# RFA 07-03: CIRM MAJOR FACILITIES GRANT PROGRAM

## INTRODUCTION

The mission of CIRM is "***To support and advance stem cell research and regenerative medicine under the highest ethical and medical standards for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury***".

In support of this mission, CIRM has adopted a Scientific Strategic Plan that serves as a blueprint for guiding CIRM's plans to partner with research institutions in California in creating robust stem cell programs that span basic, translational and clinical research. A key aspect of the Scientific Strategic Plan is the investment in research facilities. The Plan states that new facilities will be needed to (1) accommodate the increase in researchers engaged in stem cell research in California as a result of CIRM's research grant and training programs, and (2) provide research space that would otherwise not be available due to federal government restrictions on certain kinds of stem cell research.

This Major Facilities Grant Program will fund the establishment of CIRM facilities to support stem cell research programs that encompass all or part of the spectrum of research that will lead from discovery to development and testing of cures, therapies, diagnostics and technologies for the treatment of injury or disease. Part One of the application will address the breadth and depth of the stem cell research program at the applicant institution(s) seeking facilities funding, and the relationship of the proposed major facility to that program. If CIRM's governing body, the Independent Citizens Oversight Committee (ICOC), approves all or part of an institution's Part One application, then the institution(s) will be invited in Part Two of the application to apply for one of three levels of funding, and in that application to address the technical aspects of its building program, to explain how that the program aligns with CIRM's objectives, and why that program represents a good value for California taxpayers' investment.

## PROGRAM OBJECTIVES

The objectives of the Major Facilities Grant Program are:

1. Funding new facilities, and encouraging investments by others in new facilities that are free of any federal funding so as to allow research and development of therapies based on human embryonic stem cell (hESC) and other stem cell approaches to proceed in California without restrictions imposed by the federal government.

2. Developing stem cell research centers that will expand research capacity and capabilities in California while bringing stem cell-related researchers together in a collaborative setting.

3. Funding new facilities and improvements where research institutions have determined that existing facilities are inadequate or are lacking altogether and thus pose a challenge to the development of therapies and cures for diseases.

## KEY FEATURES OF MAJOR FACILITIES GRANT PROGRAM

**Types of CIRM Major Facilities Grants:** Applications for a Major Facilities Grant may request one-time, space development/renovation costs of up to $50 million in one of three categories.

**CIRM Institutes**: funding for capital project proposals that support the most comprehensive stem cell research programs that include three elements: 1) basic and discovery research; 2) preclinical research; and 3) preclinical development and clinical research. Individual grants of this type will range in amount between $25 and $50 million.

**CIRM Centers of Excellence**: funding for capital project proposals that support broad stem cell research programs that include any two of the three above described research elements. Individual grants of this type will range in amount between $10 and $25 million.

**CIRM Special Programs**: funding for capital project proposals that support specialized stem cell research programs that include any one of the three research elements discussed above. Individual grants of this type will range in amount between $5 and $10 million.

**Matching Funds and Leverage:** CIRM's objectives include encouraging facilities investments in addition to CIRM grant funds. Applicants will be required to provide matching funds in cash equal to at least 20 percent of the CIRM grant amount. Project funding from other sources above the cash match will be considered by CIRM as "Project Leverage". The amount of Project Leverage in comparison to the amount of CIRM grant proposed will be part of the basis for the competitive evaluation of Part Two applications.

## REVIEW AND AWARD PROCESS

Review of applications for the CIRM Major Facilities Grants will proceed in two steps and the application will consist of two parts. The Scientific and Medical Research Funding Working Group (the Grants Working Group, GWG) will conduct a scientific

review of the Part One application for the scientific merit of the applicant's stem cell research program and the contribution of the proposed major facility to that program. Following this review, the ICOC will determine for which of the three types of Major Facilities Grants each applicant is eligible and applicants will be invited to apply in the Part Two application for the type of Major Facilities Grant approved by the ICOC. The Scientific and Medical Research Facilities Working Group (the Facilities Working Group, FWG) will conduct a technical and financial review of the Part Two application, after which the ICOC will determine whether and in what precise amounts the applications will be approved for funding. Both reviews will be based on evaluative criteria adopted by the ICOC.

The GWG consists of 15 basic and clinical scientists from institutions outside California, seven patient advocates who are members of the ICOC, and the Chair of the ICOC. The FWG is comprised of up to 11 members including four real estate experts, six patient advocates who are members of the ICOC and the Chair of the ICOC. The memberships of the working groups can be viewed at http://www.cirm.ca.gov/workgroups/pdf/GrtWkgGpMbr.pdf and http://www.cirm.ca.gov/workgroups/pdf/FacilitiesMembers.pdf

The 15 scientists of the GWG will evaluate Part One applications for the breadth and depth of the applicant's stem cell research program and the contribution of the proposed major facility to that program. Applicant organizations must choose to compete in any or all of the following stem cell research elements: **X** - basic and discovery research; **Y** - preclinical (translational) research; and **Z** - preclinical development and clinical research. These research elements represent the breadth of an applicant's program. Each element of a stem cell research program will be individually evaluated for quality and depth in four key areas: (1) scientific program; (2) formal institutional collaborations; (3) core services and (4) plans for growth. Each element in which an applicant competes will be independently assessed and scored reflecting the strengths and weaknesses of that element of stem cell research. As indicated above (see Key Features of Major Facilities Grant Program), an applicant's success in competing in one or more of these elements (X, Y and/or Z) will determine the type of Major Facilities Grant for which it will be eligible to apply in the Part Two application.

After the scientific reviewers of the GWG complete the scoring of each element applied for in each Part One application, the full membership of the GWG will conduct a programmatic review of all Part One applications. The GWG will recommend to the ICOC either that an applicant's program is meritorious in all the stem cell research elements for which it applied, in fewer than all the elements for which it applied, or in none of the elements for which it applied. The ICOC will review the GWG recommendations for each application and decide which elements are meritorious and which type of major facility award the institution will be invited to apply for in Part Two.

The FWG will subsequently review the Part Two applications and determine a score for each based on the established criteria. These scores will be the basis for

recommended funding to be decided by the ICOC in its final review of the Major Facilities Grant applications.

## AWARD INFORMATION

The ICOC has approved total funding of $227 million for this grant program

**Applicants should note that receipt of a Major Facilities grant will have a downstream effect on allowable costs for CIRM research grants awarded to any institution that benefits from a Major Facilities Grant.**

As provided in Proposition 71 (Health & Safety Code section 125292.10(u)) and in the CIRM Grants Administration Policy for Academic and Non-profit Institutions (GAP V.B.4. at pp. 28-29), costs already provided by a CIRM facilities grant are not allowable costs in a CIRM research grant. Accordingly, once a CIRM-funded facility is complete, beneficiaries of a Major Facilities Grant will not receive the fully burdened amount of Allowable Facilities Costs under either GAP V.B.3.b(1) or b(2) ("Facilities Part b") that would otherwise be associated with any CIRM research grant. Grantees will, however, continue to receive the full amount provided under GAP V.B.3.a for operation and maintenance, and for library expenses, as well as indirect costs of up to 25 percent under GAP V.B.5.

After completion of the CIRM facility, the Facilities Part b amount on CIRM research grants will be reduced. The specific extent to which Facilities Part b payments on CIRM research grants will be reduced has not yet been determined by the ICOC. The ICOC's decision on this matter will be incorporated into the GAP, and will be binding.

## ELIGIBILITY INFORMATION FOR INSTITUTIONS

Applicants responding to this RFA must be non-profit entities in California as defined in the Interim Grant Administration Policy for Facilities and Equipment Grants (http://www.cirm.ca.gov/reg/pdf/FGAP_policy.pdf) and all proposed facilities must be located in California.

Applicants are directed to the CIRM web site for review of the Grants Administration Policies (GAP) at http://www.cirm.ca.gov/reg/pdf/reg100500_policy.pdf. All pertinent provisions of the GAP are applicable to this RFA. CIRM intends to amend the GAP to address policies that are specifically applicable to the Major Facilities Grant prior to final approval of applications under this RFA. The issues to be addressed in this amendment may include, but not be limited to:

- The basis of disbursement (drawdown schedule) of CIRM funds under this RFA;
- The commitment by a grantee to use facilities for stem cell research or stem cell-related research for at least 10 years after completion.

Each institution is limited to one Part One and one Part Two application. Each application must address a single project at a single site. Institutions may agree to undertake collaborative stem cell research efforts through a legally constituted Consortium or Facilities Collaboration (see definitions below). Under such agreements, only one application will be accepted from members of a Consortium or Facilities Collaboration. Any institution listed as a member of a Consortium or a Facilities Collaboration can not apply for a Major Facilities Grant under RFA 07-03 as a member of a different Consortium or different Facilities Collaboration, nor may it apply as an independent institution.

**Definitions:**

***Scientific Collaboration***: For purposes of eligibility under this RFA, a "Scientific Collaboration" signifies an agreement between an applicant institution and other institutions (non-profit or for-profit) to work cooperatively in pursuit of a common research goal, but that does not involve co-locating investigators from different institutions at a common site. This agreement may be formal or informal, and may or may not include sharing of resources. Non-applicant participants in a Scientific Collaboration which are otherwise eligible may apply separately under this RFA, and will not be subject to a reduction in Facilities Part b payments associated with CIRM research grants.

***Facilities Collaboration:*** For purposes of eligibility under this RFA, a "Facilities Collaboration" signifies an agreement between an applicant institution and one or more other institutions (each of which is otherwise eligible to receive a CIRM Major Facilities Grant), for the purpose of establishing a shared facilities resource that is not otherwise available to any member in support of stem cell research, and that will be located at the applicant institution. This Facilities Collaboration agreement must be a formal written agreement that establishes how the members of the facilities collaboration will share the cost of capital, equipment, and operating costs of a facility to be funded by CIRM, as well as the terms of access. In addition, it must specifically provide for co-location of principal investigators to facilitate shared use of facilities. Members of a Facilities Collaboration may apply for a Major Facilities Grant to establish costly and/or highly specialized facilities (e.g., Good Manufacturing Practice facilities) if the agreement demonstrates that the sharing arrangement will be beneficial to all parties. Members of a Facilities Collaboration are not otherwise eligible to apply under this RFA, and if successful, all members will be subject to a reduction in Facilities Part b payments associated with CIRM research grants.

***Consortium:*** For purposes of eligibility under this RFA, a "Consortium" is an independent legal entity made up of two or more existing institutions each of which is eligible to receive a CIRM Major Facilities Grant, that shares resources among its member institutions, and that applies for a Major Facilities Grant in its own right. A Consortium must be evidenced by a formal written agreement that reflects the Consortium's members' commitment to co-locate investigators at the CIRM-funded

facility, and must also reflect management, operations, governance, and financial accountability independent of its constituent members. Members of a Consortium are not otherwise eligible to apply under this RFA, and if successful, all members will be subject to a reduction in Facilities Part b payments associated with CIRM research grants.

## ELIGIBLE COSTS AND FUNDING

CIRM funding will be provided for construction costs and construction support costs for new or renovated facilities. (Construction support costs include all necessary costs during the construction phase of the project for activities such as inspection, material testing, and project management.) Applicants may include project costs incurred prior to ICOC approval of a grant as Leverage. By contrast, matching funds cannot be expended until the day after ICOC approval of Part Two applications. This RFA does not include funding for research (movable or Group 2) equipment. Built-in equipment (Group 1), however, will be funded as part of the construction**.** All applicants must include in their Part Two application a plan to provide an initial complement of research equipment necessary to make the facility functional.

## REVIEW CRITERIA

### PART ONE APPLICATION: SCIENTIFIC REVIEW CRITERIA

The Grants Working Group (GWG) will evaluate the overall stem cell research program described in each Part One application and the contribution of the proposed CIRM major facility to that program. Each proposal will be judged on the breadth and depth of the research program.

### Breadth of Program

The **breadth** of a stem cell research program refers to the three elements of research (described below) along a spectrum from basic to clinical studies in which the applicant chooses to compete. An application can include one or more of the three elements. Following review by the GWG and the ICOC, the number of elements in which an applicant has successfully competed will determine the type of Major Facilities Grant for which the applicant will be invited to compete in Part Two (see 'REVIEW AND AWARD PROCESS' above).

- **Element X**: **Basic and discovery research.** This element includes research focused on understanding the fundamental biology of stem cells and pluripotency.
- **Element Y: Preclinical (translational) research.** This element includes investigations directed toward the development of treatments and may

include the application of basic discoveries and technologies to research such as in vitro assays, in vivo models and drug discovery.

- **Element Z: Preclinical development and clinical research.** This element includes research to enable and test outcomes of the use of candidate therapeutics or procedures. Preclinical development includes those activities such as GLP efficacy and safety testing in model systems and GLP/GMP production for preclinical development and clinical studies. Clinical research tests candidate therapeutics or procedures in humans.

**Depth of Program**

The depth of each element (**X**, **Y**, or **Z**) in an application will be independently evaluated for scientific merit, quality and strength in four key areas:

- **Scientific Program**
- **Formal Institutional Collaborations**
- **Core Services**
- **Plans for Growth**

**1. Scientific Program**

The scientific program in stem cell research for each element will be evaluated on the scientific excellence and track record of the applicant institution and of its Principal Investigators (PIs), on interdisciplinary synergy and collaborations and on the program's ability to bring discoveries to the next step toward application and development of therapies.

Scientific excellence will be assessed based on:

- The strength and quality of the stem cell program and related research programs that will be housed in the proposed facility.
- The strength and track record of PIs who will be housed in the proposed facility.
- The types and integration of stem cell and related research programs at the applicant organization that will not be housed in the proposed facility but will contribute substantively to the richness of the stem cell program.
- The strength and track record of PIs who may use the proposed facility for stem cell-related activities but will not be housed in the proposed facility.
- The strength and track record of interdisciplinary synergy and collaborations at the applicant organization.
- The strength and track record of the applicant institution's ability to move promising discoveries the next step toward therapies. For element Z, the experience, competence and past success of the organization will be assessed with special regard given to cell therapy.

The track record of each PI will be assessed based on information such as (but not limited to):

- The number of CIRM grants received or approved for funding.

- Relevant NIH grants received as PI (not as Co-PI) since 2000.
- Other relevant grants received as PI (not as Co-PI) since 2000.
- The number and quality of relevant publications and patent applications filed since 2000.

In element Z, for PIs who conduct preclinical development and clinical research, assessment will also be based on:

- Relevant approved Investigational New Drug applications (INDs), Investigational Device Exemptions (IDEs) or equivalent, where the PI was the lead or contributing investigator to the filing since 2000.
- Relevant clinical trials conducted since 2000 where the PI was the lead investigator or a contributing investigator.

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Interdisciplinary synergy and collaboration within the applicant organization and the ability to move discoveries forward to the next step of application for therapy development will be assessed based on:

- Evidence of past success.
- The contribution of the interdisciplinary programs to the research element.
- The benefits to this research element achieved by housing interdisciplinary programs in the proposed major facility (if applicable).
- The resources currently available or planned to move promising results from the element of research forward.

**2. Formal Institutional Collaborations**

Formal institutional collaborations include collaborations of an institution with other academic, not-for-profit or for-profit organizations, provided there is evidence of formal written commitments. These formal institutional collaborations must be established by the time of Part One application submittal and be directly relevant to a scientific element of the applicant's stem cell program. Formal institutional collaborations will be evaluated based on:

- The number and types of collaborations.
- The terms and extent of commitment based on supporting documentation.
- The length of time the collaboration has existed.
- The synergies achieved and/or expected to be achieved as a result of the collaboration.
- Evidence of productivity and effectiveness of the collaboration.

Greater weight will be given to more formal collaborations and to those collaborations that provide evidence of past success.

**3. Core Services**

Scientific core services, or scientific shared resources, that support each element of the applicant's proposed stem cell research program will be judged based on the types and number of cores and services currently available as well as those planned. The latter should include core service(s) planned for the proposed facility. Each core will be judged on:

- Its relevance to the stem cell research being conducted in that element
- The number of relevant projects requiring use of the core's services
- The number of PI's actively using existing cores and/or expected to use the services of a planned core.
- Existing or planned arrangements for making the core's services accessible to researchers at other institutions
- The experience and track record of the applicant in the management, operation, productive use and maintenance of similar cores

Institutional services for technology transfer and intellectual property: Evidence of institutional resources and experience in the handling of intellectual property and technology transfer will also be evaluated to determine the experience of the applicant organization in handling and facilitating collaborations with other organizations.

**4. Plans for Growth**

The applicant's plans for growth and building capacity in each research element of the proposal will be assessed based on the following:

- Plans for the development, expansion and continuity of the stem cell research program element, such as multi-year plans for faculty recruitment, future core services and growth in relevant disciplines.
- Description of planned use of space in the proposed facility and how this matches the current and anticipated scope of work in the scientific research element described above.

**Contribution of Proposed Major Facility to Stem Cell Research Program**

The contribution of the proposed CIRM major facility to the applicant's current and planned stem cell and contributing research programs will be assessed based on the following:

- How well the organization and use of space in the new facility will promote scientific excellence, integration and interdisciplinary synergy among the PI's and research programs that will be housed in the facility?
- How much the proposed facility will contribute to those related research programs of the organization not housed within the facility by providing access to core services, and the strength of plans to integrate relevant programs and PIs housed outside the facility with those within the facility?
- How and to what extent the proposed facility will contribute to continued growth and development of the stem cell program?
- How feasible is the planned growth and development given the current space assigned and the planed space in the CIRM facility?
- The organization's plans for management, operation and funding operations of the facility.

## PART TWO APPLICATION: FACILITIES TECHNICAL REVIEW CRITERIA

The members of the Facilities Working Group will evaluate *Part Two* of each application and assign a numerical score (100 point scale) to each application based on common factors and criteria described below:

**Value (up to 25 points)**
The investment represents a good return to the taxpayer while considering costs, quality, geographic location, and benefits of the project. The facility has innovative elements that encourage conservation and renewable resources. The project costs are reasonable and necessary.

**Evaluation Standards for Value:**

- **Costs (up to 15 points**). An evaluation of cost and program space provided from CIRM funds will establish the net CIRM cost and benefits. The project costs are reasonable and necessary based on CIRM's review.
- **Sustainability (up to 5 points**). These facilities elements have been documented and respond to CIRM's objective in a cost-effective way. Full points will be allocated based on (1) meeting the equivalent rating of "certified" under the US Green Building Standards, or (2) including elements in the project that the applicant demonstrates are equivalent to or exceed green building standards.
- **Innovation (up to 5 points**). The facility offers some elements that demonstrate innovation in design or research capabilities.

**Leverage (up to 25 points)**
The CIRM investment prompts additional investments that are consistent with CIRM objectives; these investments are additional capital funding for the project. These costs include project cash expenditures prior to ICOC approval of the Grant Award and may include (1) the purchase of land and/or a building at the documented cost to the institution; (2) purchase of the initial complement of major equipment for the project; and (3) other capitalized project cost. The project leverage attributable to internal project overhead and architectural and engineering costs may not exceed 10% of the total project costs.

**Evaluation Standard for Leverage:** Project Leverage is the calculation of the following ratio: The additional institutional funding for the project (in excess of the minimum matching funds) divided by the CIRM funding amount requested. Applicants that show the highest ratio considering project costs and scale will receive the highest point value.

**Urgency (up to 20 points)**
Places a high priority on completion of the project within two years and the delivery of projects on an expedited schedule. The institution, the team and approach has a historic and proven track record of delivering capital projects on an expedited schedule and the

applicant has proposed an accelerated schedule. The calculation of the completion time shall be based on the time between the following two events as identified on the project schedule: (1) the anticipated Notice of Grant award date, and (2) the date that the building or project is expected to be is available for occupancy and/or installation of equipment**.**

**Evaluation Standard for Urgency:**

- **Completion within 2 years (up to 10 points)**
- **Proven track record (up to 10 points)**

**Applicants** that provide a specific and credible plan for project completion within two years, and demonstrate a track record of on-time completion for similar scale projects will receive a higher score than those with longer completion timelines.

**Shared Resources (up to 15 points).**
The project benefits from facilities, equipment, or core laboratories (including staff dedicated to operation of the core laboratory) at the applicant site or collaborating institutions that reduce the cost to CIRM and increase the value for the mission.

**Evaluation Standard for Shared Resources**: Shared resources shall be considered facilities (building space), equipment and core laboratories. Applicants will document (1) how existing or proposed new resources will be shared and (2) the savings to CIRM and benefit attributable to the sharing arrangement.

**Functionality (up to 15 points).**
The planned space design for the base building and tenant improvements is consistent with CIRM's objectives of meeting current programmatic needs and expanding regenerative medicine research capacity and capabilities. The facility provides for long term flexibility while meeting scientific objectives.

**Evaluation Standard for Functionality.** The applicant has adequately described the program to be housed in the new space, and explained how the facilities plan supports that program. The project provides the appropriate improvements to expand capacity and/or capability of regenerative medicine programs at this institution.

After assigning scores for all applications, the FWG will make recommendations for consideration by the ICOC. The working group may make a recommendation for (1) approval of full funding, (2) approval of partial funding or (3) no funding. The ICOC will consider the recommendations of the FWG and make all final funding decisions.

## APPLICATION PROCEDURE

### Letter of Intent

All institutions planning to apply for a CIRM Major Facility Grant must notify CIRM in a Letter of Intent (LOI) using the LOI template provided at http://www.cirm.ca.gov/grants/default.asp. The letter should provide a brief description of the research elements (X, Y, Z) of the stem cell program that the applicant organization plans to compete in, as well as a concise description of the proposed use of the planned CIRM major research facility. If a Consortium or a Facilities Collaboration is involved, (for definitions, see 'ELIGIBILITY CRITERIA FOR INSTITUTIONS'), list the institutional members. Completed LOIs should be sent as an email attachment to loi07-03@cirm.ca.gov and must be received by CIRM no later than **5:00PM (PDT) on September 26, 2007. No exceptions will be made.** Letters of intent are non-binding.

### Application Instructions

The application for a CIRM Major Facilities Grant consists of two parts: a scientific application (Part One) and a facilities application (Part Two).

- Part One applications must be received by **5:00 pm October 16, 2007**. **Applications received after this time will not be accepted. There will be no exceptions.**
- Part Two application forms and the deadline for receipt will be available on the CIRM website in **January, 2008**.

***Part One Application***

For a Part One submission, applicants must use the Major Facilities Part One Application Forms. These are expected to be available on the CIRM website (http://www.cirm.ca.gov/grants/default.asp) by **August 29, 2007**.

The Part One application for CIRM Major Facilities Grants consists of forms for five of the subparts (all templates are provided at http://www.cirm.ca.gov/grants/default.asp):

Subpart A: Information and Signature Form (Adobe Acrobat template) includes: Abstract, Public Abstract and Statement of Benefit to California.

Subpart B: Program Narrative (MS Word template) includes: a description of the stem cell program and discussion of the depth of each element (X, Y, and Z) in which the organization chooses to compete; and information on the use of the proposed CIRM major facility and how it contributes to the development of the stem cell program.

Subpart C: Principal Investigator Summary Table (MS Excel template)
This Table includes a list of the Principal Investigators (PIs) who are part of the

stem cell research program and details regarding their current funding, publications, patent applications and other pertinent information.

Subpart D: Biographical Sketches for each of the Principal Investigators (MS Word template) listed in the Principal Investigator Summary Table (Subpart C).

Subpart E: Capacity and Use Table (MS Excel template) includes a summary the projected use of space dedicated to each research elements (X, Y or Z) in the proposed major facility as well as the current use of space for the stem cell program. **CIRM recommends that the organization's Facilities Planning Department participate in the completion of this Subpart E**.

Subpart F: Supporting Documentation for formal institutional collaborations (including Consortia and Facilities Collaborations).

The Part One application for the CIRM Major Facilities Grants includes the following:

**Subpart A:**

- *Abstract* (up to 3,000 characters): Provide a brief description of the stem cell research program. Describe the proposed major facility; the stem cell and related programs that will be housed in the facility; and the benefits to the development of the stem cell research program that the major facility will provide.

- *Public Abstract* (up to 3,000 characters): Briefly describe, in lay language, the proposed major facility, the stem cell and related research programs that would benefit from the major facility and how the proposed program will contribute, directly or indirectly to the development of diagnostics, tools or therapies. This Public Abstract will become public information; therefore do not include proprietary or confidential information or information that clearly identifies the applicant organization.

- *Statement of Benefit to California* (up to 3,000 characters): Describe in lay language how the proposed stem cell facility and the stem cell program it will support will benefit the State of California and its citizens. This Statement of Benefits to California will become public information; therefore do not include proprietary or confidential information or information that clearly identifies the applicant organization.

**Subpart B:**

- *Program Overview:* (up to 2 pages): Summarize the entire proposed stem cell research program including its breadth and strengths along the spectrum of basic through clinical research. Outline the proposed CIRM major facility and the programs, PIs and core services that are anticipated to be housed within it; discuss

the benefits expected from these arrangements within the proposed facility. Review how the proposed facility will contribute to the development of the stem cell program.

- *Stem Cell Research Program:* (up to 10 pages for each element X, Y, Z): Separately describe each element X, Y, and Z of the stem cell research program in which the organization chooses to compete. An application does not need to propose programs that cover all three elements; applicants may propose programs that only cover one or two elements.

    - **Element X**: **Basic and discovery research.** This element includes research focused on understanding the fundamental biology of stem cells and pluripotency.

    - **Element Y: Preclinical (translational) research.** This element includes investigations directed toward the development of treatments and may include the application of basic discoveries and technologies to research such as in vitro assays, in vivo models and drug discovery.

    - **Element Z: Preclinical development and clinical research.** This element includes research to enable and test outcomes of the use of candidate therapeutics or procedures. Preclinical development includes those activities such as GLP efficacy and safety testing in model systems and GLP/GMP production for preclinical development and clinical studies. Clinical research tests candidate therapeutics or procedures in humans.

    For each element (X, Y or Z) of the proposed stem cell research program, discuss each of the following key aspects of element depth:

    1. Scientific Program
    2. Formal Institutional Collaborations
    3. Core Services
    4. Plans for Growth

        1. Scientific Program: Describe the stem cell research and related research programs of the element under discussion that will be housed in the proposed major facility. Discuss how these programs will benefit from being housed in the proposed facility. Describe the stem cell and related research programs at the applicant organization that will not be housed in the proposed facility but will contribute to the richness of this research element. Explain how those programs will be integrated with the programs housed in the proposed facility.

        Highlight those Principal Investigators (PIs) who will make significant contributions to the strength and productivity of this research element, and how their research will contribute to the richness of the program. It is not necessary to include every PI in this segment since all the PIs in the stem

cell and related programs will be listed on the Principal Investigator Summary Table (Subpart C) and a brief description of each PIs research and other relevant information should be provided in a biographical sketch in Subpart D (Biographical Sketches for Principal Investigators).

Describe any interdisciplinary or multidisciplinary programs that will contribute to this scientific element and explain whether they are planned to be housed in the proposed facility. Summarize any novel or innovative collaborations planned that will develop as a result of this proposed facility. Explain how will this be accomplished and what will be achieved. Where applicable, point out how clinicians and clinical programs will be integrated into the stem cell research programs. Provide information on the organization's track record of collaboration and interdisciplinary synergy.

Explain how the applicant recognizes research that has promise for application to therapy. Describe the resources and plans to bring promising findings along to the next step toward the development of therapies. For Element X, explain how basic discoveries that are ready for translation to preclinical research are identified and moved forward. For Element Y, describe how the proposed program will turn promising discoveries into preclinical investigations. For Element Z, summarize plans to develop preclinical findings to move them through the regulatory process into clinical trials. Provide any information that establishes the experience, competence and past success of the institution in these types of efforts.

2 Formal Institutional Collaborations: Describe formal institutional collaborations that have been established by the time of application supporting this element of research; explain how each will be accommodated by or benefit from the proposed major facility. Discuss the rationale for and the synergies achieved or expected as a result of the collaboration. Describe the length of time the collaboration has existed and discuss the productivity and effectiveness of the collaboration in contributing to the success of this research element.

Formal institutional collaborations include collaborations of an institution with other academic, not-for-profit or for-profit organizations provided there is evidence of formal written commitments. Supporting documents should be attached as evidence of a formal collaboration in Subpart F.

3. Core Services: Describe any scientific core resources and services that exist or that will be needed for this element of the program to function and flourish. Explain if such services and cores are currently available or if they are planned. If cores or shared resources are planned to be housed in the proposed facility, provide details of any special

circumstances regarding the acquisition or installation of major equipment and/or resources and services requested. For each core service that will be: i) housed in the facility, or ii) on campus but not housed in the facility, identify how many PIs and projects require this resource. For all core resource(s), existing and planned, explain how access is currently provided or will be provided to investigators at the applicant organization and those from other institutions. Discuss the applicant organization's track record (i.e., management, productivity) in operating such core services.

Institutional services for technology transfer and intellectual property: Provide any information that establishes the ability, competence and experience of the organization to handle intellectual property and technology transfer. Describe institutional resources to handle technology transfer and other collaborative activities between institutions

4. Plans for Growth: Describe plans to build or expand programs, services and capacity and to recruit new faculty for this element of stem cell research. Provide details on where these will be housed (in the proposed new facility or elsewhere). Explain how the size and organization of the proposed facility fits with the current and future scope of work planned for this stem cell research element.

- *Use of Facility* (up to 3 pages): Discuss plans for use of space in the proposed major facility. Describe how the space will be utilized in the context of supporting research element X, Y or Z and explain how these plans will contribute to the stem cell program. Summarize how the proposed use of space in the CIRM major facility integrates resident programs, disciplines and core services. Provide details on how much space will be utilized for research laboratories, for common space used for research support (e.g. shared reagent rooms, cold rooms or equipment rooms such as ultracentrifuge rooms), for core services (e.g. more specialized scientific shared services such as vivarium, FACs core, GMP core), for office space for PIs and for administration. Discuss how much of the space will be occupied as soon as the project is complete, and how much is planned for growth. Indicate how many PIs and the types of core services will occupy the major facility at project completion and at capacity. For a Consortium or a Facilities Collaboration (for definitions see 'ELIGIBILITY INFORMATION FOR INSTITUTIONS'), identify how many PIs from each member institution will occupy the space at project completion and at capacity. Discuss plans and timelines for faculty recruitment, and for achieving full capacity occupation of the major facility. Explain the 10 year plan for use of the space currently occupied by the stem cell program. Specific details on current stem cell program space use and use of space in the proposed facility for research elements X, Y or Z at project completion and available for growth must be provided in the Capacity and Use Table (Subpart E).

This is a one-time-only CIRM funding opportunity and not intended to support operations. Discuss the organization's plans for continuity of operations of the major facility in the context of the stem cell program.

**Subpart C**:

*Principal Investigator Summary Table:* List all of the Principal Investigators (PIs) who are part of the stem cell and related research program. State whether they will be housed in the proposed major facility or located elsewhere. For each PI listed, summarize the number of:

- CIRM grants received or approved for funding.
- Relevant NIH grants received as PI (not as Co-PI) since 2000.
- Other relevant grants received as PI (not as Co-PI) since 2000.
- Relevant publications and patent applications filed since 2000.
- Relevant approved Investigational New Drug applications (INDs), Investigational Device Exemptions (IDEs) or equivalent, where the PI was the lead or contributing investigator to the filing since 2000.
- Relevant clinical trials conducted since 2000 where the PI was the lead investigator or a contributing investigator.

**Subpart D:**

*Biographical Sketches for Principal Investigators* (up to 4 pages for each PI): Provide a biographical sketch for each PI listed in the *Principal Investigator Summary Table* (Subpart C) that includes:

- A brief summary of the PI's research.
- CIRM grants received or approved for funding.
- Relevant NIH grants received as PI (not as Co-PI) since 2000.
- Other relevant grants received as PI (not as Co-PI) since 2000.
- Relevant publications and patent applications filed since 2000.
- Relevant approved Investigational New Drug applications (INDs), Investigational Device Exemptions (IDEs) or equivalent. Indicate whether the PI was the lead or a contributing investigator to the filing;
- Relevant clinical trails. Indicate whether the PI was the lead or contributing investigator. Indicate the stage (e.g., Phase 1) and status of the trial (ongoing, terminated, or completed).

**Subpart E:**

*Capacity and Use Table:* For each program element that will be housed in the proposed major facility, summarize at occupancy:

- The number of PIs accommodated (CIRM funded and other).
- The amount of laboratory and office space in assignable square feet (asf) that will be assigned to PIs.
- The amount of common research space (asf).

- The amount of core service space (asf).
- The amount of administrative space (asf).
- The amount of unassigned space (asf) available for growth.

For space that is currently occupied by the applicant's stem cell program, for each program element summarize:

- The number of PIs (CIRM funded and other).
- The amount of research space (asf) available (or assigned) for PIs.
- The amount of NIH-free common research space and common core service space (asf).

**Subpart F:**

Provide as attachments documentation of formal institutional partnerships with other institutions.

***Part Two Application***

Applicants will be advised by the ICOC in January 2008 (estimated) of the action on the Part One application and will be invited to submit a Part Two application for the type of Major Facilities Grant for which they are approved to apply. The application for Part Two of the CIRM Major Facilities Grants must include the following components:

1. **Program Plan:**
   a. a description of the research program to be housed in the project, and how the proposed project addresses the facilities needs of that program. This should include a "project planning guide" with sufficient detail to determine the programmatic benefits of the project. It should address the basic design of the facility and how it is efficient in meeting space objectives of the program. A set of schematic drawings that have sufficient detail to show the intended use of the space and the general layout of the space. A calculation of the building efficiency with respect to the gross square feet to be constructed and the assignable area to be available for program use.

   b. Indicate how the project design responds to environmental issues, and indicate whether or not the project will be evaluated on a LEED building basis to achieve a level of "certified" or if the project will be evaluated on an alternative equivalent basis for environmental sensitivity.

   c. Indicate how the project will address "innovation" in its design and program function.

2. **Project Leverage:** an explanation of how the applicant's project funding in addition to the CIRM funds and matching funds that will be used to advance the objectives of the RFA. For purposed of establishing the amount of leverage, project costs include all capitalized project costs, excluding any interest or financing costs

applicable to matching or leverage funds. Administrative and architectural/engineering costs may not exceed 10 percent of the construction costs.

3. **Cost Estimate/Funding Plan:**

   a. a cost estimate for the overall project that indicates the basis for the funding request for all categories of costs ( this can be provided on a Capital Improvement Budget form, of which a sample is provided in Attachment B). Indicate the costs that are being proposed for (1) CIRM funding (2) CIRM matching amount and (3) Institutional leverage.

   b. a detailed estimate of the overall construction cost. (schematic design cost estimate or more detailed estimate preferred) prepared by a professional estimator that is the basis for the construction amount included in the proposal.

4. **Schedule:** a schedule for the overall project based on a Microsoft Project Gant chart including the milestones indicated in Attachment C. A discussion of the management team responsible for implementation along with examples of successful projects of comparable scale that have been completed consistent with planned schedules.

5. **Shared Facilities:** a description of how the program to be housed will take advantage of shared resources that will reduce the cost to CIRM and benefit its mission. Describe in detail the nature of the shared facility as it relates to a Consortium, Facilities Collaborative, or Scientific Collaboration as defined under section “ELIGIBILITY INFORMATION FOR INSTITUTIONS” section above.

6. **CIRM Requirements:** a discussion of how the applicant will addresses requirements specified in the Grants Administration Policies that pertain to this RFA, including but not limited to provisions related to payment of prevailing wages and establishing goals for use of California suppliers.

## SUBMITTING AN APPLICATION

The application for CIRM Major Facility Awards is a two part application including a Part One application for review by the GWG and a Part Two application for review by the FWG.

### Part One Application

The complete Part One Application for CIRM Major Facility Grants includes six subparts (Subparts A-F) as described above. Applicants must use the appropriate CIRM templates to complete Subparts A-E. Part One application templates will be available on the web on August 29, 2007. The Part One application must be submitted in both hard copy and electronic formats. Submit an original hardcopy of the application signed

by all required Authorized Executive Officer(s) (see below for definition), plus 5 additional hardcopies (preferably double-sided) of Subparts A, B, C, E, and F (additional hardcopies of Subpart D are not necessary). In addition, submit 6 CDs each containing the complete Part One application (i.e. Subparts A-F). Submit all materials to:

**Major Facility Award Grant Application**
California Institute for Regenerative Medicine
210 King Street
San Francisco, CA 94107

The Authorized Executive Officer is a senior official who has the authority to commit funds for major facilities on behalf of the applicant institution, as well as authority to commit the applicant institution's resources to realize the strategic stem cell research program. The Authorized Executive Officer must be at least at the level of the Executive Vice Chancellor, Provost or equivalent official in the case of a university applicant, or the Chief Financial Officer in the case of a private research institute.

All Part One application materials must be received by CIRM no later than **5:00PM (PDT) on October 16, 2007. No exceptions will be made.**

**Part One Application Key Dates**

| | |
|---|---|
| **Receipt of Letters of Intent:** | **5:00PM (PDT) on September 26, 2007** |
| **Receipt of Part One Applications:** | **5:00PM (PDT) on October 16, 2007** |
| **Review of Part One Applications by Grants Working Group (GWG):** | **Nov/Dec, 2007** |
| **Anticipated Review of Part One GWG Recommendations and Decision by ICOC on Part Two Application Submission:** | **January, 2008** |

**Part Two Application**

Part Two application forms, deadline for submission and other key dates will be available on the CIRM website in **January 2008 (estimated)**.

## CONTACT INFORMATION

Please contact the following individuals (e-mail is preferred) regarding specific questions as appropriate:

For Information on the Part One Application:
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For Information on Review of the Part One Application
Gilberto R Sambrano, Ph.D.
Senior Officer to the Grants Working Group
California Institute for Regenerative Medicine
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For Information on the Part Two Application and Review:
Richard Keller
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FAX: (415) 396-9141

For Information about the electronic forms:
Ed Dorrington
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California Institute for Regenerative Medicine
210 King Street
San Francisco, CA 94107
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Phone: (415) 396-9108
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## OTHER REQUIREMENTS

### CIRM Grants Administration Policy

CIRM's Grants Administration Policy (GAP) for Academic and Non-profit Institutions serves as the standard terms and conditions of grant awards issued by CIRM except as noted herein. All work conducted under this award must to comply with the stated policy pertaining to facilities, which can be found on the CIRM website at http://www.cirm.ca.gov/reg/pdf/reg100500_policy.pdf .