

Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK) RFA - EDUC3

TOTAL BUDGET SPARK RFA	
TIER 1	\$2,312,750
TIER 2	\$0

Application #	Title	Score	Median	SD	Low	High	Budget	Tier	T1	T2	T3
EDUC3-08399	Leveraging Investment in hiGHschool Training: Summe	95	95	3	88	98	\$239,250	1	14	0	0
EDUC3-08422	Developing High School Students' Research Practices an	90	90	2	85	95	\$398,750	1	13	0	0
EDUC3-08407	Internship at a Cutting Edge CIRM-funded Stem Cell Res	89	90	2	85	90	\$398,750	1	14	0	0
EDUC3-08404	Mentored High School Summer Research Program	88	90	5	75	90	\$319,000	1	15	0	0
EDUC3-08387	SPARK Award Program in Stem Cell Biology for Californi	87	86	3	85	92	\$319,000	1	14	0	0
EDUC3-08431	CIRM Early Investigators High School Stem Cell Research	84	82	4	80	92	\$239,250	1	14	0	0
EDUC3-08425	Stem Cell and Regenerative Medicine- Summer Research	82	80	5	75	95	\$398,750	1	15	0	0

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08387
Title	SPARK Award Program in Stem Cell Biology for California High School Students
Funds Requested	\$319,000
Public Abstract (This text is provided by the applicant in the proposal.)	<p>We propose a CIRM SPARK Award program that builds on our existing summer research program for undergraduate and high school students by offering additional elements tailored to SPARK Award students, including:</p> <p>(a) a lecture series highlighting local investigators and ethical issues surrounding research on stem cells, (b) workshops to assist with their personal and professional development, (c) an introductory class on Stem Cells and their potential as therapeutics, (d) an opportunity to participate in donor recruitment activities in our blood, platelet and marrow donation group.</p> <p>The CIRM SPARK Award program will allow promising students to participate directly with evidence-based stem cell research at an early time in their scientific development. The best way to learn about biomedical research is to actually do it. This early experience in authentic stem cell based biomedical research will not only broaden their general education in science but also serve to stimulate students to consider career opportunities in stem cell biomedicine. Nearly all of our previous CIRM Creativity Award students who are now applying or attending college have chosen to focus on scientific degree programs, many with an eye towards biomedical research careers. We believe that a new cohort of CIRM SPARK students will also be inspired and educated by our program. Even for the few who do not directly go into biomedicine, the knowledge they gain from our program in the ethics and therapeutic potential of stem cells will make them especially well informed citizens with a deep appreciation of the field. Some will perhaps become effective advocates for future stem cell based medical advances.</p> <p>We encourage all stem cell researchers on campus to consider mentoring a SPARK student. We have a rich diversity of stem cell research on campus spanning the range from understanding and treating many types of cancer, diabetes and Alzheimer's disease. We are now organizing a Stem Cell Institute on campus to better coordinate current research programs and also to significantly expand efforts in stem cell based biomedicine. Unusually, we also encouraged non-traditional stem cell labs to consider either beginning a new stem cell project or initiating a collaboration in this area. Remarkably previous CIRM students even seemed to facilitate these efforts by "piloting" the science. We thus expect similar results with the SPARK program.</p>
GWG Recommendation	Tier 1 – Recommended for funding.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

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	86
Standard deviation	3
Highest score given	92
Lowest score given	85

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?	13	1	0
Is the program well planned and designed?	14	0	0
Is the program proposal practical and achievable?	14	0	0

Reviewer Comments

Strengths

- The selection process is a strong component of the program. In particular, the program has done an excellent job in improving participation of underrepresented groups.
- The short course and community education activities are considered to be innovative.
- Reviewers praised the program for allowing students the freedom to find their way through the program.
- The program is well-planned to prepare students for performing stem cell research and will place them in a variety of labs performing laboratory research.
- Reviewers cited the alumni returning to perform summer research in these labs as a strength.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Concerns

- The program would benefit from patient engagement activities in a more stem cell-relevant area than blood donation. For example, patient involvement could be improved by having students spend time with patients and/or families who would benefit from stem cell therapies.
- It is not clear that CIRM students will be preferentially tracked to stem cell labs, which would be preferable.

Additional Recommendations

- The program would benefit by providing a mentor training session to provide guidance as to how to choose appropriate projects, how to mentor these students effectively, etc.

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Public Review Summary

RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08399
Title	Leveraging Investment in hiGHschool Training: Summer Program to Accelerate Regenerative medicine Knowledge (LIGHT a SPARK)
Funds Requested	\$239,250
Public Abstract (This text is provided by the applicant in the proposal.)	<p>[REDACTED] is a private non-profit hospital in [REDACTED], one of the most socially and ethnically diverse areas of the country. [REDACTED] is highly ranked as one of the top recipients of NIH funding among [REDACTED].</p> <p>In 1980 [REDACTED] developed the [REDACTED] Summer Student Research Program, one of the nation's first programs designed to provide research training to students from groups who are underrepresented in the biosciences. Over 600 high school and college students have graduated from the program. The summer curriculum provides hands-on immersion in the scientific process, structured activities designed to stimulate their interest in science, and encouragement to pursue careers in biomedical research. The long term goal of the program is to increase the diversity of bioscience researchers.</p> <p>The NIH has provided consistent core funding for the [REDACTED] Summer Research Program, which has been supplemented by other sources with interests in specific research topics or populations. The program was a recipient of a CIRM Creativity Award, which was very successful. With continued funding from CIRM, the proposed SPARK program at [REDACTED] seeks to enroll 6 new high school students each year for the next five years. Participants in SPARK will be part of the larger program, which typically has 35-45 funded participants.</p> <p>For decades, the Summer Research Program has had relationships with dozens of public high schools from which it receives approximately 100 applications a year. After a competitive selection process, top candidates are invited to attend the program.</p> <p>Like the other students, SPARK trainees will: (a) conduct their own research projects in a lab under the mentorship of an accomplished investigator; (b) attend regular structured seminars, presentations, and discussions intended to impart a strong foundation in the scientific method, biomedical research and lab safety, and provide practical advice on pursuing a research career; and (c) present their research findings publically.</p> <p>Unique to this program, SPARK students' mentored-internship will focus on stem cell research. [REDACTED] benefits from a strong relationship with the [REDACTED], just a few blocks away. Some trainees will have an opportunity to do their lab work at the [REDACTED]. Additionally, SPARK students will participate in structured patient engagement activities and blog about their experiences throughout the summer. They will also attend on-site presentations that are specific to stem-cell research and will present findings at the CIRM poster day.</p>
GWG Recommendation	<i>Tier 1 – Recommended for funding.</i>

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

FINAL SCORE: 95

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	98
Lowest score given	88

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 the program's track record.
- The program is excellent at tracking diversity and outcome statistics.
- The quality of the mentors is outstanding.
- The program's focus on ethnic and socioeconomic diversity is a strength.

Concerns

- Reviewers expressed no significant concerns.

Additional Recommendations

- A more specific plan for social media would benefit the program.
- More specificity on the nature of the mentor-mentee relationship would be valuable.

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Public Review Summary

RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08404
Title	Mentored High School Summer Research Program
Funds Requested	\$319,000
Public Abstract (This text is provided by the applicant in the proposal.)	<p>The CIRM SPARK program will be an intensive research experience for eight local high school students. This summer research training will be a prodigious addition to our existing high school outreach program, which has a track record of over 5 years of success in educating students from diverse cultural and socio-economic backgrounds, including classroom lectures, hosting field trips and an existing one-week summer research program. As a part of the SPARK program, the summer interns will receive eight weeks (~31 hours per week) of hypothesis-based mentored research in one of the fifteen labs in our institute, all focused on the use of stem cells for translational studies in regenerative medicine, with the hopes of accelerating delivery of stem cell based therapies to patients with unmet needs.</p> <p>In addition to their research projects, students will receive a comprehensive research education. Students will spend at least one-day learning about the inner workings of organizing/ running a clinical trial and shadowing physicians/nurses in an ALS clinic to interact with patients. During their eight weeks they will also visit various core facilities (comparative medicine and imaging) to learn more about the research process and will receive lectures from various faculty. The students will be expected to attend their host labs' weekly journal clubs and lab meetings. They will also meet weekly in a group course to learn about different career paths in science and medicine, scientific reading, writing and presentations. Lastly, the students will attend a speaker series geared towards research interns and present posters of their summer research at Research Intern Day, both organized by our Institution. Here, the students will get to know other summer interns and present their data. Our vision is that the students involved in this summer research internship will learn the power of regenerative medicine and gain experience that will propel them forward to a successful scientific career. Additionally, through the use of social media, we hope that reports of this research also informs the citizens of California of the uses of stem cells for regenerative medicine and inspires other young people to become involved in research.</p>
GWG Recommendation	<i>Tier 1 – Recommended for funding.</i>

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

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	5
Highest score given	90
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?	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

- Reviewers unanimously praised the Patient Engagement Activities (the mock clinical trial concept and the day shadowing healthcare professionals in the ALS clinic) and believed that these activities are innovative.
- The program provides a broad variety of professional development activities, including a strong focus on improving communications skills
- The Program Director will use established contacts with schools in the local area to recruit students, a method that has been successful in the past.

Concerns

- The program would benefit from a clearer mentee placement plan, and from a strategy to train mentors to interact with high school students.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

- Reviewers question what would occur if there is no availability in a student's selected lab? Will students be assigned to a different lab? Can students be guaranteed one of their top three choices for labs?
- More creative and impactful community outreach would be beneficial and match the inspiration behind the Patient Engagement Activities.

Additional Recommendations

- The program should focus more on opportunities to track program alumni, such as a parent workshop on filling out college applications that will encourage contact with alumni.
- Although the student recruitment method has been successful in the past, reviewers suggested the Program Director consider expansion beyond the local area to reach an even larger student recruitment pool.

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Public Review Summary

RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08407
Title	Internship at a Cutting Edge CIRM-funded Stem Cell Research Facility
Funds Requested	\$398,750
Public Abstract (This text is provided by the applicant in the proposal.)	<p>The CIRM SPARK Program is a motivating, stimulating and rewarding experience encouraging young people from the State of California to enter the field of stem cell biology and research. This has been proven in our Stem Cell Program by five years of summer internships, starting with a pilot program conducted with four high school students in the summer of 2011 and then expanded to 10 students at our institution for four additional years, allowing highly motivated and talented students from [REDACTED] high schools a unique opportunity to develop skills in stem cell biology and research.</p> <p>This opportunity will be available again through the new CIRM SPARK internship program. At our institution, as in the previous years, participants are selected from the winners of a highly competitive award program in the field of biotechnology, called the Teen Biotech Challenge. High school students are asked to create and design a public website in the field of biotechnology. Through the Teen Biotech Challenge Program, students gain skills in research and creative web design, while achieving recognition from peers, educators and members of the biotech community. This program attracts a pool of students from [REDACTED] California high schools who are interested and highly motivated, and is targeted toward high schools with high levels of diversity.</p> <p>Ten winners of the challenge are then chosen for an internship in our stem cell program. Guided by a mentor in the team that most closely matches their interests, they intern in one of our laboratories involved in developing cutting edge stem cell treatments for heart disease, diseases that affect the brain, liver, kidney, and bladder, bone, skin, eye disease, and others. Our state-of-the-art Good Manufacturing Practice (GMP) Facility is an important part of this internship, which is a highly unique opportunity, as this facility manufactures stem cells for clinical applications.</p> <p>Students will participate in a theoretical and practical class in stem cell biology and manufacturing practices, earn a certificate of GMP training, will experience clinical activities in our medical school's student run clinics. The activities in the clinics will expose the students to the needs of medically under served communities and will allow them to contemplate the application of stem cell treatments in diseases not treatable by conventional medicine. The interns will prepare and present, in front of their peers and CIRM officers, a poster about their project.</p>
GWG Recommendation	Tier 1 – Recommended for funding.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

FINAL SCORE: 89

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	2
Highest score given	90
Lowest score given	85

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

- This program represents an outstanding educational experience with great stem cell relevance and attention to CIRM's mission.
- This is an amazing program that has a high energy level and is very effective.

Concerns

- The web-based selection process may inadvertently bias the input to the program to individuals who have access to contemporary technology; i.e., it may not provide equal access to students from economically disadvantaged backgrounds.
- As hard as it may be, better tracking of individuals that leave the program is important to judge the effectiveness of this program but also of the overall SPARK Program.
- The program needs to increase its focus on recruiting from diverse populations and

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RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

needs to create mechanisms to secure minority kids to the program.

Additional Recommendations

- Consider a parallel path to acceptance in the program that may be more accessible to students from diverse backgrounds.
- Try to get institutional support for more complete tracking of students after completion of program.
- The program should focus more on opportunities to track program alumni, such as a parent workshop on filling out college applications that will encourage contact with alumni.

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Public Review Summary
**RFA EDUC 3: Summer Program to Accelerate Regenerative
 Medicine Knowledge (SPARK)**

Application #	EDUC3-08422
Title	Developing High School Students' Research Practices and Regenerative Medicine Knowledge through a Summer Intern Program
Funds Requested	\$398,750
Public Abstract (This text is provided by the applicant in the proposal.)	<p>Through the [REDACTED], [REDACTED] high school students from backgrounds underrepresented in the sciences conduct summer research at [REDACTED].</p> <p>Five years of CIRM funding will support 50 students in stem cell and regenerative medicine internships in the world-class research environment of [REDACTED]. With about 125 laboratories focusing on stem cell research, [REDACTED] is an established leader in this field and CIRM interns will have a wide range of opportunities to learn about the importance of stem cell biology.</p> <p>Students will spend the bulk of their summer conducting research under the guidance of a mentor. In addition, they will begin the summer with a 2-day short course and then meet weekly to build strong ties with their peers and learn to: 1) successfully apply to college and for financial aid, 2) communicate in writing about their research, and 3) give a poster presentation and a scientific talk. Students will also participate in patient engagement activities and community outreach initiatives.</p> <p>[REDACTED] alumni are known to pursue careers in the sciences; thus, many of these students will likely continue working in stem cell research. Irrespective of their career choices, all CIRM-funded alumni will understand the importance of stem cell research, thereby becoming "stem cell ambassadors" who can help others in California understand this work and advocate for continued funding.</p>
GWG Recommendation	<i>Tier 1 – Recommended for funding.</i>

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

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	2
Highest score given	95
Lowest score given	85

Members scoring within Tier 1 (75 - 100)	13
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?	13	0	0
Is the program well planned and designed?	13	0	0
Is the program proposal practical and achievable?	13	0	0

Reviewer Comments

Strengths

- Reviewers unanimously agreed that the Program Director's track record is superb.
- The outcomes tracking is a strength of the application.
- The training for college applications, financial aid applications, and presentation skills is great.
- The students will be integrated into the highly successful existing program at the applicant institution. The selection process is very well designed and likely to broaden participation.
- Reviewers considered the interview with two possible mentors and the training in scientific writing, poster and oral presentation to be strengths.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

- Reviewers praised the emphasis on students who would be first in their families to attend college.

Concerns

- The patient engagement component is not fully developed.

Additional Recommendations

- The patient engagement activities should be expanded to meet with patients who might benefit from stem cell therapies (e.g., spinal cord injury, Alzheimer's, etc). Students could also be encouraged to share stories of friends or family members who might benefit from such therapies to make the emotional aspect of engagement stronger.
- The program would benefit from a focus on the expectations for the supervisor and research mentors toward the students.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08425
Title	Stem Cell and Regenerative Medicine- Summer Research Internship
Funds Requested	\$398,750
Public Abstract (This text is provided by the applicant in the proposal.)	<p>The ultimate goal of our proposed summer internship program is to train a diverse group of students who will be the next generation of future stem cell scientists. The proposed internship will strengthen the future of stem cell research in California by providing California high school students the exciting opportunity to delve into hands-on research in various areas within stem cell biology. Our program aims to recruit a diverse group of participants from low socioeconomic backgrounds from various ethnicities. The participating students will be mentored directly by graduate students, post-doctoral fellows and Faculty within various stem cell research labs. Before participating in the research internship, students will prepare for the internship by attending a special workshop day which will include an overview of the program, biology basics review, stem cell introduction, a boot camp on lab skills and techniques, a campus tour and a chance to socialize during the meal times. At the start of the program, students will be taught the basics of the stem cell field through the opportunity to attend a lecture series course in stem cell biology taught by graduate students. Additional lectures will be taught by Faculty and will include titles such as "How to Write a Scientific Abstract", "How to Read a Journal Article", "Careers in Science and Medicine" and "How to Create a Research Poster".</p> <p>Students will also have the opportunity to attend special seminars regarding science fairs, the college application process and graduate school/medical school educational paths by current MD and PhD students. One of the key skills students will learn through this internship will include how to present their research data to the public. The student interns will have several opportunities to present their research through an oral presentation symposium open to the community, presentation at lab meetings as well as presentation of their research poster at an end of summer poster session which is also open to the community. During the summer, our goal for the students is to be well trained in laboratory techniques and to motivate them to continue their excitement for stem cell and regenerative medicine research in the future. Another goal is that the participating students will disseminate their excitement for stem cell and regenerative medicine to their families, classmates in high school, and local communities. The discoveries that these students will contribute to in their labs will further help to promote stem cell research in California and throughout the world.</p>
GWG Recommendation	<i>Tier 1 – Recommended for funding.</i>

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

FINAL SCORE: 82

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	80
Standard deviation	5
Highest score given	95
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?	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

- A majority of the reviewers praised the overall strength of the application.
- Remarkable outcomes in terms of college admittance for graduates.
- The training plan is well thought out and very practical. Trainees will be matched with graduate students or post-docs from labs the trainees select. The labs are some of the best in the world. The close interaction with college students will be very valuable for the trainees.
- The program provides an excellent mentorship mechanism for trainees. Trainees will have opportunities to interact with peers, college students and faculty members.
- The program director has outstanding research credentials and will match trainees

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with research laboratories.

- The project manager has an excellent background to direct the program and has experience running this type of program as well as being a teaching assistant in similar programs.
- The institution has an outstanding track record for supporting high school student focused programs.

Concerns

- The program is not well defined in its mission to increase stem cell research. The proposed program is more a continuation of the already existing program.
- The recruitment strategy for under-represented students is not defined.
- The patient outreach program is minimal.
- The expectation is that most of the faculty are experienced in training graduate (or post graduate) students, but engaging high school students is very different. Working with the faculty, to train them on how to provide a stimulating environment for high school students will be essential to the success of the program.

Additional Recommendations

- Additional recruiting, outside of emails/letters/phone calls, may be needed to attract under-represented and disadvantaged students. The inclusion of the university Diversity Office may be a good place to start.
- More opportunities exist in the social media space. Depending on the target audience, different social media outlets can be used to publicize stem cell therapy and the contributions of the trainees. For example, Instagram and Twitter are more popular with the college age population; Facebook with 30 to 40 year olds, websites with an older generation. The social media message should match the outlet and target audience.
- The research activities will likely provide trainees with the understanding of the unmet medical needs. However, more clinical involvement with patients suffering from diseases where stem cell therapy could (or has) make a significant difference should be explored. 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.

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

Application #	EDUC3-08431
Title	CIRM Early Investigators High School Stem Cell Research Program
Funds requested	\$239,250
Public abstract (This text is provided by the applicant in the proposal.)	The CIRM Early Investigator High School (EiHS) Stem Cell Research Program enables socioeconomically challenged students from ethnic groups that are unrepresented in science and medicine to step into the shoes of stem cell researchers. In addition to providing advanced technical training, the eight-week summer program fosters a wide range of academic and interpersonal skills useful in any work environment. Like professional scientists, students learn hands-on science techniques and complete an original research project in the laboratory of an internationally recognized scientist. They attend collegiate-level lectures, read and critique scientific publications, debate central issues such as ethics, public policy and patient advocacy, and attend special career forums. They also communicate their work to friends, family and scientists via a university-level poster session and the EiHS Journal, a free scientific publication that they write and edit. The CIRM EiHS program is of direct benefit to stem cell research in California because it creates a pipeline not only for training future scientists, but also for increasing diversity and ensuring that our future doctors and scientific leaders are individuals of all genders and races. It also provides a unique opportunity for at-risk students — who might not otherwise attend college or pursue advanced education in a college-level environment — to connect with university professionals. Participating students undergo significant enrichment as students, scientists and individuals in addition to creating memories and friendships that last a lifetime.
GWG Recommendation	<i>Tier 1 – Recommended for funding.</i>

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Public Review Summary RFA EDUC 3: Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)

FINAL SCORE: 84

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	82
Standard deviation	4
Highest score given	92
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?	13	1	0
Is the program well planned and designed?	10	2	2
Is the program proposal practical and achievable?	14	0	0

Reviewer Comments

Strengths

- This proposed program builds on a highly successful program that has been in place since 2012.
- Extremely strong mentorship opportunities for students are available.
- The students' contributions to the campus's scientific journal is a strength of the program.
- Overall, the mix of socioeconomic backgrounds of the trainees was praised.

Concerns

- There are concerns about scaffolding student interactions among privileged and less privileged, especially when most of the students are so economically well off.

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- There is great lack of clarity in the group of students that are going to access to the CIRM funds. It is not clear what mechanisms are used to include kids from low income groups.

Additional Recommendations

- The program could be improved by elaborating on patient engagement activities beyond research colloquium.
- Expanding the clinic component and improved tracking of accomplishments of the formal students would strengthen the program.
- If possible, the program would benefit from recruiting researchers from one or more stem cell companies to attend the forums and the boot camp teaching sessions.