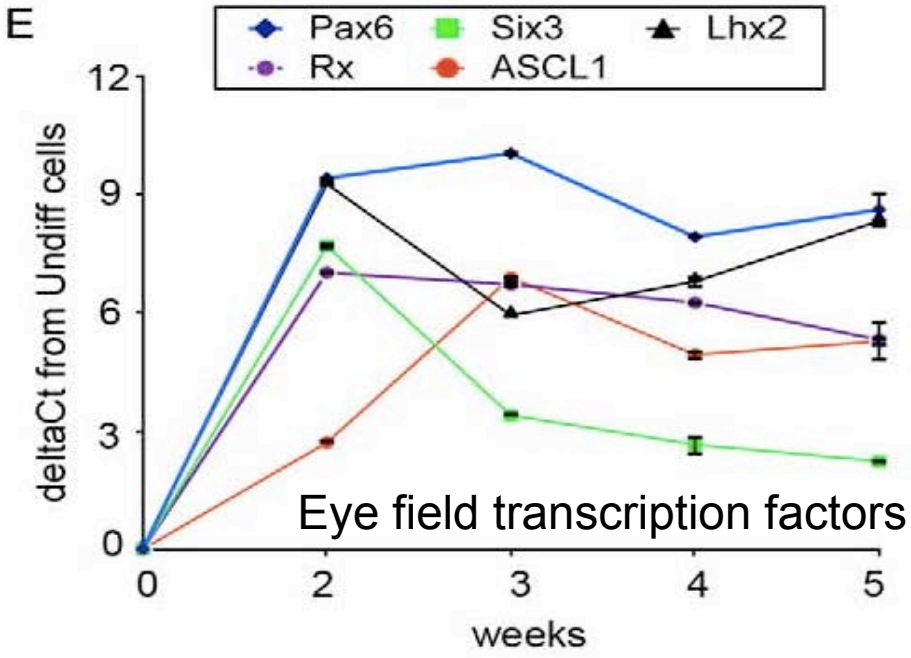
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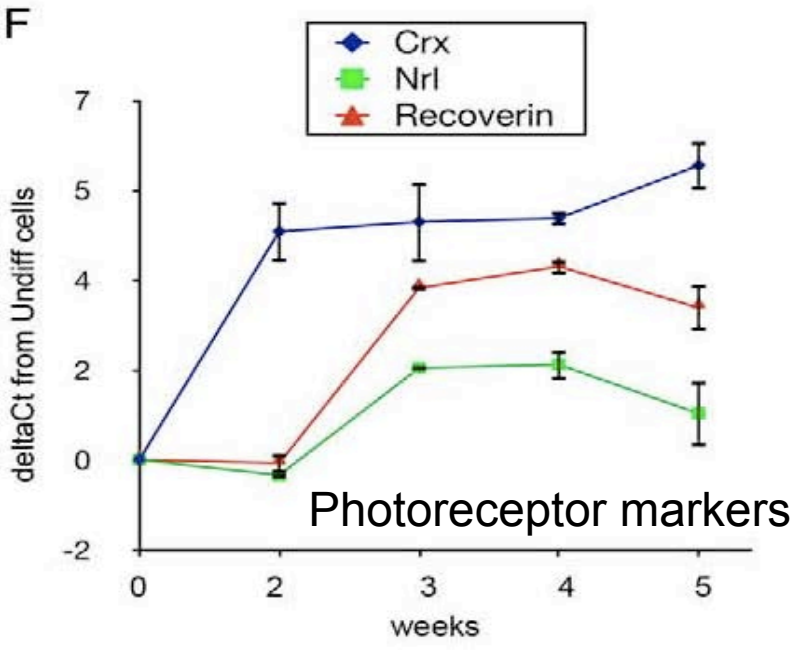
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President's Priorities

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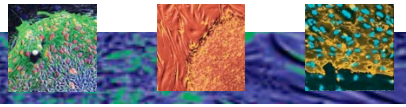
- VP R&D Search
- Grant issues
  - Californian science leadership on Pre-application processes
  - Data gathering for review of extraordinary petitions
  - Submission of new data prior to review
  - Aggregated percent effort of PIs
  - Industry presence on Grants Working Group
  - Loans and company issues with CIRM regulations
- International agreements and project monitoring
- Patent issues



President's Priorities

- Developing networks between US science and industry
- Continued dialogue with industry and FDA on enhancing success of the stem cell clinical pipeline
- CIRM 2010 External Review
- CIRM economic stimulus issues
- CIRM Development Portfolio Review – Dr Olson to present to ICOC April
- Opportunities for pluripotential stem cell clinical trials
- Regulatory pathway issues for stem cell therapies
- CIRM Workshops

Upcoming Grant Reviews

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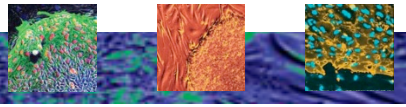
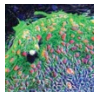
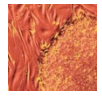
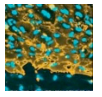
- **Basic Biology II**
  - **Invited Applications – 57**
  - **Application Deadline – Dec 8, 2009**
  - **GWG Review – February 22-23, 2010**
  - **ICOC – April 28-29, 2010**



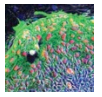
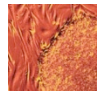
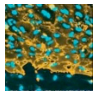
Upcoming RFAs

- **Stem Cell Transplantation Immunology**
  - Review – April 8-9, 2010
  - ICOC – June 22-23, 2010
- **Research Leadership Awards**
  - First application deadline – Feb 18, 2010
  - ICOC – April 28-29, 2010
- **Early Translational II**
  - Post RFA – Feb 2010
  - Receipt of pre-apps – March 18th
  - Full Grant applications – June 30th
  - Review – Sept 2010
- **Tools, Technologies & Bottlenecks**
  - Concept clearance – Feb 2010
- **Clinical**
  - Concept clearance – March 2010

2010 Program of CIRM Workshops

- CIRM Diversity Workshop, Drew University, LA - Feb 26th
- CIRM Grant Writing Webinar - March 3rd
- CIRM Grantee Meeting, San Francisco - March 3-5th
- Germany/CIRM Science Collaboration, San Francisco - March 6th
- Maryland (TEDCO)/CIRM Science Collaboration, MD - March 11-12th
- CIRM Consortium/FDA Webinar – April 2010
- MRC UK/CIRM SCNT/Parthenogenesis, San Francisco - June 13-14th
- ISSCR/CIRM/ISCT – Clinical Trials Regulatory Harmonization, San Francisco - June 15th
- ISSCR Annual Meeting, San Francisco - June 16-19th
- China/CIRM Science Collaboration, San Francisco - June 20-21st
- Spain/CIRM Science Collaboration - Q3
- The Netherlands/CIRM Science Collaboration - Q4

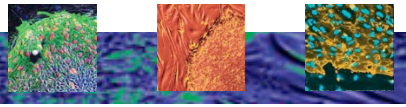




CIRM Workshop: *The Role of CIRM in Enhancing Diversity – February 26, 2010*

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: Identify how CIRM can enhance diversity in the field of Regenerative Medicine

- **Location: Charles Drew University, LA**
- **Target Audience: CIRM --** To gain a greater understanding of how diversity affects, benefits, and incorporates the fulfillment of CIRM's mission and to use this knowledge as a foundation for the development of funding initiatives that support diversity in regenerative medicine
- **Topics:**
  - **Science and Diversity in Regenerative Medicine**
  - **Attracting patients and physicians to clinical trials**



Proposed Joint UK-CIRM *Workshop on SCNT /Parthenogenesis*

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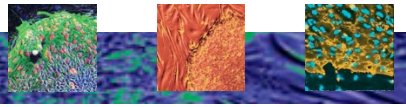
Workshop on human somatic cell nuclear transfer (SCNT) with UK/MRC
Location: San Francisco - June, 2010

Target audience: CIRM – assess SCNT and parthenogenesis for SCs

Expected attendance: scientific leaders in non-human and human SCNT

Topics:

- mammalian and non-human primate SCNT – lesson learned
- animal oocyte – human nuclear xenotransfer – a viable alternative?
- human SCNT – status
- parthenogenesis – a viable road to immune compatible cell lines?
- SCNT-iPSC comparison in mouse – can iPSC replace SCNT?
- mitochondrial diseases – SCNT as a potential therapy?



VP R&D Search Update

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- **Focus of search**
  - **MD or MD/Ph.D. with clinical development experience (especially pre-clinical, Phase I and II)**
  - **Proven track record representing development programs before the FDA**
  - **Excellent collaborator and facilitator**
- **Candidate backgrounds are focused in the following areas:**
  - **Biotech/Regenerative Medicine**
  - **Pharmaceutical**

VP R&D Search Update

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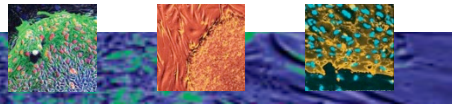
- The focus is now on 6/(80) potential candidates with meetings undertaken and arranged with senior CIRM staff and some members of the Board
- Three international candidates
- One interstate candidate
- Two Californian candidates



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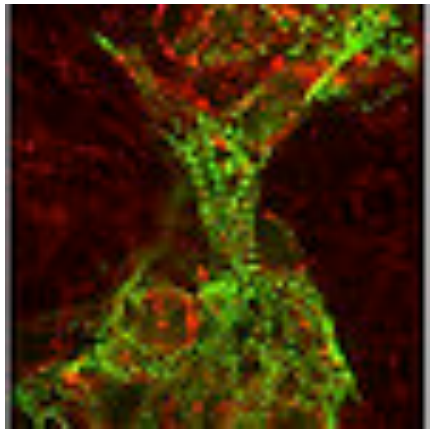
The state stem cell agency

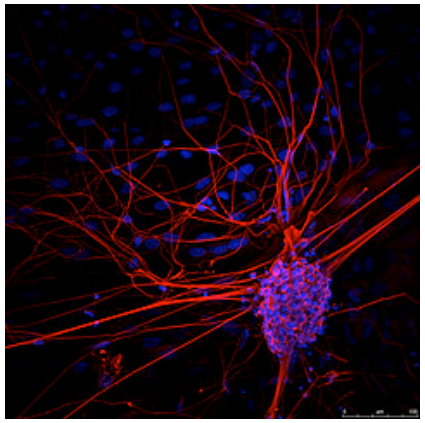
Communications

Don Gibbons

Chief Communications Officer

Communications Update





- Working with traditional media
- Bypass what's left of traditional media
- Going face-to-face
  - Slide deck for the board
  - Slide deck for patient groups
  - Town forums
  - Stem Cell Awareness Day
- Grantee communications workshop
- Annual report
- High school curriculum

Los Angeles Times

Date: Sunday, January 10, 2010
Location: LOS ANGELES, CA
Circulation (DMA): 1,107,074 (2)
Type (Frequency): Newspaper (S)
Page: A1,A14
Keyword: City of Hope

Windfall may speed stem cell cures to patients

Prop. 71 funds are focused on research with near-term goals.

KAREN KAPLAN

Dr. Karen Aboody estimates that she has cured several hundred mice of a cancer of the central nervous system called neuroblastoma.

First she injected them with specialized neural stem cells

For 3½ years, the agency focused on the basic groundwork needed to someday use human embryonic stem cells to replace body parts damaged by injury or disease. Such cures are still far in the future.

Now the institute has a more immediate goal: boosting therapies that are much further along in development and more often rely on less glamorous adult stem cells. It is concentrating its vast financial resources on projects that could

less crucial.

And since Proposition 71 was passed, scientists have created new kinds of stem cells — known as induced pluripotent stem cells — that can be coaxed to form many different types of tissues but are made without harming embryos and thus are eligible for federal funding.

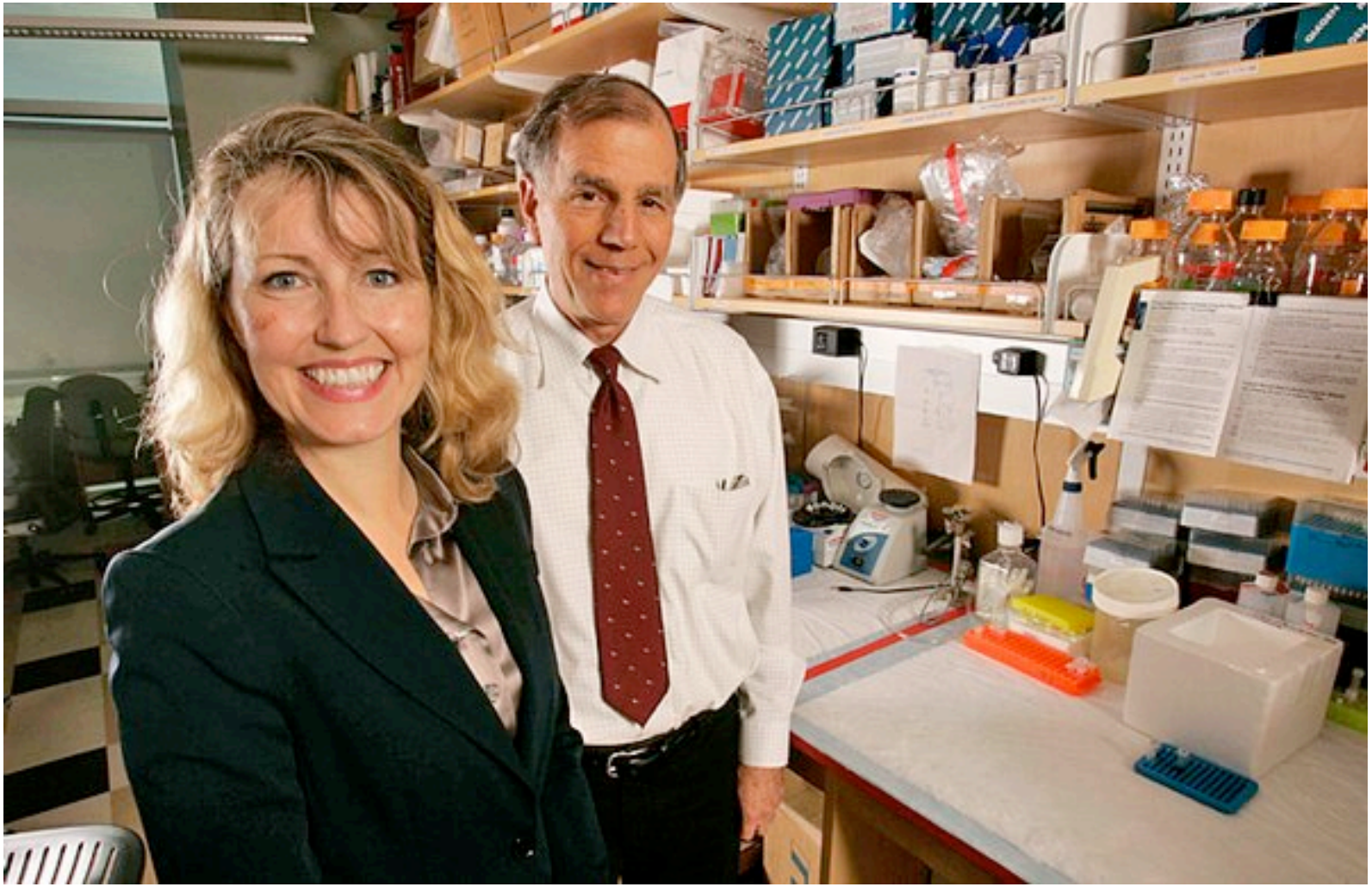
When the institute handed out nearly $230 million in October to 14 research teams, including Aboody's at City of Hope, it was its largest scientific investment by far. But it came with strings attached: In four years, recipients should have a clinical trial request ready to file with the FDA. Only four of the projects involve embryonic stem cells.

A new emphasis

It is a significant change in direction for an effort originally designed to bolster research on human embryonic stem cells.

GINA FERAZZI Los Angeles Times

RESEARCH: Dr. Karen Aboody saw her sister-in-law suffer from breast cancer that had spread to her brain. She's convinced that stem cell therapy can be more effective and less debilitating. The Proposition 71 money will help her work.



By Scott LaFee, UNION-TRIBUNE STAFF WRITER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The State Stem Cell Agency
FOR RESEARCHERS
FOR THE PUBLIC
CIRM OPERATIONS
ABOUT CIRM
SEMINARS
EXPLORE FUNDING
See how CIRM grants are distributed across different cell types and disease categories.
4%
5%
6%
7%
8%
13%
Cancer
Blood/imm
Other
Sensory or
Diabetes
Muscular d
GI/liver dis
Bone/cartil
Grants Overview
Explore CIRM funding distribution
LATEST PRESS RELEASE
January 15 2010
All 12 CIRM Major Facility Projects Moving Forward, Creating Jobs Today And Hope for Cures Tomorrow
December 10 2009
CIRM Provides $11 Million Boost in Funding to Train Stem Cell Scientists
October 28 2009
CIRM, the UK and Canada Award more than $250 Million to Accelerate the Pace of Bringing Stem Cell Therapies to the Clinic
Visit News Room
NEWS LETTER SIGNUP
Sign up to receive email alerts about CIRM news and events.
CIRM FUNDING OF STEM CELL RESEARCH
Our Contributions
Saving lives: CIRM-funded research has already produced a therapy in clinical trials
Creating jobs: Our major facilities are generating 13,000 job-years of employment, bringing in $100 million in tax revenue
Lowering costs: Therapies funded by CIRM will be available in California at discounted pricing
Read more about benefits to California
Our Funding
Learn about CIRM rounds of funding
Apply for funding
Click the map to learn about CIRM-funded Institutions
ANNOUNCEMENTS
January 27 2010
Statement from CIRM Regarding Resolution Passed by CFAOC Endorsing Certain Recommendations of the Little Hoover Commission
January 14 2010
Statement on American Journal of Public Health Report on CIRM
See all Announcements

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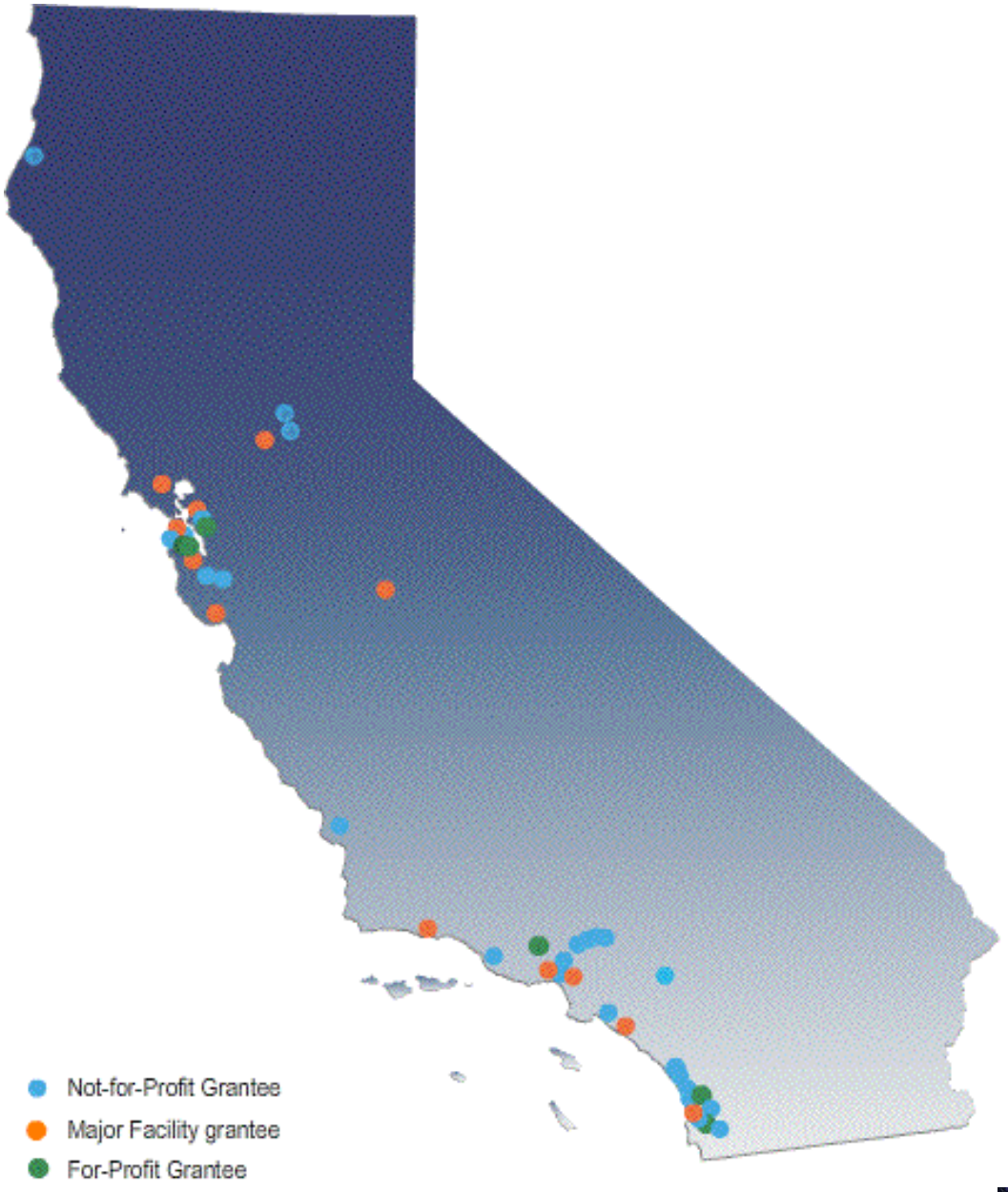
The state stem cell agency

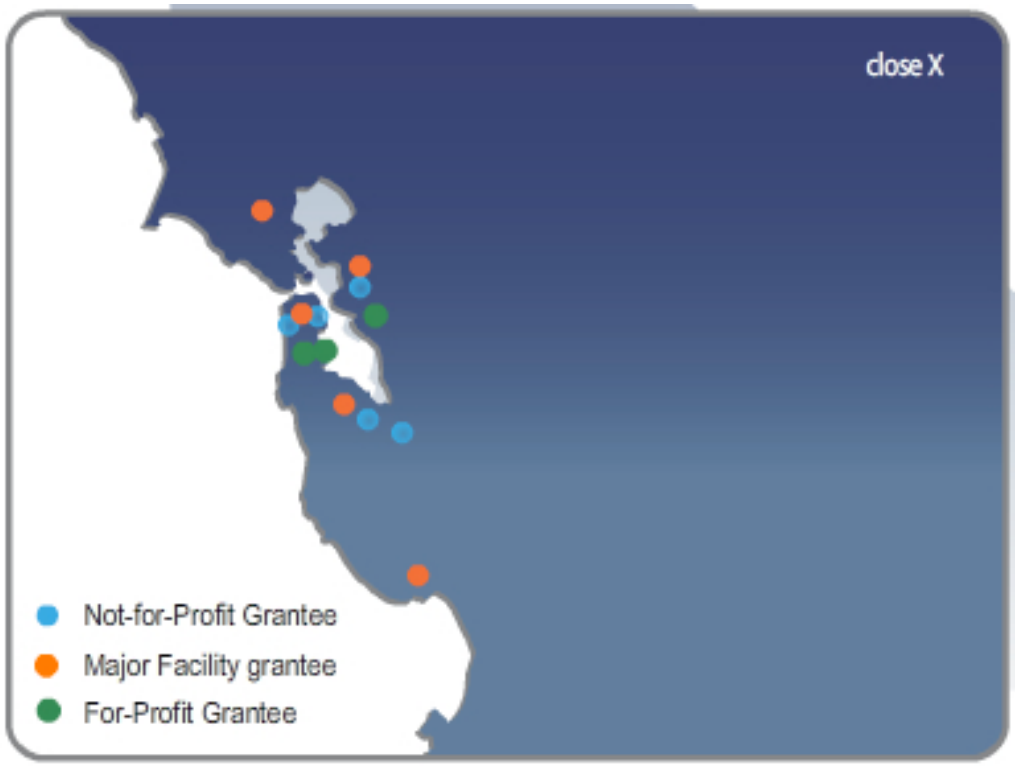
Proposition 71
Creating Jobs and a New Economic Engine Today
Creating Cures Tomorrow *Maybe Two Already*

name
title

date


Not-for-Profit Grantee
Major Facility grantee
For-Profit Grantee

SF Bay Area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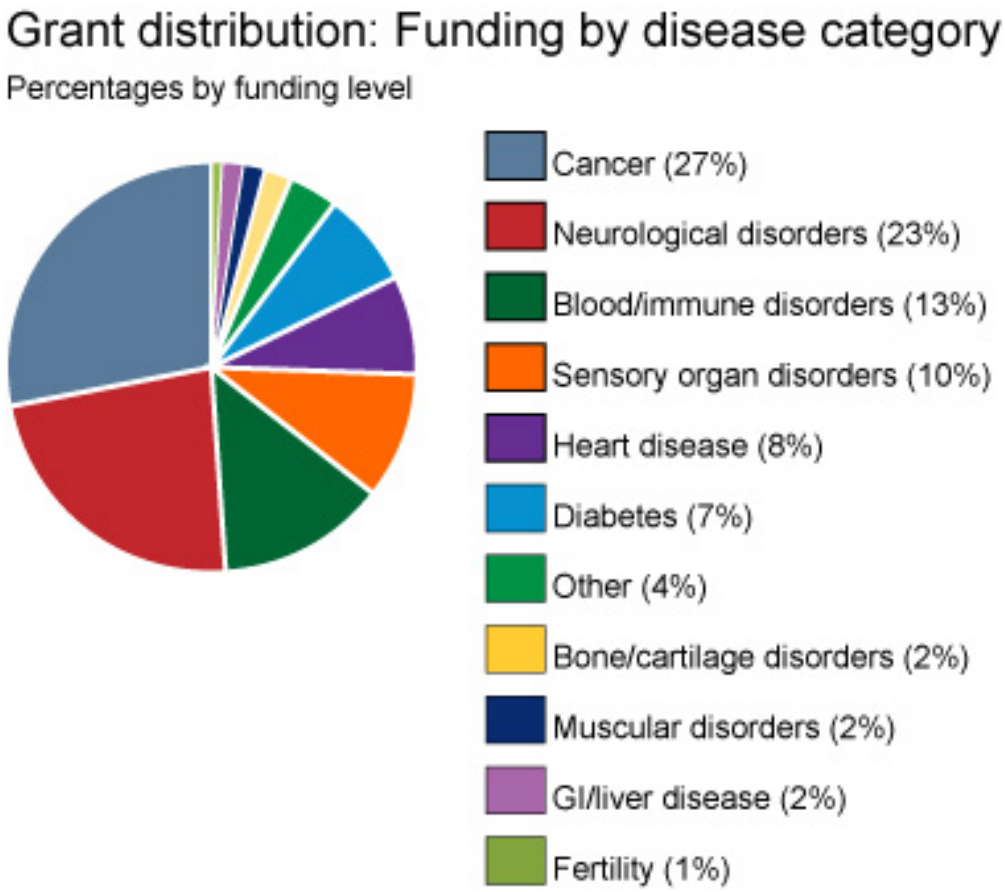
Not-for-Profit Grantee
Major Facility grantee
For-Profit Grantee

- Disease areas funded



Communications Update

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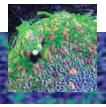
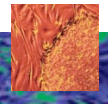
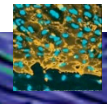




Delivering Stem Cell Therapies to the Clinic

How disease team researchers are tackling diabetes and amyotrophic lateral sclerosis (ALS)

San Diego Natural History Museum

March 31st 2010

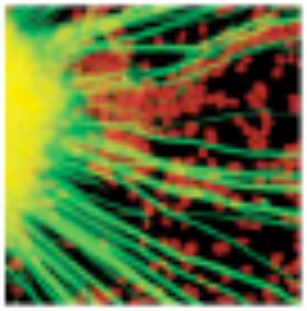
6:00 – 7:30 PM

Speakers:

E. Edward Baetge, Ph.D
Senior Vice President and Chief Scientific Officer, Novocell

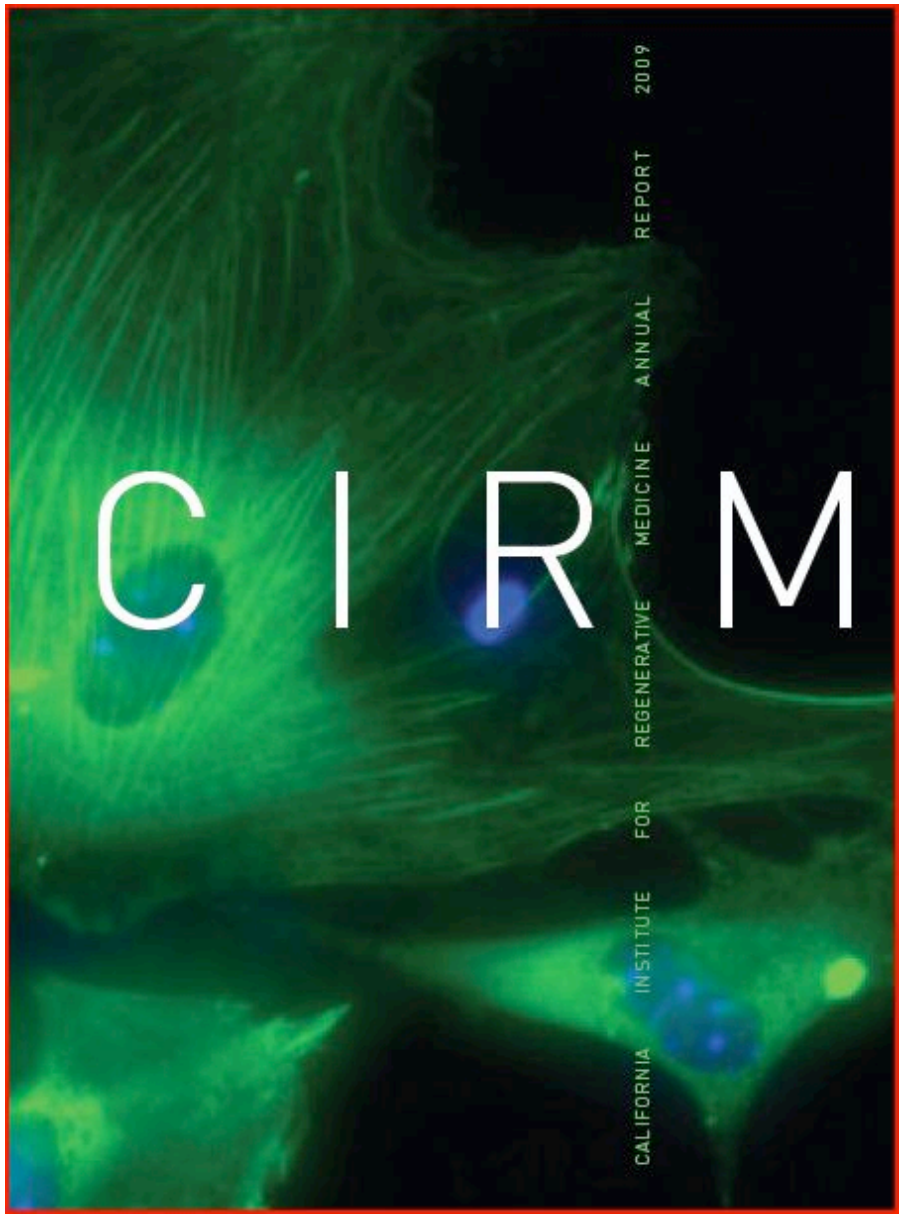
Samuel Pfaff
Professor and Helen McLoraine Developmental Chair in Neurobiology, The Salk Institute for Biological Studies

California Institute for Regenerative Medicine, the state stem cell agency created by Prop. 71. For more information, please visit www.cirm.ca.gov.



STEM CELL AWARENESS DAY

SEPT 23RD 2009


CIRM
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE ANNUAL REPORT 2009

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

MODEL STEM CELL SCIENCE CURRICULUM

View | Edit | Revisions | Track

STEM CELL EDU PORTAL

CIRM model curriculum on stem cell science

The following materials consist of **introductory and summary PowerPoint presentations** and **detailed lessons (modules)** developed by CIRM staff or CIRM-sponsored outreach programs, in collaboration with high school teachers in the Bay Area and San Diego. These detailed lessons comprise the "CIRM model curriculum on stem cell science" as discussed in Senate Bill 471 (Romero and Steinberg), the California Stem Cell and Biotechnology Education and Workforce Development Act of 2009, and signed by the Governor.

These materials are suitable for use in 9th through 12th grade biology, advanced biology, AP biology, chemistry, advanced chemistry, AP chemistry, biotechnology, physiology, anatomy, and government courses.

Jump to sections on this page:

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

The state stem cell agency

Communications

Amy Adams

Communications Manager

Online Communications

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

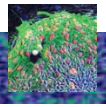
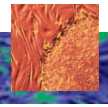
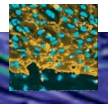
Goal: To reach all demographics with information about CIRM's mission and accomplishments

- Web page
- Facebook
- YouTube
- CIRMResearch blog
- Flickr
- Monthly Digest

Communications Messages

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

- In all online communication we have the same messages
  - CIRM is creating new stem cell-based cures
  - CIRM is an economic benefit to California

Web page - www.cirm.ca.gov

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To provide all audiences with useful, accessible content

Web page - www.cirm.ca.gov

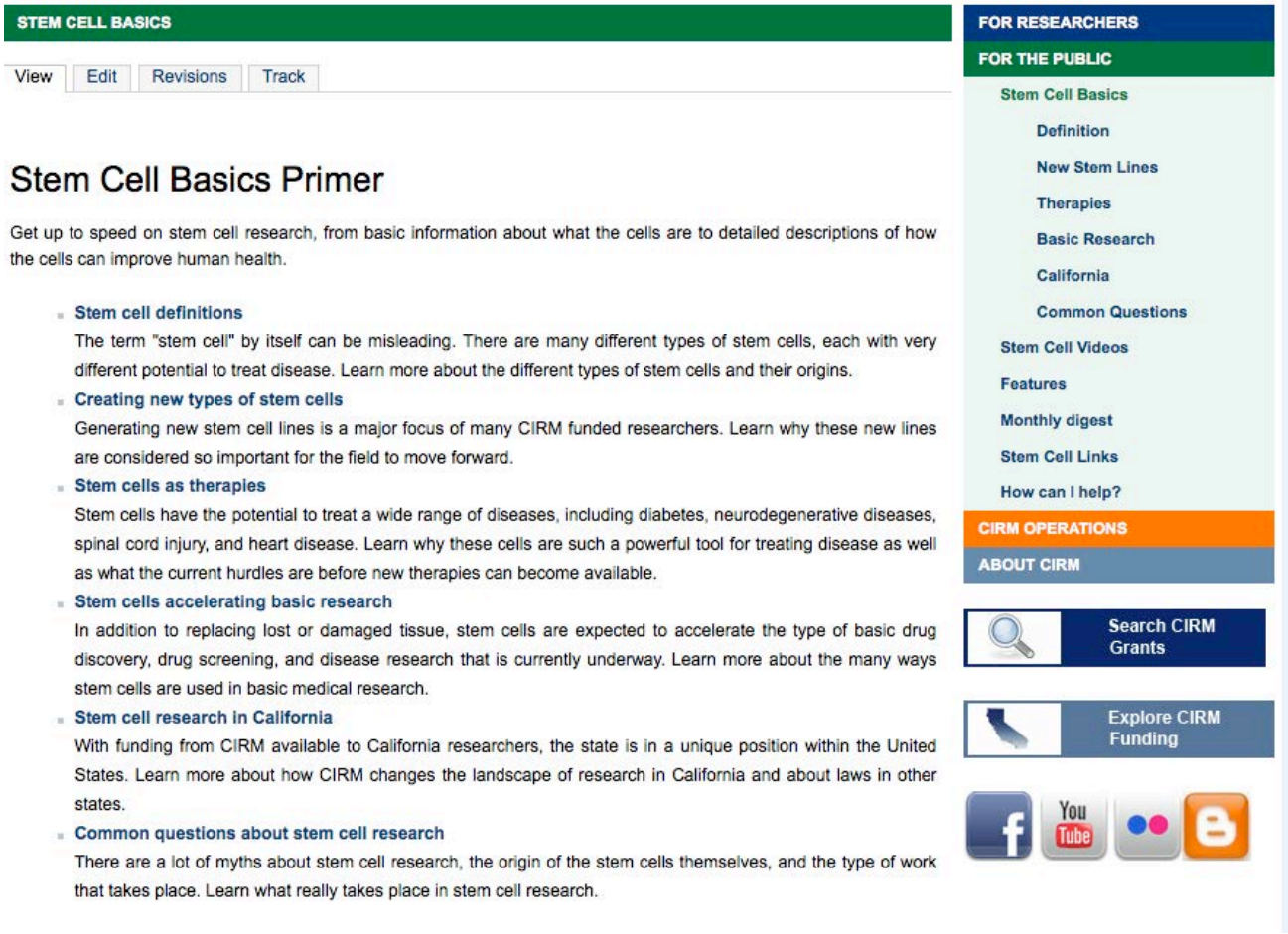
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To provide all audiences with useful, accessible content

- ~11,000 unique visitors/month
- Spend 3:41 on the site
- View 3.64 pages
- 55% in California
- 109 countries represented

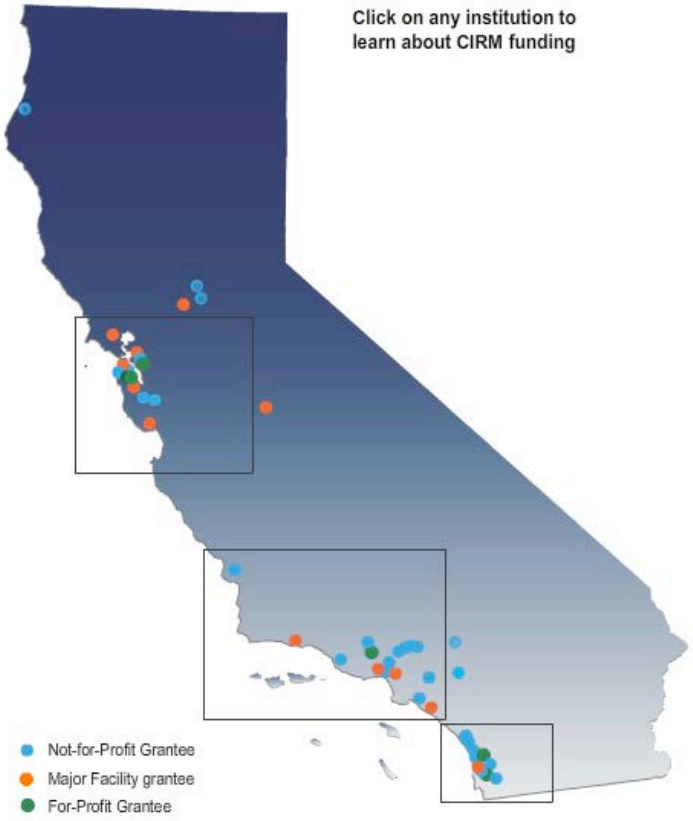
Web page - Education

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE



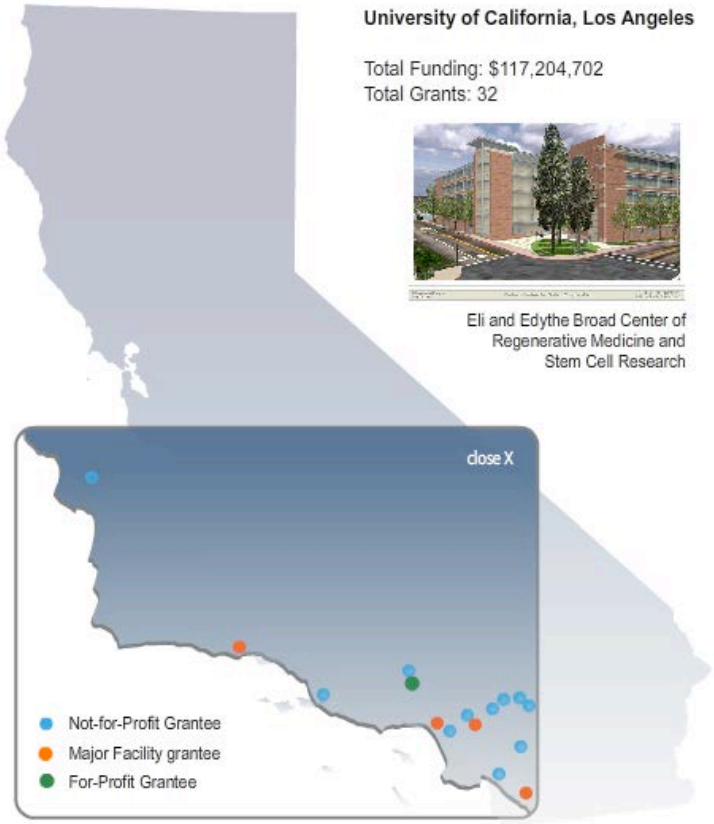
Web page - Interactivity

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE



Web page - Interactivity

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE



Web page - Features

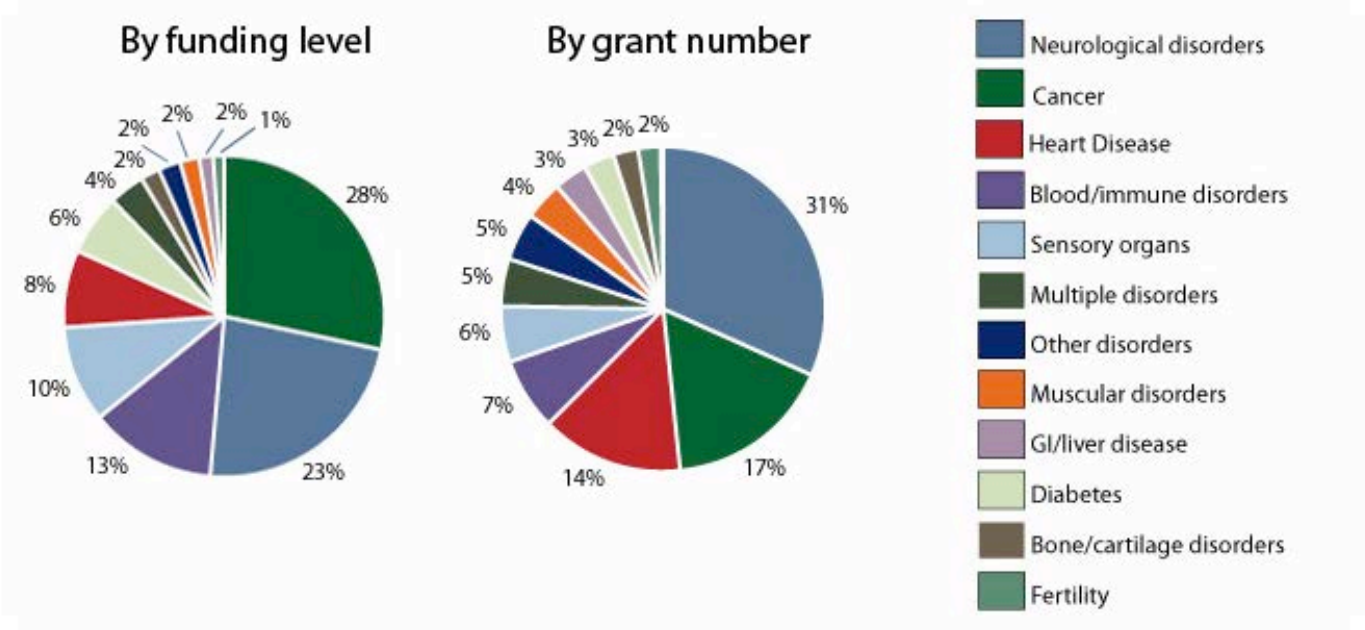
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Web page – Fund Allocation

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Disease categories

Includes all CIRM grants with a disease focus. Areas of disease impact are designated by percentage of committed funds (left) or by percentage of total grant number (right). Does not include grants with broader impacts, such as those seeking to understand basic mechanisms of stem cell biology or developing new tools and technologies for advancing therapies.



Web page – Grant Information

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

HOME · MEETINGS · JOBS/RFPs · RSS Search

CALIFORNIA INSTITUTE FOR CIRM REGENERATIVE MEDICINE

The State Stem Cell Agency

Home

Locate CIRM Research Funding

Grant Type: New Cell Lines | Institution: <Any> | Apply

Institution	Researchers name	Grant Type	Grant Title	Related Information
Burnham Institute for Medical Research	Zhuohua Zhan	New Cell Lines	Derivation of Parkinson's Disease Coded-Stem Cells (RL1-00682-1)	
Salk Institute for Biological Studies	Fred Gage	New Cell Lines	Development of Induced Pluripotent Stem Cells for Modeling Human Disease (RL1-00649-1)	Videos: • Fred H. Gage talks about using embryonic stem cells to model disease (4:30)
Scripps Research Institute	Sheng Ding	New Cell Lines	Derivation of New ICM-stage hESCs (RL1-00642-1)	
Stanford University	Julie Baker	New Cell Lines	Derivation of hESC Lines with Disease Lesions (RL1-00630-1)	
Stanford University	Michele Calos	New Cell Lines	Safe, Efficient Creation of Human Induced Pluripotent Stem Cells Without the Use of Retroviruses (RL1-00634-1)	
Stanford University	Michael Longaker	New Cell Lines	Derivation and Analysis of Pluripotent Stem Cell Lines with Inherited TGF-Beta Mediated Disorders From Donated IVF Embryos and Reprogrammed Adult Skin Fibroblasts (RL1-00662-1)	Videos: • Scientific Writer's Seminar: Michael Longaker
Stanford University	Renee Reijo Pera	New Cell Lines	Derivation and Comparative Analysis of Human Pluripotent ESCs, iPSCs and SSCs: Convergence to an Embryonic Phenotype (RL1-00670-1)	

FOR RESEARCHERS
- Applying for Grants
  - RFAs
  - Review Reports
- Collaborative funding
- CIRM Regulation Guidance
- Workshop Reports

FOR THE PUBLIC

CIRM OPERATIONS

ABOUT CIRM

Search CIRM Grants

Explore CIRM Funding

« February 2010 »

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Web page - Going forward

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

- Increase audience
  - More links
  - Better search
  - Be where people are

Facebook Fan Page

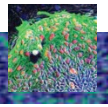
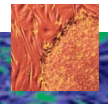
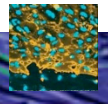
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To create a community of people who are engaged in the daily advances of CIRM

Facebook – Going forward

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

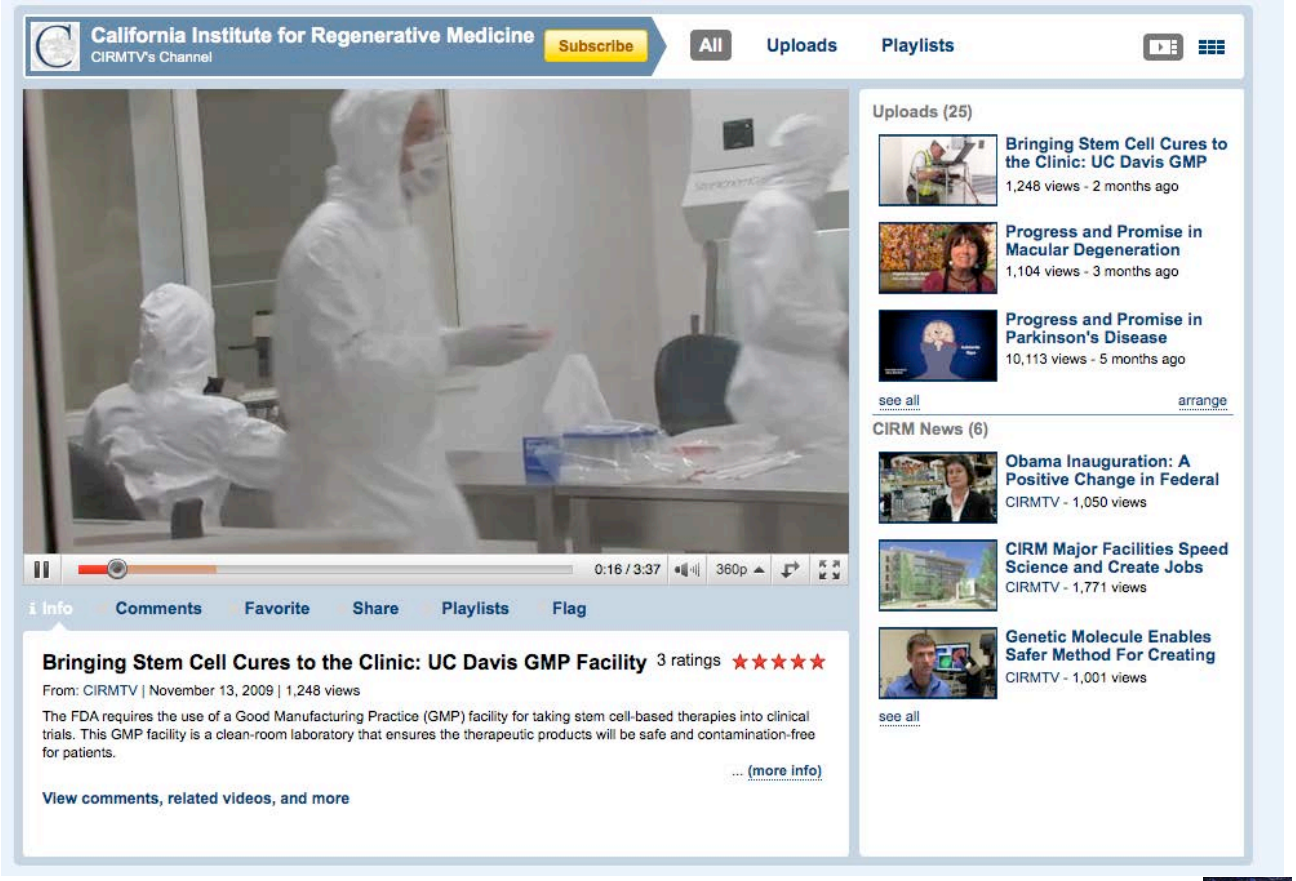
- Increase fans
- Maintain engagement
- Use Facebook campaigns to involve fans in outreach and education

YouTube

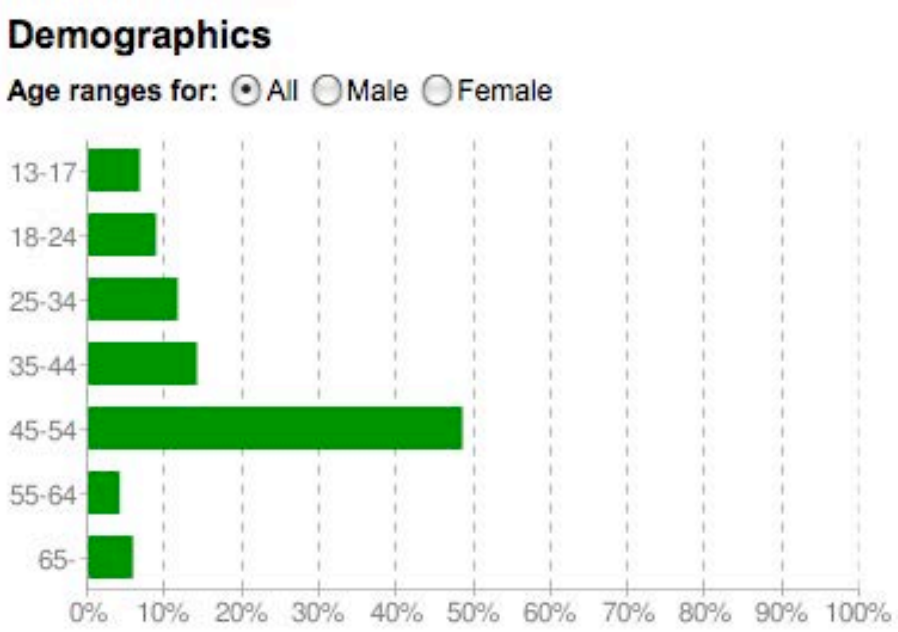
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

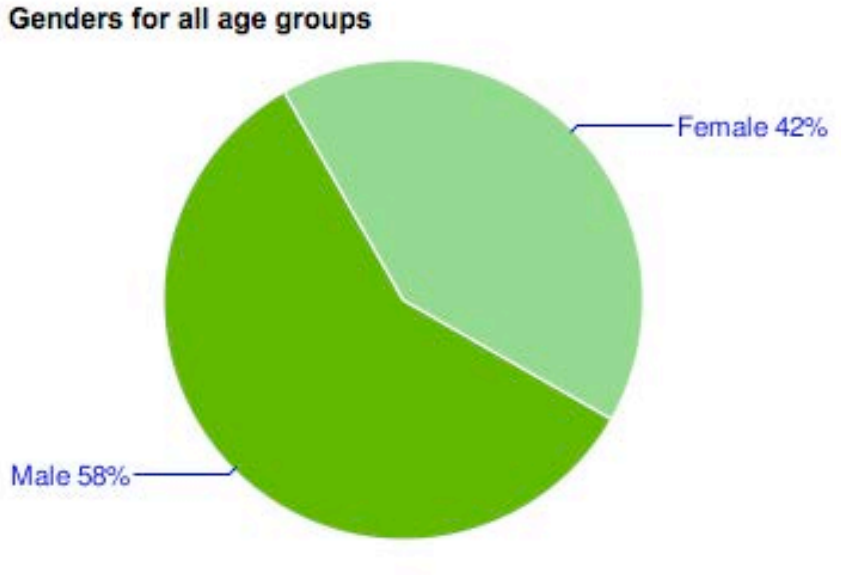
Goal: To educate people about CIRM's accomplishments and the value of stem cell research



YouTube – Our audience

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE



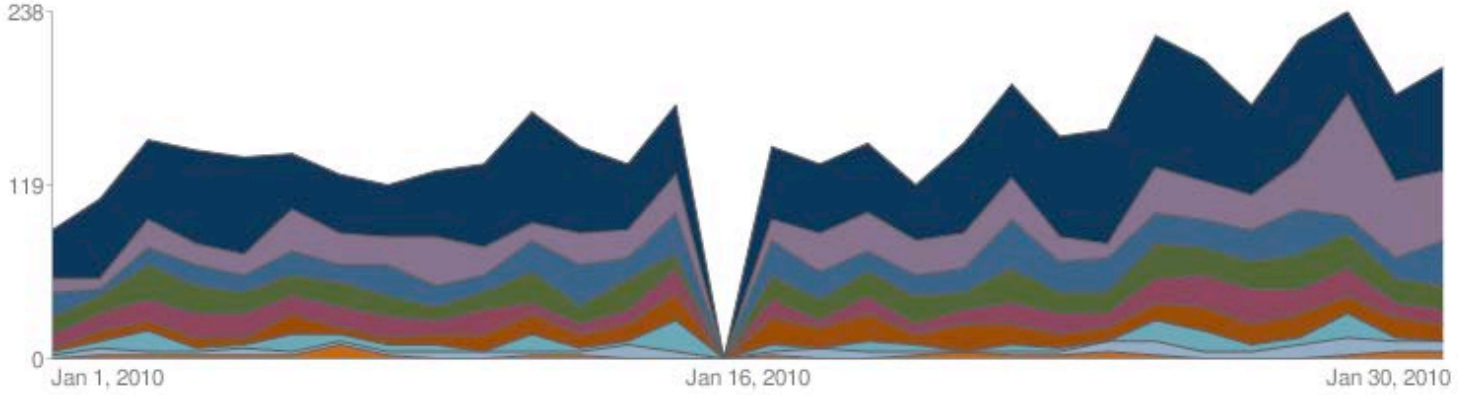


YouTube – How viewers find us

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Discovery How are people finding the videos in this channel?

Share of each source Display as: ◉ Stacked chart ○ Line chart



Source of views	Views	% of total views
YouTube search	1680	36
Embedded player	727	15
Related videos	546	11
Google search	488	11
External links	373	8.1
Viral / other (?)	336	7.3
YouTube channel page player (?)	172	3.7
YouTube other	137	3.0
Mobile devices	95	2.0

YouTube – How viewers find us

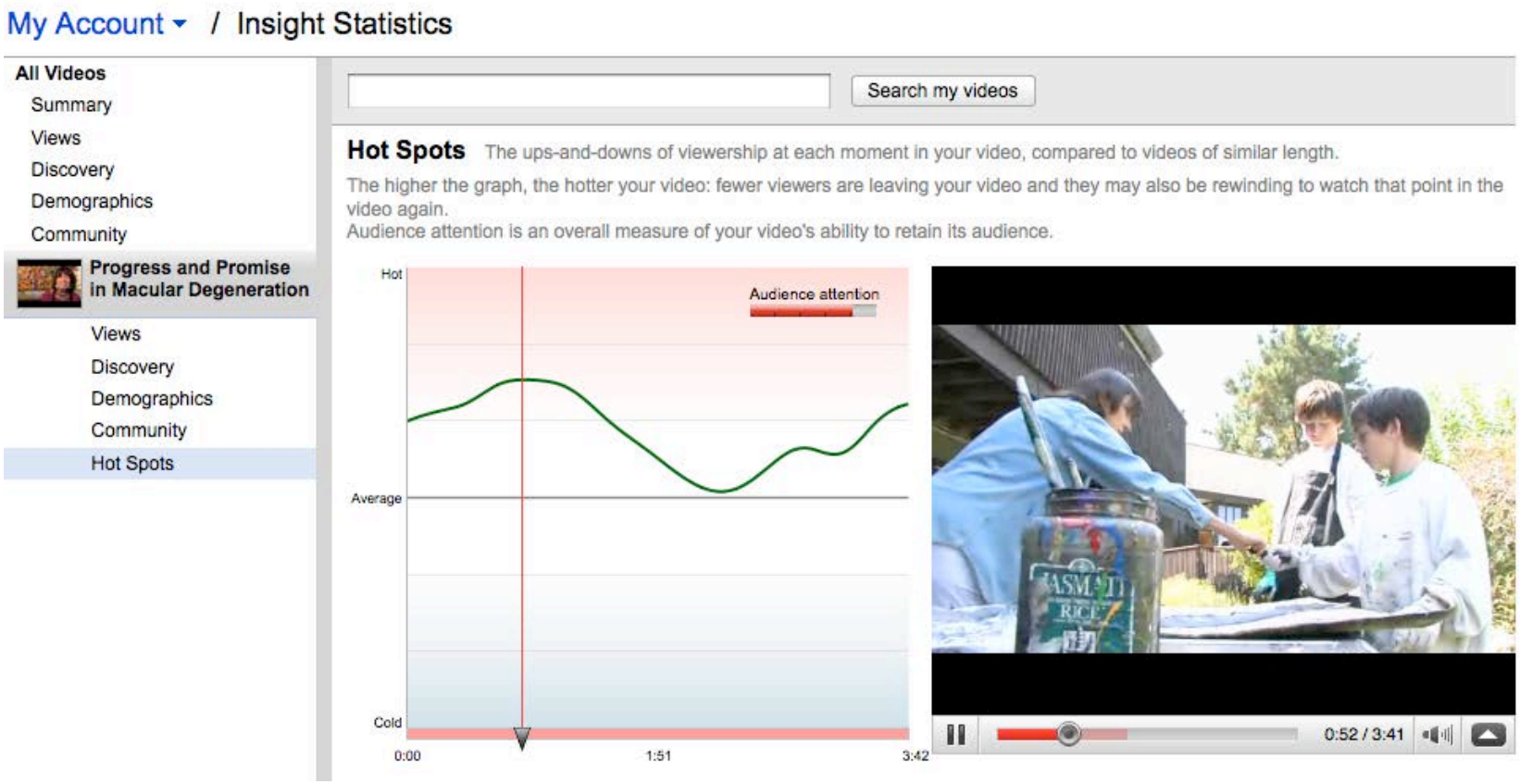
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Most viewers arrive via YouTube/Google search

YouTube search	Show all discovery	Views	33.0% of total
macular degeneration		32	12
stem cells and macular degeneration		4	1.6
what is macular degeneration		2	0.8
macula degeneration		2	0.8
degeneration		2	0.8
macular degeneration stem cell		2	0.8
macula dee generatie		2	0.8
stem cel eye maculer		2	0.8
macular degeneration in bc		2	0.8
wet macular degeneration		2	0.8

YouTube – Attention ratings

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE



YouTube – Attention is high globally

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

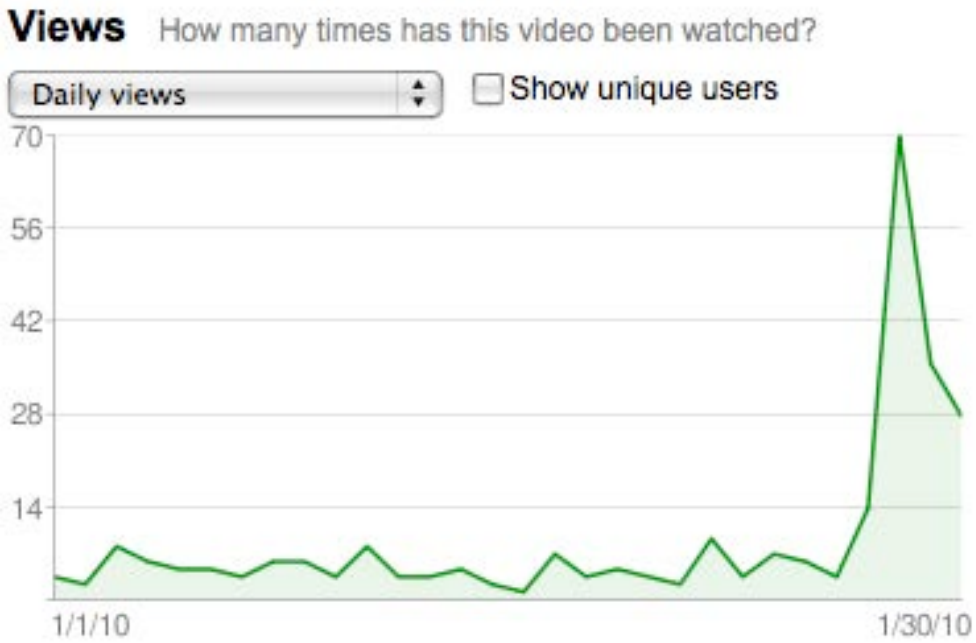
My videos

Video	Views (% of total)	Attention
Progress and Promise in Parkir	47.2	
Bringing Stem Cell Cures to the	8.9	
Irv Weissman: Differences betw	8.0	
Jerome Zack: Creating iPS Cells	6.6	
Progress and Promise in Macul	5.6	
Hans Keirstead: Developing the	3.8	
Catriona Jamieson: Therapies E	2.7	
CIRM Major Facilities Speed Sci	2.3	
Paul Knoepfler: Tumor Formatio	1.6	
Spotlight on Leukemia	1.6	

YouTube – How viewers find us

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

- Embedded player (CIRM, grantee, elsewhere)

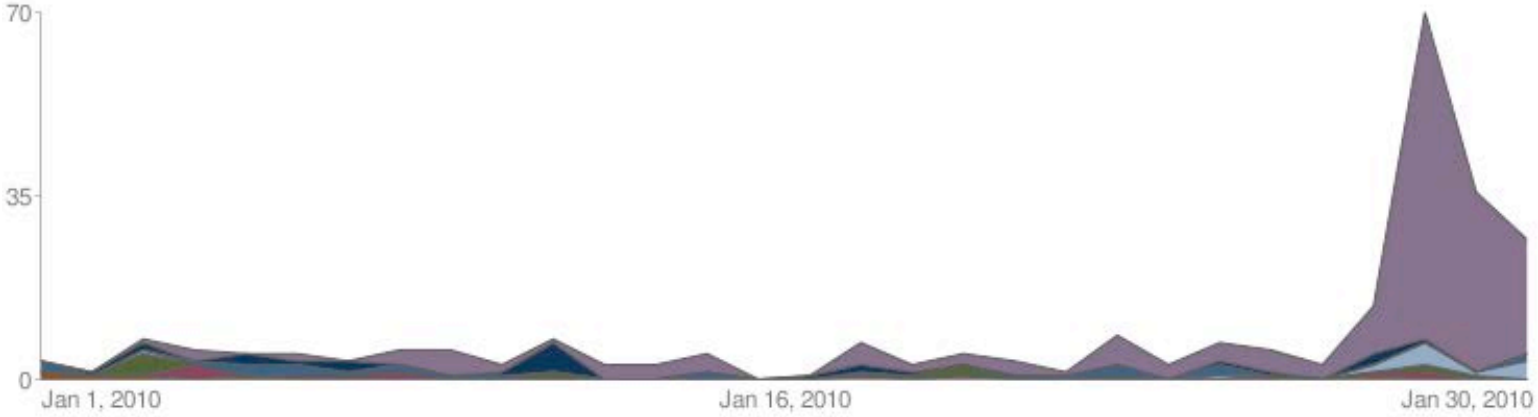


YouTube – How viewers find us

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Discovery How are people finding this video?

Share of each source Display as: (•) Stacked chart ( ) Line chart



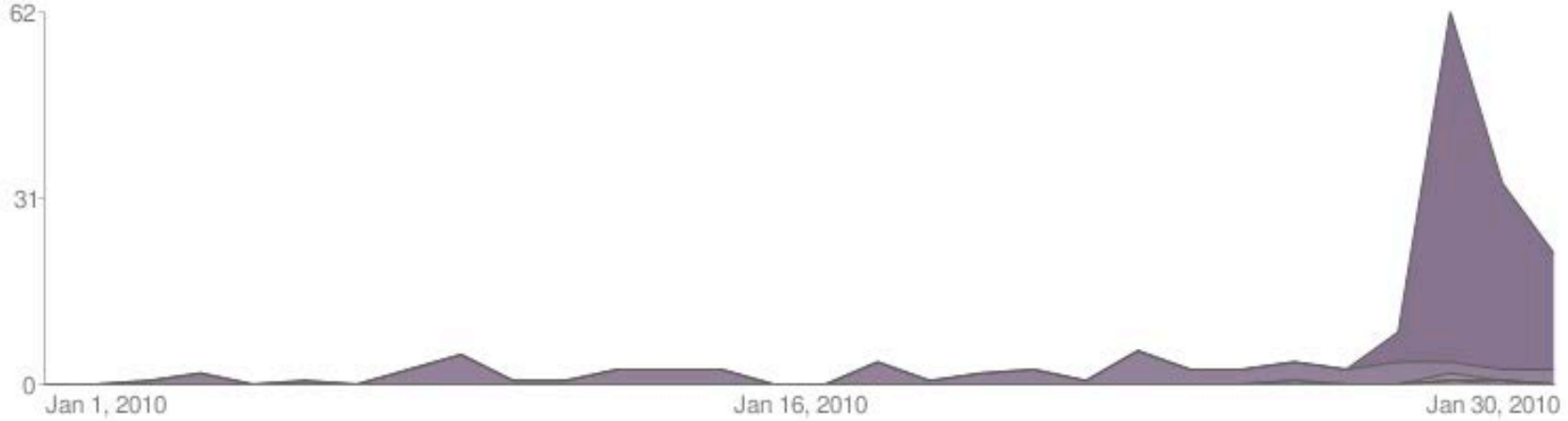
Source of views	Views	% of total views
Embedded player	180	67
YouTube search	21	7.9
Related videos	21	7.9
YouTube other	12	4.5
Google search	12	4.4
External links	11	4.1
Viral / other (?)	6	2.2
Mobile devices	2	0.75

YouTube – How viewers find us

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Discovery External websites that embed this video

Share of embedded player Display as: (•) Stacked chart ( ) Line chart



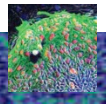
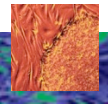
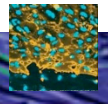
Embedded player	Show all discovery	Views	67.0% of total
www.cienciahoje.pt		113	42
www.cirm.ca.gov		63	23
www.doarvida.blogspot.com		1	0.37
cirm.ca.gov		1	0.37
infodiasms.blogspot.com		1	0.37
doarvida.blogspot.com		1	0.37

YouTube – How viewers find us

YouTube – Going forward

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

- Provide more disease-specific videos
  - These are our most popular videos
  - Parkinson's Disease is the most popular with ~10,000 views to date
- Increase daily views while maintaining high attention ratings

CIRMResearch.blogspot.com

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To highlight progress by CIRM grantees

CALIFORNIA INSTITUTE FOR CIRM REGENERATIVE MEDICINE

CIRM Research Results

Summaries of publications based on funding by the California Institute for Regenerative Medicine

WEDNESDAY, JANUARY 27, 2010

Visual Function Rescued in Rats Using Cells derived from iPS Cells

Induced pluripotent stem (iPS) cells have created excitement and head scratching ever since they were first created a little over two years ago. The excitement arises from their creation through reprogramming adult cells by manipulating their gene function, which does not require a human embryo and could potentially give a patient personalized replacement cells. But determining just how identical they are to embryonic stem cells in function has caused much consternation.

Now, a team at UC Santa Barbara and University College London has provided some pro and con information on the functionality question. Working in a rat model for age-related macular degeneration in which defects in retinal pigmented epithelial (RPE) cells lead to death of photoreceptors, they showed that RPE cells grown from iPS cells inserted into the retina prior to photoreceptor death were able to rescue the receptors and the rats retained vision.

A press release from UCSB quoted Sherry Hikita, an author on the paper saying:

> "Although much work remains to be done, we believe our results underscore the potential for stem-cell based therapies in the treatment of age-related macular degeneration."

However, the team also saw a difference between the iPS derived RPE cells and embryonic stem cell-derived RPE cells used in earlier

FOR RESEARCHERS
FOR THE PUBLIC
CIRM OPERATIONS
ABOUT CIRM

About CIRM

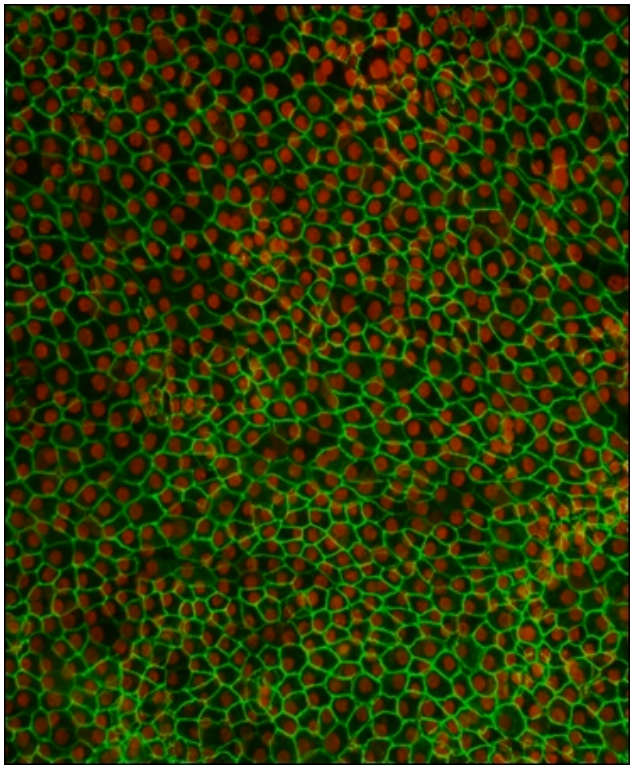
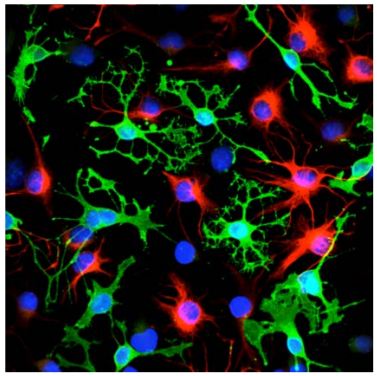
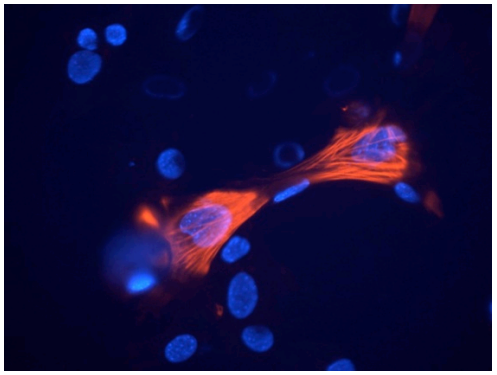
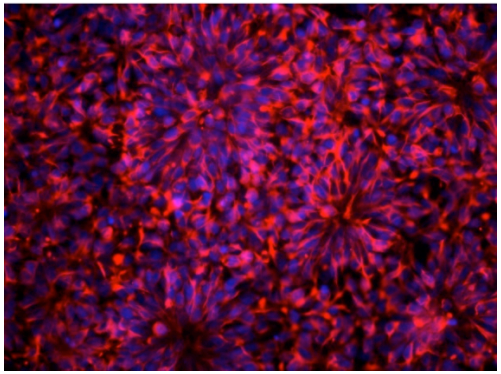
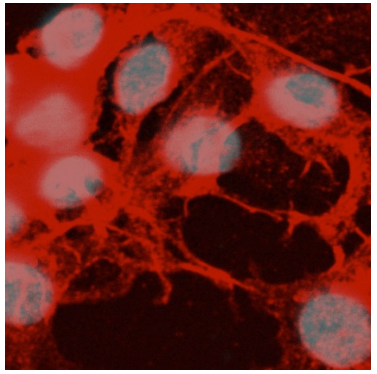
CIRM

The California Institute for Regenerative Medicine funds stem cell research at research institutions and companies throughout California. The organization was established in 2004 with the passage of Proposition 71, which provided $3 billion in funding. Our grants support research with embryonic, adult and reprogrammed (iPS) stem cells, all with the goal of bringing new medical therapies to the people of California and the world.

Flickr – www.flickr.com/photos/cirm

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To show the beauty of stem cell research and provide images to news outlets

Monthly Digest

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Goal: To update interested parties about CIRM's activities

Email not displaying correctly? View it in your browser.

CIRM CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE
The State Stem Cell Agency

Become a fan
Follow our Blog
Watch our videos
See images

CIRM January Digest

The CIRM review panel that in April 2008 recommended providing over $270 million to construct 12 major stem cell research facilities in California met on January 15th to review the status of these projects and found that all were moving forward, with 11 having construction well underway.

An independent review of the impact of this investment for the state economy last year by The Analysis Group suggested that the projects would create 13,000 job years of employment and $100 million in tax revenue between 2008 and 2011.

Conclusion

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

- Put information about CIRM where people can find it
- Dispersed information drives people to our site
- More people learn about the value of CIRM and about advances by our grantees

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

The state stem cell agency

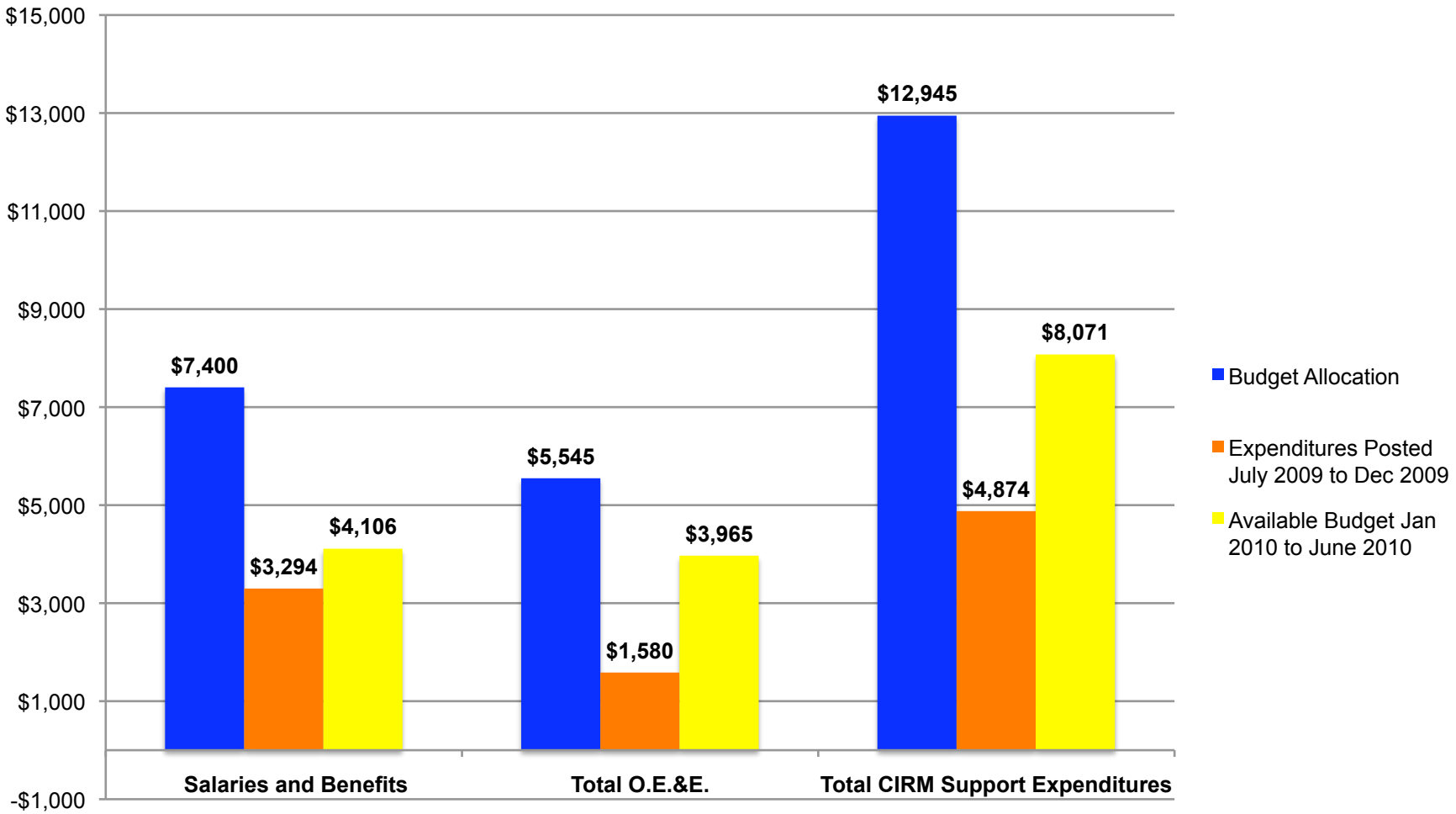
2009-10 Budget Allocation and Expenditure Report

Posted Through December 31, 2009

Chila Silva-Martin,
Financial Services Officer

February 3-4, 2010 ICOC Board Meeting

Fiscal Year 2009-10
Expenditures Posted Through December 2009



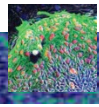
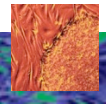
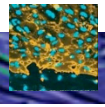
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

The state stem cell agency

CIRM Operations Summary
ICOC - February 2010

John Robson, PhD
VP Operations

Financial Projections

CIRM Funding
Financial Projections to 6/30/11

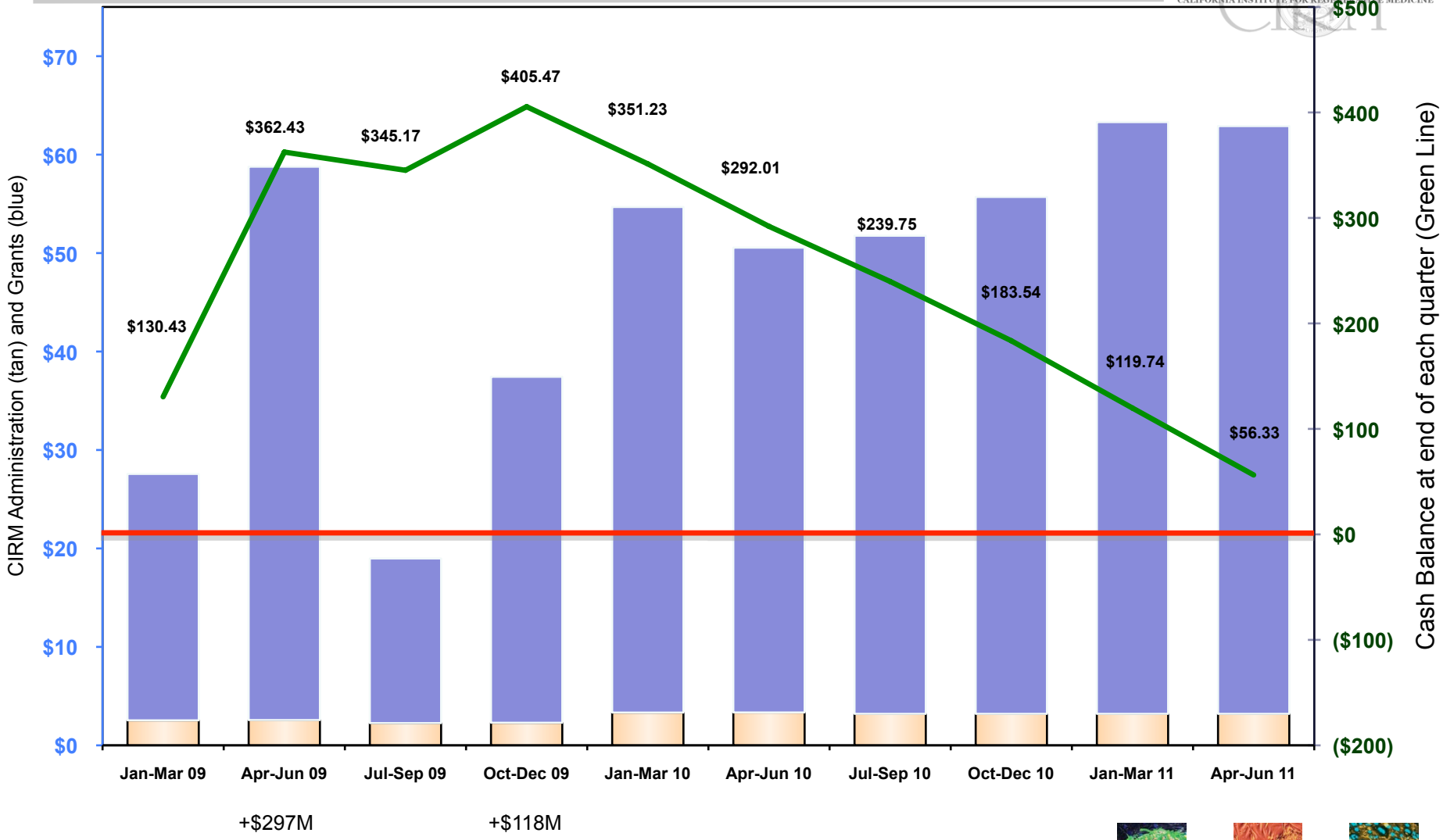
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Includes: All programs approved by the ICOC

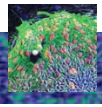
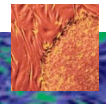
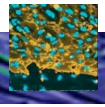
Programs with ICOC concept approval:

- Basic Biology II - $30 million
- Immunology - $30 million
- Research Leadership Awards - $44 million
- Early Translation 2 – $80 million

CIRM Funding
Financial Projections to 6/30/11



Major Facilities

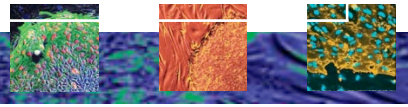




Status Report
Major Facilities Projects

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

8 of 12 projects are on schedule:

Grantee Institution	Completion	CIRM Award
Stanford University	July 2010	$43,578,000
UC San Francisco	June 2010	$34,862,400
UC Irvine	July 2010	$27,158,000
USC	July 2010	$26,972,500
UC Davis	May 2010	$20,082,400
UC Los Angeles	May 2010	$19,854,900
UC Berkeley	June 2010	$20,183,500
UC Santa Barbara	March 2010	$3,205,800



Stanford University
Lorry I. Lokey Stem Cell Research Building

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

UC Davis
Institute for Regenerative Cures

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

UC Davis
Institute for Regenerative Cures

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Status Report
Major Facilities Projects

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

3 of 12 projects are delayed 1 year:

Grantee Institution	Completion	CIRM Award
San Diego Consortium	June 2011	$43,000,000
UC Santa Cruz	Nov. 2011	$7,191,950
UC Merced	Sept. 2011	$4,359,480

Status Report
Major Facilities Projects

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

1 project is about to begin construction:

Grantee Institution	Completion	CIRM Award
Buck Institute	March 2012	$20,500,000

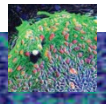
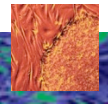
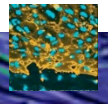
Major Facilities Projects
2010

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

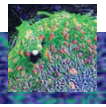
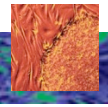
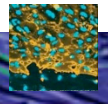
- **Planning programmatic site visits to all projects that received up-front funding.**

- **Planning technical site visits for other projects.**

- **Independent audits are due within 120 days after completion.**

Economic Impact

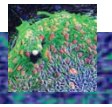
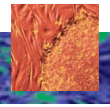
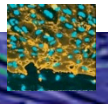




Economic Impact

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Develop model to evaluate the economic impact of CIRM's investments including:

- Job creation
- Tax revenues
- Funds leveraged
- Health care savings

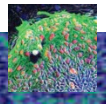
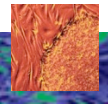
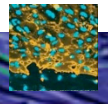
Economic Impact

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

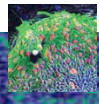
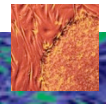
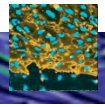
Initial "test study" of Polycythemia Vera and Primary Myelofibrosis

Draft/model will be critiqued by external experts including:

Health Economists
Medical Specialists

External Review

External Review

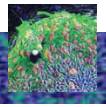
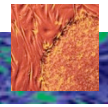
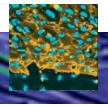
CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

2006 Strategic Plan calls for a review after 3 years by a "blue-ribbon" committee of:

- Scientists
- Clinicians
- Ethicists
- Patient Advocates

Goals of the review are to:

- Measure progress against stated commitments
- Evaluate strategic principles
- Make recommendations for changes

External Review

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

Building a list of reviewers (5-7):

- Internationally known
- Mostly from outside California

Developing time-line and procedures

Modeling long-range projection for entire $3 billion authorization