

Summer 2017

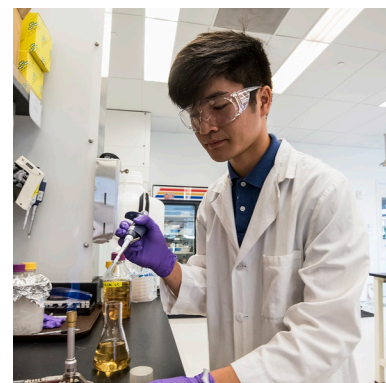


HIGH SCHOOL SUMMER SCIENCE INTENSIVE Introductory College Level Experience in Microbiology (iCLEM)

iCLEM is an eight-week paid summer science intensive for economically disadvantaged high school sophomores and juniors. The program seeks to broaden students' understanding of biotechnology, microbiology, and biofuels. In addition to completing a research project, the program also exposes students to career exploration and preparation for the college application process.

PROGRAM HIGHLIGHTS FOR SUMMER 2017:

- Receive a stipend of \$2000 paid over the eight-week program- June 19 to August 11, 2017.
- Complete a hands-on, real-world research project in a state-of-the-art laboratory mentored by JBEI researchers and UC undergrads.
- Learn fundamental concepts in microbiology, molecular biology, biochemistry, biofuels, and synthetic biology.
- Prepare for the college admission process – write and revise a personal statement and learn about admissions requirements and financial aid.
- Explore careers through discussions with STEM professionals and visits to local biotechnology and pharmaceutical companies.
- Gain skills and confidence in communicating scientific research.



Apply at www.jbei.org/iCLEM

Applications must be submitted online by **March 12, 2017.**

ABOUT iCLEM

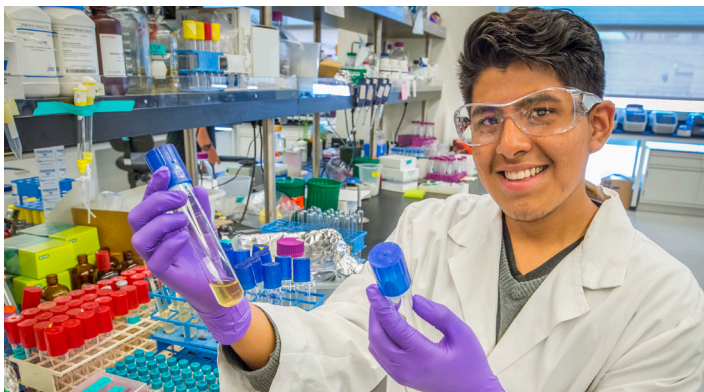
Created in 2008, the iCLEM program provides Bay Area youth from communities traditionally underrepresented in the sciences with paid research internships in state-of-the-art labs. iCLEM targets high potential, low-income high school students who have a deep interest in science or engineering and for whom this program would provide the critical difference in pursuing a higher education degree and a career in science. The high teacher-to-student ratio ensures intensive hands-on assistance for students in both the lab and classroom throughout the workday. In addition to training the students in basic science and research, the program exposes students to industry field trips, career exploration, and preparation for the college admissions process.

iCLEM is a multi-layered program that connects students with teachers, UC undergraduates, JBEI researchers, and the JBEI education and outreach team. From these connections, mentorship occurs at multiple levels. Since 2008, iCLEM has trained 66 high school students and 26 teachers and teachers-to-be. 98% of iCLEM students are low-income, and many are immigrants. 85% are the first generation to attend college. 98% of iCLEM students go on to college and more than 80% plan to major in science or engineering.

iCLEM RESEARCH PROJECT

The research project carried out by iCLEM students over their summer at JBEI is closely tied to the overall scientific mission at JBEI to efficiently convert plant material to transportation fuels and other related products. To produce large amounts of biofuels, researchers engineer enzymes or microbes to break down sugars locked up in plant cellulose and convert them to biofuels.

iCLEM students work together with researchers to identifying bacteria that can efficiently break down plant cellulose using cellulase enzymes. Students harvest microbes from soil, compost, or other environments where cellulose-eating microbes are abundant. The microbes are grown in the lab, and then screened to find those with the most efficient cellulase enzymes. Using advanced molecular biology, the iCLEM team identifies the organisms and genes that produce the most promising cellulases for potential use in large-scale industrial processes, an essential part of biofuel production.



APPLICATION PROCESS AND REVIEW

To be eligible for iCLEM, students must meet all requirements:

- be 15 years old by December 31, 2016;
- be currently enrolled as a sophomore or junior at a high school in Alameda, Contra Costa, or San Francisco county;
- be a US citizen or permanent resident;
- have a GPA of at least 2.5 and passed Algebra 1 and Biology;
- have an annual household income of \$70,000 or less; and
- commit to being present for all 8 weeks of the program.

While the application process is rigorous, we place primary importance on the student's background, teachers' recommendations, and the student's strong desire to do science and work hard during the summer. The student's academic record is considered, but it is not the only factor in our selection process.

Qualified students can apply online anytime between January 13 and March 12 on the JBEI website. Applications submitted after 11:59pm on March 12 will not be considered, we encourage applying as early as possible to leave plenty of time for any problems that occur.

Applicants will need to provide the email address of two teachers or other non-related adults that can give you a recommendation for the program. At least one recommendation should be from a math or science teacher. Each recommender will receive an email AFTER you submit your application with a link to a form and a place to upload a recommendation letter. All recommendations must be received by Friday, March 17 at 5:00pm.

Finalists for the iCLEM program will be invited to interview at JBEI in April.

For questions about the iCLEM program, contact Rochelle Urban, rurban@lbl.gov.