

HUMBOLDT-CIRM

SHARED RESOURCES LABORATORY

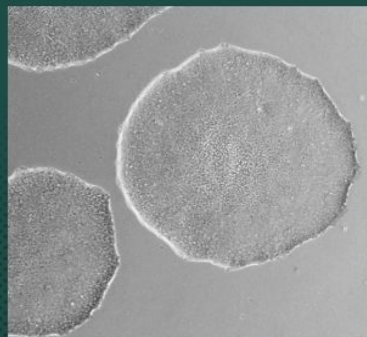
Opportunities and Challenges in Building a Stem-Cell Modeling Core Facility in one of California's Most Remote and Geographically Isolated Areas

Amy Sprowles, PhD
Professor of Cellular and Developmental Biology
Director, Humboldt-CIRM SRL

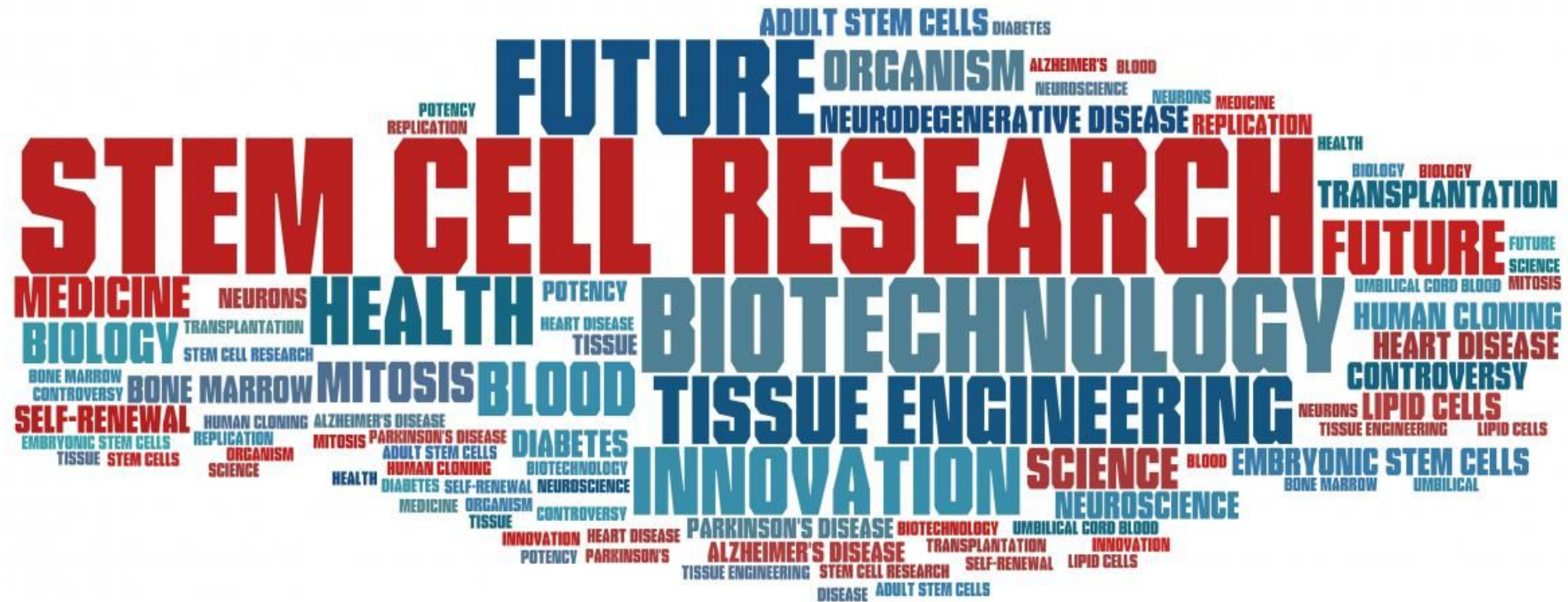
HUMBOLDT-CIRM

SHARED RESOURCES LABORATORY

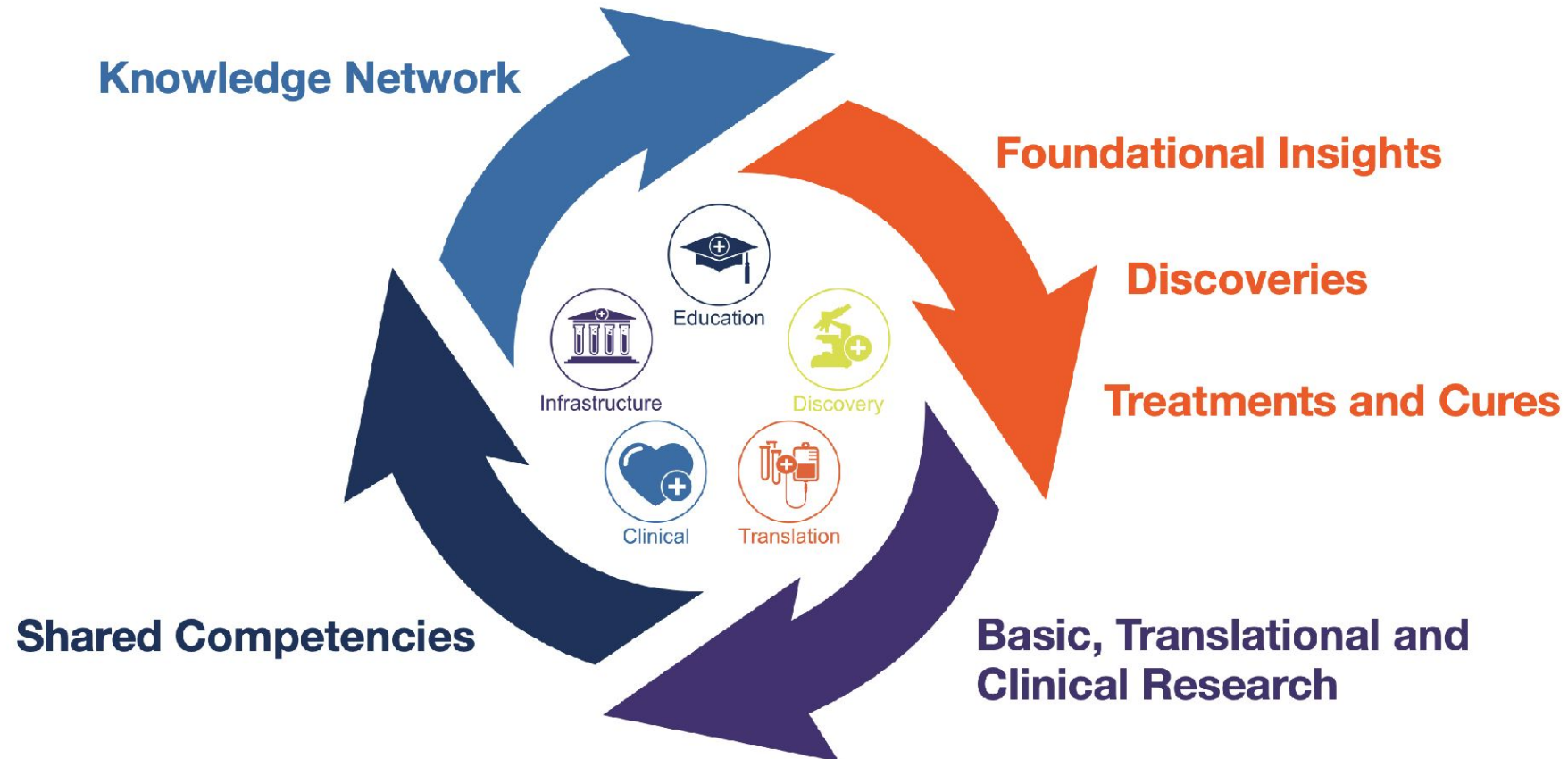
Our facility provides the dedicated space, specialized equipment, and comprehensive training necessary to support stem cell research and cultivate a highly trained workforce



Regenerative Medicine Research Encompasses Many Fields



is the first-ever taxpayer-funded agency in the US dedicated to accelerating the development of innovative cell and gene therapies to address unmet medical needs.



The 11-lab SRL Network are core labs for Stem Cell-Based Modeling Open to Researchers and Educators across California

Stem Cell-Based Modeling

This approach uses laboratory-grown stem cells to mimic human tissues or organs for the study of human biology and disease.

Research

- Interested in stem cell-based modeling?
- Need support with your stem cell-based models, their analysis?
- Want access to cutting edge instrumentation?

Explore the table below to learn about SRLs' research offerings.

Training and Education

- Interested in stem cell related courses for your students?
- Need to hone your lab skills in a workshop?
- Want to explore course offerings?

Visit SRLs' websites to learn about their educational offerings.

The Humboldt Shared Resources Lab is the northernmost in the statewide SRL network

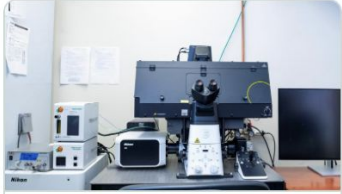
Our facility is **uniquely** positioned to democratize high-end technologies for the North Coast, **ensuring that rural and remote geographic regions contribute to and benefit from the next generation of stem cell discovery.**



HUMBOLDT-CIRM

SHARED RESOURCES LABORATORY

Facilities, equipment and protocol support for regional researchers to conduct human stem cell-based modelling



Nikon AX Confocal



**Lonza 4D
Nucleofector**



BD FACSMelody



Litesizer 701



**QuantStudio 3 Real-
Time PCR System**



**Spectramax i3
microplate reader**



**Tissue Culture
Hoods**



**EVOS M5000
Imaging System**



**LEICA CM1950
Cryostat**

- SOPs for
 - Human pluripotent cell
 - maintenance and culture
 - Pluripotent cell characterization
 - Gene expression
 - Genetic Analysis
 - Potential
- iPSC induction
- Cellular, Molecular, Biochemical, and Histological assays

CAL POLY **HUMBOLDT** The most remote and rural campus of the California State University (CSU) System

“We will be exemplary partners across our region and state by integrating community engagement and contributing to workforce development in our academic enterprise and beyond.”

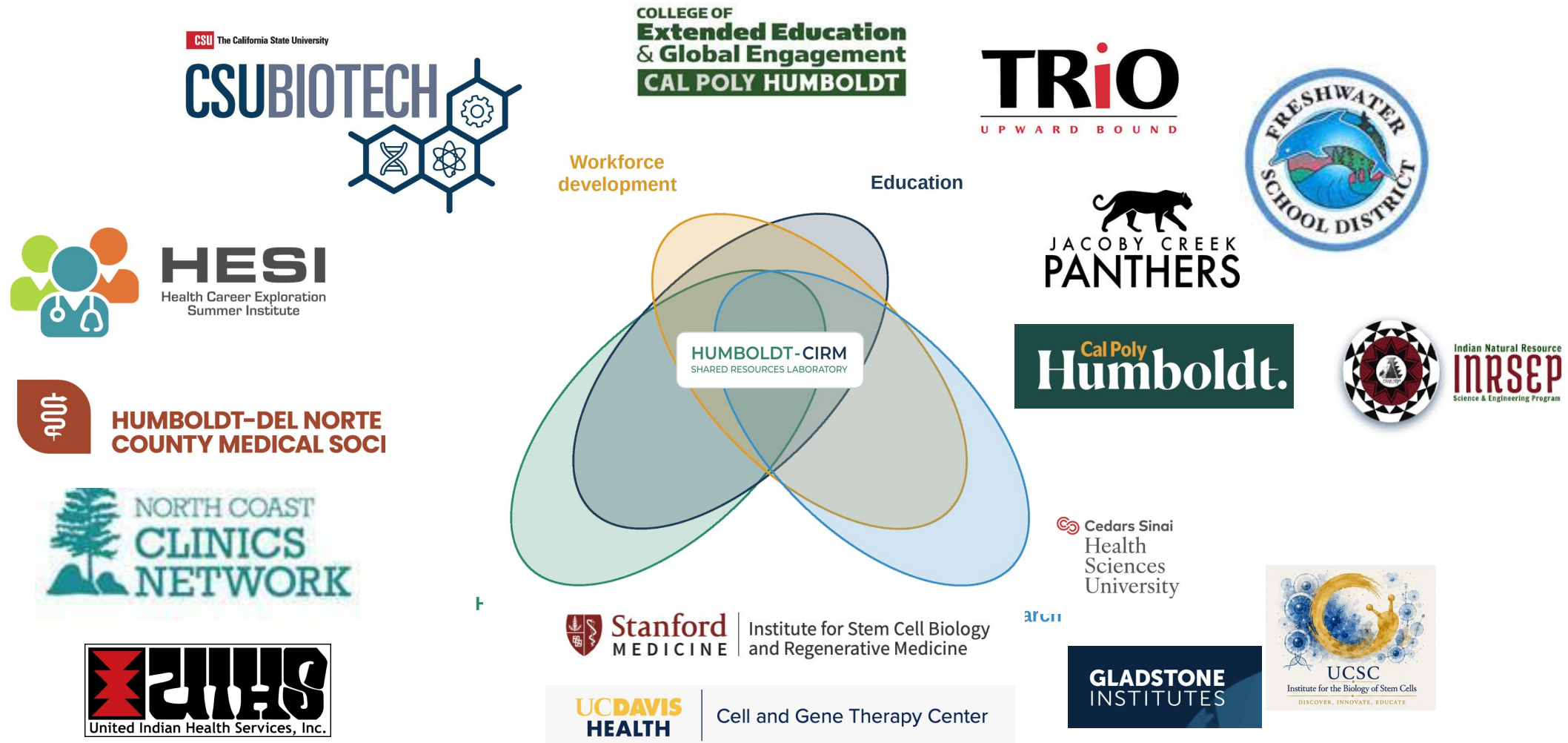


***300+ miles away from**

- R1 users
- R1 partners
- Collaborators
- SRL Network Colleagues
- Other CSU Campuses
- Technical Support Centers
- Industry partners
- Trained workforce
- Major consumable distributors



We Rely on our Partnerships to Overcome these Challenges



Humboldt Has Trained Over 1500 Students in Stem Cell Biology through the CIRM Bridges Program

- Three awards since 2009 totaling \$9,885,422
- 159 Interns in R1 Institutions
 - Stanford University
 - UC Davis
 - UC Santa Cruz
 - UCSF
 - The Gladstone Institute
 - Cedars Sinai
 - The Scripps Institute
- 95% have careers in Regenerative medicine
- Coursework for >1000 undergraduate students
- Independent research projects for >300 graduate and undergraduate students



Facilities Support CSU Researchers Advance their Scientific Objectives in Areas Ranging from Bioengineering to Fisheries Biology



Rafael Cuevas Uribe, Ph.D.
Associate Professor

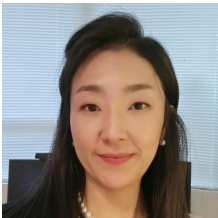
Areas of Interest

- Reclaimed water aquaculture and integrated multi-trophic aquaculture systems
- Preservation of germplasm resources for aquatic species
- Aquaculture genetics
- Reproductive biology (artificial spawning, cell transplantation, ploidy and sex manipulation methods)



Ethan Gahtan
Professor

Ethan received a Bachelor's in Psychology from Macalester College and PhD in Cognitive and Biological Psychology from the University of Minnesota. His research focuses on molecular and neural circuit mechanisms of behavior and neurological disease, with a secondary focus on evolutionary psychology. Ethan is a long-serving member of Humboldt's IRB and IACUC.



Research & Scholarship

- Surgical Technology Analysis and Development
- Surgical Tool Design
- Surgical Mechanical System Design/Development
- Biomanufacturing
- Clean/Eco Manufacturing



Joshua Steimel Ph.D.,
Associate Professor

Research Focus

Bioassay Platform Development, Biomechanical Studies, Robotics and Controls



Research Program:

The Hua Lab studies the mechanisms of higher-order chromosome organization during the cell cycle and its function in development and cancer. In particular, we are interested in the mechanism(s) that prevents somatic chromosome pairing, and thus maintain genetic stability across daughter cells. We are taking a biophysical, molecular/cellular, and evolutionary approach to address this fundamental paradigm. Our model systems include human/mouse primary cell lines, carcinoma cell lines, and *Drosophila* embryos. Our studies will allow for an understanding of genome organization and its implications in the etiology of human disease.

The Humboldt-CIRM SRL Supports New Polytechnic Programs in Health and Biomedical Science



[HOME](#) / [ACADEMICS](#) / [MAJORS & PROGRAMS](#) / [HEALTH & MEDICAL SCIENCE, B.S.](#)

Health & Medical Science, B.S.

The Bachelor of Science in Health & Medical Science offers a dynamic foundation in the biological, social, and behavioral sciences, preparing students for healthcare careers or advanced study in fields like medicine, pharmacy, and physical therapy. The program connects students with hands-on experiences through local internships and shadowing opportunities, equipping them with the skills, insight, and confidence to thrive in a wide range of health professions.

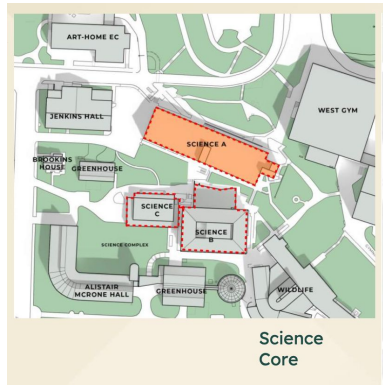


[HOME](#) / [ACADEMICS](#) / [MAJORS & PROGRAMS](#) / [BIOCHEMISTRY B.S.](#)

Biochemistry B.S.

Find your future at Humboldt. Hands-on learning forms the basis of our Biochemistry program. In our close-knit classrooms, you'll get to know your professors, connect with your fellow classmates, and get real-world experiences and first class instruction. Our modern instrumentation, such as NMR, FTIR, HPLC, GCMS, and a computational laboratory, are all available to undergraduate students. Our program provides a sense of care, support and belonging, and better prepares students to approach their chosen fields through close faculty contact and hands-on experience.

The Humboldt-CIRM Laboratory Construction Is Part of the Polytechnic Facilities Renovation



HUMBOLDT-CIRM

SHARED RESOURCES LABORATORY

Offers Educational Opportunities to a Variety of Local Schools, Clinicians and Community Groups

Partnerships with Cal Poly Humboldt
Extended Education Allow for:

- Workshops, courses, and research opportunities for middle school, high school, and college students
- Educational outreach to the diverse communities of our rural region
- Professional development opportunities for local clinical professionals in our medically underserved rural region.
- Outreach and education for patients and patient families



**Middle & High
School**

Explorers

**Discover Your
Future**

Step out of the textbook and into the lab. Experience the future of medicine through unique, hands-on experiments at our facility. If you can't join us here, our researchers will come to your classroom to dive into regenerative medicine.



**Undergrad &
Graduate**

Scholars

**Stem Cell
Training & CIRM
Bridges
Preparation**

Laboratory training and professional preparation for careers in stem cell research and technology.



Research & Clinical

Professionals

**Professional
Research Support**

Access to state-of-the-art tissue culture infrastructure, validated stem cell lines, and consultation for experimental design and implementation.



Community

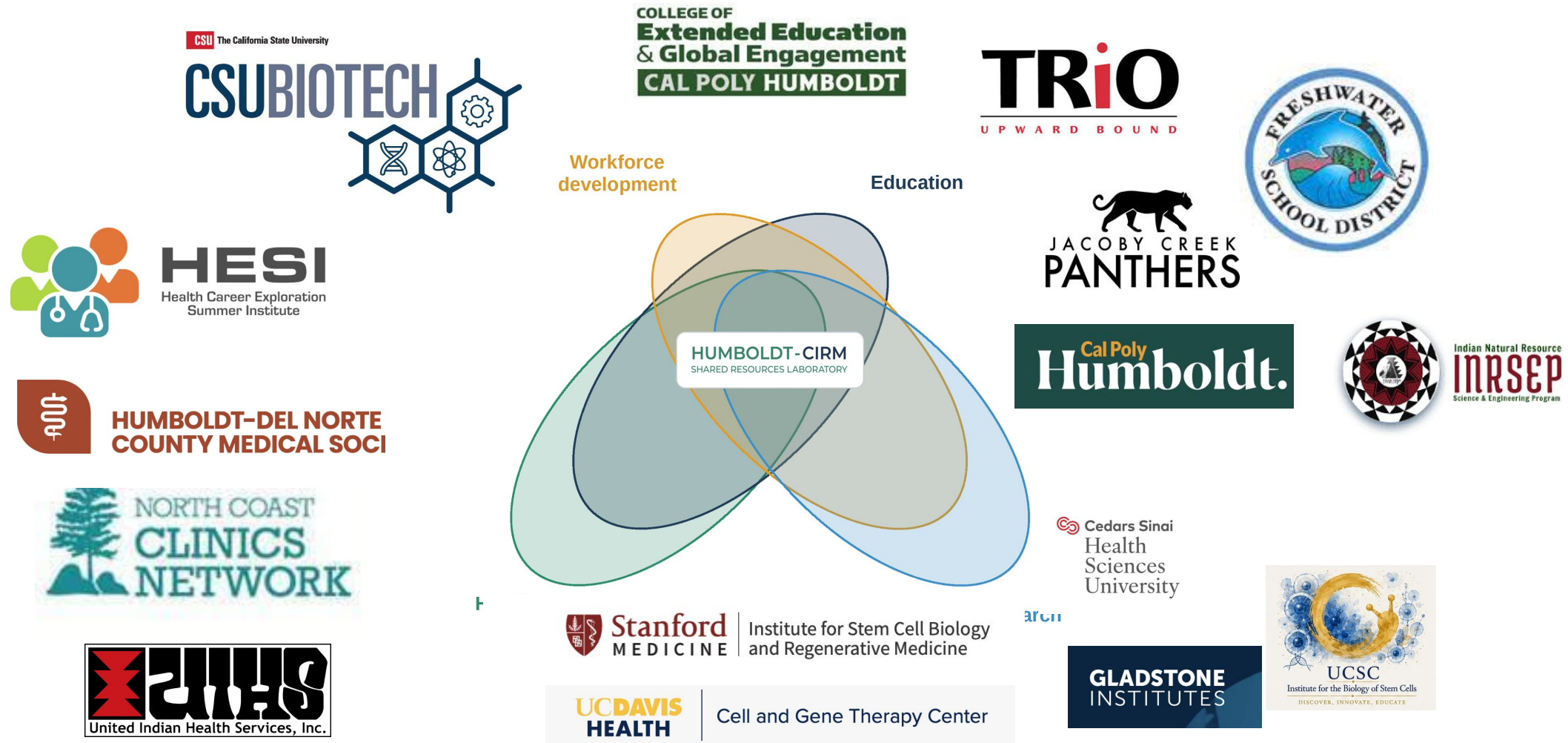
Patients

**Patient
Resources &
Education**

Information and resources regarding stem cell therapies, clinical trials, and public health impact.



We will Work With These Partners to Identify Funding Opportunities Post CIRM Funding



Thank you,



PROGRAM TYPE	INVESTIGATOR	GRANT TITLE	AWARD VALUE
Umbrella for CIRM Bridges and COMPASS: Grant Application	Dr Amy Sprowles	Pathways to Regenerative Medicine Training Program	\$5,776,082
Shared Labs Grant – Establishing SRLs	Dr Amy Sprowles	Cal Poly Humboldt Shared Resource Laboratory for Human Stem Cell-Based Modeling (SRL-hSC)	\$4,399,888
Bridges	Dr Amy Sprowles	CIRM Bridges 3.0	\$4,155,341
Bridges	Dr. Jacob Varkey	CIRM 2.0 Bridges Training Program	\$2,534,223
Bridges	Dr. Jacob Varkey	The HSU CIRM Bridges to Stem Cell Research Certificate Program	\$3,195,858
			Total: \$20,061,392.00



Uta Grieshammer, PhD
CIRM Fellow



Kelly Shepard, PhD Director
Discovery and Education