SEED Grant

The goal of the California Institute for Regenerative Medicine (CIRM) is to develop stem cell and related research for the diagnosis, prevention and treatment of disease and injury. Toward that end, CIRM plans to fund a broad and varied program of stem cell research and training, and is currently developing a scientific strategic plan to guide this program. An unexpected development, however, has made funds immediately available that can be used to fund stem cell research before the strategic plan is completed. These funds will be focused on the greatest immediate need, which is research on human embryonic stem cells (hESCs). At a later time, CIRM will offer opportunities for funding across a broader range of projects.

The first CIRM research grant initiative, *Innovation in Human Embryonic Stem Cell Research*, is intended to "jump-start" hESC research in California. It will be carried out through three Requests for Applications (RFAs), two for individual investigator projects and one for institutional shared laboratory space:

RFA 06-01: CIRM SEED Grants

RFA 06-02: CIRM Comprehensive Grants

RFA 06-03: CIRM Shared Research Laboratory Grants and Stem Cell Techniques Course

The CIRM SEED Grant RFA is the first of these three.

OBJECTIVE OF THE CIRM SEED GRANT PROGRAM – RFA 06-01

The SEED (Scientific Excellence through Exploration and Development) Grant Program is intended to bring new ideas and new investigators into the field of human embryonic stem cell (hESC) research and will offer an opportunity for investigators to carry out studies that may yield preliminary data or proof -of - principle results that could then be extended to full scale investigations. The goals of the program are (1) to fund preliminary research in the biology, derivation, and application of hESCs and their derivatives, (2) to fund ground-breaking, exploratory new concepts and approaches in the field, and (3) to attract new investigators - young investigators as well as established scientists in other fields - to direct their focus to hESC research.

This RFA is open to all academic and non-profit research institutions in the state of California. Future solicitations may be available to for-profit institutions when the CIRM Intellectual Property Policy for for-profit organizations is in place. Scientists with a record of accomplishment in hESC research or closely-related stem cell fields who have extensive preliminary data may choose to apply for a CIRM Comprehensive Research Grant (RFA 06-02) to conduct or expand promising on-going research using hESCs. Investigators may apply for either a SEED grant or a Comprehensive Research grant, **but not both**. CIRM will accept only **one application** per Principal Investigator (PI) for one or the other RFA.

KEY FEATURES OF THE CIRM SEED GRANT PROGRAM

This solicitation is limited to proposals that work directly on hESCs and that can utilize existing space and major equipment at the applicant institution. Funding will be provided for Project costs and other related costs as described in the CIRM Grants Administration Policy. Project costs of up to $200,000 per year for up to 2 years may be requested. The allowable Indirect Costs for this RFA are limited to 25% as described in the CIRM Grants Administration Policy (GAP).

Principal Investigators (PIs) may be either senior or junior faculty and must be full- time employees of the grantee organization. A minimum 5% of the PI's total effort must be devoted to the project. Post-doctoral fellows may not apply directly to this program or serve as the PI.

This solicitation is not targeted to any specific aspect of hESC research or to a particular disease. Topics for investigation should be chosen solely for their potential to add substantially to the body of knowledge on hESCs, to develop a useful research tool or to develop therapy. Future solicitations may be limited to research on topics to be identified through the Institute's scientific strategic planning.

The following are examples of hESC research that are expected to be encompassed within this RFA; applications for other innovative projects will also be

considered and are strongly encouraged.

- Development of new technology and conditions to optimize the derivation, self-renewal, maintenance, stability, and/or cryopreservation of hESCs.
- Derivation of disease-specific hESC lines
- Characterization and comparison of different hESC lines.
- Understanding the regulation of self-renewal and fate decisions
- Targeting lineage-specific differentiation of hESCs
- Assessing the fates of hESCs and their derivatives in animal models of disease
- Assessing the tumorigenicity of hESCs and their derivatives.
- Reprogramming of adult human somatic cell nuclei or the use of other novel techniques to generate hESCs.

FUNDS AVAILABLE

CIRM expects to commit up to $24 million over a two year period for this RFA. The Institute anticipates that approximately 30 SEED grants will be awarded for a period of no more than two years each. CIRM reserves the right to discontinue or change funding levels from year to year if significant scientific progress is not demonstrated.

ELIGIBLE COSTS

All allowable costs for research grants are detailed in the CIRM GAP.

1. **Salaries for key personnel** providing services to the grant. This may include the Principal Investigator, research associate, and/or technical support salaries, based on percent of full time effort commensurate with the established salary structure of the applicant institution. Because CIRM considers pre-doctoral, post-doctoral and clinical fellows as trainees and not as employees, institutions may request stipend, health insurance and allowable tuition and fees as costs for trainees. Administrative support salaries are expected to be covered by the Indirect Costs for the grant.

2. **Equipment and Supplies** Major equipment necessary to conduct the research proposed must be available at the applicant institution (see definition of equipment in the CIRM GAP). Minor equipment purchases (< $5,000 per item) may be included in the budget. Supplies, including specialized reagents and animal costs may also be purchased with grant funds.

3. **Travel** Recipients (PIs) of CIRM SEED Grants are expected to attend an annual CIRM-organized meeting for grantees in California and should include in the budget costs for travel to this meeting. Travel costs associated with collaborations necessary to perform the project activities are allowable. Details of allowable travel costs can be found in the CIRM GAP.

APPLICATION PROCEDURE

Letter of Intent

All institutions and investigators planning to apply for a CIRM SEED Grant must notify CIRM with a letter of intent (LOI) by **September 15, 2006**. The letter should describe concisely the overall goals and technical approaches of the proposed research. A list of proposed collaborators with their institutional affiliations should be included. In order to facilitate planning for the review of the application, please identify in the LOI the types of expertise needed to evaluate the proposal. Letters of intent are non-binding, but applications will not be accepted if such a letter has not been provided to CIRM by the deadline. Letters of intent must be sent as an email attachment to loi@cirm.ca.gov.

Full Application Instructions

All applications for CIRM SEED Grants must be received by **October 13, 2006**. Only applicants who have sent in an LOI will be allowed to submit an application. Applicants must use the CIRM SEED Grant Application Form which will be available on the CIRM website by September 15, 2006.

The application for SEED Grants includes:

- Abstract (up to 3000 characters): State the goals of the proposal; summarize the overall plans of the research proposed and how it will meet the stated objectives of the proposal. Describe the rationale for these studies and techniques you will use to pursue these goals. Explain the likelihood of this proposal being funded by the federal government.

- Public Abstract (up to 3000 characters): Briefly describe in lay language the proposed research and how it will, directly or indirectly, contribute 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 could identify the applicant (P.I. and home institution).

- Statement of Benefit to California (up to 3000 characters): Describe in a few sentences how the proposed research will benefit the state of California and its citizens. This Statement of Benefit will become public information; therefore, do not include proprietary or confidential information or information that could identify the applicant (P.I. and home institution).

- Specific Aims (up to 1 page): Explain the broad, long-term objectives and the goal of the specific research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or practice, develop a new therapy, address a critical barrier to progress in the field, or develop new technology. Identify and enumerate each specific aim of the proposal, in a concise and step-wise fashion, and how that will lead to the broad goal of this research. Explain the likelihood of this proposal being funded by the federal government.

- Rationale and Significance (1-2 pages): Summarize the context and background of the present application and the specific rationale for the work proposed. Evaluate existing knowledge and specifically identify the gaps that the project is intended to fill. State how the proposed research meets CIRM's goals of funding innovative, perhaps scientifically risky and untested research. If the aims of the application are achieved, state how this information will contribute to the development of diagnostics and/or therapies based on stem cell research.

- Research Design and Methods (up to 3 pages): Describe concisely, but in sufficient detail to permit evaluation of the merit of the research, the experimental design, methods and techniques to be employed to achieve the goals specified in the proposal. Identify the new or risky aspects of the research, anticipated pitfalls, and plans to overcome or circumvent difficulties that may arise. Describe the methods of analysis of results, including criteria for success of the preliminary studies.

- Feasibility (up to 2 pages): Provide any information that will help to establish the experience and competence of the investigator to pursue the proposed project. It is not necessary to have preliminary data relevant to the proposed research, since generation of such data is the primary purpose of the CIRM SEED Grant Program.

- Collaboration (up to 1 page): If collaboration is integral to the success of the project, describe how this will be achieved.

- Timeline (1/2 page): Provide a realistic timetable for completing each proposed specific aim of the project; where appropriate provide specific milestones for evaluating the achievement of each specific aim.

- References (up to 2 pages): List all references used in the body of the proposal.

- Laboratory/Clinical Facilities including major equipment (1/2 page): Provide a short description of the facilities and environment in which the work will be done, and the major equipment and resources available for conducting the proposed research. Discuss ways in which the proposed studies will benefit from unique features of the scientific environment or employ useful collaborative arrangements where applicable.

- Key Personnel: List the scientific participants and their roles in the proposed research in the relevant section of the application form, regardless of whether they will receive salary support from the grant. These may include the Principal Investigator, co-investigators, research associates, technicians and trainees (students and fellows). For each key scientific personnel listed, provide a 2 page biographical sketch that highlights prior stem cell (especially hESC) research experience and/or special skills related to the proposed research. Include relevant publications.

- Budget: Provide all budget information requested in the budget section of in the application form.

REVIEW AND AWARD PROCESS

CIRM SEED grant applications will be reviewed by the Scientific and Medical Research Funding Working Group (SMRFWG) of CIRM. The SMRFWG consists of fifteen basic and clinical scientists from institutions outside California, seven patient advocates who are members of the Independent Citizen's Oversight Committee (ICOC), and the Chair of the ICOC. The membership of the SMRFWG is available here. The ICOC was established by the California Research and Cures Act (Proposition 71) to oversee CIRM and is responsible for all final funding decisions. The composition of the ICOC is available here.

Fifteen scientists on the SMRFWG will review the applications and rate them according to scientific and technical merit. The following are among the

qualities to be considered for evaluation of research grant applications. For SEED grants, particular emphasis will be placed on innovation and quality of the research plan.

- **Impact and Significance** Does the research address an important problem? Will the proposed research significantly move the field forward, either scientifically or medically?
- **Innovation** Is the approach original? Does it bring novel ideas, technologies or strategies to bear on an important problem in hESC research? Does it break new ground?
- **Quality of the Research Plan** Is the research carefully planned to give a meaningful result? Are the possible difficulties acknowledged, with alternative plans should the proposed strategy fail? Is the timetable for achieving significant results reasonable?
- **Feasibility** Can the aims of the research be reasonably achieved? Do the investigators have the training and experience to conduct the proposed project? Does the investigator have access to appropriate technology to perform the research?
- **Collaboration** Does the proposal support collaborative efforts, and if so, to what extent does the collaboration enhance the quality and potential of the research proposed?
- **Responsiveness to the RFA** How is the proposal responsive to the criteria and objectives stated in the RFA?
- **Eligibility for Federal funding** Is the research ineligible or unlikely to receive federal funding? If not, is the research sufficiently compelling in that it presents "a vital research opportunity" that will materially aid the objectives of CIRM?

Recommendations for funding will then be made by the full SMRFWG to the ICOC. In making these recommendations, the SMRFWG will review the entire portfolio of applications, taking into consideration the following criteria:

- Scientific and technical merit.
- Appropriate balance between innovation and feasibility.
- Where relevant, the appropriate balance between fundamental research, therapy development and clinical application.
- Where relevant, the appropriate balance and range of diseases addressed.
- Other considerations from the perspective of patient advocates.

SUBMITTING AN APPLICATION

All SEED Grant applications must be submitted to CIRM by **October 13, 2006** . The application form for CIRM SEED Grants will be available on the CIRM website by September 15, 2006. Send a PDF file of the full application to SEED@cirm.ca.gov. In addition to submitting the application electronically, send a signed original of the completed application to CIRM. The hardcopy must be signed by both the PI and the institution's authorized organizational official. Mail the signed hardcopy to:

SEED Grant Application

California Institute for Regenerative Medicine

210 King Street

San Francisco, CA 94107

RECEIPT AND ANTICIPATED REVIEW AND START DATES

Receipt of letters of intent: September 15, 2006

Receipt of full application: October 13, 2006

Review of applications: November-December, 2006

Review by ICOC: February, 2007

Announcement of awards: March 2007

Earliest funding of awards: March, 2007

Contact Information

For review information:

Gilberto Sambrano, Ph.D.

Scientific Review Officer

California Institute for Regenerative Medicine

210 King Street

San Francisco, CA 94107

Email: gsambrano@cirm.ca.gov

Phone: (415) 396-9103

FAX: (415) 396-9141

For programmatic information:

Patricia Olson, Ph.D.

Scientific Program Officer

California Institute for Regenerative Medicine

210 King Street

San Francisco, CA 94107

Email: polson@cirm.ca. gov

Phone: (415) 396-9116

FAX: (415) 396-9141

For other information:

Arlene Y. Chiu, Ph.D.

Director of Scientific Activities

California Institute for Regenerative Medicine

210 King Street

San Francisco, CA 94107

Email: achiu@cirm.ca.gov

Phone: (415) 396-9104

FAX: (415) 396-9141

OTHER REQUIREMENTS

CIRM Grants Administration Policy:

CIRM's governing board, the ICOC, adopted an Interim Grants Administration Policy (GAP) for Academic and Non-profit Institutions that describes the standard terms and conditions of grant awards issued by the Institute. All research conducted under this award will be expected to comply with the stated policy. CIRM reserves the right to discontinue or change funding levels from year to year if significant scientific progress has not been demonstrated.

Human Stem Cell Research Regulations:

CIRM has adopted medical and ethical standards for human stem cell research. All research conducted under this award will be expected to comply with these standards. While these regulations prohibit donors of gametes, embryos, somatic cells or human tissue from receiving valuable consideration for their donation, they do allow for reimbursement for permissible expenses as determined by an IRB. "Permissible Expenses" means necessary and reasonable costs directly incurred as a result of donation participation in research activities and may include costs such as those associated with travel, housing, child care, medical care, health insurance and actual lost wages. For research activities proposing to obtain gametes, embryos, somatic cell or human tissue from human subjects, CIRM requires the applicant to submit, at the time of application, their reimbursement policy describing how they intend to calculate permissible expenses.

Intellectual Property Policy for Non-profit Organizations:

CIRM has adopted policies that govern the intellectual property created under grant awards issued by CIRM to non-profit organizations. Research conducted under this award will be expected to comply with the terms and conditions stated in this policy.

ICOC approval:
Feb 16, 2007
