CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

President's Report

Alan O. Trounson

ICOC Meeting – January 2012

San Diego, CA

Totipotent but not pluripotent primate embryonic cells contribute to chimeras. Tachibana etal., Shoukhrat Mitalipov's Lab Oregon Primate Center. Cell Jan 2012

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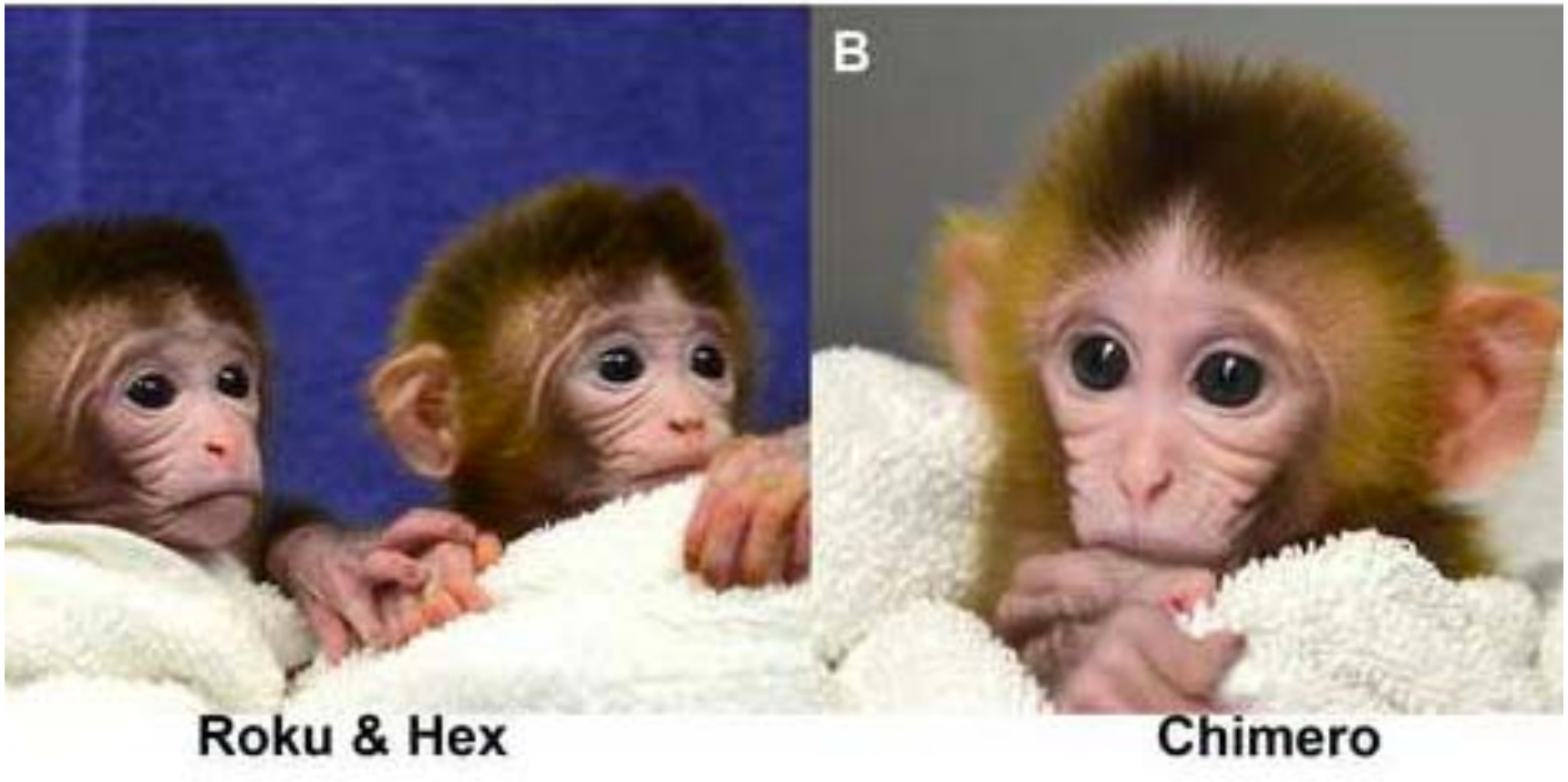
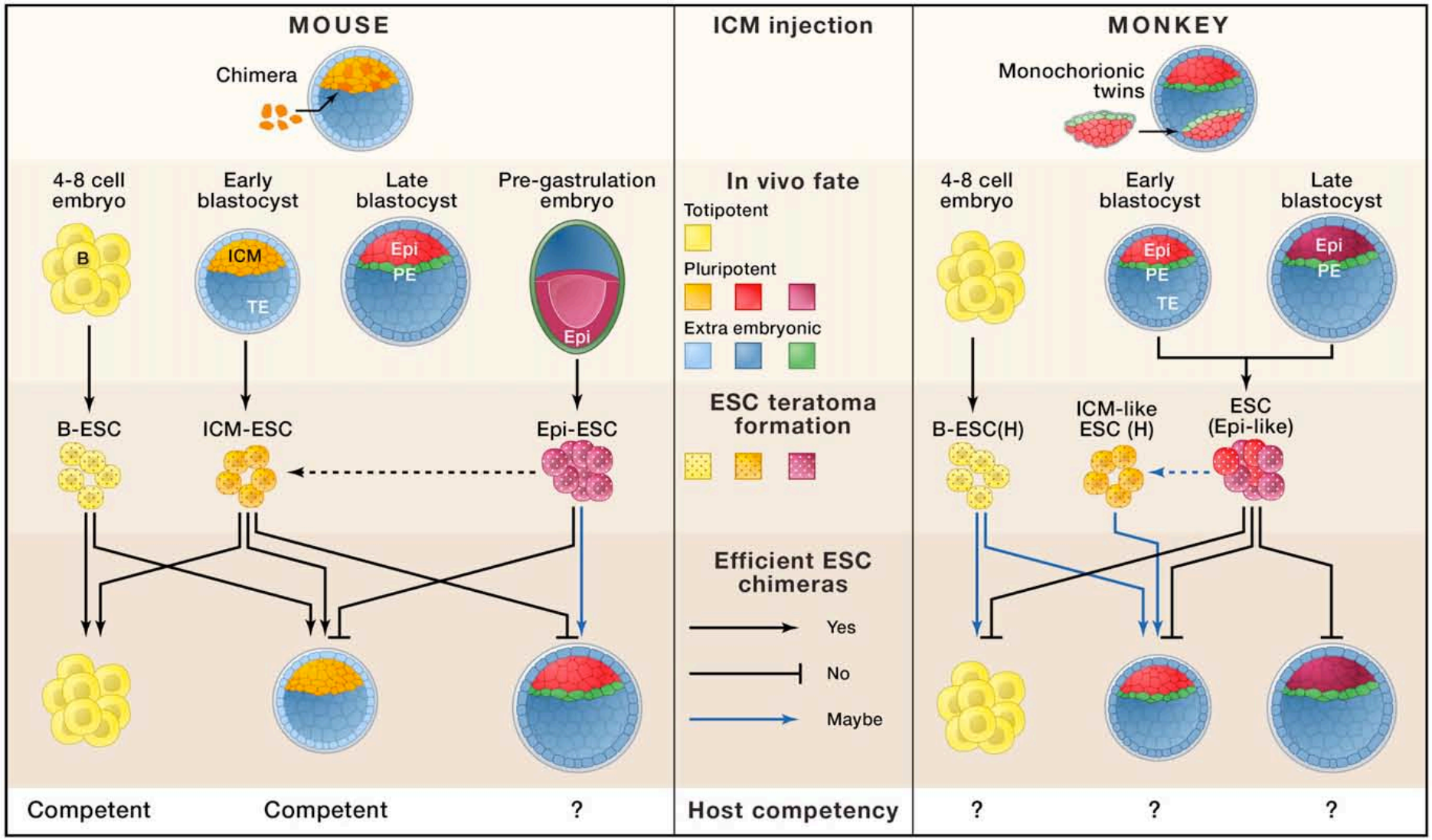
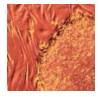
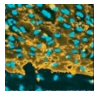


Primate ES Cells Do Not Make Chimeras



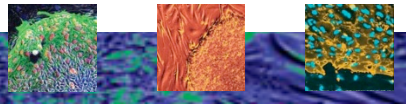




Muscle-derived stem- progenitor cell dysfunction limits healthspan and lifespan in a murine progeria model. Mitra Lavasani etal., Stem Cell Res Center, Pittsburgh Penn. Nature Comm. Jan 3 2012

- Ageing results in loss of stem cell function.
- Examined muscle progenitor cells in a progeria - rapid ageing mutant mouse model.
- Muscle progenitors from old and progeria mice are defective in proliferation and multi-lineage differentiation.
- Intraperitoneal injections of muscle progenitors from young mice into progeria mice significantly extended their health and lifespan.
- The transplanted cells contributed to skeletal muscle but were not detected in tissues that had reduced degenerative changes and increased vascularization.
- Also rescue aged muscle progenitors in coculture.
- Hence secreted factors appear to be mediating ageing defects in stem cells – a therapeutic potential?

Sustained axon regeneration induced by co-deletion of PTEN and SOCS3. Fang etal., Zhigang He Lab Nature Dec 15 2011

- Neural repair is handicapped by the long distances required for axon growth to reconnect to targets
- Benefits for deletion and negative regulation of a range of factors including PTEN, mTOR, rapamycin or SOCS3 for optic nerve regeneration is limited to 2 weeks post-accident.
- Simultaneous deletion of both PTEN and SOCS3 results in robust and sustained long-distant axon regeneration.
- Two independent pathways involved in this remarkable regenerative capacity.
- These observations are clinically critical for neuron regeneration after injury



Geron

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- CIRM loaned Geron nearly $25M (with 1:1 matching by Geron) for a project comprised of 4 Phase I clinical trials (with different cohorts) and related activities for the treatment of spinal cord injuries
  - Geron has been the pioneer for hESC science and its entry into the clinic represented considerable investment in terms of years and funding

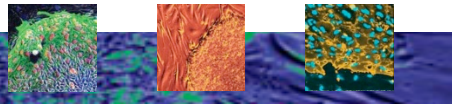
- On November 14, 2011, Geron announced that for business reasons it was discontinuing further development of all of its stem cell programs and was seeking partners

- Geron has relinquished its award from CIRM and has made CIRM completely whole:

  -- Loan: paid back with interest

  -- Warrants: Geron delivered warrants to CIRM as required under the loan agreement

- -- Transfer of the Disease Team award is possible upon satisfaction of CIRM's procedures, including satisfactory outcome of financial due diligence



Upcoming RFAs

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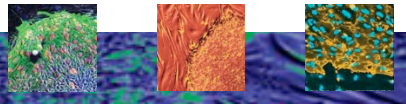
- **Creativity Awards**
  - GWG review of Applications – February
- **Early Translational III**
  - GWG Review of Applications – March
- **Disease Team Therapy Development**
  - Part 2 Research Award GWG review of Applications – April
- **Basic Biology IV**
  - GWG Review of Applications – June



Upcoming RFAs (cont'd)

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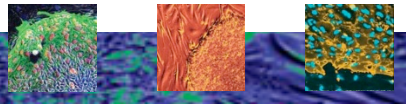
- **New Faculty Physician Scientist Transltional Research Award**
  - Posting of RFA – April
- **iPSC Initiative**
  - Posting of RFAs – May
- **Genomics Initiative**
  - Concept Proposal – January (this meeting)



CFP Program

- The CFP Network:

  Current Composition = 18 participants

  - North America: NIH; Maryland; Canada
  - South America: Argentina; Brazil
  - EU: UK, Germany, France, Spain, Scotland, Andalucia
  - Asia-Pacific: Japan, China, India, Victoria, Australia
  - Foundations: JDRF; NYSCF

  – Expected Possible Additions:

  - Countries
    – Canada (stem cells)Sweden, Netherlands, Singapore and Israel
  - Foundations
    – ALS, MDA, Cure Huntington's, Fdtn. Fighting Blindness, Michael J, Fox National MS, etc.
  - States
    - Conn.

CFP Program

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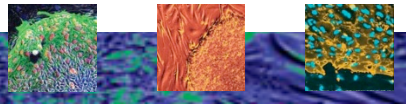
- Value Proposition Elements:
  - Link California scientists with science leadership around the world via participation in CIRM RFAs
    - Proposed teams compete in peer review without preference
    - 20+* jointly funded projects already underway (>$60M)
    - Total allocated budget of about $200M
    - Overall productivity assessment would be premature but some unique teams, good progress to date, combining strengths across borders

- *Projects with NYSCF



Parkinson's Disease Roundtable
Friday December 16th, 2011, CIRM headquarters

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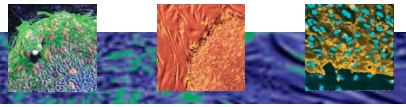
- WHY: September 2011 MOU CIRM-NIH – Identified PD as Disease Area well-suited for immediate development
- WHO: CIRM PD Grantees and NIH Researchers and Program Directors of NIH core resources
- WHAT: Kickoff discussion to explore collaborative opportunity

Main Purpose:

- Identify overlapping interest areas
- Take advantage of available resources (clinical centers, screening/ assays, iPS banking and genomics efforts)
- Harmonize MTAs and ICs



Parkinsons Workshop (cont)

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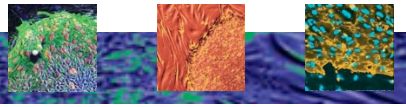
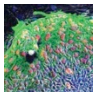
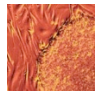
RESULT:

- Preliminary identification of areas for joint work and discussion
- Mechanisms to reach out and fund this research
- Identification of priority areas where researchers are interested in collaborating
- Set up follow up meetings:
- Janurary 25th with Dr Mahendra Rao (director for the new NIH Intramural Center for Regenerative Medicine (NIH-CRM))
- CIRM/NIH session at the Stem Cell Research and Aging meeting at the Buck Institute (March 1rst and Secondary 2012)



CIRM Tissue Engineering Workshop: *Engineering Strategies, Opportunities, and Challenges for Tissue Repair and Regeneration*

- Goal: To uncover opportunities for CIRM in tissue engineering through a series of scientific talks and moderated group discussions.
- Internationally renowned leaders in the field attended.
- The meeting isolated key technology trends in the field.
- Translational bottlenecks for tissue engineered products were also considered.
- Extremely productive and lively discussion occurred.


JP Morgan (cont)

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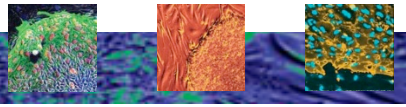
- Clear interest from large biotech and pharma in regenerative medicine generally, and CIRM **Strategic Partnering Initiative** specifically
- Regulatory concerns and path to market continue to be at the top of the list for investor reasons not to commit substantial capital to the subsector
- Also met with a number of California stem cell companies to further elaborate on opportunities and approaches for industry
- CIRM and ARM sponsored an informal lunch with representatives from some of our Disease Teams, pharma and venture capital
- CIRM (Elona Baum) presented on a panel relating to non-dilutive funding along with JDRF and Michael J. Fox
- Further interactions proposed with the NY Stem Cell Foundation



JP Morgan Annual Conference

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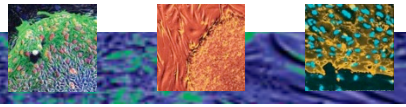
- The JP Morgan Healthcare conference has been the largest industry / investor conference for nearly all of its 30 years, since the days that it was the Hambrecht and Quist Healthcare Conference
- Well over 10,000 C-level execs, investors and others mill around the hotels and restaurants surrounding Union Square. This creates a unique venue for rapid-fire meetings, networking, parallel conferences and gauging market sentiment going into the new year
- CIRM participated in a number of one-on-one meetings and group lunches with pharma, small biotech, investors; as well as participating in parallel conferences
- ARM co-sponsors one parallel conference, the "Biotech Showcase." This year the Showcase featured an entire track on Regenerative Medicine, which even attracted actual investors, and for a significant part of the day was standing room only



Financial Highlights *As at Nov. 30, 2011*

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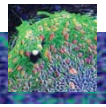
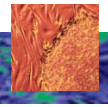
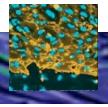
- YTD (July-Nov ’11) OpEx: $4.85mm
  - Prior period (July-Nov ’10): $4.34mm
- Grant disbursements YTD: $88.8mm
  - Amount is net of Geron repayment
  - Prior period: $84.8mm
- Available bond cash: $203.2mm
  - Also net of Geron repayment

Note: Numbers are preliminary and unaudited

Operating Expense Detail

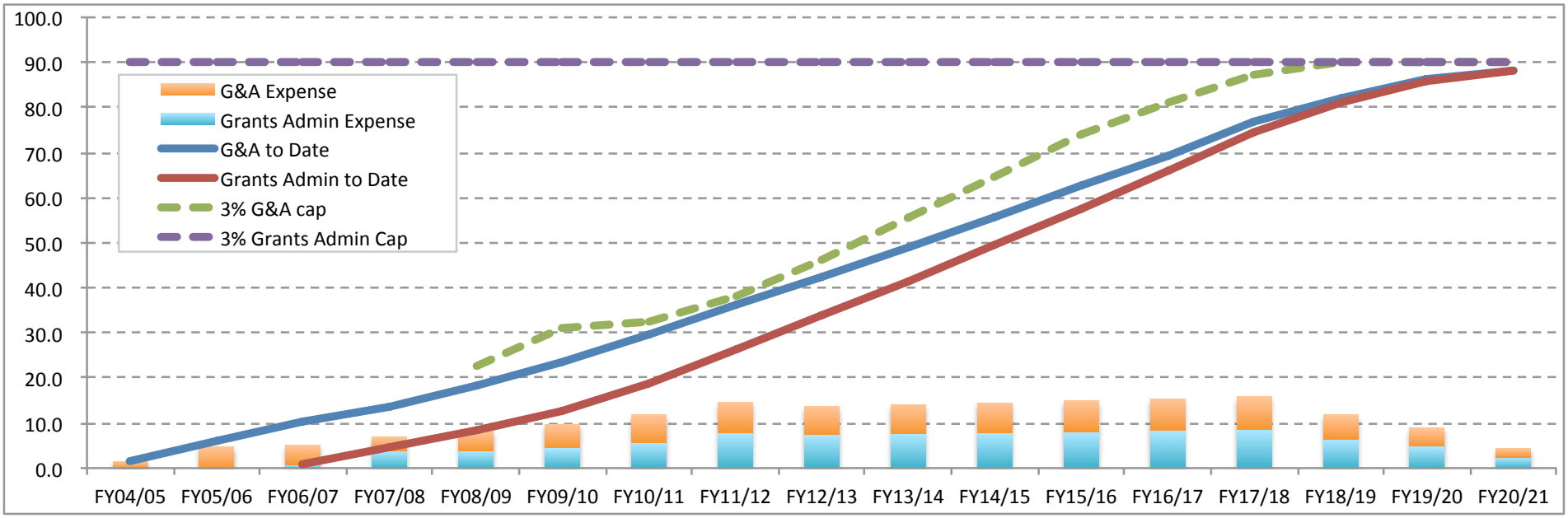
Dollars in 000s	Jul-Nov 2011	Jul-Nov 2010	Variance
Employee Exp.	$3,632	$3,172	14%
Contracting	405	470	-14%
Grant Reviews	103	154	-33%
Travel	111	83	35%
IT	225	276	-18%
ICOC	11	17	-33%
Scientific Meetings	259	94	176%
Office & General Exp.	102	70	45%
Total	$4,848	$4,335	12%

Major operating expense variance drivers:

- Increase from 46 to 50 FTEs and merit adjustments
- Timing for contracting; grant reviews; ICOC
- Grantee meeting Sept. 2011; World Stem Cell Oct. 2011

Notes: Numbers are preliminary and unaudited. Only "Employee Exp." accurately reflects costs in the period; posting of all other expense categories lags significantly.

Achieving 3% + 3% Expense Cap

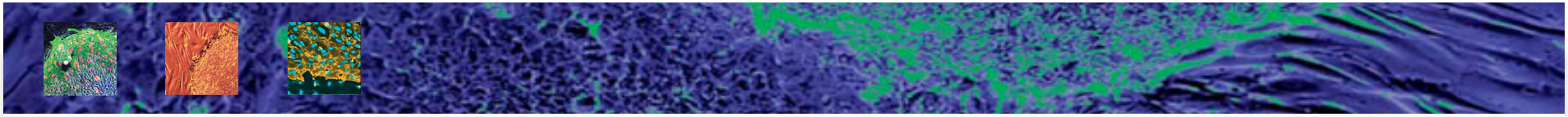


Key Assumptions:

- FY11/12 is $1mm under budget; FY12/13 is $1mm lower than FY11/12
- Expense growth of 3% p.a. through FY17/18; gradual decline to FY20/21

Considerations:

- Small savings (or expenses) compound 10x over the coming decade
- Historical expense growth has been greater than 3%
- FY12/13 budget focus on “Must Have” expenses



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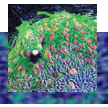
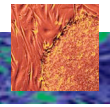
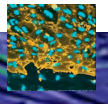
The state stem cell agency

SB1064 Transition Plan

January 17, 2012

SB 1064

125290.71.Under the guidance of the ICOC, the institute shall, by January 31, 2012, create a transition plan addressing the expiration of current bond funding. A copy of the transition plan shall be transmitted to the Governor, the Controller, and the Legislature within 30 days of its completion.

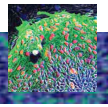
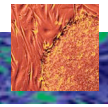
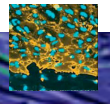
Transition Plan Goal

Establish a platform to enable grantees, industry, other government agencies, disease foundations, venture capitalists and others to continue to pursue CIRM's mission upon the expiration of CIRM's bond funding.

CIRM's bond funding is limited to $3 billion. Although additional funding could be a possibility in the future, it would be premature even to consider another bond measure at this time. Instead, CIRM should focus its efforts on creating a platform that enables others to carry on CIRM's work. Through its funding of state of the art research facilities, collaborative funding agreements, and industry engagement, CIRM has already made progress in creating this platform.

Transition Plan Activities

- CIRM will explore and facilitate the creation of Alpha Stem Cell Clinics for the delivery of stem cell based therapies to patients and will work with its collaborative funding partners to replicate the model nationally and internationally.
- CIRM will continue to pursue and strengthen its joint funding efforts with state and international partners, the NIH, disease foundations, industry and venture capitalists in order to build relationships and promote follow-on funding for CIRM's research projects.
- CIRM will work to bring new biotechnology companies to California and create stem cell clusters to promote collaborations with California researchers and to provide a vehicle to translate stem cell discoveries into clinical applications.

Transition Plan Activities #2

- CIRM will explore the creation of a nonprofit venture philanthropy fund to provide funding for stem cell research projects, from IND-enabling research through Phase 2 trials.
- CIRM will fund the creation of an iPSC bank as a resource for California researchers and companies interested in disease modeling and drug discovery.
- CIRM will provide regulatory and product development guidance to its grantees to ensure that they have the tools necessary to take their discoveries from the bench to the bedside.
- CIRM will support efforts by its grantees to protect CIRM-funded intellectual property in order to safeguard the state's investment and promote the commercialization of CIRM-funded therapies.