

MANY THANKS TO ALL WHO SPONSORED
THIS YEAR'S TEEN BIOTECH CHALLENGE!!!!



2010 Teen Biotech Challenge Awards Banquet



*University of California, Davis
Freeborn Hall
May 7, 2010
5:30 – 9:30 pm*

2010 Teen Biotech Challenge Awards Banquet Program

Welcome (6:30 PM)

Dr. Denneal Jamison-McClung,
Director; BioTech SYSTEM

Webpage & Booth Viewing (5:30 – 7:00 PM)

Dinner & Raffle (7:00 - 8:00 PM)

Keynote Address (8:00 – 8:40 PM)

Speaker Introduction: Dr. Judith Kjelstrom;
Director, UC Davis Biotechnology Program

Keynote Speaker: Dr. Kyriacos Athanasiou

UC Davis Distinguished Professor,
Chair, Dept. of Biomedical Engineering

Award Ceremony (8:30 – 9:30 PM)

Presenter: Ag & Industrial Area Winners

Jeffery O'Neal; Statewide Initiative Director, CA Applied Biotechnology
Centers Initiative

Presenter: Biofuels & Bioenergy Area Winners

Dr. Feng Xu; Sr. Research Manager, Novozymes, Inc.

Presenter: Biomanufacturing Area Winners

Louise McGinnis-Barber, CPSM; HDR Architecture, Director of
Business Development – Science Technology Program

Presenter: Biomedical Engineering & Nanotech Area Winners

Dr. Kyriacos Athanasiou; Distinguished Professor, Chair, Dept. of
Biomedical Engineering, UC Davis

Presenter: Genetic Testing & Forensics Area Winners

Donna Burke; Executive Director/External Affairs, AT&T California

Presenter: Genomics, Proteomics & Bioinformatics

Dr. Ken Burtis; Dean, College of Biological Sciences, UC Davis

Presenter: Stem Cells & Tissue Engineering

Meg Arnold; Chair, SARTA Board Directors

Bio-Rad Biotechnology Explorer Awards for Teachers

Presenter: Dr. Ingrid Hermanson-Miller, Bio-Rad, Hercules, CA

Closing Remarks

Dr. Denneal Jamison-McClung; Director; BioTech SYSTEM

STEM CAREERS (Cont.)

The majority of biotechnology jobs require a **Bachelors of Science (BS) college degree**. To find out more about biotech-related BS degrees, please visit booths **B3** and **B12** this evening.

In addition to positions requiring a BS degree, there are a significant number of entry-level biotechnician jobs in California with a minimum requirement of an **Associates of Science (AS) degree or Program Certificate**. We have several excellent community college biotechnology programs in our region, some of whom are here this evening. Please visit booth **B2** and **B11** for more information on biotech AS degrees. At the AS and BS degree levels, more training or experience generally correlates to a higher expected income. Across the nation, the average salary for researchers or technical employees in biotechnology, whether working in healthcare, agriculture or the environment, is about \$65,000 per year.

STEM CAREERS

Careers in Science, Technology, Engineering and Math (STEM) will be thriving for years to come and educating students in these fields will allow us to tackle global challenges in healthcare, agriculture and the environment. In addition to helping humanity solve major problems, students choosing STEM career paths are entering a healthy job market. Science and technology are strong drivers of economic growth and we want your students to share in this regions prosperity. **Northern California is the birthplace of biotechnology, also called life science**, and we have a special opportunity to participate in the biotechnology community centered in the San Francisco Bay Area. Look around at the informational booths here this evening and ask booth participants about their career journeys in biotechnology.

When people think of **biotechnology jobs**, most envision a scientist in a laboratory. However, specific jobs requiring biotechnology training may include teaching, sales, government policy analysis, project management, clinical work and practice of law.



Research



Administration



Teaching



Sales & Marketing



Patent Law



Government
Regulatory Affairs



Technical Writing



Health Care

“California is home to over 2,000 biomedical companies employing over 274,000 people. The average wage for a biomedical industry employee in California is \$75,000.”

- (AB1733) Agenda Item # 4 Document C 4/5/10 Legislative Subcommittee Meeting
Face Sheet from office of Assembly Member Jerry Hill

WELCOME TO TBC 2010

Welcome, one and all, to the Teen Biotech Challenge Symposium and Awards Banquet! This evening, we are celebrating academic excellence and the dedication of students, teachers and parents. We received 450 applications from students in 18 different high schools throughout Northern California. The judges were assigned a tough task, but we are here to congratulate the “cream of the crop”. As you arrive this evening, please participate in the symposium by viewing the website exhibits and poster displays, asking questions and congratulating the student winners on a job well done.

Biotechnology Serves the World

The BioTech SYSTEM is a regional consortium for promoting education in science, technology, engineering and mathematics (STEM). Biotechnology incorporates all of these disciplines in an effort to tackle big global challenges, such as preserving the environment, feeding all of the world’s people or curing sickness and disease. We need intelligent, well-educated students with an interest in solving problems through management of biological systems to consider biotech training programs and careers. Through the Teen Biotech Challenge, we hope that students will learn more about expanding biotech fields of study and will consider how they might personally contribute to global solutions while building rewarding biotech careers.

Sponsors Make TBC Possible

We would like to offer warm thanks to our event partners and community sponsors for making the Teen Biotech Challenge possible. TBC is financed solely via the generous support of industry and academic organizations (see the back page of the booklet for a complete list). Sponsors have demonstrated their commitment to educating and training your students in biotechnology—these forward-looking organizations recognize that your students are the future workforce and, without them, we will not achieve new technological milestones and maintain a competitive edge in the global marketplace.

Please share your personal thanks with the sponsors joining us this evening.

Sincere Congratulations,

Dr. Denneal Jamison-McClung
Director, BioTech SYSTEM

ACKNOWLEDGMENTS & THANKS

Event Sponsors: \$3,000 minimum

AT&T, Biotechnology Program at UC Davis, Chevron, Genentech, HDR Architecture, North Valley Biotechnology Center and SARTA

Platinum Sponsors: \$1,000 - \$2,999

Bio-Rad Laboratories, Novartis, Novozymes, Inc.,

Gold Sponsors: \$500 - \$999

Powerhouse Science Center and Solano County Office of Education

Silver Sponsors: \$250 - \$499

Akers Capital, Dan Koellen, Ernst & Young LLP, Marone BioInnovations, Inc., Merrill Lynch, Sigma Energy Group, SMUD, UC Davis College of Engineering and UC Davis Financial Aid Office

Bronze Sponsors: \$250 - \$499

Altery Systems, American River – Package One, Christopher Russell, Dennis Pendleton, DCA Partners, Five Star Bank, IoSafe and World Bridge Partners

TEACHERS

Annie Clegg - Antelope High School
Anne Whitford - Bella Vista High School
Stuart Arthur - Bella Vista High School
Ray Lewis - Benicia High School
Nicole Brousseau - Christian Brothers High School
Ann Moriarty - Davis Senior High School
Louis Dias - El Camino High School
John Fuller – Folsom High School
Kristofer Orre – Gilroy High School
Vlastimil Krbecek - Hiram W. Johnson High School
Lilibeth Pinpin - Hogan High School
Kathy Bryant – Holmes Jr. High School
Carol Schutt - James C. Enochs High School
Dave Menshew - James C. Enochs High School
Lori Steward - Linden High School
James Hill - Mira Loma High School
Michelle DeMaria – Rocklin High School
Kevin Scully – (Angelo) Rodriguez High School
Jason Brennan - Sheldon High School
Turid Reid - Vacaville High School

BOOTHS (Continued)

(Booth #12) The UC Davis Biotechnology Major For Undergraduates is housed in the College of Agricultural and Environmental Sciences. Biotech majors build a solid academic foundation in biology during their first two years on campus, including coursework in genetics, molecular biology, cell biology and recombinant DNA technology. As upper division students, biotech majors choose an option for more focused study: animal; plant or microbial; or bioinformatics, with emphasis on acquiring related laboratory expertise. Research internships are required for all students in the program and allow students to hone problem-solving and technical skills necessary for success in industry and academic research settings.

BOOTHS (Continued)

(Booth #8) Powerhouse Science Center

The Powerhouse Science Center will be the premier science & space learning center serving Northern California. It will serve as a model for 21st-century experiential education in science, math, technology, engineering, and space — and an exemplary “green” building that serves as an environmental teaching lab.

(Booth #9) SWE (Society of Women Engineers) was founded in 1950, is a not-for-profit educational and service organization. SWE is the driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and be recognized for their life-changing contributions and achievements as engineers and leaders. As a local Sacramento organization, SWE provides outreach to K-12 students, and support, mentoring, and scholarships for collegiate students pursuing engineering degrees. SWE also provides professional development and networking opportunities. More information is available at:

<http://societyofwomenengineers.swe.org/> and www.swefs.org

(Booth #10) SAGE (Sacramento Advocates for Girls' Empowerment) is a nonprofit community organization located in Sacramento, CA and is comprised of a Speakers Bureau, Training & Education department and Outreach Program. This all-volunteer team is the first of its kind locally. It is entirely devoted to the encouragement and empowerment of middle-school and high-school girls in pursuit of careers in computer-related technology, life sciences, engineering, science, math and law. More information can be found at:

<http://www.sacsage.org/>

(Booth #11) Solano Community College offers two Certificates in Biotechnology. The Certificate in Industrial Biotechnology can be earned after the completion of 22-24 unit major. The Certificate of Achievement is designed for students who have already earned an Associate Degree or higher. This certificate can be earned upon completion of the 18-unit major. With the completion of either pathways, the graduates can work in the biotechnology industry as production or research technicians.

TBC 2010 WINNERS

Focus Area 1: Agricultural Biotechnology

- 1st - “Genetically Modified Foods” by Annie Huynh, Sheldon HS
2nd - “Cloning: Changing the World” by Carlos Calderon, Tim Hill and John Pesquesa, Hogan HS
3rd - “The Importance of GM Crops” by Sonny Fierro, Sheldon HS
Honorable Mention - “Exploring Agricultural Biotechnology” by Melisa Hernandez and Jackquelin Pedota, James Enochs HS
Honorable Mention - “Agricultural Biotechnology” by Meha Munshi and Aaron Rodriquez, Gilroy HS
Honorable Mention - “Antioxidants: the Key to a Healthy Life” by Vivian Nguyen, Sheldon HS
Earned Certificate - “Happy Animals Come From Biotechnology” by Sandy Sanchez and Ryan Kinlock, Christian Brothers HS
Earned Certificate - “Giant Pand-Monium” by Jared Ventura, Gian Salvador and James Turner, Hogan HS
Earned Certificate - “Genetically Modified Crops” by Kalani Ratnasiri, Holmes HS
Earned Certificate - “Phytoremediation” by Coleman Christensen, Vacaville HS

Focus Area 2: Biofuels & Bioenergy

- 1st - “Biofuels: the Answer” by Jen-Ann Lee, Sheldon HS
2nd - “Biofuels: the Future” by Crystal Bui, Sheldon HS
3rd - “The Power Source of the Future, Ethanol?” by Nhut Le, Sheldon HS
Honorable Mention - “Future Fuel Sources” by Connor Burton, Sheldon HS
Honorable Mention - “Saving the World with Biofuels” by Simone Nieves, Angelica Nunes and Steven Tovar, Christian Brothers HS
Honorable Mention - “Biodiesel: the Better Alternative” by Johnethin Klipfel, Sheldon HS
Earned Certificate - “Biodiesel Biofriendly” by Javier Dominguez, Gilroy HS
Earned Certificate - “Biodiesel” by Ricky Austin, Justin Jackson and Dejuan Hall, Hogan HS

TBC 2010 WINNERS (Continued)

Focus Area 3: Biomanufacturing

- 1st - "Give It Your Best Shot" by Shelby Larkey, Sheldon HS
2nd - "Biomanufacturing: A New Type of Treatment" by Marina Bulymba and Patricia Ianchis, Antelope HS
3rd - "Don't Pump Trouble" by Alex Newton and Paige Williams, Bella Vista HS
Honorable Mention - "When Pigs Fly" by Peter Vanenburg and Sarah Woolston, Christian Brothers HS
Honorable Mention - "Hormones: A Part of Everyday Life" by Samantha Pena, Sheldon HS
Honorable Mention - "Aids Vaccination" by Tricia Rivera, Sheldon HS
Earned Certificate - "Biomanufacturing Hormones" by Chieu Vuong and Thuy-Vy Nguyen, Hiram Johnson HS

Focus Area 4: Biomedical Engineering & Nanotechnology

- 1st - "How Molecular Chaperones are Reshaping the Future" by Daniel Cattolica and Alex Thompson, Bella Vista HS
2nd - "Nanotechnology in Medicine" by Jaskaran Singh Dhillon, Sheldon HS
3rd - "Cryobiology" by Erin Karina Hernandez, Sheldon HS
Honorable Mention - "Biophotonics" by Tavneet Gill, Elaine Lee and Misha Nguyen, Antelope HS
Honorable Mention - "Nanotechnology: Molecular and Medical Imaging" by Daniel Alekyan, Dan Kindyuk and David Maksimovich, Antelope HS
Honorable Mention - "Applied Nanotechnology" by Nguyenthao Nguyen, Sheldon HS
Earned Certificate - "Brain Computer Interface" by Stephen Knuffke and Jon Prall, Benicia HS
Earned Certificate - "Nano-sensorship" by Tyler Leishman and Mike Lahey, Christian Brothers HS
Earned Certificate - "Nanotechnology: A New Generation" by Nicole Reynosa and Gregory Cooke, Linden HS
Earned Certificate - "Nanotechnology In Biotechnology" by Joshua Edwards, Sheldon HS
Earned Certificate - "Mimicking the Uniqueness of Nature" by Chaztel Bonifacio and Vi Le, Sheldon HS

BOOTHS (Continued)

(Booth #5) Bio-Rad's Biotechnology Explorer Program - Quality you can count on. At Bio-Rad our mission is to transform science education with engaging and pertinent lab activities that inspire today's students. Biotechnology brings real world relevance to biology, chemistry, physics, and computer science. **From basics to best practices**, Bio-Rad's inquiry-based kits and research-quality equipment connect students to the astounding explorations, applications, and issues percolating in biotechnology research laboratories around the world today. Bio-Rad's objective is to help support and vitalize life science education by providing educators with the resources they need to keep up in the science learning race. We believe this goal is best met by enabling teachers and students to experience scientific discovery first-hand. For more information go to explorer.bio-rad.com

(Booth #6) Partnership for Biotechnology & Genomics Education (PBGE) promotes education in the area of modern biotechnological research, focusing on secondary students and their teachers. PBGE has been providing biotechnology educational resources to secondary teachers since 1992 in the form of interactive software, professional development opportunities, and equipment loan programs.

PBGE will be giving away the following cd's at tonight's event!!!

"DNA Fingerprinting Lab" The game starts where a CEO has been murdered. The Student is part of the forensics team collecting and analyzing evidence and solving the crime.

"Virtual Plant Biotechnology" offers a genomics lab where Students can, extract DNA and make genetically modified plants. <http://pbge.ucdavis.edu>

(Booth #7) ISPE, the International Society for Pharmaceutical Engineering, is the world's largest not-for-profit association dedicated to educating and advancing pharmaceutical manufacturing professionals and their industry. We are an independent organization led by the world's top pharmaceutical manufacturing professionals. We provide an inviting and neutral environment for experts, technologists, regulators, consultants and students to exchange ideas and practical experience. As a vibrant community, ISPE's Members work together to improve the industry, while helping each other make better choices, more quickly than ever before. ISPE has been [recognized by the White House and regulatory bodies](#) for contributions to the industry

BOOTHS

(Booth #1) INFORMATION

(Booth #2) American River College hosts two related biotechnology programs, the North Valley Biotechnology Center and the ARC Biotechnology Program. The North Valley Biotechnology Center provides training and support for the biotechnology industry in the Sacramento region and Northern California. The Center works with businesses, colleges, K-12 schools, and government agencies to promote biotechnology workforce and economic development. The ARC Biotechnology program trains community college students through both in-class and online courses to achieve a solid understanding of biotechnology and its applications in areas such as medicine, agriculture, forensics, and diagnostics. When students complete the course work, they have a solid grounding in theory and hands-on laboratory skills for transfer to upper division programs or entry into the biotechnology workforce.

(Booth #3) The UC Davis College of Biological Sciences (CBS) is one of few colleges in the country dedicated entirely to the study of basic biology. The college's faculty, researchers and students are advancing the planet's knowledge on many frontiers by exploring fundamental questions about life. Students from the **Dean's Student Advisory Committee (DSAC)** will be available to talk in-depth about the majors available at the CBS and what it really means to study biology. Explore academic and career options, and pick up the latest college magazine at the CBS booth!

(Booth #4) EXPLORIT SCIENCE CENTER stimulates curiosity, creativity and learning through fun, interactive exhibits and programs for children, families and school groups. At Explorit, our programs and participatory exhibits are designed specifically to encourage interaction and inquiry, as well as participation from the entire family. We believe that learning occurs in a variety of ways, and that experiential learning is essential for proper brain development. At Explorit, we know that communities are enriched when diverse groups work creatively together to educate our children. We actively partner with social service agencies, public schools, service clubs, public libraries, and other community organizations to bring interactive education to the community. Think it! Try It! Explorit!

TBC 2010 WINNERS (Continued)

Focus Area 5: Genetic Testing & Forensics

- 1st - "Gene Therapy: Your Genes, Your Cure" by Ashmita Baral and Carolin Fan, Davis HS
2nd - "Personalized Medicine" by Theresa Truong, Sheldon HS
3rd - "Personalized Medicine" by Ella Eser and Sadaf Sobhani, Davis HS
Honorable Mention - "The History of Forensic Science" by Alan Diep, Sheldon HS
Honorable Mention - "Get A Clue: Crime Scene Analysis" by Allie Backers and Brittany Sterba, Christian Brothers HS
Honorable Mention - "Pharmacogenomics" by Alexis Cooper, Sheldon HS
Earned Certificate - "Genetic Failures" by Philip Gundy and Michelle Pease, Gilroy HS
Earned Certificate - "DNA Fingerprinting" by Vanessa Hoang and Forrest Alvarez, Gilroy HS
Earned Certificate - "Genetic Testing" by Salma Tariq, Sheldon HS

Focus Area 6: Genomics & Life Science Informatics

- 1st - "The Folds of Life" by Clara Fannjiang, William Liu and Peter Wang, Davis HS
2nd - "Turning on the Lights: Epigenetics" by Amanda McKenna, Sheldon HS
3rd - "Metagenomics: Is Bacteria Really Helpful?" by Harjina Singh, Sheldon HS
Honorable Mention - "What Do These Numbers Mean" by Jeanette Dean, Sarah Reblando and Eloisa Carreras, Hogan HS
Honorable Mention - "Epigenomics" by Amandeep Kaur, Sheldon HS
Honorable Mention - "Innovations of Protein Folding" by Jasmeet Singh, Sheldon HS
Earned Certificate - "Do These Genes Make Me Look Fat?" by Dante' Walters and Taylor Hamzy, Christian Brothers HS
Earned Certificate - "Human Genome Project" by Edgar Munguia and Michelle Padilla, Hogan HS
Earned Certificate - "Tree Of Life" by Kristine Cabugao, Rodriguez HS

TBC 2010 WINNERS (Continued)

Focus Area 7: Stem Cells & Tissue Engineering

1st - "Stem Cells" by Somer Wazwaz and Grace Quindara, James Enochs HS

2nd - "Synthetic Organs" by Sara Heravian and Erica Digap, Sheldon HS

3rd - "Stem Cells - The Building Blocks of Our Future" by Hoai (Nancy)

Nguyen, Sheldon HS

Honorable Mention - "Saving Lives with Stem Cells" by Kati Persons and Sadie Gonzales, James Enochs HS

Honorable Mention - "Xenotransplantation" by Zaira Chavez, Sheldon HS

Honorable Mention - "Biomedical Advances: Neuron Damage" by Joshua Cheung and Sheldon HS

Earned Certificate - "The Transplanters" by Nick Perez and Sara Wagner, Christian Brothers HS

Earned Certificate - "Tissue Regen" by Erik Lustre and Diego Zavala, Gilroy HS

Earned Certificate - "Artificial Organs" by Rex Reyes and Shengpeng Zhuo, Hogan HS

Education & Average Salary Ranges for Biotechnology Careers

