2025 Teen Biotech Challenge Awards & Biotech Poster Symposium

TBC

TEEN BIOTECH CHALLENGE

University of California, Davis
Conference Center
May 10, 2025
12:00 – 3:30 pm

2025 Teen Biotech Challenge Awards & Biotech Poster Symposium

Schedule of Events:

- **12:00–1:00pm** | Registration, Poster Viewing & Lunch
- **1:00–1:30pm** | Welcome & Raffle
- **1:30–2:00pm** | Sponsor Remarks
- **2:00–3:30pm** | Awards Presentation

WELCOME TO TBC 2025!

We are proud to host the Teen Biotech Challenge Awards and Poster Symposium for the wonderful 2025 contest winners. This year the contest grew, with 448 high school students from 78 schools registered to create TBC posters. There were many excellent entries and everyone who participated should be proud of their efforts.

Biotech Community Makes TBC Possible

Thanks to the teachers, parents and family members who supported their teens in developing the terrific posters on exhibit this afternoon.

Special thanks to our Designated Emphasis in Biotechnology (DEB) Student Rep, Nicole Rodrigues and all of the PhD students who judged the poster entries. If you see them today, please thank these volunteers for their support of STEM outreach.

Kind regards,

Dr. Denneal Jamison-McClung
Director, UC Davis Biotechnology Program, BioTech SYSTEM, and the Designated Emphasis in Biotechnology (DEB)

Teen Biotech Challenge is the primary outreach activity of the BioTech SYSTEM, a regional Northern California consortium for promoting education in science, technology, engineering and mathematics (STEM). The BioTech SYSTEM is administered by the UC Davis Biotechnology Program.

This year's TBC contest has been made possible by the generous funding and in-kind volunteerism of:

BioMADE

Mango Materials

UC Davis Biotechnology Program

UC Davis Designated Emphasis in Biotechnology Volunteers

TBC was launched as a web design competition in 2005, and we appreciate all past TBC Sponsors' steadfast support of science education!

TBC 2025 WINNERS

Agriculture and Food Science:

Subcategory: Ag Biotech & Food Systems – Junior (Grades 6-9)
1st – Chioma Igbokwe, T.R. Smedberg Middle School, "Smart Farming: Is it the New Future of Planting?"
2nd – Bhavya Kidambi, Stratford Middle School, "Water Efficient Plants"
3rd – Saanvi Sarurkar, Vista del Lago High School, "Gene Editing for Disease Resistant Animals"
Honorable Mentions

- Kierstyn Bonner, Simon G. Atkins High School, "Agriculture & Food Sciences"
- Dhruva Rajesh, Western Sierra Collegiate Academy, "Aquaponics vs Traditional Farming - A Comparative Study"

Subcategory: Ag Biotech & Food Systems – Senior (Grades 10-12)
1st – Kaitlyn Sayasing, Sheldon High School, "Nourish the Soil, Nurture the Future: Sustainable Farming for a Healthier Tomorrow"
2nd Tie – Sahithi Gorthi, Ridge High School, "Expanding Upwards: Vertical Farming"
2nd Tie – Long Le, Sheldon High School, "Gene Editing of Plants"
3rd Tie – Melissa (Chi) Pham, Sheldon High School, "Sweet Taste of Life: Genetic Engineering Vanillin"
3rd Tie – Eden Vang, Sheldon High School, "Revolutionizing Agriculture with Aquaponics"
Honorable Mentions

- Anaya Smith, Sheldon High School, "Phloem Signals in Flowering Plants"
- Maily Vue, Sheldon High School, "Powerhouse Plants: The Secret Efficiency of C4 Photosynthesis"

Agriculture and Food Science cont.:

Subcategory: Cellular Agriculture – Junior (Grades 6-9)
1st – Emory Ou, Pleasanton Middle School, "Developing Immortal BSCS for Sustainable Cultured Meat"
2nd – Anika Kumar, The Quarry Lane School, "Cellular Agriculture for Sustainable Seafood"

Subcategory: Cellular Agriculture – Senior (Grades 10-12)
1st – Janice Tao, Sheldon High School, "Cultivated Meat: Biotech's Bite of the Future"
2nd – Ashley Tran, Pleasant Grove High School, "Making Ends Meat"
3rd Tie – Amy Huynh, Pleasant Grove High School, "Cellular Agriculture: The Rise of Cultivated Meats"
3rd Tie – Siddharth Pandey, Pleasant Grove High School, "Innovative Meat Alternatives: Sustainable Solutions to Address Global Population Growth"
Honorable Mentions

- Hong An Nguyen, Pleasant Grove High School, "Investigating the Development of Cultured Meat"
- Miley Zhang, Sheldon High School, "Using Biotech to Improve the Lives of Livestock -Animals: How We Can Help Them"

Platform Tools and Technology:

Subcategory: Environmental Biotechnology – Junior (Grades 6-9)
1st – Taran Ciganehalli, Eleanor Murray Fallon Middle School, "Genetical Engineering on Cyanobacteria: How Can These Tiny Organisms Impact the World?"
2nd – Ryan Cho, Stratford Middle School, "Algae Biomass"
3rd Tie – Surya Bathini, Adams Middle School, "Algal Biofuels: New sustainable energy"
3rd Tie – Darsh Dhuvur, Foothill High School, "Fueling the Future: Microalgae for Oils and Transportation Fuels"

Platform Tools and Technology cont.:

Subcategory: Environmental Biotechnology – Senior (10-12)

1st – Di Tu Chuong, Sheldon High School, "Turning the Tides: A Cleaner Ocean with Plastic-Eating Bacteria"

2nd Tie - Sudeeksha Ponnuru, Sheldon High School, "Turning the Tide on Excess Carbon: Can Genetically Modified Algae Make a Difference?"

2nd Tie – Mustafa Rashha, Sheldon High School, "Biotechnological Innovations of Carbon Capture Systems"

3rd Tie – Therese Abulencia, Pleasant Grove High School, "Winning as the Underdog: Using Bioremediation to Combat Environmental Pollution"

3rd Tie – Chidiebube Igbokwe, Sheldon High School, "The Sunflower Solution: Advancing Phytoremediation for Toxic Soil Cleanup"

Honorable Mentions

- Kiet Back, Sheldon High School, "Bioremediation – Pathway to Safe Ecosystems"
- Allie Cook, Pleasant Grove High School, "Phytoremediation: The Pollution Solution"
- Linh Dang, Sheldon High School, "BioBusters: Harnessing Bacteria to Fight Plastic Waste"
- Rupali Dosnjh, Sheldon High School, "From Waste to Sustainable Energy: Microbial Fuel Cells and the Future"
- Anna Duong, Sheldon High School, "PHA: The Bioplastic Material Made by Bacteria Utilized for a More Sustainable Way"
- Howie Ho, Sheldon High School, "Water We Doing? Provide Clean Drinking Water Through Water Desalination"
- Konon Kurashige, Algonquin Regional High School, "From Plastic to Oil: The Future of Recycling and Sustainability"
- Romeo Thao, Sheldon High School, "Rooting for the Earth: Bioengineering Plants to Combat Global Warming"

Platform Tools and Technology cont.:

- Jamilla Velasco, Pleasant Grove High School, “Tiny but Mighty: Microbial Bioremediation”
- Jai Velukuru, The Quarry Lane School, “Bioluminescent Biosensors for Lead Detection: The Glowing Guardians of Water Safety”
- Marshelle Rose Yasay, Sheldon High School, “Microbial Engineering: Harnessing Microbes to Combat Climate Change”

Subcategory: Nanotech, Biomaterials, and Industrial Biotech – Junior (Grades 6-9)

1st – Srilakshmi Raghuram, Mission San Jose High School, “Crossing the Blood Brain Barrier”

2nd – Shyamaditya Madapathi, Flower Mound High School, “Sargassum Biomaterials: From Hinderance to Helpful”

3rd – Matthew Yang, Amador Valley High School, “Alkaliphiles in Biotechnology”

Honorable Mention

- Arfan Anilash, Emerald High School, “DNA Origami: Constructing Nanoscale Devices with Molecular Precision”

Subcategory: Nanotech, Biomaterials, and Industrial Biotech – Senior (Grades 10-12)

1st Tie – Hiya Banerjee, Pleasant Grove High School, “Branching Out: The Multifunctional Polymers Revolutionizing Nanotechnology”

1st Tie – Krystal Sin, Sheldon High School, “Revolutionizing the World with Nanoparticles and Tea”

2nd Tie – Gilianne Agar, Sheldon High School, “Getting to the Point with Nanodiagnostic Point-of-Care Systems”

2nd Tie – Kaitlyn Yang, Sheldon High School, “Earth’s Shield: Biodegradable Band-Aids”

3rd Tie – Tejas Nandi, Arcadia High School, “Biomimetics – The World We Know, Through Nature”

Platform Tools and Technology cont.:

3rd Tie – Arwen Shah, Greenwood High School, "The Lotus Effect: Crafting Cleanliness Through Biomimetics"

Honorable Mentions

- Isabella D'Augostine, Franklin High School, "Cellulose Digestibility Unlocked" CRISPR – Enhanced Enzymes to Break Beta Bonds"
- Noor Gowra, California High School, "DNA Origami, Crafting with the Blueprint of Life"
- Oscar Li, Quarry Lane School, "Xenobots: Evolutionary Heart Tissue Regeneration After a Heart Attack"
- Shiying Pei, Sheldon High School, "Nanorobotics in Medicine"
- Naina Rana, Quarry Lane School, "Genetic Modification of Probiotics to Counteract Lactose Intolerance"

Subcategory: Computational Biology & Genomics – Junior (Grades 6-10)

1st – Samik Chaudhry, Foothill High School, Machine Learning's Applications to Biology"

2nd – Anya Gangineni, Cottonwood Creek, "Bioinformatics in Early Cancer Detection"

3rd – Vaishnavi Varma, Vista del Lago High School, "Life's Blueprint: Comparing Genomes"

Honorable Mention

- Aditya Khurd, Stratford Middle School, "Gut Microbiome Simulation"

Subcategory: Computational Biology & Genomics – Senior (Grades 10-12)

1st – Iris Zheng, The King's Academy, "AlphaFold Cracks: The Protein-Folding Case"

2nd Tie – Ashleen Maharaj, Sheldon Nigh School, "Bringing Back the Extinct Using CRISPR and Gene Cloning"

Platform Tools and Technology cont.:

2nd Tie – Alekhya Nallagangu, Vista del Lago High School, "AlphaFold: Prediction of Protein Structure with AI"
3rd Tie – Noah Thai Ariola, Pleasant Grove High School, "Biotechnology Meets AI: The Impact of Neural Networks on Genomics"
3rd Tie – Apurva Sistla, Lynbrook High School, "CRISPR and AI: The Dynamic Duo Refining Gene Editing"

Honorable Mentions

- Nachiket Bidarkundi, Foothill High School, "Hologenomics – Redefining Evolution"
- Jacob Borlak, Pleasant Grove High School, "Neural Networks: Predicting Cancer Treatment Outcomes"
- Danny Bui, Sheldon High School, "The Future of Healthcare: AI in Personalized Medicine"
- Orchita Chakraborty, Straford Preparatory High School, "Synapses in Cloud – The Virtual Brain & Alzheimer's"
- Heidy Feng, Sheldon High School, "Discover (GenBank)"
- Niveta Sree Gunda, Mountain House High School, "Is AI-Driven Genome Editing the Future?"
- Yash Jayesh Laddha, Greenwood High School, "AlphaFold: AI-Powered Revolution in Protein Structure Prediction"
- Madhubala Mohanakrishnan, Ridge High School, "Redefining Life with Gene Editing"

Human & Animal Health:

Subcategory: Biomedical Engineering and Regenerative Medicine – Junior (Grades 6-9)

1st – Bharghav Soma, Amador Valley High School, "Biobots: Cellular Machines for Medicine and More"

2nd Tie – Anaya Bhattacharyya, Vista del Lago High School, "Your Switching is Swell, Stem Cells!"

2nd Tie – Tanushri Ciganehalli, Eleanor Murray Fallon Middle School, Electrospun Fibers in Tissue Engineering

3rd – Ahroon Bhalla-Levine, Dublin High School, "The Evolution of Prosthetic Hands"

Honorable Mentions

- Ishanvi Bala, Dougherty Valley High School, "iPSCs: Cells Travel into the Past"
- Aditi Rajidi, Stratford Middle School, "STEM Cell Therapy: Regrow Human Organs to Heal Injuries"
- Parth Shukla, Livingston High School, "From Mind to Limb: Prosthetics Controlled by the Nervous System"
- Aydin Soner, Ubuntu Nation Builders Academy (homeschool), "Advancements in Regenerative Dentistry: Applications of Dental Pulp STEM Cells (DPSC's)"

Subcategory: Biomedical Engineering and Regenerative Medicine – Senior (Grades 10-12)

1st Tie – Tram Nguyen, Sheldon High School, "Future of Stem Cells: The Missing Piece in Alzheimer's Treatment"

1st Tie – Amun Wedderburn, Sheldon High School, "Organs-on-Chips: The Future of Drug Testing and Personalized Medicine"

2nd Tie – Malia Ann Gomez, Sheldon High School, "Artificial Wombs: A Future of Sustaining Life"

Human & Animal Health cont.:

2nd Tie – Joanne Huang, Sheldon High School, "Beyond Glasses: The Future of Implantable Collamer Lenses"
2nd Tie –Jody Su, Sheldon High School, "Myoelectric Prostheses: Merging Man and Machine"
3rd Tie – Maximiliano Gonzalez-Martinez, James C. Enochs High School, "Reality or Science Fiction? A Peak into the Future: Brain Computer Interfaces"
3rd Tie – Andrew Le, Sheldon High School, "The Future of Bones: 3D Printing in Orthopedics"

Honorable Mentions

- Harnoor Jhajj, Sheldon High School, "Nano-Printed Blood Vessels: The Key to 3D-Printed Organs and Lifesaving Transplants"
- Gabriela Konde, George Marshall High School, "From Scars to Skin: Stem Cell Therapies in Burn Recovery"
- Jacob Le, Sheldon High School, "From Brainwaves to Breakthroughs: The Rise of Brain-Computer Interfaces"
- Quynth Le, Sheldon High School, "Cryonic: Escaping Death"
- Yash Mahi, Sheldon High School, "3D Bioprinter: Printing Organs to Save Lives"
- Jaisleen Halhi, Sheldon High School, "Synthetic Lifeline: The Future of Lab-Grown Blood & Artificial Transfusions"
- Ammaar Mustafa, Sheldon High School, "Brain-Computer Interfaces (BCI); New Possibilities for the Paralyzed"
- Samrita, Rio Americano High School, "Seeing the Future: Advances in Stem Cell Therapy"
- Calista Pham, Sheldon High School, "Building a Better Body, 3D Printed Organs"
- Ray Rishab, Foothill High School, "Armed with Innovation: A Low-Cost Prosthetic Solution"
- Ella Trieu, Pleasant Grove High School, "Biodiversity in Prosthesis: From the Ground to the Body"

Human & Animal Health cont.:

Subcategory: Diagnostics, Drugs, Vaccines, and Treatments – Junior (Grades 6-9)

1st – Liv Harrington, Atkins High School, "Atherosclerosis: The Cardiac Killer and the Promising Path to a Cure"
2nd – Tzu-Chi Yang, Stratford Middle School, "Keratin-based Bandages for Chronic Wounds"
3rd – Aisha Hanif, Foothill High School, "Immunology in the Age of COVID 19"

Honorable Mentions

- Abiya Jaleeza Azif, Mountain House High School, "Brain Microbiome Theory"
- Anya Kasturi, Innovation Academy, "Gut Galaxy: Microbes and Autoimmune Diseases"

Subcategory: Diagnostics, Drugs, Vaccines, and Treatments – Senior (Grades 10-12)

1st Tie – Bhavya Dwivedi, Emerald High School, "A Coupled HPA-Mirror Neuron Model of Chronic Maternal Stress and Autism Susceptibility"
1st Tie – Thyda Sokunn, Sheldon High School, "Breaking Barriers: Exploring New Horizons in Post-Breast Cancer Treatment"
2nd Tie - Ava Allen, Sheldon High School, " Hope, Healing, and Strength: Empowering Every Step in Ovarian Cancer Care"
2nd Tie – Avijay Sen, Franklin High School, "Microbiome-Based Biomarkers for Cancer: A New Era of Early Detection"
3rd Tie – Josh Ireland, Sheldon High School, "The Future of Pharmacy: 3D Printing Personalized Medications"
3rd Tie – Mee Vang, Pleasant Grove High School, "Vaccines for Immune Tolerance Against Autoimmune Diseases"

Honorable Mentions

- Keahna Chao, Sheldon High School, "Virtual Reality for Pain Management: A High-Tech Alternative to Traditional Anesthetics"

Human & Animal Health cont.:

- Timothy Hwang, Davis Senior High School, “The Usage of mRNA Vaccine for Cancer Treatment”
- Chidinma Igbokwe, Sheldon High School, “Planting the Seeds of Immunity: Edible Vaccines and Biotechnology”
- Jessica Liao, Amador Valley high School, “Nanovaccines: Promising Advancements in Immunization”
- Colsen, Nguyen, Christian Brothers High School, “Revolutionizing Early Detection of Cancer with a Simple Blood Test”
- Nia Ou, Amador Valley High School, “Containing the Spread of Bird Flu: To Vaccinate or Not?”
- Tanish Shirolkar, Vista Del Lago High School, “Tumor Infiltrating Lymphocytes: The Body's Own Fighting Machine!”
- Noor Sidhu, Granite Bay High School, “TMS: Revolutionizing Treatment in Psychiatry”
- Kaylee, Tran, Sheldon High School, “"Cheerio!" - Finally Saying Goodbye to Celiac Disease?”
- Ramonda Zaiya, James C. Enochs High School, “The Effects of Psoriasis on the Immune System and Ultraviolet Light Curing”
- Jeannie Zhang, Pleasant Grove High School, “The Usage of Vaccines to Treat Chronic Diseases”

Subcategory: Personalized Medicine and Gene Therapies – Junior (Grades 6-9)

1st – Amel Ben Haj, Harper Junior High, “Can Personalized Medicine Targeting Epigenetic Abnormalities Cure Breast Cancer?”

2nd – Roy Shih, Oliver Wendell Holmes Junior High, “Translating Science into Care: Genetics and FDA Action”

3rd - Jiyul Kim, Stratford Middle School, “Cancer vs. the Immune System”

Human & Animal Health cont.:

Honorable Mentions

- Sahil Ganapa, Foothill High School, “The Uprise of Biotech in Curing Thyroid Hormone Disorders”
- Lucas Inderbitzin, Oliver Wendell Holmes Junior High School, “APOE4 Gene: The Effects of Developing Alzheimer's”
- Ridhan Randeri, The Irvington High School, “Sickle Cell Disease and Gene Therapy”

Subcategory: Personalized Medicine and Gene Therapies – Senior (Grades 10-12)

1st – Nehal Revuri, Dublin High School, “Synthetic Anti-Cancer Soldiers: Unlocking the Potential of CAR T-cell Therapy”

2nd Tie – Zion Cooper, Sheldon High School, “Ocular Gene Therapy”

2nd Tie – Ciereann Xiong, Sheldon High School, “Uncommon but Unforgotten: Advancing Orphan Drug Development for Rare Diseases”

3rd – Hansika Kolli, Vista Del Lago High School, “Breaking the ‘One-Size-Fits-All’ Barrier: Unlocking a Cancer-Free Future with Pharmacogenetics”

Honorable Mentions

- Nikolas Bagesse, Franklin High School, “Epigenetics: A New Frontier in Muscular Sclerosis Research”
- Aida Cooney, The Urban School of San Francisco, “Sickle Cell Anemia: Gene Therapy”
- Tracy Ho, Sheldon High School, “Pharmacogenomics: Tailoring Drug Therapy through Biotech Innovations”
- Shae Honda-Scully, Christian Brothers High School, “Harnessing Epigenetic Modifications for Enhancing Stress Resilience and Mental Health”
- Siddarth Iyer, The Quarry Lane School, “CRISPR Wearables: The Future of Genetic Disease Management”

Human & Animal Health cont.:

- Savannah Padilla, Enochs High School, “Epigenetics: The Future of Medicine”
- Jiya Pai, Academy of the Canyons, “Combating Preterm Birth Statistics with CRISPR Cas-9 Genome Engineering”
- Hervy Jazlyn Pichay, Sheldon High School, “Precision Medicine: Going Beyond One-Size-Fits-All Treatment”
- Ethan Sam, Sheldon High School, “Reprogramming Cancer Cells: The Potential to Restore Tumors to Healthy Tissue”
- Anika Tenneti, Dougherty Valley High School, “Antisense Therapy: A Novel Approach to Rare Neurological Conditions”
- Sage Vang, Sheldon High School, “A Breakthrough in Cancer Treatment”
- Helen Zhang, Davis Senior High School, “Fighting Cancer with CRISPR/Cas9: Seek and Destroy”

2025 SPARK Research Scholar Awards

Teens attending high school within 45 miles of the UC Davis Institute for Regenerative Cures were invited to apply for the 2025 SPARK Research Scholar Award. SPARK Research Scholars will spend 8 weeks under the tutelage of leading stem cell scientist, Dr. Fernando Fierro and conducting summer research projects in laboratories affiliated with the UC Davis Institute for Regenerative Cures (Director, Dr. Jan Nolta). Congratulations to the 2025 Awardees!

- Rachna Chinya (Folsom High School)
- Isabella D'Augostine (Franklin High School)
- Dolly Ho (Sheldon High School)
- Akriti Kapoor (Rocklin High School)
- Hansika Kolli (Vista Del Lago High School)
- Samrita Naidu (Rio Americano High School)
- Frozan Shaheen (Sheldon High School)
- Xin Wu (Mira Loma High School)
- William Xiao (Sheldon High School)
- Andisha Zahir (Sheldon High School)

This summer research experience has been made possible by a SPARK Award (PI-Dr. Fernando Fierro) from the California Institute for Regenerative Cures (CIRM). SPARK Research Scholars will present their research posters to members of CIRM at the SPARK Conference to be held in early August.

https://biotech.ucdavis.edu/spark-research-scholar-awards

The **Summer Program to Accelerate Regenerative Medicine Knowledge (SPARK)** requires student trainees to blog about their experiences and post pictures to Instagram using the hashtag #CIRMSparkLab. Follow the group on Instagram and check out the "SPARK Research Scholars at UC Davis" blog to learn more about the students' research experiences.

https://cirmsparkucdavis.wordpress.com/

Awesome TBC 2025 Sponsor Teachers!

We applaud the following educators for their commitment to science education and for striving to keep their classrooms on the "cutting edge", through activities like the TBC, student mentorship and on-going professional development through BioTech SYSTEM membership:

- Christian Brothers High School - Kevin Scully
- Crean Lutheran High School - Nathaniel Ban
- Dougherty Valley High School - Achint Kumar
- Granite Bay High School - Elizabeth Henderson
- Harper Junior High - Nikhil Joshi
- James C. Enochs High School - Heather Friedberg
- Lynbrook High School - Rajeswari Kannan
- Oliver Wendell Holmes Junior High - Ching Hsien Chen
- Pleasant Grove High School - Ponciano Cochon
- Polytechnic School - Alexander Cho
- Quarry Lane School - Aparajita Ghosh
- Ridge High School - Lauren Baker
- Sheldon High School - Jason Brennan
- Sheldon High School - Tabitha Lai
- Simon Atkins Academic & Technology High School - Terry Howerton
- Stratford Middle School - Rekha Kannan
- Urban School of San Francisco - Randy Li
- Vista del Lago High School - Daria Muller
- Vista del Lago High School - Sangita Biswas

Biotech Word Search

B T T J Q Z H P X B C D B C Y
Y I V S O G C N R C C C E R D
N G O S P V E A K O C F D U G
L L O T G X L S E D T Z F E N
R D T L E D L I P W Y E N Q S
I Y U A O C S B A V G E I G V
Q P O D S N H H P W S G J N M
A I K B E Y H N R F R X G E S
A E Q R W Q S C O K W B V M N
T N I W K E H T E L F Z G O X
F O D Z H T X J Z T O T Q N E
C H R O M O S O M E O G F E A
G N I R E E N I G N E N Y G N
S Y C K G X J U J M D T A S R
S C I T U E P A R E H T W N B

BIOTECHNOLOGY

CELLS

CHROMOSOME

DNA

ENGINEERING

GENES

GENOME

NANOTECHNOLOGY

PROTEINS

RNA

THERAPEUTICS

Biotechnology to Meet Global Challenges

Biotechnology is an applied field of science that uses our knowledge of living systems and engineering principles to create solutions for complex local and global challenges in agriculture, health care and the environment. What are the biggest challenges for most global communities today? In 2015, the United Nations set 17 Sustainable Development Goals (SDGs) to improve the everyday lives of millions of people in developing countries, including:

- Zero Hunger (#2)
- Good Health & Well-Being (#3)
- Clean Water & Sanitation (#6)
- Affordable & Clean Energy (#7)
- Industry, Innovation & Infrastructure (#9)
- Sustainable Cities & Communities (#11)
- Responsible Consumption & Production (#12)
- Climate Action (#13)
- Life Below Water (#14)
- Life on Land (#15)

Biotechnology has a key role to play in meeting many of the UN Sustainable Development Goals, especially those related to human health and food security. The winning TBC websites are a great educational resource for learning about specific biotechnology research approaches that will help address the SDG's, such as the development of cost-effective vaccines and drug treatments, the use of biotech crops to increase food security and emerging technologies to convert plant biomass into renewable liquid biofuels. We hope that the Teen Biotech Challenge has opened your eyes to some of the amazing advances we are making through science and engineering!

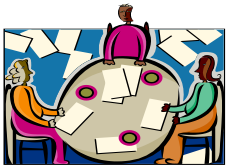
https://www.un.org/sustainabledevelopment/

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 region's prosperity. **Northern California is the birthplace of biotechnology, also called the life sciences**, and we have a special opportunity to participate in the biotechnology community centered in the San Francisco Bay Area.

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

Patent Law

Government
Regulatory Affairs

See the State of California Employment Development Department on Biotechnology jobs for the latest job market projections:
http://www.labormarketinfo.edd.ca.gov/Biotechnology_in_California.html#OccData

STEM CAREERS (Cont.)

The majority of biotechnology jobs require a **Bachelor of Science (BS) college degree**. 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 **Associate of Science (AS) degree or Program Certificate**. We have several excellent community college biotechnology programs in our region, including those at Solano Community College (SCC) and American River College (ARC) offering AS degrees and certificates. SCC offers a unique BS degree program in biomanufacturing, as well. Average annual entry-level salary for biotech researchers or technical employees varies by region, with higher salaries in the Bay Area and other urban hubs.

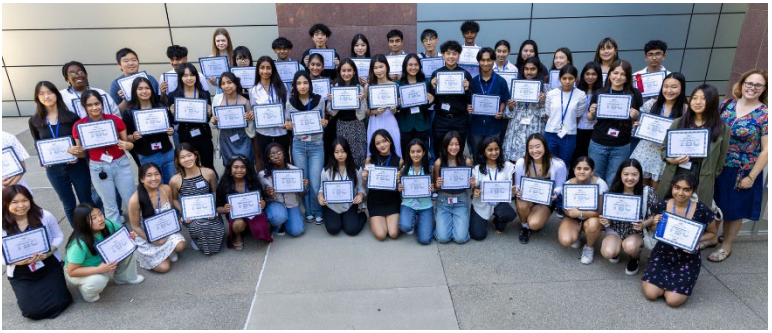
For biotechnology professionals, "**soft skills**", such as project management, good oral and written communication, ability to work in teams, and a strong work ethic, are just as important as technical skills. We encourage teens to participate in sports teams, student and community organizations, part-time jobs and other social activities that will help to build soft skills.

Online Resources

For a list of useful resources to find detailed information on careers and training in biotechnology, please see the **BioTech SYSTEM webpage:** https://biotech.ucdavis.edu/biotech-system

Bioindustrial manufacturing is an area of biotechnology that is growing quickly in the U.S. College majors related to this field are biochemical engineering, biotechnology, molecular and cellular biology, and many other life science and engineering disciplines that use molecular tools to design bioprocesses for making industrial enzymes, biomaterials (e.g., fibers, oils, plastics), protein-rich foods, and many other consumer goods.

This year, the primary sponsor of TBC is BioMADE, a non-profit organization dedicated to growing the bioindustrial manufacturing industry through awards to members, like Mango Materials. BioMADE has over 300 members in industry, academia, and government interested in the development of a healthy bioindustrial manufacturing ecosystem and training a competitive STEM workforce that can innovate and engage with the global bioeconomy.



The TBC2024 winners at UC Davis (Photo credit: Mr. Jason Brennan, Instructor at the Sheldon HS Biotechnology Academy)

BioMADE

MANGO MATERIALS

UCDAVIS Biotechnology Program