

PLANT & MICROBIAL BIOLOGY

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ACADEMICS. RESEARCH. DISCOVERIES.

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Daniel Zilberman Promoted

Daniel Zilberman, a member of the department who seeks to understand how chromatin components interrelate and integrate to regulate transcriptional activity, has been promoted to Associate Professor.

Zilberman received his B.S. in Biology from the California Institute of Technology in 1998, and Ph.D. in MCD Biology from the University of California at Los Angeles in 2004. He started working at UC Berkeley in 2007.

His lab studies chromatin, which is a mass of DNA and protein that forms chromosomes when condensed. The Zilberman Lab utilizes a variety of tools (genetics, biochemistry, genomics, computational analysis) to study chromatin, DNA and proteins.



Rebecca Mackelprang -- 2013-2014 Arnon Fellow



Graduate Student
Rebecca Mackelprang

Becky Mackelprang, a second-year graduate student in the Wildermuth Lab, has been awarded the prestigious Arnon Fellowship to continue studies and research in the department.

The \$33,000 award will provide financial support for an academic year, including living expenses and tuition.

"As I stand on the shoulders of giants like Dr. Arnon, I hope to make meaningful contributions to research in the field of plant biology that will move science forward, in addition to increasing food security and public well-being," Mackelprang said.

[Read more](#)

Steven Brenner Warns of Risk to Patients' Confidential Data

Concerns are growing about how to properly control access to genome information held in research databases. In an opinion piece in the Journal Nature, Steven Brenner discusses the real possibility of a major genome leak in the near future. If and when it happens, how will scientists, researchers and the public react?

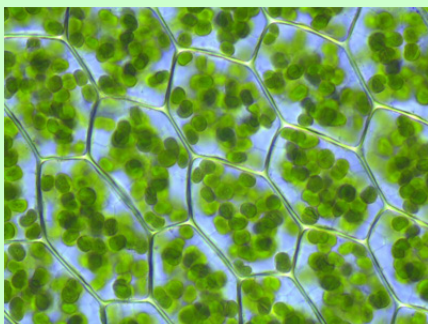
Brenner is a computational biologist at PMB. The Brenner Lab develops methods to characterize macromolecular function and relationships using protein and RNA sequence information, evolutionary principles, and computational methods. Recently the Brenner group has been active in using genomes in medicine. Brenner is an expert in genome analysis and analyzing big data in science.



Professor Steven Brenner

[Read more](#)

Researchers Date Prehistoric Bacterial Invasions



By Robert Sanders, UC Berkeley Media Relations

Long before Earth became lush, when life consisted of single-celled organisms afloat in a planet-wide sea, bacteria invaded the ancient ancestors of plants and animals and took up permanent residence. One bacterium eventually became the mitochondria that today power all plant and animal cells; another became the chloroplast that turns sunlight into energy in green plants.

These are chloroplasts visible in the cells of *Plagiomnium affine*, the many-fruited thyme moss. Photosynthesizing cyanobacteria invaded the earliest one-celled plants about 900 million years ago, eventually becoming

A new analysis by two University of California, Berkeley, graduate students more precisely pinpoints when these life-changing invasions occurred, placing the origin of photosynthesis in plants hundreds of millions of years earlier than once thought.

chloroplasts that conferred on plants the ability to convert sunlight into energy and setting the stage for the diversification of plants. (Photo by Kristian Peters courtesy of Wikipedia)

"When you are talking about these really ancient events, scientists have estimated numbers that are all over the board," said coauthor Patrick Shih, a graduate student in the Department of Plant & Microbial Biology. Estimates of the age of eukaryotes - cells with a nucleus that evolved into all of today's plants and animals - range from 800 million years ago to 3 billion years ago.

[Read More](#)

Energy Biosciences Institute Announces First Patent



The Energy Biosciences Institute has been granted its first patent since the public-private research partnership was established in 2007. U.S. Patent No. 8,431,360, titled "Methods and Compositions for Improving Sugar Transport, Mixed Sugar Fermentation and Production of Biofuels," was granted April 30.

The discovery resulted from work completed by teams at UC Berkeley and the University of Illinois at Urbana-Champaign to optimize sugar conversion yields by the yeast *Saccharomyces cerevisiae* to produce bioethanol.

The scientists transferred cellodextrin transporters and an intracellular β -glucosidase identified in the plant biomass degrading filamentous fungus *Neurospora crassa* into a C5 utilizing yeast strain, which resulted in more efficient conversion of C5 and C6 sugars derived from plant biomass to bioethanol.

The inventors include PMB Associate Chair and Professor N. Louise Glass and Molecular and Cell Biology Professor Jamie H.D. Cate, as well as former Berkeley graduate students William Beeson and Jonathan Galazka, and former postdoctoral researcher Chaoguang Tian.

Read the full article at biomassmagazine.com.

Visit EBI online at energybiosciencesinstitute.org.

Learn more about Professor N. Louise Glass at pmb.berkeley.edu/profile/nlglass.



Professor N. Louise Glass

Energy Biosciences Institute Releases First Annual Report

The EBI recently published its 2012 annual report. The organization is a 10-year program funded by BP. In addition to UC Berkeley and UL-Urbana-Champaign, the collaboration also includes researchers from the U.S. DOE's Lawrence Berkeley National Laboratory. The report includes a comprehensive summary of the 63 programs and projects that were active last year.

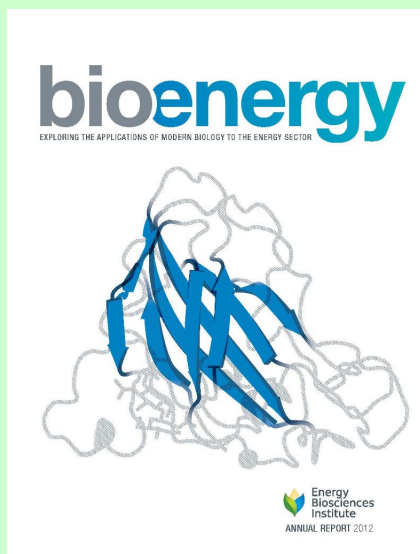
According to the annual report, the EBI funded eight feedstock development programs and 10 feedstock development projects last year, along with six biomass deployment programs and 11 biomass deployment projects. Regarding biofuels production, the collaboration funded five programs and 10 projects. The EBI also funded three environmental, social and economic impact programs in 2012, along with nine projects. Finally, the organization provided funding for three fossil fuel bioprocessing programs and two projects last year.

In a press release announcing the report, the EBI's three directors point to two research achievements in 2012 they describe as "game-changing" innovations. In the first, scientists discovered a modified yeast strain that can simultaneously use 6-carbon and 5-carbon sugars, removing one of the barriers to using a continuous rather than batch process to produce biofuels. And in the second, researchers found a catalyst and a system for condensing the products of bacterial fermentation into diesel-like

molecules.

A full copy of the annual report can be found [here](#).

For the full article, visit biomassmagazine.com.



New Undergraduate Advisor



PLANT & MICROBIAL BIOLOGY

COLLEGE OF NATURAL RESOURCES
UNIVERSITY OF CALIFORNIA, BERKELEY

Jenny Cornet-Carrillo will serve as the new PMB major advisor for undergraduates, upon the departure of Trey Patridge, who departed recently to pursue a degree in Nursing.

Jenny has spent the last three years advising the Molecular Environmental Biology majors in the College of Natural Resources Advising Center. Prior to moving to CNR, she was the lead major advisor for the Economics Department.

Jenny is located in 260 Mulford Hall and can be reached at jcornet@berkeley.edu / (510) 642-4249.

Two New Undergraduate Courses This Fall



PMB 20: Introduction to Plant Sciences

Professor Lew Feldman
Tu 11 am to noon | CCN 70305

Discover careers for plant biologists, how and why faculty selected a career in plants, research activities at PMB, opportunities for independent research, and plant-related resources on campus. All will be discussed in this course, by one of the most popular professors on campus.

[Click here](#) for a downloadable/printable poster.

PMB 22: Microbes Make the World Go Around

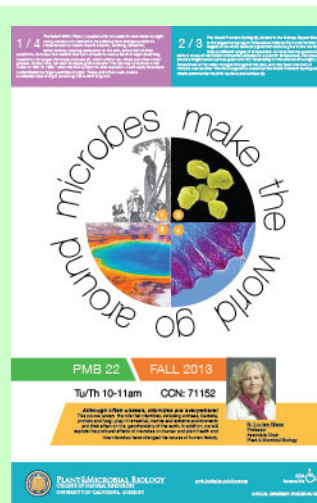
Professor N. Louise Glass
Tu/Th 10-11 am | CCN 71152

Although often unseen, microbes are everywhere! This course covers the role that microbes, including archaea, bacteria, protists and fungi, play in terrestrial, marine and extreme environments and their effect on the geochemistry of the earth. In

addition, we will explore the profound effects of microbes on human and plant health and how microbes have changed the course of human history.

[Click here](#) for a downloadable/printable poster.

To view a full list of courses offered by PMB, visit pmb.berkeley.edu/academics/courses.



QB3 Symposium this August

SAVE THE DATE!

Re-writing Genomes: A New Era in Genome Editing and Engineering
A one-day symposium hosted by QB3-Berkeley

245 Li Ka Shing Center for Biomedical and Health Sciences
University of California, Berkeley
August, 26, 2013



Leading experts in genomics and molecular biology will explore how an integrated view of genome-editing technologies promises to transform basic research as well as biomedical engineering. The event is free and open to the public, but space is limited.

Join the [event mailing list](#) for notifications on registration and other news.

Gordon Research Conference



Posttranslational Modification Networks
July 28 - August 2, 2013
Hong Kong University of Science and Technology
Hong Kong, China

This meeting is designed to promote the development of a multi-disciplinary research community at an international arena, which is expected to represent diverse disciplines like proteomics, molecular and cell biology, molecular genetics, biophysical chemistry, computational biology, systems biology, medicine and agriculture.

The objective of the conference is to establish comprehensive networks of hundreds of protein posttranslational modifications (PTMs) as well as the intricate modifying/demodifying enzyme-substrate cascades during the growth and development of eukaryotic model organisms. These networks of PTMs should play important roles in regulation of cell growth, signaling, differentiation, apoptosis and epigenetics under diverse physiological conditions and in response to versatile biotic and abiotic stresses.

The outcomes of the PTM proteomics and molecular systems biology research will promote advancement in field of life science and ultimately be applied to agricultural and medical biotechnology to improve both crop and bioenergy productivities and to find novel remedies to diseases.

[Click here](#) for a downloadable flyer.

Visit grc.org for more information.

Postdoc Position in Switzerland

The Institute of Plant Sciences at the University of Bern in Switzerland is seeking a Postdoctoral Fellow with a PhD in molecular biology and a background in gene cloning and microscopic analysis, as well a strong interest in quantitative approaches.

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BERN

Their project seeks to understand how a leaf acquires its 3-dimensional shape. The researcher will construct transgenic plants with altered cell wall composition and auxin homeostasis and analyse their biomechanical properties. The project is within the framework of SystemsX.ch, the Swiss initiative in Systems Biology.

[Click here](#) for the full listing.

For more information about the Institute of Plant Sciences at the University of Bern, visit ips.unibe.ch.

Visit pmb.berkeley.edu for a full list of available Jobs, Grants and Internships.

Important Dates / Upcoming Events

Summer 2013

Tuesday, 07/16 (between 9-11) - bCal Calendar Training
Wednesday 07/17 (between 1-3) - bCal Calendar Training

Fall 2013

Thursday, 08/22/13 - Fall Semester Begins
08/26 - 08/28/13 - Incoming Grad Students Orientation
Friday, 09/13/13 - PMB Research Retreat
Clark Kerr Campus, UC Berkeley
08/28 - 08/29 - Thanksgiving Break
Friday, 12/06/13 - PMB Holiday Party, Alumni House
Friday, 12/20/13 - Fall Semester Ends



Spring 2014

Tuesday, 01/14/14 - Spring Semester Begins
Friday, 01/30 - 02/02/14 - PMB Graduate Program Recruitment Weekend (candidate interviews 1/31)
03/24 - 03/28/14 - Spring Break
Saturday, 04/12/14 - Cal Day
Friday, 05/02/14 - PMB Spring Social, Alumni House
Friday, 05/16/14 - Spring Semester Ends

Future

09/05 - 09/07/14 - PMB Retreat, Asilomar
Friday, 12/12/14 - PMB Holiday Party, Alumni House
Friday, 05/15/15 - PMB Spring Social, Alumni House

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The PMB newsletter is produced by the Department of Plant & Microbial Biology, UC Berkeley.
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