

The 2017/2018 University of Hawaii iGEM TEAM



is recruiting highly motivated Undergraduate
Researchers and Bioengineers

Join the 2017/2018 University of Hawaii iGEM team to realize **your** own bioengineering design ideas! iGEM stands for *international Genetically Engineered Machines* ([2017 website](#)), and is an undergraduate research endeavor in synthetic biology that is based on standard parts called “BioBricks”. One of the key features of this program is the creation and curation of a “biological parts list” that meets engineering specifications. The idea is that all parts are cloned in the same system, allowing easy interchange of “parts” for engineering purposes. iGEM teams keep private and public wikis. Students travel to MIT for a “jamboree” at the end of the project for an oral presentation that will be available online.

Goal of the proposed 2017/2018 UH iGEM project is to make BioBrick parts that can be used to target proteins to different chromatin landmarks based on retrotransposon integrase chromodomains. At the very least these can be used to visualize specific landmarks in fluorescent microscopy, in more sophisticated forms they can be used to study the effect of redirecting chromatin binding factors or enzymes to centromeres or pericentromeres. You, the participating students, will drive the research direction under the guidance of the advising faculty members and determine the exact nature of your project. We will plan the project in summer 2017 and complete most of the work in Spring/Summer 2018.

You will be joining the second ever UH iGEM team. The 2008 team developed a cyanobacterial toolkit ([team website](#)) and presented their research project at the annual iGEM conference at MIT ([video](#)). The 2008 jamboree was attended by [~80 teams](#) from top Universities from around the world, including 16 from Asia, 12 from Canada, 22 from Europe, 4 from Latin America and 29 from the US. Our team won the “Rookie of the Year” award against very stiff competition in 2008 and earned a bronze medal.

No experience is necessary, but you must bring with you **a)** intense curiosity about biology, **b)** strong work ethic, **c)** an ability to see projects through even in the face of adversity, **d)** ability to work in a team and **e)** about 10 hours per week during the semester and 20-40 hours per week in summer 2018.

If you are interested in joining our team, please email the coordinating faculty member gernot@hawaii.edu by **August 31** with any questions you might have **and**

- 1) your bioengineering or biology interests,
- 2) what you would like to get out of the research/engineering experience,
- 3) your availability in Fall 2017 and Spring/Summer/Fall 2018, and
- 4) a brief resume listing biology, bioengineering, bioinformatics, web design and basic science courses you have taken.

Funds have been made available by the **National Science Foundation** for small stipends, research material and travel to the 2018 iGEM jamboree.

Logistics:

We are very fortunate to have three faculty advisors, including a full-fledged engineer (Daniel Jenkins - MBBE), a molecular biologist and cloning expert (Mike Muszynski - TPSS) and a bioinformatician/genomicist (Gernot Presting - MBBE). And the entire UH community to support us if we need additional advice.

Most of the laboratory work will be conducted in St. John Plant Sciences Building on the Manoa campus. Depending on the project your iGEM team decides to tackle, you will have an opportunity to learn laboratory skills in the areas of biochemistry, cloning, transformation and bioinformatics.

The last UH iGEM effort was a lot of work for everyone involved, but I have never in 30+ years of research experience seen a group of scientists more engaged and enthusiastic about their project. This project may qualify for 499 research credits!

(Approximate) Timeline

August/September 2017

Initial iGEM2018 meeting - Doodle poll will be set up for, and shared with, respondents.

Fall 2017

Project planning (includes background literature search, project proposal). This is a key activity and must be completed prior to obtaining the clearance from the **Institutional Biosafety Committee (IBC)** required for the proposed work. On-campus presence by participants desirable but not required, as email and conference calling can be used if necessary. Target date for complete proposal: 2017-10-31.

Preliminary lab work (prerequisites: Biosafety Training; Chemical Safety Training)

Approximate 2018 schedule (subject to change):

January - Start/continue laboratory work - we must be 100% functional by then

February - Official team registration at iGEM.org

Summer - Perform majority of laboratory work.

June - Register for Giant Jamboree

August - Finalize presentation title and abstract

Fall - Wrap up laboratory work, prepare presentation for Jamboree.

September - Finalize team roster

October - Giant Jamboree hotel booking; DNA submission deadline; Wiki freeze

October 24-28, 2018 (Wed - Sun) - **JAMBOREE!**

Hynes Convention Center, Boston, MA, USA

PLEASE SHARE THIS INVITATION WITH OTHER INTERESTED STUDENTS!