

The internal monthly newsletter for Biosciences at Berkeley Lab.

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BERKELEY LAB



# BioSci Communiqué

08.03.16

## Upcoming Events

Refer to the [Area Events Calendar](#) for more events, details, and up-to-date information.

### August 5

Special Seminar: *Biochemical Ecology of Tropical Forest Tree Stress under Climate Warming*

| Jeffrey Chambers and Kolby Jardine, Climate and Ecosystem Sciences Division, Earth and Environmental Sciences Area, Berkeley Lab | 1:30 - 2:30 PM, Emery Station, Rm 978-4132 & 4134 | Host: Louise Glass, EGSB Division Director

### August 11

2016 Biosciences Strategic Plan (BSP) Progress Retreat | 8 AM - 6 PM, DoubleTree, Berkeley Marina, 200 Marina Blvd., Berkeley | [Registration](#) required by Friday, August 5 (limited space) | [Contact](#): Kristy Nordahl

### August 19

DOE Office of Science Early Career Research Program (ECRP): Brown Bag Roundtable and Networking Social with Director Witherell and others | Noon - 1:30 PM, Perseverance Hall | [Lab's ECRP website](#)

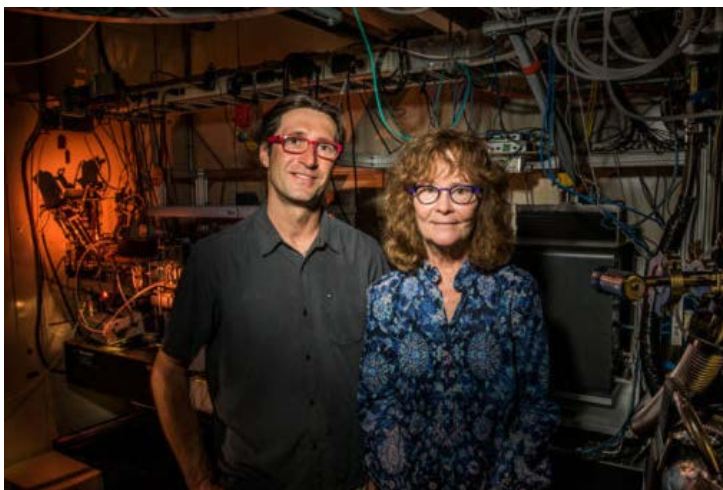
## FICUS Updates

**User Facilities Convene at JGI to Explore FICUS Expansion**

## News Roundup

- Using Hydrogen Sulfide and CO<sub>2</sub> to Drive Production of Renewable Fuels and Chemicals [>>](#)
- Study Finds Molecular Switch That Triggers Bacterial Pathogenicity [>>](#)
- When Targeting Cancer Genes, Zero in on the One Percent [>>](#)
- JBEI Scientists Harness CO<sub>2</sub> to Consolidate Biofuel Production Process [>>](#)
- The Bloody Battle Against Aging [>>](#)
- ABPDU Featured in New Cyclotron Road Video [>>](#)
- DOE JGI User Facility Partnership Yields Comparative Fungal Analysis [>>](#)
- JBEI's Ee-Been Goh Featured on *Laboratory Equipment* [>>](#)

More news on the Biosciences Area [website](#).



## Message from the ALD

Many events have been held this month, both here and in our nation's capital, which shape future funding opportunities and establish the importance of our biosciences research. The first of these took place on July 15, when the other associate lab directors and I accompanied Mike Witherell to Washington, DC, to present the Annual Lab Plan to DOE. The presentation, which accompanies a written document that is provided earlier in the year, was very well received. Specifically, DOE acknowledged Berkeley Lab's leadership in developing the Biosciences Campus, a nascent BioFoundry, and in helping to develop the National Microbiome Initiative. While they are very positive about the proposed BioEPIC

On July 11, JGI hosted representatives from eight DOE user facilities to discuss expanding the Facilities Integrating Collaborations for User Science (FICUS) model, a collaborative science initiative, beyond the current JGI-EMSL partnership. User facilities included NERSC, the Molecular Foundry, Advanced Light Source, Environmental Molecular Science Laboratory (EMSL), Stanford Synchrotron Radiation Lightsource, Advanced Photon Source, Spallation Neutron Source, and National Synchrotron Light Source II, it was agreed that there are opportunities for collaboration, particularly in the area of "sequence-structure-function" relationships, and plans were made to reach out to users and to identify pilot projects.

Recently, the FICUS review committee met at JGI and in response to the fourth call for submissions ten new proposals have been accepted for FY2017 out of 31 submitted.

#### **FICUS Partnership Hits the Road**

Representatives from JGI and Environmental Molecular Science Laboratory will partner on a booth in the exhibition hall at the annual meeting of the International Society for Microbial Ecology (ISME), August 21-26 in Montreal. Among the goals of this outreach effort are to build awareness of the availability of the multiple, complementary scientific resources accessible through FICUS, enabling attendees to more effectively tap into this powerful research infrastructure. In addition, the booth will provide a gathering place for participants to make personal connections with the leaders of the respective facilities and scientific programs so that prospective research project submissions can be refined for increased competitiveness. If you're planning to be at [ISME-16](#)

building, they indicated that we will not see any funding for it in the 2018 budget.

On July 18 & 19, the Secretary of Energy's Advisory Board's [Biomedical Task Force](#) met in a closed meeting at Berkeley Lab. The purpose of the meeting was to explore opportunities for NIH and DOE to work together to drive advances in biosciences, and I participated in a panel session that was focused on advanced molecular and cellular technologies. The Task Force's report and recommendations for action are due to DOE in September.

A Biosciences Area team worked with Don Medley, the Lab's Head of Government and Community Relations, and three other National Labs – Pacific Northwest, Sandia, and Livermore – to co-sponsor an event in Washington, DC, on July 27 with the [U.S. Council on Competitiveness](#) that was focused on the role of biosciences in driving the U.S. bioeconomy. Approximately 50 participants from the Labs, industry, academia, congressional staff, and federal agencies that fund biosciences research, including DOE, [USDA](#), and [NSF](#), gathered together for the day to discuss technology, infrastructure, investments and talent needed to drive the U.S. bioeconomy and maintain a leadership position internationally. The U.S. Council on Competitiveness will release a report with recommendations for the incoming Presidential Administration.

A related event was co-sponsored by the U.S. Council on Competitiveness, the House of Representatives Manufacturing Caucus, and the American Society of Mechanical Engineers on July 28 on Capitol Hill. Biosciences Principal Deputy Mary Maxon moderated a panel of National Lab and industry speakers who described the role of and opportunities for biosciences in advanced manufacturing. Over 100 congressional staffers attended the briefing and asked a broad variety of questions, including those focused on what Congress could do to drive biomanufacturing in the U.S.

I will keep you updated on the outcomes of these meetings and other efforts to increase our Area's impact locally and nationally.

Regards,  
Jay Keasling

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## **Area News**

### **Org Burden Rate Lowered**

The Biosciences Area Org Burden rate has been lowered from 20.2% to 19.9% effective retroactive to October 1, 2015. This reduction was implemented in the July close and represents a savings of approximately \$400,000 across the Biosciences science programs.

### **BSP Progress Retreat Registration Opportunity**

You are invited to participate in the upcoming 2016 Biosciences Strategic Plan (BSP) Progress Retreat taking place on August 11 from 8 AM to 6 PM. The purpose of the retreat is to track our headway toward achieving the five-year milestones and annual implementation plan objectives in the areas of energy, environment, health and biomanufacturing. After presentations on these areas, attendees will participate in breakout groups to identify new program development opportunities related to BSP implementation. The retreat will be held at the DoubleTree, Berkeley Marina, 200 Marina

and would like to help out in the booth, [contact](#) David Gilbert.

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## IPO

### Have Exciting New Results?

If you have exciting new results that you think might be the basis of a patentable invention, please contact the [Innovation and Partnerships Office](#) (IPO). It is especially important to do this well before any public disclosures so that IPO can work closely with you to figure out the best path forward.

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## Awards

### Apply Now to the DOE Office of Science Early Career Research Program (ECRP)

Full-time, career or career-track Lab researchers who received their Ph.D. no earlier than 2006 can apply for awards of up to \$2.5M. Now in its eighth year, this DOE award program supports the development of individual research projects of outstanding scientists early in their careers, and stimulates careers in the disciplines supported by the DOE Office of Science. Director Witherell hosts a brown bag and networking social on August 19, Noon - 1:30 PM in Perseverance Hall. For more info and a list of Area/Division representatives, visit the [Lab's ECRP website](#).

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## @LBNLBioSci Twitter Highlight

Blvd., Berkeley. [Register](#) by Friday, August 5. Please note, space is limited. [Contact](#) Kristy Nordahl with any questions.

### MBIB Division Adopts New Logo

Designed by Creative Services, the logo represents the variety of interests and research being performed in the Division.



### Poké Balls at Crystallography Meeting

Several MBIB researchers from the Lab's Advanced Light Source (ALS) attended the 66th [Annual Meeting](#) of the American Crystallographic Association (ACA) in Denver, July 22-26. At booth #55, they represented the ALS biology beamlines and... gave out free ALS Poké Balls!



### Biosciences Represented at SEED 2016

A large number of Biological Systems & Engineering (BSE) scientists and engineers, primarily JBEI affiliates but also secondary appointments from the JGI and the Molecular Foundry, attended the Synthetic Biology: Engineering, Evolution & Design (SEED) 2016 [Conference](#) in Chicago, July 18-21. Jay Keasling and BSE's Yan Liang spoke, several researchers gave Rapid Fire presentations, and many presented [posters](#). The theme of SEED 2016 was "designing, harnessing and expanding the capabilities of biological systems."

### Development of Biomass Energy

Last week, BSE's Todd Pray was invited to speak and moderate a panel at the Asia-Pacific Economic Cooperation ([APEC](#)) Workshop on Promoting the Development of Biomass Energy held in Hanoi, Vietnam. Representatives from most of the APEC member economies attended, sharing lessons learned, successes and challenges in deploying biomass energy and biofuels as alternatives to coal, natural gas and oil.

### Director Witherell Gets Social with JGI

Lab Director Mike Witherell made his first trip out to Walnut Creek on July 29 to meet and greet staff at the most recent "Social" hosted by the JGI's Diversity & Inclusion (D&I) Working Group. Witherell toured the facility to learn about JGI's sequencing, synthesis, metabolomics and the single cell genomics capabilities, after which he mingled with staff. Witherell also met with members of the D&I Working Group and the senior management team to learn about recent activities ranging from mentoring interns to developing user proposals with minority-serving





Last month, the Biosciences Area welcomed Douglas Kell, British biochemist and professor of Bioanalytical Sciences in the School of Chemistry at the University of Manchester. Kell presented two seminars, one at JBEI on synthetic biology, and a BioEPIC seminar on systems biology. Follow [@LBNLBioSci](https://twitter.com/LBNLBioSci) to keep up with the latest from Biosciences. Feel free to suggest or contribute content for our Twitter account by emailing [bioscicomms@lbl.gov](mailto:bioscicomms@lbl.gov).

institutions.

## Programs & Initiatives

### Presentation on Agile BioFoundry

On July 7, Nathan Hillson spoke about the [Agile BioFoundry](#) (previously named SynBio Foundry) at the SynBioBeta Activate! [Conference](#) in Edinburgh. People gathered to learn about synthetic biology and the tools and technologies that are making biology easier to engineer.

### ABPDU Partners with Small Businesses

Through the second round of the DOE's Office of Energy Efficiency and Renewable Energy (EERE) [Innovative Small Business Vouchers Pilot](#), [Mango Materials](#) and [Zymochem](#) bioenergy projects were awarded vouchers to work with the Advanced Biofuels Process Demonstration Unit ([ABPDU](#)). Also, a [Heliobiosys](#) project will be performed using the capabilities of both the ABPDU and Sandia National Laboratories. Earlier awarded Lab partnerships were announced [here](#).

### Lab Highlighted at Bioenergy 2016

DOE's Bioenergy Technologies Office hosted its ninth annual conference—[Bioenergy 2016: Mobilizing the Bioeconomy through Innovation](#), July 12–14. In his keynote address Deputy Undersecretary for Science and Energy Adam Cohen highlighted the recent [publication](#) of a one-pot method for biological production of jet fuel from Aindrila Mukhopadhyay's group at JBEI in collaboration with the ABPDU. Other speakers at the conference, including Acting Assistant Secretary for Energy Efficiency and Renewable Energy (EERE) David Friedman, Deputy Assistant

Secretary for Transportation Reuben Sarkar, and Bioenergy Technologies Office Director Jonathan Male, spoke about the nascent Agile BioFoundry as a key program to achieve EERE goals for developing more sustainable fuels and chemicals from biomass. BSE Division Director Blake Simmons presented on the BioFoundry as part of the Synthetic Biology Breakout Session.



Lawrence Berkeley National Laboratory, Biosciences Area  
One Cyclotron Road, Berkeley, CA 94720  
[biosciences.lbl.gov](mailto:biosciences.lbl.gov)

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