"BRIDGES TO STEM CELL RESEARCH AND THERAPY AWARDS – RFA EDUC 2"

TOTAL BUDGET BRIDGES RFA	
TIER 1	$40,134,339
TIER 2	$3,044,635

Application #	Title	Score	Median	SD	Low	HIgh	Budget	Tier	T1	T2	T3
EDUC2-08391	CIRM Bridges 2.0: Training the Next Generation of Stem Cell Scientists	94	95	3	85	99	$3,015,479	1	15	0	0
EDUC2-08397	CIRM 2.0 Bridges Training Program	94	95	3	85	99	$3,044,950	1	15	0	0
EDUC2-08400	Stem Cell Training Enhancement Program with a focus on Translational Research	94	95	5	80	98	$2,163,500	1	15	0	0
EDUC2-08376	Bridges to Stem Cell Research Internship Program	93	95	4	80	97	$3,045,000	1	15	0	0
EDUC2-08394	SCILL- Stem Cell Internships in Laboratory-based Learning	93	95	2	90	95	$3,045,000	1	15	0	0
EDUC2-08418	Stem Cell Scholars- from Basic Research to Clinical Translation: training a diverse pool	90	90	1	88	90	$2,698,040	1	15	0	0
EDUC2-08388	Interdisciplinary Master of Science Program in Regenerative Medicine	88	90	3	80	90	$2,632,500	1	15	0	0
EDUC2-08382	Bridges to Stem Cell Research, Therapy and Careers: A Talent Development Program f	88	88	2	85	90	$3,045,000	1	15	0	0
EDUC2-08398	Bridges to Stem Cell Research and Therapy	87	90	4	80	90	$3,044,870	1	15	0	0
EDUC2-08381	CIRM Graduate Student Training Grant for the Implementation of a Stem Cell Technol	87	85	3	80	92	$3,045,000	1	15	0	0
EDUC2-08390	Strengthening the Pipeline of Master's-level Scientific and Laboratory Personnel in Ste	86	85	5	80	94	$2,495,000	1	15	0	0
EDUC2-08383	CIRM Stem Cell Biotechnology Training Program	83	85	7	70	90	$3,045,000	1	14	1	0
EDUC2-08375	CIRM Bridges to Stem Cell Research and Therapy Training Grant	78	78	3	74	85	$3,045,000	1	14	1	0
EDUC2-08411	Stem Cell Scientist Training Program	77	75	3	75	83	$2,770,000	1	15	0	0
EDUC2-08417	A Two-Campus Collaboration for a Bridges 2.0 Program	74	75	4	60	82	$3,044,635	2	12	2	1
EDUC2-08436	Internships for Stem Cell Research	64	65	17	25	85	$3,045,000	3	5	5	5
EDUC2-08428	Specialty in Stem Cell Biology	60	60	5	49	65	$2,520,000	3	0	5	10

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08375
Title	CIRM Bridges to Stem Cell Research and Therapy Training Grant
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	Stem cell biology has developed into a rapidly expanding technology offering novel therapeutic approaches to human disease. California has taken the lead in the development and expansion of these technologies. There is a critical need to recruit, educate, and train the next generation of scientists and individuals, who will work on achieving these goals. The focus of our program will be to recruit students from California's large and diverse population, and to provide them with the educational and technical skills that will allow them to pursue careers in stem cell science. The strength of our proposal includes our ability to effectively utilize our location by recruiting students from our home institution and community college partners and train them effectively to carry out successful internships with our host institutions. We will recruit and select a minimum of fifty students, ten students per year, from three different academic institutions. These students will then be matched with host internships labs through an interview process. Once the selection, interview, and mentor lab match is complete, students will enter a 12-month internship experience at one of the labs mentioned above. During this time, they will be enrolled full-time at the originating institution and will attend a seminar series that merges science, patient advocacy, career exploration, and community engagement. The greatest key to the success of our plan relies on our geographical location and the partnerships we established throughout our region. We have established long-standing partnerships with leaders in stem cell research in academia including [REDACTED]. In addition, our students will have the option to intern in premiere biotechnology companies including [REDACTED]. Furthermore, we will have a seminar series that will serve to educate the interns, the general student population and community on the progress and potential of stem cell research and the important role of patient advocacy. Our collaborative commitments with our community colleges, academic and industry partners will ensure the success of our students and ultimate progress in regenerative medicine. We believe that through our fortunate geographical location, access to diverse students and research opportunities, and development of new programs, we will help to train exceptional prospects for the future stem cell science workforce in California.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 78

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	78
Standard deviation	3
Highest score given	85
Lowest score given	74

Members scoring within Tier 1 (75 - 100)	14
Members scoring within Tier 2 (65 - 74)	1
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	12	1	2
Is the program well planned and designed?	4	4	7
Is the program proposal practical and achievable?	6	3	6

Reviewer Comments

Strengths

- Excellent opportunities in academic and industry labs are available in the local area through this program.
- The mentoring and outreach plans are outstanding.
- There are strong mentors with an emphasis on traditional scientific communication. The use of individual development plans and career trajectory discussions are superb.
- Community outreach with STEM Service Learning support is a strength.
- Partnerships with community colleges are a strength.

Concerns

- There is limited mentoring in the area of using social media platforms to communicate information regarding stem cell results and their potential.
- There is relatively little recruitment or participation by trainees from underrepresented communities.
- The proposal lacks detail of the mentors and their interactions with the trainees.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Additional Comments

- A greater depth of experience in the patient and health care engagement activities would be beneficial. For example, interacting with actual patient groups rather than just patient advocates would be a valuable experience.
- Exposure to clinical settings could be increased.
- The proposal would be improved by enhancing the recruitment of underrepresented communities.
- Trainees would be helped if courses were required in laboratory approaches to biology (tissue culture, analytic methods, etc.) before matriculating in the program.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08376
Title	Bridges to Stem Cell Research Internship Program
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The Bridges to Stem Cell Research Internship Program will build upon the past success of our Internship Program which has significantly expanded the pool of personnel with the expertise necessary to undertake careers in regenerative medicine. Highly competitive trainees will be recruited from the university's diverse student populations which include individuals that might not otherwise have the chance to attain the essential expertise to contribute to the ultimate goal of delivering stem-cell based therapies to patients. A newly optimized curriculum for Trainees at the home institution includes a regulatory affairs course providing information about healthcare product regulation and development, colloquia and community outreach activities designed to provide students with educational and patient engagement opportunities, and participation in a biomedical ethics course. Trainees will complete a comprehensive, externally-provided laboratory training course which includes hands-on maintenance and characterization of human embryonic and induced pluripotent stem cells within a state-of-the-art Training Center designed by noted experts in the field. Trainees will complete a 12-month internship experience at one of four partnering stem cell research facilities located nearby, or at local biotechnology companies specializing in human stem cell research and development. During the internship period, Trainees will attend research seminars, meet and present their scientific progress at monthly colloquia with other trainees and participating host mentors and scientists, and present scientific posters encompassing their data at local and regional scientific meetings. The culmination of the training program will include a written thesis and oral thesis defense for graduate-level trainees, a final Poster Presentation Symposium, and participation at the Annual CIRM Bridges Meeting. The training program will enable students of diverse background to contribute their knowledge and technical skills developed upon completion of the training period to the great promise of stem cell-based treatment therapies for patients.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 93

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	95
Standard deviation	4
Highest score given	97
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	14
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	14	0	0
Is the program well planned and designed?	14	0	0
Is the program proposal practical and achievable?	14	0	0

Reviewer Comments

Strengths

- Reviewers unanimously praised this application as outstanding and superb.
- There is significant interaction with patient advocates.
- The focus on identifying students with a strong interest in research is a major plus of this application.
- Extremely strong internship partners and mentors are present.
- The attention to diversity of recruited students is excellent.

Concerns

- No significant concerns were expressed by the reviewers.

Additional Recommendations

- Overall, the application is very strong. More specific educational content around unmet medical needs and patient needs would be helpful.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08381
Title	CIRM Graduate Student Training Grant for the Implementation of a Stem Cell Technology and Lab Management Program: Training in Stem Cell Sciences and Regenerative Medicine
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	Our campus has led the way in developing one of the most successful professional biotechnology master's program in the [REDACTED], as well as an innovative Master of Science (MS) Biotechnology and MBA dual degree program. The degree structure permits students to custom-design their curriculum under an advisor's guidance, making the degree especially relevant for students employed in today's diverse biotechnology workplace. Together, these programs have a current enrollment of 121 regionally and demographically diverse students. We have successfully graduated 266 MS students; all are either employed in the biotech industry, academic sector or pursuing doctoral degrees. In the past six years, 77 students have been extensively trained in stem cell sciences within the Stem Cell Technology and Lab Management (SCTLM) emphasis as a result of a robust curriculum and partnerships with 15 different institutions providing year-long internship opportunities to our students. With a curriculum requiring students to take cutting-edge courses in the areas of molecular sciences, genomics, proteomics, quality assurance, biotech law, management and stem cell techniques, our students are assured of receiving excellent training. For the training program in this emphasis, each year 10 MS Biotechnology students will be supported by CIRM and our campus is committed to supporting five additional interns each year for a total of 75 interns over 5 years. Because the campus has well-established collaborative relationships with local biotechnology firms and research institutions, the instructors include not only academic faculty, but also senior scientists, professionals, and experienced business managers from the industry. We are committed to continuing this innovative public-private partnership in support of the MS Biotechnology program and the stem cell emphasis in particular. Through innovative programs embedded within our curriculum important career tracks are provided for students in the STEM disciplines with the potential to become one of the most successful and sustainable programs in the CSU system; a key contributor to fulfilling a critical need for highly qualified technical and managerial personnel in stem cell research technology. Continuation of this training program will directly make a major contribution to the stem cell efforts supported by the people of California as evidenced by the interns' interest in pursuing future research in the stem cell areas either via seeking employment in the R & D sectors of stem cell based biotech companies or via applying to a PhD program. Our interns have spoken at community events held on our campus and increased the transparency of the SCTLM emphasis and CIRM funded research. This training program has gained tremendous popularity in the past several years and future support will prove to be instrumental in recruiting the best students to augment the California scientific workforce.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 87

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	85
Standard deviation	3
Highest score given	92
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	14	0	1
Is the program well planned and designed?	13	1	1
Is the program proposal practical and achievable?	14	1	0

Reviewer Comments

Strengths

- This is a well designed and highly competitive program with an excellent track record.
- The planned activities are in line with the program focus and are suitable in enhancing the pool of future stem cell scientists and industry leaders.
- There is a strong combination of opportunities for students to practice talks and outreach coupled with outreach itself. The program has a great track record.
- The interaction with patient advocates will provide a great opportunity for students to hear directly from patients about their needs.
- The program has clear and high-quality labs for intern placement.
- There are many outreach activities planned, including at a library, adult learning group and science expos.
- There is a strong biotech involvement component for this program.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Concerns

- Although it is a minor weakness, the proposal would benefit by clearly defining the effort to recruit diversity students. Also, the enhanced patient interaction activities could be more specific and better defined.

Reviewer Comments

- The research internship is well described and will likely provide trainees with the understanding of the unmet research and medical needs. However, it is not clear how the time spent volunteering at a hospital will emphasize the need for stem cell therapy. Having a review session after clinical day may be beneficial to students. Issues such as standard of care and future therapies that patients may benefit from may provide valuable insight to trainees.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08382
Title	Bridges to Stem Cell Research, Therapy and Careers: A Talent Development Program for Training Diverse Undergraduates for Careers in Regenerative Medicine
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	Designed specifically for a highly diverse student population, Bridges to Stem Cell Research 2 (BSCR2) is a talent development program, targeting both high-achieving and lower-performing undergraduates and providing training, support, high-impact practices and enrichment to help ensure participants' success in their research internships. Ten biology or biochemistry majors will be selected as BSCR2 scholars annually, for a total of 50. The program has been configured to instill in scholars the ideal traits identified by the 2014 California Workforce Trends in the Life Science Industry talent report: knowledgeable about up-to-date information, possessing broad knowledge, aware of industry standards, understanding project management, possessing business acumen and knowledge about key components of R&D, having had hands-on training and team-based project-oriented learning experiences, having had multiple research experiences, having creativity and curiosity, and having basic research, presentation and written communication skills. BSCR2 will consist of a 7-month training on the home campus, followed by a 12-month internship in a stem cell research lab at one of five internship-host institutions. All coursework can be applied toward the B.S. in biological science or a minor in cell and molecular biology and thus is fully integrated into B.S. degree programs. The preparatory training on the home campus will consist of 1) five biology courses to strengthen the fundamentals scholars will need for their research internships, 2) a human stem cell techniques course designed specifically for BSCR2 and taught externally by an expert, 3) a hands-on research project in a faculty lab to impart basic knowledge of research lab operations, 4) a proseminar to prepare scholars for internships, 5) two options for patient engagement activities, 6) three workshops to broaden their horizons and soft skills, 7) a seminar series on drug development and healthcare careers and 8) community outreach and education. The scholars will then engage in a full-time, year-long research internship, carrying out a project focused on development of human stem cell-based therapies at a partnering internship-host institution, under the direction of a research mentor. All five internship-host institutions have been awarded CIRM grants. Through the internships, scholars will gain additional project-specific technical skills as well as the conceptual underpinnings necessary to solve problems in a particular stem cell research area.
GWG Recommendation	*Tier 1 – Recommended for funding.*

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 88

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	88
Standard deviation	2
Highest score given	90
Lowest score given	85

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	14	1	0
Is the program proposal practical and achievable?	14	1	0

Reviewer Comments

Strengths

- Overall, this is a superb program with a well thought-out application, strong mentors, and good track record.
- The extensive training of students prior to the stem cell internship helps to ensure students are able to contribute effectively to the research program of their mentor.
- There is an institutional commitment to serve underrepresented parts of the populations in the area of influence of the applicant institution, which reflects on the student distribution at the institution.
- The program has a holistic review process that is likely to involve a broader diversity of trainees than programs that use metrics such as GPA or specific course grades as cutoffs for participation.
- The Program director and the program are to be congratulated for providing a stem cell symposium that will reach out to non-biology students to attract future trainees. The concept is commendable.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Concerns

- The patient engagement and outreach components could be better integrated into the program as a whole.
- There is a minor concern on the way presentations to the community are going to be prepared. The project would benefit from a greater emphasis on the students' understanding of how to create a presentation to the community instead of merely following a template.

Additional Comments

- The program director should imagine ways to magnify the impact to a greater number of students than proposed. Are there ways that one can ensure that the greater student body learns about stem cells and is aware of the work performed by campus researchers?
- The program director should lay out specific outcomes that one would want students to achieve. Then, determine how those outcomes will be assessed to help students achieve the outcomes.
- The program should provide training for the research mentors about how to be a good mentor.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08383
Title	CIRM Stem Cell Biotechnology Training Program
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The goal of the proposed program is to train exceptional and diverse advanced undergraduate, post-baccalaureate, and masters students in the theory and techniques of stem cell research for the development of therapies. These students will be prepared to enter the California workforce with long-term career opportunities as stem cell researchers. They will be recruited from the ~2,000 students in the Departments of Chemistry and Biological Sciences, and qualified post-baccalaureate students from other institutions, at a large (~37,000 students) comprehensive urban university. It is a predominantly undergraduate institution with a large minority population, which has been designated a Hispanic Serving, and an Asian American, Native American, Pacific Islander Serving Institution. The students enroll in the two-year stem cell track of the post-baccalaureate Biotechnology Certificate Program, which was established with funding from Bridges 1.0 (2009-2016). The first year, which consists of courses and research experience, occurs at this university. During the second year, ten interns will perform full-time research in one of more than thirty stem cell laboratories at [REDACTED]. To accelerate the development of therapies, the stem cell track will be enhanced to include several new components. Required coursework will be expanded to include an exploration of the drug development process and regulatory pathway. To understand the importance and urgency of accelerating the development of stem cell therapies to treat patients with unmet medical needs, students will engage in activities that engender in them an appreciation of the patients' perspectives and experiences. Some of these activities include interacting with patients at [REDACTED] and attending a workshop with a spinal cord injury patient and advocate from [REDACTED]. The stem cell interns will also participate in three different types of community outreach and education activities. The interns will use social media to reach many groups of Californians by contributing to a YouTube channel and a Facebook page. The interns will educate a diverse academic population by presenting at a symposium. Finally, the interns will have direct contact with community leaders and the general public by participating in panel presentations for a leadership program and a local community college. These activities could initiate a life-long appreciation of regenerative medicine stem cell technologies. This will have a significant impact on our society given the role of the voting population in the funding and promoting of advanced technologies. Extensive mentoring, advising, and workshops throughout and after the program will ensure successful academic and career placement for current participants and alumni. This program has a history of successfully training students for graduate study and for the California workforce.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 83

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	85
Standard deviation	7
Highest score given	90
Lowest score given	70

Members scoring within Tier 1 (75 - 100)	14
Members scoring within Tier 2 (65 - 74)	1
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	11	1	3
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- This program offers very strong stem cell lab training and experience.
- Reviewers praised the program's individual attention to trainees, their career development, and future employment prospect.
- The Program Director is very experienced.

Concerns

- There is a serious concern about the diversity of the pool of potential applicants versus the diversity of the student outcomes. The diversity of the program does not represent the student population.
- There is no discussion on how the students are expected to know how to make videos and/or maintain a YouTube/Facebook page. No oversight of this activity is mentioned.
- Reviewers stated the introduction of more practical patient interactions and the strengthening of industry contacts and job opportunities would bolster this program.

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Additional Comments

- The PI should strengthen alumni participation in the program and enhance community outreach.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08388
Title	Interdisciplinary Master of Science Program in Regenerative Medicine
Funds Requested	$2,632,500
Public Abstract **(This text is provided by the applicant in the proposal.)**	Our proposed (and existing) training program is an interdisciplinary Specialization in Regenerative Medicine, offered within the master of science (M.S.) degrees of three different departments from three academic units (colleges). The goal of our M.S. program is to graduate 10 day-one ready professionals per year capable of advancing CIRM's mission of accelerating stem cell treatments to patients with unmet clinical needs. The first step in achieving this goal is a year of coursework and project experience at our institution, which prepares students to maximize the educational value of their internship by training them to: 1) perform fundamental laboratory procedures involved in regenerative medicine research & development (including cell culture, cell transplantation, microscopy, and molecular biology) 2) discuss and critically evaluate biomedical primary literature 3) effectively communicate technical topics to both peer and lay audiences 4) explain the process of biotechnology development & commercialization 5) describe how research & development efforts are motivated by and impact physician & patient experiences 6) design and execute independent research projects. It is important to note that the third learning objective above will involve community outreach with schools, partner community colleges, and the general community, while learning objectives four and five will involve in-person patient engagement, and training in product development and regulatory pathways for biologic therapies. Achieving these learning objectives, along with a 7-day immersive training course in pluripotent stem cell culture techniques, will allow students to more effectively advance product development and translational research during their 9-month internship at commercial or academic institutions, respectively. Further facilitating their internship effectiveness will be the full-time nature of their effort, with no coursework other than the Internship Course, students will be able to focus exclusively on their project. The results of our past students' internship projects have been included in journal publication, conference presentation, patent applications, and regulatory approval documents filed with the FDA. These outcomes clearly demonstrate that through their internship projects and post-graduate activities, our students have, and with the receipt of this award would continue, to contribute to CIRM's mission of accelerating stem cell treatments to patients with unmet clinical needs during their internship and in their post-graduate career.
GWG Recommendation	*Tier 1 – Recommended for funding.*

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 88

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	90
Standard deviation	3
Highest score given	90
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	14	1	0
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- The program has demonstrated great success in the past. A very high percentage of trainees have pursued further education or received job offers and are working in industry, demonstrating success of the program.
- All program components are well-integrated and synergistic.
- The academic and industry training portion of the proposal are outstanding. In particular, the inclusion of both academic and industry internships is excellent.
- The recruiting, internship matching, and mentoring plans are very good.
- The "book club" program is innovative and outstanding.
- Overall, a majority of the reviewers found the patient engagement and outreach activities to be innovative.

Concerns

- The sustainability of this program in the absence of CIRM funding is a concern.

Additional Comments

- None.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08390
Title	Strengthening the Pipeline of Master's-level Scientific and Laboratory Personnel in Stem Cell Research
Funds Requested	$2,495,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The applicant institution will partner with a CIRM Major Facility to create a comprehensive curricular program that will produce 50 masters degree graduates with the scientific foundation, research experience, practical laboratory skills and motivation to pursue careers in stem cell research. Graduates of the masters program will develop knowledge and skills suitable for basic research as well as its translation into clinical applications for patients. Graduates will help fill the high demand for laboratory managers and other research-support professionals in a growing number of laboratories devoted to stem cell research and translation to the clinic. Rather than a traditional, independent master's thesis project, students engage in activities specifically intended to improve the professional preparation of graduates desiring industry or laboratory careers in applied biosciences. The masters program builds upon curricular strengths in cellular and molecular biology at the applicant institution and the outstanding research facilities of the [REDACTED] located nearby. The twenty-month program of study consists of graduate courses taken at the applicant institution and an internship at the CIRM Facility. During the eight -month internship, student interns will work with mentors as part of disease teams that bring students and research scientists together with clinicians to work toward cellular therapy trials. In addition, Students will receive advanced training during a five-day Stem Cells Techniques Training Course at the [REDACTED]. Education enhancement activities will include a six-week lecture course entitled Introduction to Cellular Therapy, a short course in Good Manufacturing Practice and a seminar series with invited speakers from renowned laboratories. Proximity of the Home and Internship Host Institutions will facilitate program coordination, and ensures that students have ready access to mentors from both institutions. The applicant institution has considerable potential to attract students from underserved populations. The applicant institution will advertise its masters degree program to students attending four-year institutions of higher education throughout California. With a combination of research and professional skills, graduates will fill roles vital to furthering the progress of stem cell research. Graduates experienced in team-based research and GMP will have high potential for career advancement, transitioning easily beyond entry-level positions or into doctoral programs. The intense, twenty-month program moves students quickly into the workforce. Professionally oriented masters programs, with their limited durations, practical training and potential for advancement have proven especially appealing to women and minority students. This masters program will help widen participation in stem cell research and the development of novel therapies.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 86

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	85
Standard deviation	5
Highest score given	94
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	14	1	0
Is the program well planned and designed?	11	2	2
Is the program proposal practical and achievable?	14	1	0

Reviewer Comments

Strengths

- The strength of the application is its excellent integration of the partnership with the GMP facility and its faculty. In particular, the training and emphasis in scale-up, manufacturing, translation, and regulatory affairs are strengths.
- There is a strong component in stem cell research experience with a good focus on lab work.
- The track record is outstanding, as well as excellent performance by trainees after the Bridges Program.

Concerns

- The diversity of trainees in the proposed application is not addressed adequately. There is relatively poor diversity during the previous funding period.
- The proposal lacks discussion of how students are placed in a lab. It also lacks discussion or acknowledgement that a key component of the program is attracting qualified students with diverse backgrounds.

Additional Comments

- Experiences in clinic should be strongly encouraged.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- The program could work harder to instill passion about working at cutting edge of science and creating a new field in regenerative medicine.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08391
Title	CIRM Bridges 2.0: Training the Next Generation of Stem Cell Scientists
Funds Requested	$3,015,479
Public Abstract **(This text is provided by the applicant in the proposal.)**	We are a large, urban university serving a highly diverse student population. Our proposed program would support 10 master's-level trainees annually from two different master's program in Biology: a Masters of Science in Cell and Molecular Biology with an emphasis in Stem Cell Biology (the "MS program") and a Professional Science Masters with a concentration in Stem Cell Science (the "PSM program"). The PSM program provides additional course work in business and is tailored towards students interested in pursuing a position in the biotechnology sector upon graduation. In the first year of the program, CIRM Bridges trainees take core courses to build a strong foundation in stem cell science. In addition, two additional graduate courses that are complementary to the CIRM Bridges 2.0 mission will be included as part of this curriculum; "Careers in Life Sciences", which will help guide students in entering the Life Sciences job market and "Biomedical Product Development & Regulations", which provides students with an understanding of the process involved in product development with a special focus on stem cell therapies. After completing the first-year course work, students will participate in a week-long intensive Stem Cell Laboratory course taught by faculty at one of the host sites where they will learn to propagate, maintain, and manipulate human stem cells. By the second year, all of the CIRM Bridges trainees will have joined a stem cell research lab at one of our host institutions or affiliated stem cell companies. All CIRM trainees will conduct research using human stem cells. At the end of their second year of training, trainees will complete a final master project report written in the form of a manuscript as well as an oral thesis defense. This effective training has successfully led to 29 publications by CIRM Bridges trainees in peer-reviewed journals. Mentoring and professional development are an integral part of the CIRM Bridges program. CIRM students will attend monthly meetings with the Program Director (PD) to cover a range of topics as well meet alumni, industry and academic stem cell scientists. Students will also gain a broader introduction to the importance and application of stem cell research from guest speakers, including members of various patient advocate groups. The PD and Program Associate will meet regularly with the students and their research mentors to provide continuity of programming and ensure that students thrive in their internships. Thus, the proposed program aims to make important contributions to the development of a talented and diverse pool of trained professionals that will help advance CIRM's mission to develop stem cell therapies to meet the medical needs of our state and nation.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 94

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	95
Standard deviation	3
Highest score given	99
Lowest score given	85

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	15	0	0
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- This is an outstanding program.
- The program combines a breadth of graduate courses in stem cell biology and biotechnology along with hands-on research involving human stem or progenitor cells. The program includes intensive mentoring and outreach activities.
- The previous outcomes of the program suggest that the program fosters a strong commitment of the students to work in areas relevant to the delivery of stem cell therapies.

Concerns

- No significant concerns were expressed by the reviewers.

Additional Comments

- The program would benefit from more focus on the community outreach and patient engagement opportunities.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08394
Title	SCILL- Stem Cell Internships in Laboratory-based Learning
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The Lead Institution's Stem Cell Internships in Laboratory-based Learning (SCILL) is a consortium of scientists, faculty and administrative leaders from six institutions who have made a commitment to train students at the graduate level for careers in stem cell biology. Graduates from this program will advance and accelerate stem cell therapies, and increase community awareness about scientific and societal issues related to stem cells and regenerative medicine. The Lead Institution has partnered with five (5) Host Institutions (Host Institution 1, Host Institution 2, Host Institution 3, Host Institution 4 and Host Institution 5) to provide students with the academic and practical laboratory experience that will prepare them for careers in stem cell research and development of novel therapies. More than 60 stem cell researchers in this SCILL consortium are committed to educating and training students for careers in stem cell biology. The SCILL program is designed to be completed in two years. SCILL students will take graduate laboratory courses in immunology, molecular biology, flow cytometry, and stem cell biology, as well as courses in regulatory affairs, therapy development processes, and clinical trial management. Students will also engage in patient interaction activities in various medical settings and develop a community out-reach plan to share their knowledge and their expertise in stem cell biology and regenerative medicine with their communities. Each SCILL trainee will complete 12 months of full time hands-on research in human stem cells or progenitor cells at one of our research university partners (Host Institution 1 and Host Institution 2) or translational research involving stem cell product development at one of our corporate partners (Host Institution 4 and Host Institution 5) or clinical applications of stem cell science at Host Institution 3. On the successful completion of the SCILL curriculum and internship, students are awarded a master's degree and are prepared for a career in stem cell biology. The SCILL Program has a solid track record in training stem cell professionals at a graduate level, all from among California residents and representative of the diverse ethnicities of our state. More than 95% of our students have completed the two year program. More than 90% are employed primarily in the state of California and about 50% of those are working in stem cell related fields in academia, in the biotech industry or have continued to higher advanced degrees. The Lead Institution's CIRM Bridges 2.0 proposal has strong institutional support as documented by the addition of two more trainee spots to SCILL. Through funds provided in this grant we will continue to produce outstanding scientists who will contribute to advances in stem cell therapies and promote CIRM's vision of leadership in stem cell biology for the people of California.
GWG Recommendation	*Tier 1 – Recommended for funding.*

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 93

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	95
Standard deviation	2
Highest score given	95
Lowest score given	90

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	15	0	0
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- This is an excellent application with a full spectrum of activities offered.
- The program strengths include the success of the SCILL program, the focus on recruitment from the graduate applicant pool, and the options for students in academia, industry or clinics for internships.
- The outcomes of the current program are very positive.
- The proposed patient engagement activities are thoughtfully described and should prove useful for students.
- The program is extremely well organized.
- The list of mentors is outstanding.

Concerns

- Attention to recruiting a diverse student population is needed in this otherwise fine program with a great history.

EDUCATIONAL

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Additional Comments

- More frequent and face-to-face interaction of the faculty advisor and the trainee and of the mentorship committee and the trainee may reduce further the already low number of trainees who are not successful in finding employment or educational opportunities within STEM fields.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08397
Title	CIRM 2.0 Bridges Training Program
Funds Requested	$3,044,950
Public Abstract **(This text is provided by the applicant in the proposal.)**	In 2004 the people of California, recognizing the significance and potential of stem cell therapies for treatment of degenerative diseases like Alzheimer's, macular degeneration, etc., passed proposition 71 to fund stem cell research and development of stem cell therapies. The California Institute of Regenerative Medicine (CIRM) was established to manage the funds, plan and execute programs that would facilitate the development of stem cell therapies. Recognizing the need for a large workforce in stem cell research for the development of stem cell therapies, the initial phase of the program was focused on research and training of individuals in the stem cell fields. These efforts have resulted in a substantial increase in the number of scientists and technically trained individuals in the field of stem cell biology and, more importantly, an increase in number of laboratories and biotechnology industries focused on stem cell research and regenerative medicine in California. In the second phase of the CIRM program, the focus is more on translational medicine where potential stem cell therapies initiated during the first phase of the CIRM objective are further developed for clinical trials and ultimately used as effective therapies for many degenerative diseases. The objectives of our proposal are to train some of our most talented students in translational medicine such that they have a good understanding of the process of development of stem cell therapies and the regulatory processes that govern such developments. We propose to accomplish these goals by providing excellent training in stem cell biology at our home institution, which would generate a large pool of well-trained students with an aptitude for stem cell biology. From this pool of diverse students, we propose to select 10 students per year to participate in a 12-month research training in one the three premiere research institutions in the state, [REDACTED]. These institutions have given written assurance that they will train our students in one of their stem cell and regenerative medicine laboratories and provide opportunities for them to interact with patients with aliments that have the potential to be cured by stem cell therapies. They also will be educated in the process of development of stem cell therapies as well as the ethical and moral considerations in the development of stem cell therapies and regulatory processes that govern such development. We also propose to educate non-science majors and the public on the significance and recent developments in stem cell biology and regenerative medicine through workshops and seminars.
GWG Recommendation	*Tier 1 – Recommended for funding.*

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 94

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	95
Standard deviation	3
Highest score given	99
Lowest score given	85

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	15	0	0
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- Overall, this is superb program. The applicant institution provides good preparation and there are outstanding host institutions and mentors.
- The program is very well defined with excellent patient interaction and an excellent track record.
- The previous outcome data is very strong. Past performance is the best predictor of future performance.
- It is great to see a program from this part of the state of California. There is surely a great pool of talent at the applicant institution that would otherwise be untapped.
- The link with a host institution seems strong, and the level of commitment from its personnel is strong through letters of support and the description of the training.

Concerns

- There is a concern that students at two other host institutions might not get the same value. Patient outreach at these two seems limited to a vague promise of shadowing providers.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- There is a concern about the dual Program Directorship. Both individuals bring essential components; however, having a junior faculty member necessary for the program's success raises concerns because that individual's career path over the grant period is somewhat unpredictable.
- The local "eco-system" is weak in stem cell biology. This weakness shows up in some of the training at the applicant institution appearing short of cutting edge. For example, well-established, important technologies like reprogramming/induced pluripotent stem cells, chemical induction of differentiation, etc., are not mentioned.
- Statistics on diversity of students enrolled in the program are missing. It is not enough to claim that the applicant institution is diverse. The applicant needs to document the actual enrollees in the program that are diverse.

Additional Comments

- The program could be improved by casting a wider net, and making a more concerted effort to inform the general University community (and applicants to the school) about this extraordinary opportunity.
- The program could be improved by focusing the medical education activities specifically on relevant areas for stem cell-related therapies, regenerative medicine.
- The program could be improved by endeavoring to enlist more direct involvement in the pre-internship activities of at least one scientist with deeper hands-on experience in stem cell science.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08398
Title	Bridges to Stem Cell Research and Therapy at [REDACTED]
Funds Requested	$3,044,870
Public Abstract **(This text is provided by the applicant in the proposal.)**	The proposed CIRM Bridges to Stem Cell Research and Therapy Award will support further development of an existing stem cell biology training program that includes a wide range of internship opportunities, a rigorous curriculum, substantive auxiliary training opportunities, and stem cell techniques coursework at [REDACTED]. Based upon the applicant institution's demographics (77% minorities, 49% low-income, and 44% first-generation) and their experience in biotechnology training and a current internship program, it is anticipated that CIRM Bridges interns recruited for the project will represent the diversity of California's population. The grant project will build on existing partnerships between the home institution and three outstanding host institutions that have collaborated on earlier projects to enhance stem cell research. Potential interns will be recruited through strong community outreach, including dissemination of General Education modules for stem cell education, inviting students from other colleges to seminars and activities, advertising to campus and community, and support from established biotechnology research and training centers. The CIRM Bridges program will provide up to 50 one-year internships over five years. Interns will be required to complete Certificates of Achievement in Biological Technology (or equivalent) and Stem Cell Culture. Courses added to the curriculum include advanced stem cell techniques (collaboration with a host institution), fluorescent microscopy, and a journal club. A stem cell unit has been added to RNA Interference and majors Cell and Molecular Biology courses. General Education stem cell modules have been produced at collegiate and secondary levels. Auxiliary training includes seminars (intellectual property and confidentiality, Stem Cells and Regenerative Medicine, bioethics, stem cell career opportunities), specialized workshops (data management, bioinformatics, scientific writing and presentations, graduate school applications), scientific meetings and symposiums, and research presentations. Interns will also take part in patient and healthcare engagement activities and study the regulatory pathway and therapy development process. The training will prepare CIRM Bridges interns to work at many levels in stem cell research labs (lab assistant, lab manager, professional staff, and research associates), or to continue in postgraduate programs. Trainees will be offered research opportunities with mentors in fields ranging from basic science of stem cells to translational research in regenerative medicine. By combining established programs and partnerships, rigorous curriculum, mentoring at both the home and host institutions, performance evaluations of trainees and program, and experienced leadership and research opportunities at partner institutions, the program will produce highly qualified lab personnel for stem cell research in both academic and industry settings.
GWG Recommendation	*Tier 1 – Recommended for funding.*

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 87

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	90
Standard deviation	4
Highest score given	90
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	14	0	1
Is the program well planned and designed?	12	1	2
Is the program proposal practical and achievable?	13	0	2

Reviewer Comments

Strengths

- This program is well thought-out and has an excellent track record. There is an impressive track record of alumni placement into scientific career paths.
- The boot-camp approach to preparing applications and recruitment is innovative and positive.
- Inclusion of data regarding the diversity and graduate rates of the 50 graduates of the program is a strength of the application.
- The previous CIRM Bridges students produced eight papers and one patent.
- The program appears to have done a good job integrating patient healthcare into the existing activities/courses.

Concerns

- The proposal would be improved with greater integration of components into a cohesive whole.
- The Stem Cell Techniques course would be improved by adding assessment activities. These activities could include student reports, photos of the methods they are using, video reflections of their experiences, as well as straight forward exams/quizzes.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Additional Comments

- The program would be more effective if it permitted students to take courses at other institutions and accept transfer between CIRM programs. Given that most of the individuals already have BS degrees, some of the coursework may not be essential and may even have less value than simply spending more time in the research internship.
- The program could also be improved by clarifying which activities are essential, which are recommended, and which are add-ons. Laying out the specific learning objectives and how each program component helps students meet those objectives and how they are assessed would improve the program.
- The program could be improved by including clear expectations for students and an assessment plan. Such a plan would be valuable beyond this particular program.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08400
Title	Stem Cell Training Enhancement Program with a focus on Translational Research
Funds Requested	$2,163,500
Public Abstract **(This text is provided by the applicant in the proposal.)**	The proposed project will build on an existing robust stem cell technician training in place at the home institution by expanding and enhancing student training with a translational focus through the implementation of eight (8) internship experiences each year, as well as a range of other support activities. Specifically, the proposed project will: 1) Offer full-time internships to eight (8) students each year in CIRM-funded research laboratories or industry labs working on translational stem cell research. Participating laboratories include both academic and industry labs operating throughout the region. Intern trainees will be recruited from a pool of students who have completed a series of cell culture courses at the home institution. Selected interns will engage in a nine-month internship for which they will earn college credit. 2) Offer a Human stem cell techniques course that will prepare student trainees to begin their internship experiences. 3) Mentor student trainees through two (2) four-unit independent study courses in both the fall and spring semesters. 4) Augment and update all existing cell culture courses with cutting-edge information, techniques, and equipment, including coursework regarding drug and therapy development compliance and regulations. 5) Create a network that allows research scientists in the field the opportunity to be guest lecturers and/or teach a laboratory to enhance the learning experience of the students in our program. 6) Engage a Project Director whose long-term experience in molecular biology and cell culture research will fully qualify her to implement the proposed project. 7) Engage students in community outreach through patient interactions and presentations to educate the public about the importance of stem cell research and regenerative medicine. The proposed program will greatly enhance training of future stem cell laboratory personnel by augmenting the existing California community college program with hands-on experience in an academic and/or industry laboratory over a nine-month period. Students participating in this training to internship program will gain a robust set of skills that will allow them to enter the workforce and make a substantial contribution to stem cell research. Further, by enhancing partnerships between the home institution and regional academic and industry laboratories, the proposed project will pave the way for future student training, and professional development activities for faculty members.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 94
Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	95
Standard deviation	5
Highest score given	98
Lowest score given	80

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	14	1	0
Is the program well planned and designed?	14	1	0
Is the program proposal practical and achievable?	14	1	0

Reviewer Comments

Strengths

- This is an excellent proposal and a pleasure to read. It is well thought out and designed.
- The goals of the program appear to be well aligned with the institution. It is encouraging to see that past program graduates have gone into industry and academia.
- This type of training program will address a major need that has been identified by biotech companies – the lack of trained technicians, especially at the AS degree level. It is well designed to provide students with excellent, industry-standard training in stem cell production. This program also provides students with the training to continue their education well beyond the AS level if they elect.
- Great mentors are identified. The intense focus on five mentors as well as the personal interaction between mentors and trainees is important.
- The trainees will also serve as ambassadors to local high schools, where they will give talks on their work and experience. This is a very innovative addition to the proposal and will likely have tremendous impact on future students.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- The selection process and placement are well documented. Each host lab must interview at least 3 potential trainees. This will be a great opportunity for the trainees.
- Recruiting targets from a disadvantaged neighborhood in the local area is commendable. The reviewers applauded this effort and asked for this important effort to be maintained.
- The involvement of alumni of the program is excellent. Having two alumni actively involved in course development will provide state of the art skills for trainees.

Concerns

- The training experience would be strengthened by more meaningful interactions with patients who benefit from stem cell therapies. Although two opportunities are mentioned, trainees should be required to participate in both (or at least two out of several).
- A robust mechanism should exist to track program alumni after they have completed the program.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08411
Title	Stem Cell Scientist Training Program
Funds Requested	$2,770,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The main focus of the [REDACTED] Stem Cell Scientist Training Program is heavily weighted on goal-oriented practical laboratory training experience in stem cell biology and stem cell-based patient therapies. Our program is integrated with educational, ethical, and guidance features for highly qualified and culturally diverse senior undergraduate students. Our internship-host institution provides mentors who are world-leaders in fundamental stem cell research and therapeutic translational applications. There is a great diversity of available hands-on training environments in human and mouse embryonic and adult or cell type-specific stem cell biology, spanning the basic to translational investigative spectrum. Our partnership achieves all of the major Bridges Program objectives including: 1) training laboratory personnel in current stem cell research techniques, policy, and ethics, 2) introducing community outreach, patient advocacy, and career counseling for future stem cell-based therapies, and 3) facilitating the entry of an ethnically and culturally diverse student population into the emerging world of stem cell biology and regenerative medicine. Our training program will provide CIRM interns with opportunities to study the latest advances in stem cell biology, to present their own work in settings in which they can obtain constructive feedback, to interact with their peers in formal and informal forums, to meet leaders in the field, to interact with patients, and to develop their career potential through advisement and mentoring. CIRM internships at our host institution will be 10 months in duration for undergraduate students in screened and selected labs and will be preceded by intensive training at [REDACTED] and in the [REDACTED]. The majority of intern time will be spent on laboratory research. Interns will be taught stem cell and essential analysis techniques such as microscopy, cell sorting, and good laboratory practices (GLP) in the internship-host lab and affiliated cores. Their projects will be discussed with and picked in partnership with the lab mentor, who will pair interns with more advanced senior graduate or post-doctoral students working in the area of the trainee's project. This hands-on experience will be supplemented by participation in a biweekly Stem Cell Club, attendance at the weekly stem cell seminar series, attendance at a yearly International Stem Cell Symposium and several other research symposia, by career counseling and community outreach, and by formal and informal mentoring by host-institution lab faculty. A major purpose of our inter-institutional training program is to provide an opportunity for engaged, interested, and successful interns to gain the necessary skills and qualifications to springboard into careers in stem cell research that spans the spectrum, from basic studies to translational approaches to stem cell-based patient therapies, in academia and industry.
GWG Recommendation	***Tier 1 – Recommended for funding.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 77

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	75
Standard deviation	3
Highest score given	83
Lowest score given	75

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	11	1	3
Is the program well planned and designed?	5	2	8
Is the program proposal practical and achievable?	9	1	5

Reviewer Comments

Strengths
- The program has excellent teaching and outreach components. In particular, the training for outreach is a strength.
- There is a strong educational aspect and addition of a new stem cell course is a positive.

Concerns
- The application is not well written.
- The program would benefit from a deeper exposure to the regenerative medicine industry and to stem cell translation.
- Degree of oversight by applicant is not impressive and should involve more face-to-face time.
- The diversity question is not well addressed.

Additional Comments
- Close participation with a nearby university is a strength and weakness, i.e., close integration, but relatively few mentors.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- The trainees have been well-integrated into the nearby university's community but a deeper involvement by the nearby university's participants in the training and mentoring process would strengthen the program.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08417
Title	A Two-Campus Collaboration for a Bridges 2.0 Program
Funds Requested	$3,044,635
Public Abstract **(This text is provided by the applicant in the proposal.)**	The applicant institution and its partner institution located in easy commuting distance will jointly develop a CIRM Bridges to Stem Cell Research and Therapy 2.0 program. Both universities are minority-serving institutions. This partnership will be an extension of their existing collaboration on the Bridges 1.0 program, building upon their experience and resources developed over the past six years. The program goals will be: 1) to prepare a diverse cohort of undergraduate, post-baccalaureate and Master's level trainees with the knowledge, technical, and professional skills needed to become well-rounded stem cell researchers; 2) to provide trainees year-long stem cell research internship opportunities in highly qualified off-campus host labs; and 3) to engage trainees in interactions with drug development experts, physicians and patients; community healthcare service and community outreach activities. To achieve these goals, the program will select a cohort of 10 qualified students each year, 5 per institution. Prior to placement into host labs, selected trainees must successfully complete 4 required courses, which cover the topics of stem cell biology/ cell culture skills, regulatory affairs, cell and molecular biology techniques, and scientific communication, and participate in a 5-day stem cell techniques training course at the [REDACTED]. Trainees will also be encouraged to take an advanced stem cell biology course taught by the program director, an active stem cell researcher at the applicant institution. This course will provide students opportunities to practice working with human pluripotent stem cells including culture, differentiation and molecular characterization. Trainees will be placed into host labs based on mutual interest. In addition to the scientific knowledge and skills that they will acquire as researchers during their 12-month internship, trainees will also continue to grow as individuals by participating in 4 different workshops that teach research ethics, project management, community engagement preparation and career development. Furthermore, trainees will commit about 4hr/month to healthcare and patient engagement by attending presentations from invited drug developers and physician/patient advocate teams, visiting memory care facilities, volunteering at blood donation drives or shadowing physicians during their clinical days. Trainees will also commit to participating in at least two different community outreach events by speaking to seniors in community centers, high school students, or the general public on Stem Cell Awareness Day. The overall program goal is that trainees will complete this program as well-trained, confident and committed professionals with an in-depth understanding of the need for stem cell research, the skills to accelerate stem cell research, and the drive and commitment to develop stem cell based therapies that could benefit millions of people.
GWG Recommendation	***Tier 2 – Moderate quality or no consensus; suitable for programmatic review.***

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 74

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	75
Standard deviation	4
Highest score given	82
Lowest score given	60

Members scoring within Tier 1 (75 - 100)	12
Members scoring within Tier 2 (65 - 74)	2
Members scoring within Tier 3 (1 - 64)	1

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	9	4	2
Is the program well planned and designed?	2	7	6
Is the program proposal practical and achievable?	9	1	5

Reviewer Comments

Strengths
- The Program Director is very well qualified to carry out this program.

Concerns
- The patient engagement activities are considered insufficient by virtue of the trainees' participation being voluntary for the most important activities. For example, the direct interaction with Alzheimer's patients could be a very positive emotional engagement, yet participation in such an activity is voluntary.
- A similar concern applies to community outreach, for which trainees will be "encouraged' to participate. This also weakens the proposed program.
- The lack of industry involvement, especially considering the geographical location, is considered an important weakness.

Additional Comments
- The program would be improved by clarifying how students will report on their outreach activities.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- The program would be improved by requiring participation in all patient engagement activities instead of offering a "pick one" menu and in community engagement activities.

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CALIFORNIA'S STEM CELL AGENCY

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08418
Title	Stem Cell Scholars- from Basic Research to Clinical Translation: training a diverse pool of students in the lab, engaging them in patient and healthcare activities, motivating them to educate their immediate community and enabling them for careers in the stem cell therapy sector.
Funds Requested	$2,698,040
Public Abstract **(This text is provided by the applicant in the proposal.)**	The Stem Cell Scholars from Basic Research to Clinical Translation training program has the following four components to ensure its success and provide a great benefit both to the students and the community that our campus serves. 1) Courses to prepare the students for research internships. Students will be trained in both the theoretical and practical aspects of stem cell biology. and therapy. Courses on stem cell biology, isolation and maintenance will ensure that the interns have the skill set to be successful and receive maximum benefit from their subsequent internship. They will also benefit from coursework that will familiarize them with the regulatory affairs process and give them an understanding of how basic research translates into a clinical trial and ultimately to a well-accepted therapeutic protocol. 2) Volunteer opportunities to ensure students engage with the community. Students will engage with patient groups, participate in healthcare activities and organize educational seminars to interested members of the community. Students will volunteer services at local hospitals or volunteer on campus to organize healthcare related events. 3) Student Society for Stem Cell Research is a student led club that will provide our students with an avenue to organize and share experiences with each other and the local community. The society offers a number of events that have both educational and engagement aspects for our own student population and the local middle and high schools. Students will perform community outreach by giving lectures at local schools, and participate in Stem Cell Symposia and seminars organized in the area by the [REDACTED]. 4) Provide mentoring and career advice. Both the PI and host lab PIs will take a meaningful role in the mentorship of our student interns. Included in this are networking activities that will enable all of our interns to procure meaningful and satisfying careers in stem cell research and therapy sectors. Over the 5-year period of the grant, we will train 40 undergraduate and 10 graduate students at host sites that we have established strong and highly collaborative relationships. Our strong base in the underrepresented Hispanic population (the [REDACTED] entering class this year is 72% Hispanics) , along with other underrepresented minorities, including women and students with disabilities means that our Stem Cell Internship program promises to not only provide appropriately qualified graduates in the relevant disciplines but to provide diversity in these graduates as well. Our goal is to prepare these students to enter the workforce sector that has been created as a result of the CIRM grant funding. Work possibilities include research technician positions, regulatory affairs professionals, or going on to advanced educational programs such as medical or graduate schools and ultimately serving in translational medicine clinics.
GWG Recommendation	***Tier 1 – Recommended for funding.***

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 90

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	90
Standard deviation	1
Highest score given	90
Lowest score given	88

Members scoring within Tier 1 (75 - 100)	15
Members scoring within Tier 2 (65 - 74)	0
Members scoring within Tier 3 (1 - 64)	0

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	15	0	0
Is the program well planned and designed?	15	0	0
Is the program proposal practical and achievable?	15	0	0

Reviewer Comments

Strengths

- This is an outstanding application that describes a very well developed program.
- The patient engagement and community outreach components are very well integrated and outstanding.
- The program has a great track record.
- This program has outstanding mentors and leadership.
- The proposal contains a good recruiting plan. This program serves well a very underrepresented community

Concerns

- A concern is the incorporation of industry in the proposal. While the limitations mentioned in the proposal are real, it would be nice to find a way to overcome them.
- The proposal suggested that interns were not willing/able to travel to distant internship locations. However, most of the partner institutions are quite distant from applicant institution. This discrepancy was difficult to resolve. It suggests that most of the host institutions/labs are not accessible to the majority of the

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

students accepted into the program. If so, the program should narrow down the possible internship sites to more realistically match student needs. Perhaps, finding a way to assist trainees' transportation would be a plus.

Additional Comments

- The program would be strengthened by expressly addressing intended outcomes, with specific reference to stem cell biology.
- The program would be improved by developing a more robust student assessment/evaluation plan and instruments, including data from courses and internships (e.g., student surveys, mentor surveys, etc.). The assessment itself could include expectations, from showing up on time to presenting at the Stem Cell Symposium.
- The program might consider placing small cohorts of students at an internship site as a way to increase peer support and interaction. Programming might then be done at the host institution.

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CALIFORNIA'S STEM CELL AGENCY

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08428
Title	Specialty in Stem Cell Biology
Funds Requested	$2,520,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The Specialty in Stem Cell Biology will prepare community college students, particularly members of racial and ethnic minorities underrepresented in the health sciences, to obtain technical positions in the field of stem cell research by providing them with hands-on laboratory experience as well as academic instruction. A second purpose is to encourage students to pursue careers as stem cell scientists and thus, continue their education until they have obtained the required advanced degrees. Selected students enrolled in either the Associate of Science in Biotechnology or the Certificate of Achievement in Biotechnology will serve a 10-month internship in a collaborating laboratory and will have the opportunity to work alongside scientists and technicians as they proceed through their experiments. Along with honing their laboratory skills, students will develop critical thinking skills and confidence in their ability to work in today's world of biological science, which can be daunting when viewed from the outside. Students also will have the opportunity to participate in a myriad of seminars and workshops in stem cell research offered by the host laboratory. Prior to the internship, students will complete a week-long intensive training in working with stem cells, as well as courses in the ethical and legal aspects of stem cell research and in drug development and regulation. During their internship, students will be exposed to the personal realities of people living with debilitating conditions that stem cell research hopes to rectify by volunteering time in local community organizations and hospital clinics. Assisting people with diagnoses such as Alzheimer's, Parkinson's, chronic myeloid leukemia and neurological-based conditions will allow the student to gain an understanding of the need for translational research targeted for stem cell therapies. To encourage the student interns to share their experiences with others, they will be invited as guest lecturers in a number of the biology and biotechnology classes offered at their own and other local colleges, high schools, community centers and health clinics. It is hoped that participation in outreach by the CIRM interns will inspire and educate other students and members of the community in this new and exciting field of biological research.
GWG Recommendation	*Tier 3 – Not recommended for funding.*

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 60

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	60
Standard deviation	5
Highest score given	65
Lowest score given	49

Members scoring within Tier 1 (75 - 100)	0
Members scoring within Tier 2 (65 - 74)	5
Members scoring within Tier 3 (1 - 64)	10

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	4	6	5
Is the program well planned and designed?	1	11	3
Is the program proposal practical and achievable?	2	9	4

Reviewer Comments

Strengths

- Although there are few, the available mentors are outstanding.

Concerns

- The proposal contains a limited stem cell impact other than the one-week training at a nearby university.
- Also, other than some of the mentors at this university, at best only one-third of mentors actually can be classified as in stem cell field. There are very few stem cell labs for interns to be placed into.
- There is very little contained in the application on the actual content of the research experience.
- There is a limited impact of the proposed community outreach program, and evidence that program is specifically impacting the stem cell research community is lacking.
- There is little direct contact with relevant patients.

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- The application does not describe how students with diverse backgrounds will be recruited.

- 81% enrollment of 43 slots over the initial period of funding suggests that asking for 10 slots is too ambitious.

Additional Comments

- This proposal would be strengthened by having greater care in selecting mentors with more apt stem cell experience with more detailed description of their training plans.

- The new proposed courses (particularly that on regulatory considerations) are only in earliest stages of planning. It is not clear the courses will be implemented successfully or be relevant to the CIRM objectives.

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

Application #	EDUC2-08436
Title	Internships for Stem Cell Research
Funds Requested	$3,045,000
Public Abstract **(This text is provided by the applicant in the proposal.)**	The Applicant Institution (AI) is the [REDACTED] in California & is committed to provide lifelong learning to diverse students of non-traditional & adult learners. Academic excellence, accessibility & relevance are part of AI's core values, shaping the mission to promote "accessible" education & deliver education "relevant to diverse students of California." The very nature of this endeavor will prepare interns to solve a need for STEM graduates in a vital way. This program will mentor biology students to directly train for lab work in stem cell drug development research. It will also indirectly train students to become teachers to markedly bolster teaching others stem cell research. Teaching teachers stem cell research will constitute a massive multiplier effect as one teacher will influence hundreds to thousands of students. Existing premier AI molecular & cell biology & biochemistry courses with an integrated lab-based curriculum will develop trainees for stem cell research. Interns will do coursework, workshops, visiting lectures, site visits & in parallel do intensive lab-based hands-on research. Students will be mentored in career development & leadership. A series of lectures from world-recognized experts in stem cell biology & drug development will be presented. The visiting expert lecture series will be coupled with site visits to Biotech, research institutes, university & private entities doing stem cell work to learn first-hand how research is done. Trainees will participate in community science fairs & patient & healthcare events. Trainees will be mentored for job & career development & tracked. In the past, interns & trainees of the Host Institution attained a placement rate of 100% for students to go on to graduate, professional or other advanced programs. The proposed program will bolster stem cell research as follows: 1) Will create new knowledge in stem cell research while honing trainees' skills in critical thinking through the investigation of current & relevant research. 2) Will solve an urgent STEM need for a better tomorrow & sustain the noble mission of supporting trainees in their ongoing endeavors to "grow [their] talent" & contribute to a strong State economy. 3) Will educate future educators & deploy them in the 21st century workforce to be inspirational science teachers in the classroom with a deep knowledge of their communities & of the times. 4) Will propagate a long-lasting influence on the next generation K-12 students through their educators' success. An appealing aspect of this proposal is that many of the trainees will go on to become biology & science teachers. A goal is to produce highly trained individuals to become teachers & trained individuals that can go into the stem cell research community & immediately contribute. A subgoal is to train students to do patient & healthcare engagement activities, educational enhancement activities, & community outreach.
GWG Recommendation	*Tier 3 – Not recommended for funding.*

EDUCATIONAL

Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

FINAL SCORE: 64

Up to 15 scientific members of the GWG score each application. The final score for an application is the average of the individual member scores. Additional parameters related to the score are shown below.

Median score	65
Standard deviation	17
Highest score given	85
Lowest score given	25

Members scoring within Tier 1 (75 - 100)	5
Members scoring within Tier 2 (65 - 74)	5
Members scoring within Tier 3 (1 - 64)	5

Score Influences
Proposals were evaluated and scored based on the 3 key criteria shown below, which are also described in the RFA. The scientific members of the GWG were asked to indicate how their evaluation of the proposal against each criterion influenced their overall score. The total number of reviewers indicating a positive, negative, or neutral influence for each criterion is shown.

Criterion	Positive Influence	Negative Influence	Neutral Influence
Does the program have a potential for impact?	8	2	5
Is the program well planned and designed?	3	8	4
Is the program proposal practical and achievable?	2	7	6

Reviewer Comments

Strengths

- This is a unique application that is proposing to educate future teachers and educators in stem cell biology.
- The patient interaction activities are excellent.
- The diversity recruitment strategies are outstanding.
- Recruitment of veterans is a strength.

Concerns

- The feasibility of conducting the hands-on research plan is not well discussed.
- The relatively small size of the biology program at the applicant institution may not support the requested numbers of trainees. Thus, the potential for adequate training opportunities in the mentor laboratories is unclear.
- This program has serious flaws; who is teaching the required stem cell class? Where is it held? Are the needed resources available? Will the institute involve students in stem cell research? How will biology majors and education students be simultaneously served, given different career goals?

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Public Review Summary
RFA EDUC 2: Bridges to Stem Cell Research and Therapy Awards

- This RFA is not an efficient way to fund teacher education. A teacher education proposal should come in at a lower cost per enrollee for training.
- The focus on training teachers seems off point for the RFA.

Additional Comments

- Increasing the number of host institutions and including those with well known reputations in the stem cell field would benefit the application and program.

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CALIFORNIA'S STEM CELL AGENCY