

2014 CSU Biotechnology Symposium Report

March 2014

CSU

The California State University

PROGRAM FOR EDUCATION AND RESEARCH IN BIOTECHNOLOGY (CSUPERB)

CSUPERB's mission is to develop a professional biotechnology workforce by mobilizing and supporting collaborative CSU student and faculty research, innovating educational practices, and responding to and anticipating the needs of the life sciences industry.



CSUPERB hosted the 26th Annual CSU Biotechnology Symposium January 9-11, 2014, at the Santa Clara Marriott. This report is compiled to report out on the meeting and its financials.

The annual symposium continues to grow each year, involving CSU students, faculty, administrators and industry professionals from all over California. Practicing what we preach about active learning, the program is designed to get participants out of their seats so that there is ample opportunity for learning, networking and connecting topics related to biotechnology education and research.

The photos above are “action shots” from this year’s symposium! On the left above, CSU faculty experiment with active learning, sense-making, peer-to-peer learning and the instructor-as-coach concepts as part of a Flipped Classroom 101 Workshop designed by Catherine Halversen (UC Berkeley, standing at right) and a team of CSUPERB Faculty Consensus Group members. On the right above, students change tables during the Career Networking Session. If you look very closely, you’ll see several conversations between students and industry professionals at the Clinical Laboratory Science, Discovery Research and FDA Emergency Response tables are “going overtime.” During the symposium, students work in entrepreneurial teams as part of the I2P[®] Challenge or give scientific presentations as part of The Nagel and Eden Student Research Award competitions and the popular and crowded poster sessions.

This level of engagement is what we aim for as we design the program each year. As a result we have time for only one “plenary” session featuring scientists and engineers working in the biotechnology field at large. This year’s plenary featured industry and academic researchers working on multi-disciplinary, collaborative projects aimed at addressing public health emergencies and issues. As one faculty member commented in the post-symposium survey, “The attraction of this conference has always been the interdisciplinary nature of the meeting...” We hope you’ll join us for the 27th annual CSU Biotechnology Symposium January 8-10, 2015, (back) at the Santa Clara Marriott!

Symposium Highlights

- 637 attendees participated in the annual symposium January 9-11, 2014, at the Santa Clara Marriott
- 21 California State Universities represented
- 51 invited speakers, career networking mentors, and panelists participated in sessions
- 263 posters presenting student-faculty research and biotechnology programs were accepted, representing work from 148 CSU labs and 53 external partners
- Overall 381 CSU students attended the symposium; 242 are undergraduates, 130 are master’s students and 9 are doctoral candidates
- 96% of students and 99% of faculty surveyed would recommend the symposium to peers
- **2014 Symposium Sponsors:** Gilead Sciences, Inc., Amgen, Pasadena Bioscience Collaborative, Economic Workforce & Development (California Community Colleges), Tech Futures Group, Abbott Vascular

“...meetings should be designed to expose the attendees to ways of thinking and techniques that are different from the ones they already know.” - Bruce Alberts, *Science*, Feb 15, 2013

Anonymous Student Survey Responses to the Question, What Did You Learn?

"I learned about the financial differences between a Master's program and a Ph.D. program. It was extremely informative and the people providing the information gave me knowledge that I otherwise would not have known."

"The networking tables taught me that the volatility of the biotech world means that if I stick with this field I'll constantly be scavenging for a job."

"I was surprised to learn about all of the possibilities and career opportunities that are available in the field of biotechnology."

"The most amazing thing I learned about is a the new technology being developed at CSUF. It is a less invasive tool that will be used to heal surgery sites...The tool will have wifi to guide it to the region where it needs to close a surgery site."

"I had not attended a Thesis writing workshop before so I got to learn a bunch of new information pertaining to thesis writing, which I found very helpful."

"The I2P presentations really showed the work that must be tackled after the science is done. I would love to participate in such a competition in the future."

"I learned about just how interdisciplinary biotechnology projects can be, spanning from physical theory to mechanical engineering all the way to marketing and finance."

2014 Symposium Revenue & Expense Summary

Revenue

Registration Fees	\$37,525
Sponsorships	\$23,000
Total Revenue	\$60,525

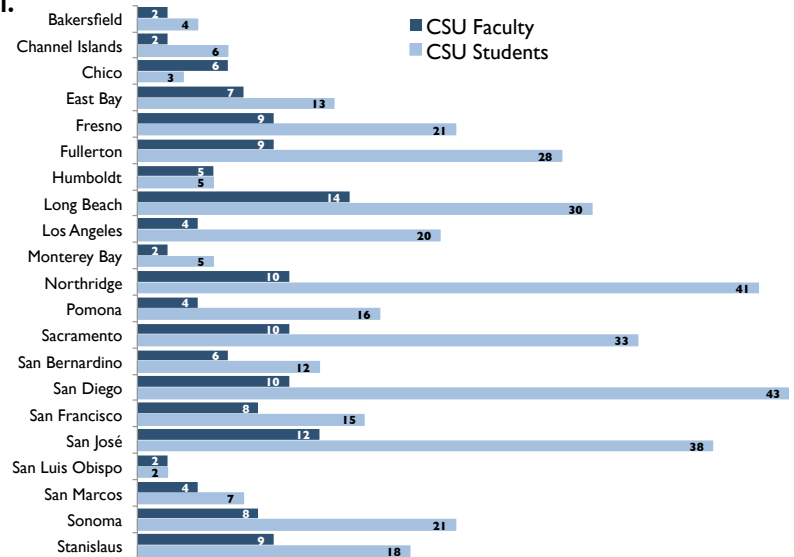
Expenses

Hotel, Lodging	\$71,245
Hotel, Meals, AV	\$125,950
Speaker Costs	\$2,150
Translation Services	\$5,207
Travel	
Reimbursements	\$29,726
Awards	\$12,500
General Costs	\$42,944
Total Expenses	\$289,722

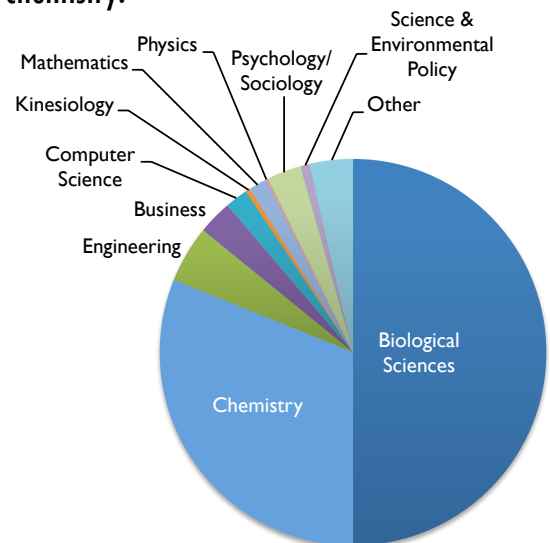
Net Event \$229,197

26th CSU Biotechnology Symposium By-the-Numbers

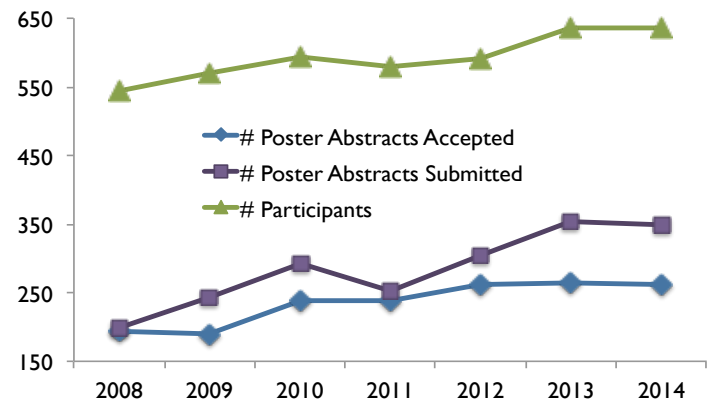
381 students and 143 faculty from 21 CSU campuses attended the 2014 Symposium.



CSUPERB continues to reach out to increase disciplinary diversity at the annual symposium; this year 20% of participants were from departments different from biological sciences or chemistry.



Since 2008 the symposium has grown only 15% in number of participants attending, but 43% in posters submitted; poster acceptance is a competitive process.



2014 Invited Speakers & Judges

Collaborating and Cooperating for Public Health

GERARD JENSEN, GILEAD SCIENCES

ROBERT LINHARDT, RENSSELAER POLYTECHNIC INSTITUTE

STANLEY MALOY, SAN DIEGO STATE UNIVERSITY

Career Networking Session

TERRY ROSEN, FLEXUS BIOSCIENCES

Flipped Classroom 101 Workshop

CATHERINE HALVERSEN, UNIVERSITY OF CALIFORNIA, BERKELEY (WORKSHOP LEAD)
BLAKE GILLESPIE, CSU CHANNEL ISLANDS
JENN LILLIG, SONOMA STATE UNIVERSITY
KONI STONE, CSU STANISLAUS

CSUPERB-I2P® Early-Stage Biotechnology Commercialization Challenge

PRELIMINARY JUDGES

JAMES ALVA, TECH FUTURES GROUP
ARTHUR KARSHMER, UNIVERSITY OF SAN FRANCISCO
LUANNE MEYER, MEYER & ASSOCIATES
HON WONG, TECH FUTURES GROUP

FINAL JUDGES

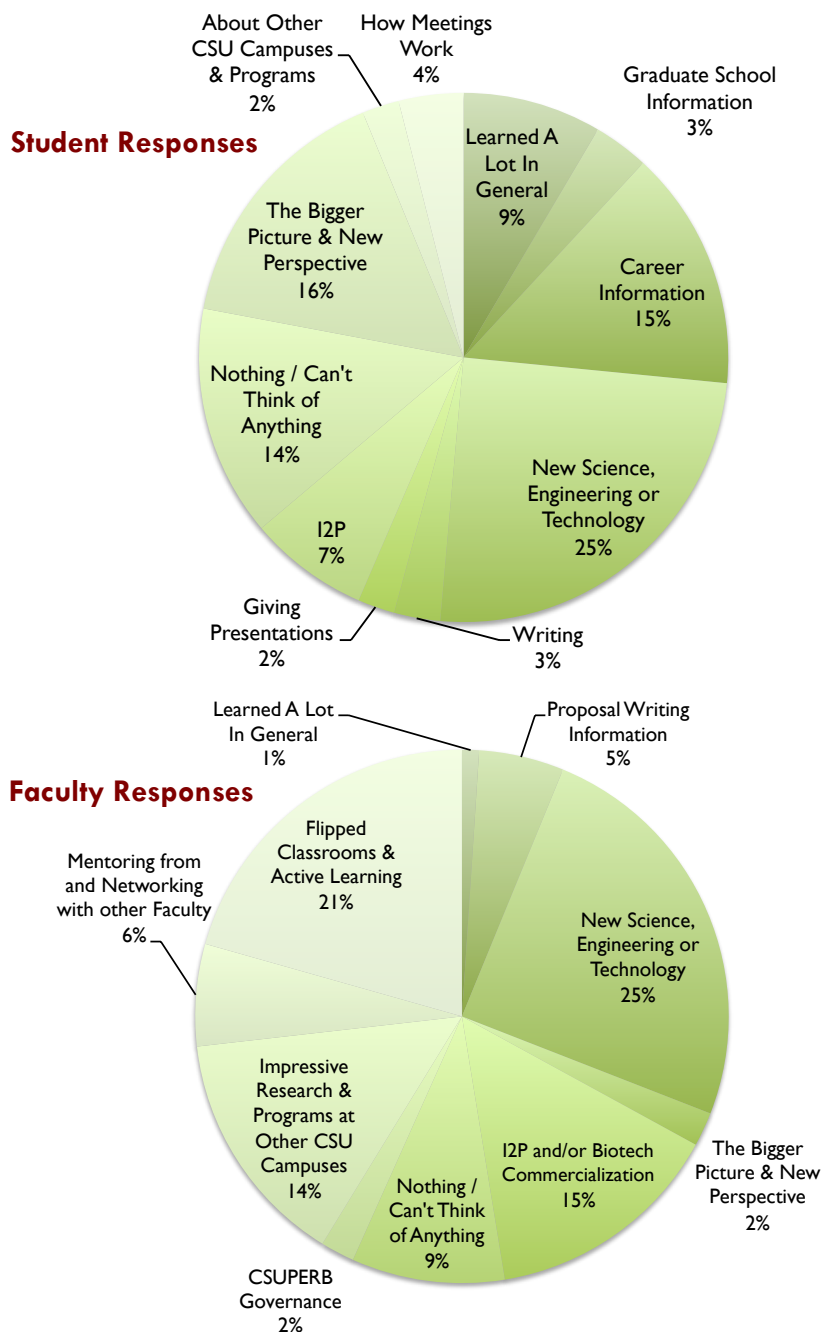
ELISE BROWNELL, ZEPHYRBIOTECH, LLC
ADAM MENDELSON, NANO PRECISION MEDICAL
DAVID PAULING, SUTRO BIOPHARMA, INC.

Graduate School Information

ANGELICA FLORES CASTANEDA, UNIVERSITY OF CALIFORNIA, BERKELEY (CAL POLY POMONA ALUMNA)
MATH CUAJUNGCO, CSU FULLERTON (ORGANIZER)
BEN HAWKINS, SAN JOSE STATE UNIVERSITY (MODERATOR)

Symposium Survey Results At-A-Glance

2014 symposium participants were surveyed after the event. 175 students responded (46% of student participants) and 90 faculty members responded to the survey (63% of faculty participants). The charts below present keyword analyses of open text responses to the question, "What did you learn about for the first time at the symposium?" The wider the wedge, the more times it was mentioned in responses. When asked what they will remember about the symposium, 20% of faculty mention the poster sessions; 27% of students mention networking with and learning from other participants.



Career Networking Session: Participating Organizations

Abbott Vascular (session sponsor), Bayer Healthcare, Bristol Myers Squibb, Lab Support, DEL Biopharma, Marshall Medical Center, Nexcelom, Nodality, Pfizer, San José State University Medical Product Development Management program, Pharmacyclics, Quest Diagnostics, US Food and Drug Administration

2014 Workshops

Federal and Partnered Funding Opportunities

GARY FUJII, MOLECULAR GPS TECHNOLOGIES
NANCY KATANO, UCLA
MADLINE RASCHE, CSU FULLERTON (FORMER NSF ROTATOR)
DAVID ROCKCLIFFE, NATIONAL SCIENCE FOUNDATION
JILL ADLER-MOORE, CAL POLY POMONA & **KATHERINE McREYNOLDS**, CSU SACRAMENTO (ORGANIZERS)

Case-It! Workshop

MARK BERGLAND, UNIVERSITY OF WISCONSIN – RIVER FALLS
CHRISTOPHER KITTS, CAL POLY SAN LUIS OBISPO
KAREN KLYCZEK, UNIVERSITY OF WISCONSIN – RIVER FALLS
SANDRA SHARP, CSU LOS ANGELES (ORGANIZER)

Effective Thesis Writing - Individual Development Plan Case Study

SUSAN BAXTER (CSUPERB), **DIANA CHU**, SAN FRANCISCO STATE UNIVERSITY & **KONI STONE**, CSU STANISLAUS (ORGANIZERS)

Quantitative Biology Meeting

BORI MAZZAG, HUMBOLDT STATE (ORGANIZER)

Bioengineering Reception

DARYL EGGERS, SAN JOSE STATE UNIVERSITY (ORGANIZER)



2014 CSU Biotechnology Symposium Award Recipients

The Annual CSU Biotechnology Symposium hosts six award competitions. The post-symposium surveys reveal many participants are not aware of the competitions until they arrive at the symposium. In fact by early October each year, nomination packages, essays, support letters and summary papers are submitted to selection committees and judging panels to pour over weeks before the symposium begins. The Pauling Student Teaching Award, the Faculty Research Award and the Andreoli Faculty Service Award selections are made before the symposium. But the Nagel Undergraduate Research Award, the Eden Graduate Student Research Award and the CSUPERB-I2P® Early-Stage Biotechnology Commercialization Challenge require significant work before and during the symposium. The theme running through all the student competitions is science and technology communication. Student recipients of symposium awards clearly communicate their ideas and tell their stories in multiple ways and venues to a variety of audiences. We are inordinately proud of their accomplishments and abilities – congratulations to all our 2014 Symposium Award winners!

Top Left: Rudolfo Flores (CSU Long Beach & 2014 Glenn Nagel Undergraduate Research Awardee) and Tom Savage (CSU Sacramento & Chair, 2014 Nagel Award Selection Committee)

Top Right: Lisba Fowler (Eden family representative), David Lin (CSU Fullerton & 2014 Don Eden Graduate Research Awardee), and Bianca Mothé (CSU San Marcos & Chair, 2014 Eden Award Selection Committee)

Middle Left: (left to right): Alejandro Calderon-Urrea (CSU Fresno), Susan Elrod (Dean, College of Science and Mathematics, CSU Fresno), Shirley Kovacs (CSU Fresno), Mamta Rawat (CSU Fresno & 2014 CSUPERB Faculty Research Awardee), Jill Adler-Moore (Caly Poly Pomona & Chair, 2014 Faculty Research Award Selection Committee) & Susan Baxter (CSUPERB)

Middle Right: (left to right): Michael Goldman (San Francisco State University & CSUPERB Strategic Planning Council Chair), Betsy Read (CSU San Marcos & 2014 Andreoli Faculty Service Awardee), Katherine Kantardjieff (Dean, College of Science and Mathematics, CSU San Marcos) and Bianca Mothé (CSU San Marcos)

Bottom Left: (front row, left to right): David Pauling, Katherine Nakama (CSU Fullerton & 2014 Crellin Pauling Student Teaching Awardee) and Kay Pauling. Not pictured, Jeannette Bowler (San Francisco State University & 2014 Crellin Pauling Student Teaching Awardee)

Bottom Right: The 2014 CSUPERB-I2P® 1st place Team "StemPatch" from CSU Sacramento State. (Clockwise from top left): Anne Fuller (Business, Sac State), David Pauling (Finals Judge), Arthur Karshmer (Preliminary Judge), Luanne Meyer (Preliminary Judge), Adam Mendelsohn (Finals Judge), Warren Smith (Engineering, Sac State), Kristen Hernandez (Business), Melissa Bardo (Biological Sciences), Manmeet Singh (Biological Sciences) and Jordan Kreun (Business)

Anonymous Faculty Survey Responses to the Question, What Did You Learn?

"I was pleasantly surprised how many faculty take a very bold approach to teaching their lab courses trying to expose more and more students to a research-like experience during a laboratory-based course."

"...the extent of bioengineering efforts at the CSU. I had no idea there were so many groups doing so much interesting work."

"Flipped classroom 101. It was the first time I had heard about this in great detail. Interesting concept."

"I will remember [Stanley] Maloy's talk about environmental reservoirs of human virulence factors. It was quite good--well organized and clear, especially for being a 'last-minute' fill-in. Well done!"

"The problem-solving approaches for an array of commercialization challenges was the most novel."

"I2P presentations showed interesting product ideas, but even more interesting ways to think about the commercialization process. Even though I have no interest in selling stuff, this new perspective has changed the way I think about the interaction of those who do science with those who sell the results of science."

"I am amazed that truly collaborative and boundary-less research is being conducted at other [CSU] universities."

"Some of the ways in which faculty have integrated research and teaching were new and exciting to hear about."

**California State University
Program for Education and Research in
Biotechnology (CSUPERB)**

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Please find the complete symposium program, all poster abstracts, and the official symposium photo gallery at the CSUPERB website:
www.calstate.edu/csUPERB/symposium/2014/

Find us on Facebook
(www.facebook.com/csUPERB) or subscribe to the CSUPERB blog (www.csUPERB.org/blog/) to keep up with developments related to the 27th Annual CSU Biotechnology Symposium. We'll be back at the Santa Clara Marriott January 8-10, 2015. Mark your calendars!