

1/20/2024

Dear Members of the ICOC, ARC and Program Officer Sambrano,

The leadership team of Cal Poly Humboldt is very appreciative of the GWG's and FWF's comprehensive reviews of our INFR 6.1 proposal (#1-15517). The rigor of the CIRM review process has made California one of the world's most innovative and successful regions for the advancement of regenerative cures. We are grateful to you.

We submit this letter and the attached documents in response to the reviewer's comment, "If the application was more focused on the educational component it would be very strong". Under my direction, the Cal Poly Humboldt INFR6.1 proposal team elected to focus our application on how we would grow our CIRM Bridges partnerships to create a facility that would train and support cutting edge research projects like those our CIRM Bridges students engage in during their internships. I did not intend to minimize our plans to build upon the successes of our widely respected CIRM Bridges Program (see documentation from Weismann, Nolta, Abedi, Wang, Fink and Chan) to:

- Expand the number of CSU undergraduate students from diverse backgrounds to enter the fields of stem cell biology and regenerative medicine;
- Grow our partnerships with the local high schools and medical community to improve community outreach, educational and training opportunities in our remote, diverse, and medically-underserved region;
- Include members of our robust network of successful CIRM Bridges alumni who are enthusiastic in joining our efforts to train the next generation of biomedical professionals (see letters from de la O and Kime);
- Create a center for CSU faculty and students interested in pursuing research projects in stem cell biology.

Our Humboldt CIRM Bridges team (Dr. Blackman, Dr. Cappuccio and myself) have dedicated our careers to STEM education for civic responsibility and social justice in a region far removed (300 miles or greater) from the R1 research institutions at which we trained in stem cell biology (UCSF), nanoscience material science (Lawrence Berkeley National Laboratory), and cancer cell biology (UC Davis and Vanderbilt University). We have built a highly recognized training program that includes partners from our local medical and high school communities. INFR6.1 funding would exponentially increase our ability to involve local high school students (see letters from Mengell and West); biotechnology students and faculty from other CSUs (see letters from Imumorin and Mazzag); clinicians (see letters from Hong and Connor); and Humboldt/Del Norte community members so they are prepared to contribute to the biomedical workforce and benefit from regenerative therapies for unmet medical needs.

As described in the [Humboldt Polytechnic Prospectus](#), **our 2021 polytechnic designation creates an unprecedented opportunity to develop the facilities and curricular pathways required to support CIRM's mission that is unique to this moment in time.** Knowing this, if funded I will step down from my campus administrative duties in order to focus on the launch and administration of the program; Dr. Blackman and Dr. Cappuccio will increase their focus on training and community outreach; INRSEP+ Diversity in STEM Director Dr. Nievita Bueno Watts will continue to ensure all aspects of our program support students from diverse backgrounds; Dean Eric Riggs and Facilities AVP Michael Fisher will prioritize our facilities renovations (ranked 1 by the FWG); and Cal Poly Humboldt Provost Jenn Capps has committed to providing the curricular resources required for the long term sustainability of this facility (see Capps letter).

We are prepared and enthusiastic about creating a CIRM Shared Resource Facility for Education and Community Outreach in Humboldt County. If this is of interest to the ICOC and ARS, we respectfully request the opportunity to submit a revised INFR6.1 proposal. Thank you for your consideration of our request.

Sincerely,

*Amy Sprowles*

Amy Sprowles, Ph.D.

Director of the Cal Poly Humboldt CIRM Bridges Program

Associate Professor of Cellular and Developmental Biology and Faculty Associate Dean of Academic Programs

**H.**

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**Irving L. Weissman M.D.** <irv@stanford.edu>  
To: Amy Sprowles <amy.sproles@humboldt.edu>

Tue, Apr 19, 2022 at 3:06 PM

Hi Amy,

You have built a very impressive program. I believe the Bridges students are better qualified than most undergrads- even from Harvard and Stanford- because they have strong and appropriate stem cell training with needed techniques from you, then spend 1-2 years in a lab on real projects. When they come up for interviews for a PhD program they really know what they did and can discuss it.

This program not only brings Humboldt State students to the level needed, but over the years they do better getting into labs for grad study and better completing projects in a timely fashion than the 'privileged' students who started in the most competitive schools.

Irv

[Quoted text hidden]

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Dear Members of the CIRM INF6.1 Grant Review Committee,

08/22/23

I am writing to express my full support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. As the Director of the Stem Cell Program and Gene Therapy Center in the Institute for Regenerative Cures at UC Davis, I fully believe in the power and potential of stem cell research. I am thrilled to see initiatives like this that aim to further our collaborative efforts and diversify the availability of educational programs in Stem Cell - based research.

I believe that this grant application deserves serious consideration and support due to the following reasons:


1. **Educational Impact:** Cal Poly Humboldt is uniquely situated to fill a critical gap in the current educational landscape by exposing a diverse population of students in a remote portion of California with a comprehensive understanding of human stem cell biology, techniques, and ethical considerations. This will empower them to explore careers in this evolving field and contribute to the advancement of regenerative medicine. Cal Poly Humboldt has collaborated with us for over 15 years on the CIRM Bridges training program and we have trained over 30 of their interns. Many of these interns have gone on to work at key positions at UC Davis and the IRC. Many of our scientists have requested more of these interns and expanding the access to similar training will increase the number of young professionals interested in pursuing careers in human stem cell research.
2. **Research Advancement:** By supporting this grant, you are fostering an environment conducive to cutting-edge research and innovation making equipment and infrastructure available to researchers, clinicians and students that would otherwise not have access to these resources. Students trained in this program will be equipped to undertake pioneering research projects, accelerating progress in human stem cell research and its applications in various areas, such as tissue engineering, disease modeling, and personalized medicine.
3. **Future Collaboration through shared resource labs:** By continuing to foster collaboration between Cal Poly Humboldt and UC Davis IRC it will expand the reach of the current human stem cell technologies and research to one of the most remote, medically underserved areas in the state.

We will support this program directly by providing access to materials (cells modeling rare diseases). We will also continue to collaborate on training key personnel in advanced stem cell techniques, organoid protocols and GMP processing.

By providing financial support for this initiative at Cal Poly Humboldt, you will not only contribute to the growth and development of aspiring professionals but also pave the way for significant advancements in regenerative medicine.

The impact of this funding will extend far beyond the classroom, as it will empower students to become agents of change who can shape the future of healthcare. Thank you for considering this grant application. I have full confidence that the successful implementation of this program will result in remarkable achievements, pushing the boundaries of what is possible in the field of stem cell research.

Sincerely,

A handwritten signature in cursive script that reads "Jan A. Nolta".

Jan A. Nolta, Ph.D., Professor  
Director, Stem Cell Program and Gene Therapy Center  
Scientific Director, UC Davis GMP facility  
Editor, *Stem Cells*  
University of California, Davis  
Institute for Regenerative Cures  
2921 Stockton Blvd., Room 1300  
Sacramento, CA 95817  
Direct Office: (916) 703-9308  
janolta@ucdavis.edu  
<http://www.ucdmc.ucdavis.edu/stemcellresearch>

August 22, 2023

Dear Members of the CIRM INF6.1 Grant committee,

This letter is to express the strong support from the UC Davis Alpha Clinic for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. As the Program Director of the UC Davis Alpha Clinic, and a Bone Marrow Transplant physician for over 25 years, the focus of my work has been conducting novel cell and gene therapy clinical trials to potentially improve the quality of life for the patients in need. We believe that this grant application through education and training will enhance the work force required to be able to reach patients in all areas of California:

1. **Broadening access to Cellular Therapies through education and outreach to the local medical community:** While there are currently nine Alpha Clinics situated throughout southern and central California there are no clinics within a 5-hour drive of Humboldt County. Cal Poly Humboldt is uniquely situated to fill a critical gap in the current educational landscape by educating a diverse, remote population in a medically underserved portion of California. The support of this Infrastructure 6.1 grant will bring critical support and education to the community. It will also provide an opportunity to educate the medical professionals in the area, a critical component in the expansion of access and collaboration between existing Alpha Clinics and the medical professionals who are ready and willing to adopt cellular based therapies.
2. **Workforce Training:** Alpha Clinics throughout California require a broad range of skilled Stem Cell Biologists and medical professionals to deliver superior cellular therapies and clinical trials. The CIRM Infrastructure 6.1 grant proposed by Cal Poly Humboldt will enhance existing knowledge networks to provide state of the art educational opportunities to build a diverse and skilled workforce. **The UC Davis Alpha Clinic is committed to working with highly trained key personnel in their facilities, the proposed Advanced Cellular Techniques courses meet standard operating procedures for preparation of cellular therapies.**

Through the provision of financial support for this initiative at Cal Poly Humboldt, CIRM will not only contribute to the growth and development of aspiring professionals but also pave the way for significant advancements in access to regenerative medicine. The impact of this funding will extend far beyond the classroom, as it will empower physicians and students to become agents of change who can shape the future of healthcare.

Thank you for considering this grant application. I have full confidence that the successful implementation of this program will result in remarkable achievements, pushing the boundaries of what is possible in the field of stem cell research in one of the most remote regions of our state.

Sincerely,



Mehrdad Abedi, MD

AIJUN WANG, PhD  
CHANCELLOR'S FELLOW  
CO-DIRECTOR, CENTER FOR SURGICAL BIOENGINEERING  
VICE CHAIR FOR TRANSLATIONAL RESEARCH, INNOVATION AND ENTREPRENEURSHIP  
PROFESSOR, DEPARTMENT OF SURGERY, SCHOOL OF MEDICINE  
PROFESSOR, DEPARTMENT OF BIOMEDICAL ENGINEERING, COLLEGE OF ENGINEERING  
UNIVERSITY OF CALIFORNIA DAVIS

UC DAVIS HEALTH  
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SACRAMENTO, CALIFORNIA 95817  
PHONE: (916) 703-0422  
FAX: (916) 703-0430  
EMAIL: [aawang@ucdavis.edu](mailto:aawang@ucdavis.edu)

August 21, 2023

Dear Members of the CIRM INF6.1 Grant committee,

I am writing to express my full support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. As Professor of Biomedical Engineering and Surgery at UC Davis, I have worked directly with CIRM Bridges Interns from Cal Poly Humboldt for over a decade. I'm thrilled at the opportunities for growing our collaboration to provide wider access to Stem Cell Biology training and state of the art research in their remote region of California.

The Cal Poly Humboldt team produces well trained, excellent students with a demonstrated commitment to careers in regenerative medicine. I have mentored several students from the Cal Poly Humboldt CIRM bridges program, many of whom have gone on to become accomplished clinicians and biomedical scientists. A few have even continued on as research associates in my laboratory group. As our research group engineers and develops stem cells, stem cell derivatives and bio-material-based scaffolds for the treatment of surgical diseases, I look forward to assisting Cal Poly Humboldt create training opportunities for students and researchers interested in engineering stem cells and stem cell-derived exosomes for tissue regeneration and targeted delivery. My lab group will support this initiative by providing advice; sharing expertise, protocols and SOPs; providing training opportunities, and working to identify young professionals who might assist in building this unique program. I also look forward to utilizing the Humboldt SRL facility to reproduce experiments performed in my laboratory when the facility opens Summer 2025. The equipment requested includes the particle sizer and ultracentrifuge required for this work.

By providing financial support for this initiative at Cal Poly Humboldt, you will not only contribute to the growth and development of aspiring professionals but also pave the way for significant advancements in regenerative medicine. The impact of this funding will extend far beyond the classroom, as it will empower students to become agents of change who can shape the future of healthcare in remote California. Expanding the network and access to funded shared resource laboratories in this underserved region of California will specifically help in broadening workforce development ultimately accelerating discoveries in regenerative medicine. Additionally expanding access to state of the art equipment will promote inter-institutional reproducibility and leveraging these shared resources will increase productivity in the field of regenerative medicine.

Thank you for considering this grant application. I have full confidence that the successful implementation of this program will result in remarkable achievements, pushing the boundaries of what is possible in the field of stem cell research.

Sincerely,



Aijun Wang, PhD  
Chancellor's Fellow Professor of Surgery and Biomedical Engineering  
Co-Director, Center for Surgical Bioengineering  
Department of Surgery, School of Medicine  
University of California, Davis

August 24, 2023

Dear Members of the CIRM INF6.1 Grant committee,

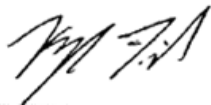
I am writing to express my full support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. In my capacity as a faculty member and Associate Director of Gene Therapy Center at the Institute for Regenerative Cures at UC Davis, I have worked directly with CIRM Bridges Interns from Cal Poly Humboldt for nearly a decade. I'm thrilled at the opportunities for growing our collaboration to provide wider access to Stem Cell Biology training and state of the art research in a remote region of California. I have routinely traveled to Cal Poly to give guest lectures in lab classes and to the greater university community and am always impressed with the quality, enthusiasm, and engagement of the students and faculty.

The Cal Poly Humboldt team produces well trained excellent students with a demonstrated commitment to careers in regenerative medicine. I have mentored several students from the Cal Poly Humboldt CIRM bridges program, including a M.S. student co-advised by Humboldt INFR6.1 PI Amy Sprowles. I am confident that this new initiative will produce a potential to expand our collaborations to include the sharing of cell cultures that model rare human diseases. Additionally, I will support this initiative by sharing protocols and SOPs, sharing expertise and working to identify young professionals who might assist in building this unique program. I also look forward to utilizing the Humboldt SRF facility to reproduce experiments performed in my laboratory when the facility opens Summer 2025.

By providing financial support for this initiative at Cal Poly Humboldt, you will not only contribute to the growth and development of aspiring professionals but also pave the way for significant advancements in regenerative medicine. The impact of this funding will extend far beyond the classroom, as it will empower students to become agents of change who can shape the future of healthcare in remote California. [Expanding the network and access to funded shared resource laboratories in this underserved region of California will specifically help in broadening workforce development ultimately accelerating discoveries in regenerative medicine.](#)

Additionally expanding access to state-of-the-art equipment will promote inter-institutional reproducibility and leveraging these shared resources will increase productivity in the field of regenerative medicine.

Thank you for considering this grant application. I have full confidence that the successful implementation of this program will result in remarkable achievements, pushing the boundaries of what is possible in the field of stem cell research.



Sincerely,

Kyle Fink, PhD

Assistant Professor, Neurology Department

Associate Director, Gene Therapy Center

Stem Cell Program

Institute for Regenerative Cures and MIND Institute

University of California, Davis Medical Center

Sacramento, CA 95817

[kdfink@ucdavis.edu](mailto:kdfink@ucdavis.edu)

<https://www.thefinklab.com/>

Office: (916)703-9368

Cell: (989)817-2625





Institute for Stem Cell Biology and Regenerative Medicine  
**STANFORD UNIVERSITY SCHOOL OF MEDICINE**  
**STANFORD UNIVERSITY MEDICAL CENTER**  
Stanford, California

August 28, 2023

RE: CIRM Infrastructure 6.1

Dear Members of the CIRM INF6.1 Grant committee,

I am writing to express my full support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. I have worked directly with CIRM Bridges Interns from Cal Poly Humboldt for over a decade. For the last 5 years, I have served as the coordinator of the Cal Poly Humboldt/Stanford CIRM Bridges program. I'm thrilled at the opportunities a Cal Poly Humboldt CIRM SRL would create for growing our collaboration to provide wider access to Stem Cell Biology training and state of the art research in a remote region of California.

The Cal Poly Humboldt team produces well trained, excellent students with a demonstrated commitment to careers in regenerative medicine. I have worked side by side with Cal Poly Humboldt Bridges students at Stanford since 2008 and employed many of the Cal Poly Humboldt students after completion of their Stanford internship. I currently serve as the primary thesis advisor to Goh Butler, a Cal Poly Humboldt Bridges student in my laboratory last year and enrolled in a MS program at Stanford.

I am always impressed with the quality, enthusiasm, and engagement of Humboldt students. Dr. Sprowles and her team are well prepared to manage a SRL. I am confident that this new initiative will allow us to expand our collaboration. I will assist in the transfer of cell printing technology to the Cal Poly Humboldt SRL by sharing protocols and SOPs, expertise, providing training opportunities for SRL leadership in my laboratory, and working to identify young professionals who might assist in building this unique program. I also look forward to utilizing the Humboldt SRF facility to reproduce experiments performed in my laboratory when the facility opens Summer 2025.

I look forward to growing our partnership to enhance the technical training required for state-of-the-art research and education at Cal Poly Humboldt and provide access to the communities in their remote region of California.

Sincerely,

Charles Chan, PhD  
Assistant Professor, Department of Surgery, Division of Plastic Surgery  
Stanford Immunology Faculty  
Institute for Stem Cell Biology and Regenerative Medicine  
Hagey Laboratory for Pediatric Regenerative Medicine,  
Lokey Stem Cell Research Building  
Stanford University School of Medicine

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Email: [chazchan@stanford.edu](mailto:chazchan@stanford.edu)

*Program Office*

San Diego State University  
5500 Campanile Drive  
San Diego, CA 92182-1011  
www.calstate.edu/csUPERB  
Tel: 619-594-2822

Ikhide G. Imumorin, PhD, MBA  
Executive Director

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Cal Poly, Pomona

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Cal Poly Humboldt

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CSU Stanislaus

Jackie Trischman  
CSU San Marcos

Miri VanHoven  
San José State

Jinsong Zhang  
CSU Chico

August 23, 2023

California Institute for Regenerative Medicine  
601 Gateway Blvd, Suite 400  
South San Francisco, CA 94080

Dear CIRM INF6.1 Grant Committee,

I am writing to express my full and enthusiastic support for the application of California State Polytechnic University, Humboldt (Cal Poly Humboldt) for the California Institute for Regenerative Medicine (CIRM) Infrastructure 6.1 grant for a Shared Resource Facility (SRL) for stem cell biology and regenerative medicine.

As the Executive Director of California State University Biotechnology (CSUBIOTECH), formerly the California State University Program for Education and Research in Biotechnology (CSUPERB), I am committed to biotechnology advances in regenerative medicine and the role CIRM has played in advancing these efforts. CIRM's goals to advance regenerative medicine and improve access to research, clinical trials and treatments are aligned with the goals of CSUBIOTECH. Our organization, CSUBIOTECH, which includes faculty from all 23 California State University campuses holds the values that biotechnology improves our lives and our planet. It is used to develop technologies and products such as biofuel, medicine, and vaccines. CSUBIOTECH is a committed network of faculty, deans and presidents representing the CSU's 23 campuses, and together, their work champions biotechnology innovation and helps students embark on life science careers through experiential learning opportunities.

CSUBIOTECH is dedicated to developing a diverse and professional biotechnology workforce for California and the global economy. I am excited to see initiatives like this that aim to further the opportunities for research by CSU faculty and students in stem cell research and regenerative medicine.

I believe that the strengths of this grant application are shown in their plans to provide access to novel research methods, educational opportunities and to diversify programs in Stem Cell based research.

- Educational Impact:** As the newest polytechnic university and the first in Northern California, Cal Poly Humboldt is uniquely situated to fill a critical gap in the current educational landscape by exposing a diverse population of students in a remote portion of California with a comprehensive understanding of human stem cell biology, techniques, and ethical considerations. This will empower them to explore careers in this evolving field and contribute to the advancement of regenerative medicine. Cal Poly Humboldt has a robust CIRM Bridges training program that has trained over a hundred interns over the past 15 years. These alumni have gone on to careers as researchers and technicians in regenerative medicine as well as physicians and nurses with knowledge of these treatments.
- Research Advancement:** By supporting this grant, you are fostering an environment conducive to cutting-edge research and innovation making equipment and infrastructure available to researchers, clinicians and students that would otherwise not have access to these resources. Students trained in this program will be equipped

to undertake pioneering research projects, accelerating biotechnology progress in human stem cell research and its applications in various areas, such as tissue engineering, disease modeling, and personalized medicine.

3. **Future Collaboration:** Deploying CSUBIOTECH's system-wide network will stimulate and increase collaboration between Cal Poly Humboldt and the 23 campuses of California State University. This will increase access and diversify the researchers in the fields of regenerative medicine and provide valuable opportunities for training in human stem cell models.

We will support this program by advertising the opportunities available through our quarterly newsletter, email list, CSUBIOTECH system-wide YouTube Channel, through faculty consensus group members who represent CSUBIOTECH at all 23 campuses, and at our system-wide annual symposium.

By providing financial support for this initiative at Cal Poly Humboldt, you will not only contribute to the growth and development of faculty and importantly, students in the most diverse university system in California and in the United States. The impact of this funding will extend far beyond the classroom, as it will empower students to become agents of change who can shape the future of biotechnology advances in regenerative medicine.

Thank you for seriously considering this grant application.

Sincerely,

A handwritten signature in black ink, appearing to read "Ikhide Imumorin". The signature is fluid and cursive, with the first name "Ikhide" being more prominent and the last name "Imumorin" following in a similar style.

Ikhide Imumorin, PhD, MBA  
Executive Director, CSUBIOTECH  
Adjunct Professor of Biological Sciences  
[iimumorin@sdsu.edu](mailto:iimumorin@sdsu.edu)  
(619) 594-2510

## College of Natural Resources and Sciences

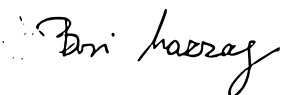
Dear Dr. Sprowles,

I enthusiastically support your work to expand stem cell education and research in the Northern California region through your CIRM Shared Resource Facility (SRF) application. New facilities will enhance our capacity to educate CSU undergraduates, high school students and members of our local community so they are prepared to contribute California biomedical workforce, and benefit from CIRM's efforts to create regenerative therapies.

Your work to bring stem cell education and research to our area aligns very well with the goals of CSUBIOTECH, the California State University faculty interest group in education and research in biotechnology. As a member of the CSUBIOTECH's leadership body, the Strategic Planning Council, I offer advocacy and leadership for the research training facility you proposed. CSUBIOTECH has recently launched regional Hubs to create more opportunities for synergies and regional collaboration between CSU campuses. As the leader of the CSUBIOTECH Northern California Hub, I will be able to amplify the impact of the CIMR shared facility at Cal Poly Humboldt by working close with biotech leaders from other universities in our Hub, CSU Chico, Sacramento State University, Sonoma State University, and Cal Maritime. I propose the following activities:

- Educational workshops for students and faculty from the Northern California Hub campuses
- Research opportunities for interested parties (faculty, students, and biomedical professionals from the region)
- Promoting these activities to leaders of the other four CSUBIOTECH Hubs, spanning the entire state

I am excited about the opportunities the CIRM Shared Research Facility will bring to our region and our university and will be happy to collaborate on leveraging this opportunity in the Northern California region.



Dr. Bori (Borbala) Mazzag

Associate Dean

College of Natural Resources and Sciences

Cal Poly Humboldt

707-826-3546

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**FAMILY MEDICINE RESIDENCY PROGRAM**

A medical training collaboration with Open Door Community Health Centers

1

May Hong, MD  
Designated Institutional Official  
Director of Medical Education  
2700 Dolbeer Street  
Eureka, CA 95501  
8/23/2023

Dear Members of the CIRM INF6.1 Grant committee,

As the Director of Medical Education at Providence St. Joseph Hospital–Eureka, I am writing to express my full support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application for a Shared Resource Laboratory (SRL) for stem cell biology and regenerative medicine.

I have partnered with the Humboldt INFR 6.1 Principal Investigators through their Cal Poly Humboldt CIRM Bridges 3.0 program (CPH Bridges) for the past three years. This partnership offers the CPH Bridges interns access to the resident experience. In return, the physician residents are updated on the current state of cellular based therapies by learning about the students' research in stem cell biology and regenerative medicine. Not only will the Cal Poly Humboldt SRL allow us to grow this partnership so that our Physician residents can be trained in the most current cellular based models, it will help bring the cellular based therapies to our rural medically underserved community.

Specifically, the proposed shared resource laboratory and modernized teaching space will bring the following benefits to our medically underserved community.

**Outreach Educational Impact:** Cal Poly Humboldt is uniquely situated to serve as a community connection to a remote portion of California to further a comprehensive understanding of human stem cell biology, techniques, and ethical considerations. The training future researchers and students will receive, will empower them to contribute to the advancement of regenerative medicine. Cal Poly Humboldt has a robust CIRM Bridges training program that has trained over a hundred interns over the past 15 years. These alumni go on to careers as researchers and technicians in regenerative medicine as well as physicians and nurses with knowledge of these treatments.

**Research Advancement:** By supporting this grant, you are fostering an environment conducive to cutting-edge research and innovation making equipment and infrastructure available to researchers, clinicians and students that would otherwise not have access to these resources. Students trained in this program will be equipped to undertake pioneering research projects, accelerating progress in human stem cell research and its applications to disease modeling, and medicine.

**Future Collaboration through shared resource labs:** Our physicians residents would value the opportunity to participate in research in the fields of regenerative medicine, and opportunities for training in human stem cell models.

**FAMILY MEDICINE RESIDENCY PROGRAM**

A medical training collaboration with Open Door Community Health Centers

1

By providing financial support for this initiative at Cal Poly Humboldt, you will contribute to the growth and development of current and future physicians required to bring health equity to the patients of our rural medicine community who could benefit from cellular based therapies. We support this program and look forward to working with the Cal Poly Humboldt Shared Resource Laboratory faculty and staff to improve opportunities in stem cell research in our rural area.

Sincerely,



May Hong, MD  
Director of Medical Education  
Designated Institutional Official  
Providence St. Joseph Hospital Eureka



# HUMBOLDT-DEL NORTE COUNTY MEDICAL SOCIETY

P.O. BOX 6457 EUREKA, CA 95502  
(707) 442-2367 / FAX: (707) 442-8134  
E-MAIL: [hdncms@gmail.com](mailto:hdncms@gmail.com) WEB: [www.hdncms.org](http://www.hdncms.org)

08/07/2023

Dear Members of the CIRM INFR6.1 Review Committee:

As the President, Secretary-Treasurer of the Humboldt Del Norte County Medical Society and Chair of the Humboldt-Del Norte Pre-Medical Education Task Force (HUMPET), we are writing to express our enthusiastic support for the Cal Poly Humboldt application for the INFR6.1 Shared Resources Laboratories for Stem Cell-based Modeling. The Humboldt-Del Norte Medical Society has collaborated with the Cal Poly Humboldt CIRM Bridges program since 2008 to educate our rural community on the promise of regenerative medicine and connect the Humboldt trainees with patients and patient advocates. We look forward to growing this partnership to provide local students and clinicians with hands-on training, workshops and classes on the advanced cellular techniques involved in regenerative medicine.

Humboldt and Del Norte Counties have been designated as a medically under-served shortage area by the federal government. Medically under served populations are identified based on documentation of unusual local conditions that result in access barriers to medical services. HUMPET was created with the intention of inspiring individuals from our own community to become physicians and allied health professionals with the hope that they will return to Humboldt-Del Norte County to practice medicine upon completion of their degrees. To that end, we are educating a vast range of students from elementary schools to pre-med students on different aspects of medicine and providing shadowing experiences to spark interest in healthcare careers.

In 2019 the Providence St. Joseph Hospital of Eureka Family Medicine Residency was created for the purpose of teaching residents how to address the unique challenges of a rural, under-served community. One primary goal of the program is to provide an environment in which residents may pursue special interests in under-served practice, rural practice, or research and academic endeavors.

The proposed Shared Resource Laboratory for Human Stem Cell-Based Modeling (SRL-hSC) would significantly enhance the opportunities to educate Humboldt-Del Norte county high school students, college students, and physician residents about stem cells, gene therapy, and the promise of regenerative medicine. Specifically, this grant would provide the necessary facility renovations and cell lines necessary to extend that education and research training to human stem cell-based models. Students and researchers will learn about translational regenerative medicine and the best practices to provide reproducibility necessary for translating basic research to the clinic. We believe many will be interested in completing Cal Poly Humboldt's Certificate in Stem Cell Biology and Regenerative Medicine offered through the Cal Poly Humboldt College

for Extended Education and Global Engagement (CEEGE). a wide variety of researchers will be able to gain experience in stem cell research. Therefore, we plan to support this proposal in three significant ways:

1. We will provide and support connections to the local medical residents. Open Door Community Health Center and Providence collaborated to create a Family Practice Residency Program in order to build the family practice physician supply chain in Humboldt and Del Norte counties. Cal Poly Humboldt's plan would include workshops and training opportunities for medical residents in human stem cell-based models. Current involvement in research in our medically under served area is extremely limited for residents. The shared research laboratories will provide a training opportunity for residents to expand their knowledge of human stem cell-based models and regenerative medicine research.
2. Through our partnerships with the Humboldt County Office of Education and Del Norte County Office of Education, we will provide and support connections to the Cal Poly Humboldt recruiting team for week-long summer laboratory training program for talented diverse high school students, encouraging interest in careers in regenerative medicine and stem cell research. Additionally, we will continue our partnership where stem cell students will make presentations about stem cells and regenerative medicine to local high school classes through the Health Career Exploration Project (HCEP) which is part of the Humboldt County Office of Education.
3. We will work with Cal Poly Humboldt Director, Dr. Amy Sprowles, Co-PIs, Dr. Jenny Cappuccio (outreach and Education) and Dr. Brigitte Blackman (advanced stem cell training), and the facility's new faculty and staff to sponsor community outreach and education activities to educate our local communities and medical professionals about stem cells and regenerative medicine. In addition to creating opportunities to communicate medical innovations to our diverse world communities, HUM PET will help the student researchers gain insight and awareness of our communities' perspectives and concerns of these issues.

In summary, the HUM PET Task Force of the Humboldt-Del Norte Medical Society is committed at many levels to the Cal Poly Humboldt CIRM INFR 6.1 Shared Resources Laboratories and is excited to be part of this wonderful educational research experience.

Sincerely,



May Hong, M.D.  
President



Caroline Connor, M.D., MPH  
Secretary-Treasurer/Chair HUM PET

MH:CC:PEF





## EUREKA HIGH SCHOOL

1915 J STREET • EUREKA, CA 95501 • (707) 441-2508 • FAX (707) 445-1956

Dear Members of the CIRM INFR6.1 Review Committee,

08/22/2023

As a science educator at Eureka High School, in a medically underserved rural area. I'm writing to express our enthusiastic support for the Cal Poly Humboldt application for the INFR6.1 Shared Resources Laboratories for Stem Cell-based Modeling. Cal Poly Humboldt has an excellent record of training undergraduate students, providing mentorship, and connecting to our local community. The Cal Poly Humboldt team is committed to providing research experience and pathway knowledge to students to broaden interest in careers in regenerative medicine. The proposed Shared Resource Laboratory and classroom for Human Stem Cell-Based Modeling (SRL-hSC) would significantly enhance the opportunities for educational collaboration and research in our Northern California medically underserved area.

Cal Poly Humboldt is committed to providing high quality educational outreach experiences and mentoring to high school and middle school students to bring awareness about careers in regenerative medicine. Our students at EHS will benefit from these efforts which are critical for our local community as only 58.5 % of the population 16 years and older are part of the civilian labor force, and 19.4 % of the population is below the poverty level (Humboldt County census quick facts 2022). Cal Poly Humboldt's plans to interact with middle and high schools about career pathways in regenerative medicine will have several impacts: 1. Increase the knowledge in our community about regenerative medicine and the power of stem cells. 2. Provide our students with the knowledge to pursue careers in regenerative medicine and 3. Provide opportunities for talented diverse high school students to participate in a biomedical research pathways summer program which will use the shared laboratory space. Through the Cal Poly Humboldt INFR6.1 Shared Resources Laboratories program, we will support these efforts in these ways:

1. We will connect the Cal Poly Humboldt outreach efforts to students in STEM courses such as Biology and Chemistry or through Biomedical careers clubs, or to individual students.
2. We will make students aware of summer programs in biomedical research pathways offered at the SRL and encourage a diverse set of students to apply for these programs.

We are excited to collaborate with Cal Poly Humboldt and to utilize the Shared Research Laboratory facilities and classroom space to advance interest in careers in regenerative medicine and stem cell research. In summary, I enthusiastically support the Cal Poly Humboldt INFR6.1 proposal and outreach activities.

Sincerely,

Alicia Mengel

Teacher College Prep Bio / College Prep Geo / Biology & Community Health

# DEL NORTE COUNTY HIGH SCHOOL

1301 El Dorado Street Crescent City, CA 95531

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**Office** – 707-464-0260  
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**Email** – aeckart@delnorte.k12.ca.us  
**Website** - dnhigh.org

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**Alison Eckart**, Principal  
**Sara Sampels**, Assistant Principal  
**Robert Hadfield**, Dean of Students

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Dear Members of the CIRM INFR6.1 Review Committee,

08/20/2023

My name is Gale West and I am a science educator at Del Norte High School, in the Del Norte Unified school district located in a medically underserved rural area. I'm writing to express our enthusiastic support for the Cal Poly Humboldt application for the INFR6.1 Shared Resources Laboratories for Stem Cell-based Modeling. Cal Poly Humboldt has an excellent record of training undergraduate students, providing mentorship, and connecting to our local community. The Cal Poly Humboldt team is committed to providing research experience and pathway knowledge to students to broaden interest in careers in regenerative medicine. The proposed Shared Resource Laboratory and classroom for Human Stem Cell-Based Modeling (SRL-hSC) would significantly enhance the opportunities for educational collaboration and research in our Northern California medically underserved area.

Cal Poly Humboldt is committed to providing high quality educational outreach experiences and mentoring to high school and middle school students to bring awareness about careers in regenerative medicine. Our students at Del Norte High School will benefit from these efforts which are critical for our local community as only 58.5 % of the population 16 years and older are part of the civilian labor force, and 19.4 % of the population is below the poverty level (Humboldt County census quick facts 2022). Cal Poly Humboldt plans to interact with middle and high schools about career pathways in regenerative medicine will several impacts, 1. Increase the knowledge in our community about regenerative medicine and the power of stem cells. 2. Provide our Del Norte students with the knowledge to pursue careers in regenerative medicine and 3. Provide opportunities to for talented diverse high school students to participate in a biomedical research pathways summer program which will use the shared laboratory space.

Through the Cal Poly Humboldt INFR6.1 Shared Resources Laboratories program, we will support these efforts in these ways: 1. We will connect the Cal Poly Humboldt outreach efforts to students in STEM courses such as Biology and Chemistry or through Biomedical careers clubs, or to individual students. 2. We will make students aware of summer programs in biomedical research pathways offered at the SRL and encourage a diverse set of students to apply for these programs. We are excited to collaborate with Cal Poly Humboldt and to utilize the Shared Research Laboratory facilities and classroom space to advance interest in career in regenerative medicine and stem cell research. In summary, I enthusiastically support the Cal Poly Humboldt INFR6.1 proposal and outreach activities.

Sincerely,

A handwritten signature in cursive script that reads "Gale West".

Gale West

Biology Teacher

Del Norte High School



University of California  
San Francisco

Sean de la O, PhD  
University of California, San Francisco  
Sean.delao@ucsf.edu

Dear Members of the CIRM INF6.1 Grant committee,

I am writing to express my support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. As a former Humboldt CIRM Bridges Intern and graduate from Cal Poly Humboldt (Formerly Humboldt State University) I have found incredible value in the opportunities provided to me through CIRM funding. I fully support the infrastructure build out that will include new facilities for human derived stem cell models, enhancing the training in the new stem cell techniques course. I will support these efforts by serving as a guest seminar speaker or workshop leader.

The Cal Poly Humboldt team strives to train excellent students from diverse backgrounds with a demonstrated commitment to careers in regenerative medicine. My first scientific training at Cal Poly Humboldt was in the lab of Dr. Jenny Cappuccio, studying membrane proteins of cyanobacteria. Dr. Cappuccio's training was essential in fomenting my interests in pursuing science as a career and involved both lab work as well as mentoring more junior members of the lab. Additionally, I received training involving mouse models of stem cell differentiation while an undergraduate in the Humboldt Stem Cell Biology course, under the tutelage of Dr. Amy Sprowles. Dr. Sprowles' training in stem cell biology, as well as her mentorship as the head of the CIRM Bridges program, was critical in furthering my interests in stem cell biology and regenerative medicine. This preparation allowed for my contributions in Dr. Calvin Kuo's lab during my CIRM Bridges internship and the following year as a researcher, where I studied potential regenerative medicine models investigating gene editing for cystic fibrosis in airway stem cells derived from patients (Cell Stem Cell 2019). Additionally, I also helped develop a distal lung organoid system, where we modeled SARS-CoV-2 infection and identified lung club cells as a target population (Nature 2020). These experiences led me to my graduate studies at University of California, San Francisco, in the labs of Julie Sneddon and Sarah Knox. During my PhD, I have created a cellular and molecular roadmap of human fetal pancreas development utilizing single cell multi-omic approaches, with the aim of utilizing that knowledge to improve cellular replacement therapies for patients with Type I and Type II diabetes. Following my defense at the end of August, I will begin a new position in the department of Complex In Vitro Systems (CiS), as a joint appointment between Genentech and Roche. I would be thrilled to return to Humboldt to discuss these experiences using human derived stem cell models and contribute to future researchers in regenerative medicine.

By providing financial support for this initiative at Cal Poly Humboldt, you will not only contribute to the growth and development of future professionals and CSU faculty but will importantly enable future advancements in regenerative medicine. It will significantly enhance the research opportunities at Cal Poly Humboldt, in a remote part of California far from R1 institutions. The planned organoid models are at the forefront of research and will serve to both enhance and broaden workforce development as it did for me and accelerate discoveries in regenerative medicine. Expanding access to state-of-the-art equipment in a dedicated laboratory will significantly prepare researchers for the ever-changing field of regenerative medicine.

Thank you for considering this grant application. I will contribute my knowledge of human stem cell models as a guest speaker and/or workshop facilitator to enhance the stem cell techniques course. I have full confidence that this program will result in enhancements in training the next generation of researchers and faculty in human stem cell research and organoid models.

Sincerely,  
Sean de la O, PhD  
University of California, San Francisco  
Sean.delao@ucsf.edu

August 28<sup>th</sup>, 2023

Re: CIRM INF6.1

Dear CIRM INF6.1 Grant Committee Members,

I enthusiastically support the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application. As a former Humboldt CIRM Bridges Scholar Intern and graduate from Cal Poly Humboldt (formerly Humboldt State University) I have found incredible value in the opportunities provided to me through CIRM and I fully support the infrastructure build out that will include new facilities for human stem cell models and enhanced training in a new stem cell techniques course.

The Cal Poly Humboldt team strives to train excellent students from diverse backgrounds with a demonstrated commitment to careers in regenerative medicine. Prior to CIRM Bridges I was a US Army veteran in pre-med studies. However, I learned basic stem cell biology, differentiation, and regenerative medicine in Dr. Sprowles' BIOL 544 Stem Cell Biology course and assisted her in establishing the murine embryonic cell lines for the laboratory. Those experiences, and learning about cell reprogramming, completely reprogrammed my life plans. Such preparation helped me secure a Humboldt CIRM Bridges internship among the most competitive labs in the new field of cell reprogramming, working with Shinya Yamanaka at the Gladstone Institutes; Shinya won the Nobel Prize one year later. CIRM helped me establish myself so as to develop my science and ideas and with Shinya for several years. Those ideas flourished with my own reprogramming interests that saw our first strong synthetic embryology results in 2013; I developed this work with my move to Japan in the Kyoto University School of Medicine, Doctor of Medical Sciences Program. My graduate work yielded publications and patent filings culminating in my PhD in 2018, and a series of invited lectures and publications in stem cell biology, regeneration, and bioinformatics. I funded and built a reprogramming team in the Masayo Takahashi Lab at RIKEN that explored my synthetic embryo systems and the direct reprogramming of human skin to retinal cells. Presently, I provide consultancy with the Masayo Takahashi group to continue the development of *in vivo* retinal regeneration technologies that I created with support from a major US biotech firm. In fall 2021 I returned to the US to serve as the Director of Research and Development for Trans Ova Genetics; an agricultural animal reproductive technology company involved in totipotency, embryogenesis, genome engineering, cloning, sperm sexing, and more. In my current role, I intersect all scientific aspects of our ~450-person company that generates ~600,000 embryos per year for the most elite animals in the world. It is my job to improve upon current technologies and ideate or collaborate to pioneer the future of livestock genesis. I regularly thank my mentors at Cal Poly Humboldt and the CIRM programs they established to set the stage for my career and impact in stem cell biology. I look forward to supporting the Cal Poly Humboldt CIRM SRL by serving as a consultant to the Cal Poly Humboldt SRL, guest seminar speaker, and workshop leader.

By providing financial support for this initiative at Cal Poly Humboldt, you contribute both to the growth and development of future professionals and CSU faculty, and to future advancements in regenerative medicine. Your decision will significantly enhance the research opportunities for people like me at Cal Poly Humboldt which is nested in a remote part of California far from R1 institutions.

The planned organoid models are at the forefront of research and will serve to both enhance and broaden workforce development and accelerate discoveries in regenerative medicine. Expanding access to state-of-the-art equipment in a dedicated laboratory will significantly prepare researchers for the ever-changing field of regenerative medicine and enable them to participate in cutting edge basic and applied research.

Thank you for considering this grant application. I will contribute my knowledge of human stem cell models as a guest speaker and/or workshop facilitator to enhance the stem cell techniques course. I have full confidence that this program will result in enhancements in training the next generation of researchers and faculty in human stem cell research and organoid models.

Sincerely,



**Cody Kime PhD // B.S. Humboldt '10 // Humboldt CIRM Bridges Scholar '11**

Director of Research & Development

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genetics

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## Provost and Vice President for Academic Affairs

August 28, 2023

Dear Members of the CIRM INF6.1 Grant committee,

As Provost of California State Polytechnic University, Humboldt, am writing with enthusiastic support for the Cal Poly Humboldt CIRM Infrastructure 6.1 grant application.

Cal Poly Humboldt became California's third polytechnic institution and the first polytechnic in Northern California in 2021. The designation is a comprehensive strategy to address the workforce shortage in STEM fields, expand opportunities for students while addressing equity gaps, and revitalize the North Coast economy.

The Cal Poly Humboldt SRL proposal is in complete alignment with the goals and objectives of our polytechnic transformation. The collaborations forged by PI Sprowles and the SRL team with the investigators at UC Davis and Stanford bring cutting edge educational and research opportunities in stem cell modeling to the Cal Poly Humboldt campus. Dean of the College of Natural Resources Eric Riggs is the ideal co-PI on this proposal, as he is responsible for the budget management and growth of the College; overseeing the ongoing transition to polytechnic status for the university; and co-chairing the efforts to invest over \$433 million in new facilities construction and renovation accompanying the university shift to becoming the next Cal Poly institution.

The institution approves of the activities associated with this proposal, including:

- The renovation of existing laboratory space in SCIA to a state of the art SRL research and teaching facility.
- Training in the techniques of stem cell culturing and stem cell-based modeling for Cal Poly Humboldt Students in existing and future biology, biochemistry and biotechnology courses.
- Training in the creation and use of stem cell-based models, offered locally in cores through hands-on training, and via regular workshops / classes, video tutorials, etc., for broad participation offered through our CEEGE Certificate in Stem Cell Biology and Regenerative Medicine.
- Professional development opportunities for clinicians interested in addressing health inequities by creating access to cellular based therapies.
- The offering of an Advanced Cell Techniques course to investigators across the state.
- Facilities for researchers interested in reproducing experiments performed in their home laboratories.
- Educational workshops for local high school and college students interested in understanding the applications of stem cell biology and career opportunities.
- A dedicated effort to ensure all opportunities are available to people that reflect the diverse demographics of our region.

- High-cost and highly specialized technologies needed for stem cell-based modeling
- Access to well characterized, unmodified and modified hPSC collections, locally and by shipment
- Access to partially or fully differentiated stem cell-based models, locally and by shipment
- The hiring of a laboratory manager and a full-time lecturer to assist with the development and execution of these activities. These positions will be fully funded by the CIRM grant for Phase A and B of the proposal and transition to CEEGE support by Phase C.

This proposal will bring opportunities to Cal Poly Humboldt students, faculty, and reduce health inequities faced by our rural, medically underserved community. It has full institutional support.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jenn Capps", is positioned above a thin horizontal line.

Jenn Capps  
Provost and Vice President for Academic Affairs