

# IGB NEWS

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Image Of The Month

IP @ IGB

Department Announcements

Volume 9 Number 2

## UPCOMING EVENTS

### IGB Seminar (EBI)

*Complex Carbohydrate Recognition by the Intestinal Microbiota: How Gut Bacteroides Eat (your) Veggies*

March 15, 2016, 12:00 p.m.

612 Carl R. Woese Institute for Genomic Biology

Nicole Koropatkin, PhD

Department of Microbiology and Immunology  
University of Michigan

### Lunch With The Core

*Quantitative Cell and Tissue Analysis with iCyt*

March 16, 2016, 12:00 p.m.

612 Carl R. Woese Institute for Genomic Biology

Lunch and learn hosted by IGB Core Facilities.

Kingsley Boateng, PhD

Research Specialist  
IGB Core Facilities

### IGB Entrepreneurship Lecture

*Technology Transfer at the University of Illinois*

March 29, 2016, 12:00 p.m.

612 Carl R. Woese Institute for Genomic Biology

Lisa Dhar, PhD

Office of Technology Management  
University of Illinois, Urbana-Champaign

### Lunch With The Core

*Label Free Second and Third Harmonic Imaging and Diagnostics of Tissues and Biopsies*

March 30, 2016, 12:00 p.m.

612 Carl R. Woese Institute for Genomic Biology

Lunch and learn hosted by IGB Core Facilities.

Mayandi Sivaguru PhD, PhD

Assistant Director  
IGB Core Facilities

## FEATURED NEWS



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Team Calls for Integrated Field Research Network



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Cultural Variations Produce Differences in Gut Microbiome



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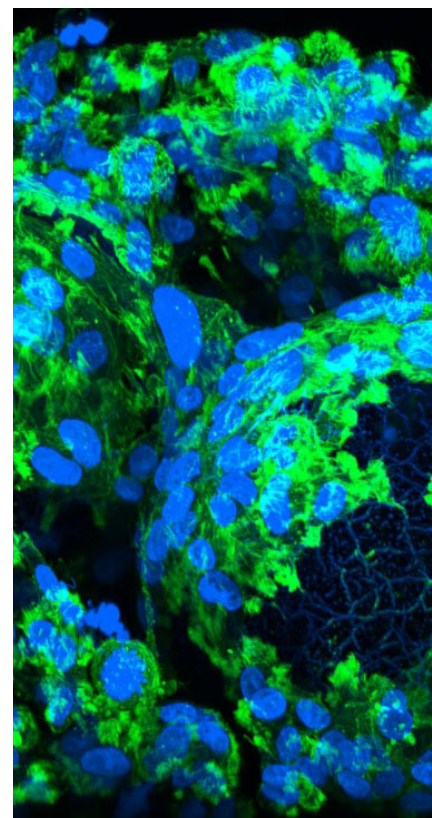
Profile:  
Amy Marshall-Colon



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On the Grid:  
Happenings at IGB

## IMAGE OF THE MONTH



This month's image features U251 glioblastoma multiforme cells within a 3D gelatin hydrogel that was imaged using the LSM710 confocal microscope. By using a hydrogel environment the researchers can simulate the glioma cells invading an artificial brain tumor.

Image courtesy of Jee-Wei Emily Chen from the Brendan Harley Lab.

## IGB News

Share your news with the IGB. Send ideas on stories, articles, and features to [nvasi@illinois.edu](mailto:nvasi@illinois.edu).



## Team Calls for Integrated Field Research Network in Midwest to Address Climate Adaptation

From a global trade and agriculture perspective, the world heavily depends on the Midwest. The United States is the biggest exporter in the world of primary foodstuffs, such as corn and soybean, with most of that predominantly produced by Midwest farmers.

Despite record-high yields of corn and soybean across the United States in 2014, climate scientists warn that rising temperatures and future extreme weather may soon put crop yields like this in danger.

Steve Long, Gutsell Endowed Professor of Crop Sciences and Plant Biology, along with a team of colleagues recently reported in the journal *BioScience* that by midcentury temperatures in Illinois will likely be closer to those experienced today in the mid-South, and precipitation amounts will range between those in East Texas and the Carolinas.

These predictions will mean reduced productivity for Midwest farmers and, consequently, threats to global food security.

“I would argue that this could be the greatest problem that humanity is facing over the next 35 years because we’ve had a long period of food surpluses. If we go into a period of shortages, that will be hugely disruptive,” Long said. “For many areas of the world where 60 percent of the household income is spent on food, if the cost of primary foodstuffs were to double, that would be a catastrophe.”

In response to these challenges, the team urges increased spending on agricultural research in the Midwest. Long and colleagues call for the creation of an integrated network of field research sites

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across the Midwest where data on the performance of current and future crops and cropping systems, as well as on-farm management practices could be gathered.

The writers report in the journal article that current data provide a very limited understanding of the impacts from factors such as future weather, carbon dioxide and ozone, biotic stressors on crop production, socioeconomic factors (i.e. farm incomes and land values), and sustainability outcomes (i.e. greenhouse gas emissions, soil degradation, and water quality).

Crucial areas of integration that would be investigated by the network include improving crops for adaptation to high temperatures, carbon dioxide, ozone, pests, and disease; identifying new management systems for pests and disease; improving sustainable agricultural practices; and utilizing more innovative information technologies.

“A great deal of synergy could be gained from an in-

tegrated network,” Long said. “If we agreed on the way that these experiments should be done at different locations, we would learn a lot more than the present situation of a few disparate experiments and monitoring programs. Right now we do not know if reported differences are the effects of different experimental and sampling techniques, or real differences between effects at different locations and on different genotypes.”

Long explained that in order to begin to understand how the basic parameters of climate change—carbon dioxide, ozone, temperature, and water—affect just the major crops, a network of at least 10 facilities would be needed with more to be added to also understand effects beyond maize, soybean, and wheat.

“If the financing was in place, setting up a monitoring network would take two or three years. But developing new agricultural systems adapted to change or developing new cultivars adapted to change is a much longer process. For that, we are talking 30 years,” Long said. “And this is why we need to start now.”

Because the Midwest already has extensive infrastructure and is a major producer of crops grown around the world, the team believes the Midwest is an ideal location to investigate climate mitigation and adaptation strategies.

An example of a pre-existing facility cited in the article is the joint university and USDA-ARS Soybean Free Air Concentration Enrichment (SoyFACE) project at the University of Illinois. Crops



at SoyFACE are grown in field conditions in an atmosphere with higher levels of carbon dioxide and ozone, higher temperatures, and altered soil water availability. The facility was designed to monitor the effects of atmospheric change on Midwestern crops as well as to find ways to better adapt crops in the future.

"It is the only facility of its type in the world," Long said. "We've had a lot of surprises and learned a lot of new things from SoyFACE. Pest problems proved much larger than was predicted from earlier greenhouse experiments. Damage was much greater under elevated carbon dioxide, and we've seen important effects on yield through interactions with temperature and water with rising carbon dioxide. But this is just one location. We don't know that what we've learned in Champaign, Illinois, is going to apply in the southern Corn Belt, Minnesota, or the irrigated areas of the western Corn Belt."

The writers also discuss in the article that the major investment needed for the proposed network should come from both the private and public sec-

tor. Long said agencies such as the U.S. Department of Energy and the Environmental Protection Agency, and funding sources such as the USDA's recently formed Foundation for Food and Agricultural Research (FFAR) should hopefully have potential interest in the establishment of such a network.

"This is about understanding our future. We really haven't invested in this area," Long said. "We spend billions on space probes to monitor other planets, as indeed we should, yet we've not been willing to spend millions on observational and experimental studies of the future of our own planet's ability to sustainably provide food into the future."

In the recent article, Long and his colleagues use the biblical example of Joseph in Egypt 4,000 years ago interpreting the pharaoh's dream of impending famine and initiating a solution of storing grain harvested during seven good years to cover shortfalls during seven bad years. Famine was avoided.

"We know that climate changes are ahead," Long said. "It really is like the pharaoh's dream in that we need to prepare for this, and not wait to act when

problems occur. While some may be skeptical of the extent of climate change, we cannot afford to gamble and must buy our insurance policy now in the form of investment in understanding and adaptation."

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"Pharaoh's Dream Revisited: An Integrated U.S. Midwest Field Research Network for Climate Adaptation" was published in the journal *BioScience* and is available online at <http://bioscience.oxfordjournals.org/content/66/1/80>. Co-authors include David Gustafson, Michael Hayes, Emily Janssen, David B. Lobell, Stephen Long, Gerald C. Nelson, Himadri B. Pakrasi, Peter Raven, G. Philip Robertson, Richard Robertson, and Don Wuebbles.

Funding for the work was provided by Washington University in St. Louis through the Workshop on Climate Change and Agriculture in the Midwest held Sept. 4-5, 2014 in St. Louis. ■

*Written by Stephanie Henry.  
Photo by Don Hamerman.*

## RESEARCH



*Gozo, bitter manioc root (top) and Koko leaves (bottom) (*Gnetum africanum*) in peanut sauce, are two staple foods of the region.*

# Researchers Find Cultural Variations Produce Differences in Gut Microbiome

A recent publication in *Cell Reports* compared the gut microbiomes of two societies from the same geographical region: a hunter-gatherer society, and a farming society with access to Westernized foods. These two microbiomes were also compared with that of a typical Western society.

Andres Gomez, first author and microbial ecologist and staff scientist at the J. Craig Venter Institute in California, published the findings with colleagues including IGB members Professor of Animal Sciences Rex Gaskins, Professor of Microbiology

Brenda Wilson, Professor of Anthropology Rebecca Stumpf, Professor of Animal Sciences Bryan White, and Adjunct Professor of Anthropology Steven Leigh.

The findings highlighted differences in the microbial community composition, including the ability to digest fibrous material. These findings could further support the understanding of the impact of diet and lifestyle in relation to metabolic and colonic disorders.

The paper, "Gut Microbiome of Coexisting BaAka Pygmies and Bantu Reflects Gradients of Traditional Subsistence Patterns," is available here: <http://dx.doi.org/10.1016/j.celrep.2016.02.013>.

A recent article on this paper was also published by Newsweek: **Giving Up Hunting and Gathering Changed Our Gut Microbiome.** ■

*Written by IGB Communications.  
Photo courtesy of John Jost.*

## PROFILE



*Amy Marshall-Colon is an Assistant Professor in the Department of Plant Biology. Her research utilizes a systems approach to integrate genomic and metabolomic information into network models to investigate the regulatory cross-talk between primary and secondary metabolism.*

### Amy Marshall-Colon: The Path to Computational Plant Biology

Computational biology as we know it is a relatively recent field, even now still coming into its own. Though the field has evolved as rapidly as the technology on which it relies, the educational system has been slower to adapt, producing far fewer computational biologists than current research needs demand—especially outside of medicine. Training computational plant biologists has been a particularly neglected subset, despite the urgency of realizing agricultural solutions for global population growth and our changing climate.

GEGC affiliate and Assistant Professor of Plant Biology Amy Marshall-Colon stumbled into computational plant biology somewhat unconventionally, through her work in agronomy and plant science. She is now a staunch advocate for creating more undergraduate research experiences to engage students in computational biology early on, as well as programs to train graduates in more advanced computational tools.

Marshall-Colon's earliest research experiences were in the field, far removed from computational study. While completing her Master's in agronomy Marshall-Colon drove a tractor year round in Florida's permissive agricultural climate, studying the efficacy of green manure as a nitrogen source. "My interest in applied work kind of faded, I was ready to get out of the field," she describes. "A lot of important research happens there, but it didn't get at the intricacies of the situation, which is what I was interested in."

"In the field you get a bird's-eye view of how plants work, but you have no idea what's chemically happening in response to environmental conditions. There's a lot we don't understand about plants, and experimental science can only fill in so many of those blanks, the ones we can see—but what's happening below the surface, so to speak? Modeling helps fill in those blanks, in a way that's really satisfying to me as a researcher."

This led her to seek out opportunities researching the metabolic and regulatory systems that underlie crop performance in the field. She completed a PhD in biochemistry, where she modeled floral fragrance. It was her first real experience with modeling, and with computational biology. "There's a lot of scholarship on scent, we know the beginning and end of that pathway, but it turns out that understanding the enzymatic steps in the middle was impossible without a computational model," Marshall-Colon describes. "I got really interested in using these types of tools for other applications, and genomics seemed like the obvious next step."

After graduating, Marshall-Colon took a postdoctoral position studying transcriptomics and global gene expression before coming to Illinois in 2014. "It's a little funny, this kind of big data genomics research was so far from where I started, but in many ways I've really just come full circle," she laughs. "My research was and is still about food, crops, how plants respond to nitrogen. I'm just looking at it more closely, on a molecular level."

One of her largest ongoing projects with the IGB is the *Plants in Silico* collaboration, an ambitious program that intends to curate and combine vast amounts of existing data and modeling applications into a "virtual plant." This model promises to help researchers better predict and visualize plant growth and ecosystem interactions. It combines several interests of Marshall-Colon's, from modeling, to working with big—"enormous"—data, to improving our genomic understanding of plants.

*Plants in Silico* is more than just a virtual plant, however: the project also functions as a graduate traineeship. "It's the only program of its kind in the country training students to look specifically at computational plant biology," explains Marshall-Colon. "There's desperate need for more research in this area—we have projections of how much food we'll need in 2050, and even accounting for growth trends we're still falling 30-40% short.

This means there's also a desperate need for more researchers, people who can help to bridge this gap faster, and that part of the problem has been really neglected."

"These kinds of programs weren't available when I was a student, and there are very few of them even now. I kind of stumbled into computational biology, but with the way technology has evolved there's no reason our educational pipeline shouldn't try to keep up. We should be able to train students in this from the start, let them know this is an option, especially as this kind of research becomes more pressing and urgent."

Marshall-Colon's passion for education, and for training the next generation of computational biologists, extends beyond just the Illinois campus. In collaboration with Plant Biology Research Specialist Ursulla Idleman, Marshall-Colon is currently piloting an internship program intended for local community college students. The program intends to expose nontraditional students to computational research in a way that complements their current studies and lifestyle.

Unlike traditional laboratory internships, computational research can be done from home, eliminating transportation and childcare concerns for interested students. Without the need for direct supervision, work can also be done at odd hours to accommodate work and class schedules, making it far more flexible than typical internships while still providing valuable experience.

"A lot of people are under the impression that science is only done by professionals who studied their scientific niche their entire life," says Marshall-Colon. "The fact is, a lot of us took unconventional paths to get where we are today, and you don't need a bunch of advanced degrees to make valuable research contributions. I want to make it easier for students—especially nontraditional students—to experience this kind of work, and to see themselves in research careers. I think that kind of exposure is the only way we're going to train enough researchers to address our changing climate and world." ■

**Written by Kathyne Metcalf. Photo courtesy of the Marshall-Colon Lab.**

# ON THE GRID

## HAPPENINGS AT THE IGB

### NEW ARRIVALS



#### BRIAN ALLAN

Professor Brian Allan has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Prior to joining the Department of Entomology, he received his PhD in 2009 from Washington University in St. Louis. Professor Allan is broadly interested in the ecology of infectious diseases, particularly diseases transmitted to humans from wildlife via the bite of an infected anthropod.



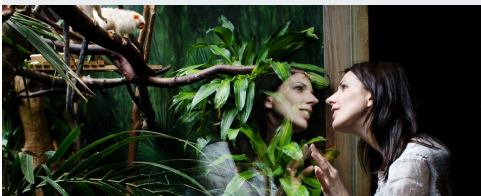
#### PATRICK DEGNAN

Professor Patrick Degnan has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Prior to joining the Department of Microbiology in 2013, he was a postdoctoral research associate at Yale University. He received his PhD in Ecology and Evolutionary Biology in 2009 from the University of Arizona. His research focuses in the areas of genome-enabled examination of diversity, and genome evolution and processes in complex microbial communities.



#### PAUL HERGENROTHER

Professor Paul Hergenrother has been named the Theme Leader of the new Anticancer Discovery from Pets to People (ADPP) Research Theme at the IGB. He has been a member of the Department of Chemistry since 2001. He received his PhD at the University of Texas at Austin and was a postdoctoral fellow at Harvard University. The goal of his research is to use organic compounds to identify novel cellular targets that can be exploited in the treatment of diseases including cancer, degenerative disorders, and drug-resistant bacteria.



#### JESSICA BRINKWORTH

Professor Jessica Brinkworth has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Professor Brinkworth is a member of the Department of Anthropology. Her research investigates the evolution and ecology of the immune system using a broad range of immunological, genomic and computational techniques.



#### TIMOTHY FAN

Professor Timothy Fan has joined the IGB as a faculty member in the Anticancer Discovery from Pets to People (ADPP) Research Theme. He is a Professor in the Department of Veterinary Clinical Medicine in the College of Veterinary Medicine. He received his PhD from the University of Illinois, and his DVM from the Virginia-Maryland Regional College of Veterinary Medicine. His research interests are in the area of comparative oncology with a specific focus in anticancer research which can benefit both companion animals and humans.



#### SEPPE KUEHN

Professor Seppe Kuehn has joined the IGB as an affiliate in the Biocomplexity (BCXT) Research Theme. He is a member of the Department of Physics. He received his PhD in Chemical Physics from Cornell University and was a postdoctoral research associate at Rockefeller University. The Kuehn lab makes quantitative measurements of ecological and evolutionary dynamics.



#### JULIAN CATCHEN

Professor Julian Catchen has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Professor Catchen is a member of the Department of Animal Biology. His research interests are in the area of the evolution of the genome at several different scales, from the whole genome duplication over millions of years, to structural variation within a species over thousands of years, to somatic evolution and cancer within an individual over a handful of years.



#### PAUL JENSEN

Professor Paul Jensen has joined the IGB as an affiliate in the Mining Microbial Genomes (MMG) Research Theme. Professor Jensen is a member of the Department of Bioengineering. His research focuses on combining genome-scale metabolic models and high-throughput experiments to identify novel antibiotic therapies.



#### THOMAS KUHLMAN

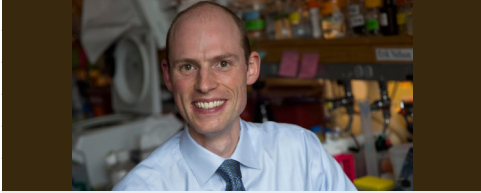
Professor Thomas Kuhlman has joined the IGB as an affiliate in the Biocomplexity (BCXT) Research Theme. Prior to joining the Department of Physics in 2012, he was a postdoctoral research associate at Princeton University. He received his PhD in 2007 from the University of California, San Diego. His research involves the interplay of theoretical physics and *in vivo* experimental biology.



# ON THE GRID

## HAPPENINGS AT THE IGB

### NEW ARRIVALS



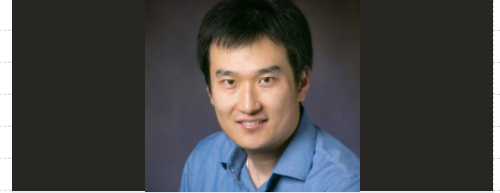
#### ERIK NELSON

Professor Erik Nelson has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Prior to joining the Department of Molecular and Integrative Physiology in 2014, he was a postdoctoral research associate at Duke University. He received his PhD in Comparative Endocrinology in 2008 from the University of Calgary. The major focus of his research is to elucidate the effects of the endocrine system and metabolism on breast cancer initiation and progression.



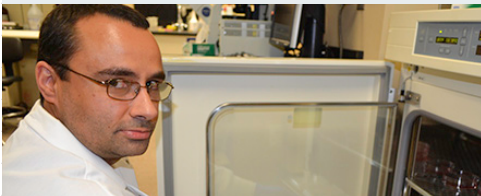
#### JOSH PESCHEL

Professor Josh Peschel has joined the IGB as an affiliate in the Genomic Ecology of Global Change (GEGC) Research Theme. Before joining the Department of Civil and Environmental Engineering, he received his PhD in Computer Science from Texas A&M. Prior to his PhD studies, he worked for several years as an engineering consultant in Mexico and China on environmental and water resource problems for large agricultural operations. His current research focuses on creating new cyberphysical technologies such as low-cost land, water and air robots to improve sensing and sense-making for agricultural, natural and urban systems.



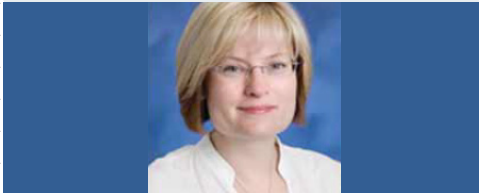
#### RUOQING ZHU

Professor Ruoqing Zhu has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Prior to joining the Department of Statistics in 2015, he was a postdoctoral research associate at Yale University. He received his PhD in Biostatistics in 2013 from the University of North Carolina at Chapel Hill. His research interests are in the areas of tree-based methods, high-dimensional data, survival analysis, personalized medicine, cancer genetics and genomics, and sufficient dimension reduction.



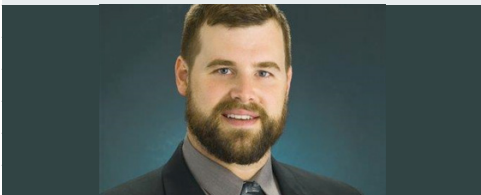
#### PABLO PEREZ-PINERA

Professor Pablo Perez-Pinera has joined the IGB as a faculty member in the Anticancer Discovery from Pets to People (ADPP) Research Theme. He is a member of the Department of Bioengineering. His research interests are in the areas of the molecular, cellular and tissue engineering and synthetic bioengineering.



#### JOANNA SHISLER

Professor Joanna Shisler has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. She is a member of the Department of Microbiology. She received her PhD from Emory University in 2001, and was a postdoctoral research associate at the National Institutes of Health. Her research interests are in the areas of immune evasion strategies of viruses, host-pathogen interactions, molecular disinfection of viruses, and vaccine development.



#### JASON RIDLON

Professor Jason Ridlon has joined the IGB as an affiliate in the Computing Genomes for Reproductive Health (CGRH) Research Theme. Prior to joining the Department of Animal Sciences, he received his PhD in 2008 from the Commonwealth University in Richmond, Virginia. A major focus of his research is working out the biochemistry and molecular biology of the pathway that leads to secondary bile acids in *Clostridium scindens* and related species.

### SURVEY

#### CARL R. WOESE INSTITUTE FOR GENOMIC BIOLOGY ENTREPRENEURSHIP LECTURE SERIES

#### ENTREPRENEURSHIP AND INNOVATION PROGRAM SURVEY

The IGB is currently working to create a more in depth entrepreneurship certificate program for grad students, scientists and professionals and we would like your input. We are interested in learning about the specific classes, lectures and activities you believe would make an effective certificate.

Please complete our short survey at [www.igb.illinois.edu/Innovation-survey](http://www.igb.illinois.edu/Innovation-survey) to give your feedback and email Courtney Cox, IGB outreach fellow, with any additional comments at [cox22@illinois.edu](mailto:cox22@illinois.edu).

# ON THE GRID HAPPENINGS AT THE IGB

## SUMMIT



### ARPA-E SUMMIT

GEGC member and PETROSS Director Steve Long spoke at the Department of Energy's Advanced Projects Agency – Energy (APRA-E) Summit last week, as part of a panel on balancing crop productivity for food and fuel in the coming decades. Panelists discussed how new technologies could be leveraged to improve crop yields while still reducing the gas emissions and environmental impact of agriculture. Other speakers included President and CEO of sorghum development company Chromatin, Daphne Preuss; Under Secretary and Chief Scientist of the USDA's Research, Education and Economics mission area Dr. Catherine Woteki; Monsanto Technical Division Special Projects Lead David Fischhoff; and Editor and Publisher of bioeconomic daily *The Digest*, Jim Lane.

## ART

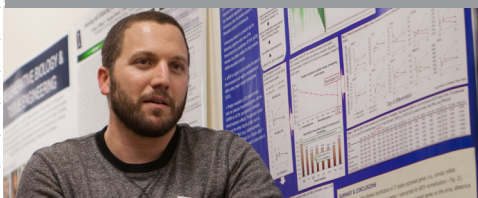


### ART OF SCIENCE

The Art of Science is celebrating its 6th year with a gallery opening at Gallery 217 (formerly Indi Go Artist Gallery) on Thursday, April 28th. Showcasing imagery from the Core Facilities at the IGB, the Art of Science traveling art exhibit highlights cutting-edge research that is addressing significant problems in the environment, medicine, energy use and production, and fundamental research.

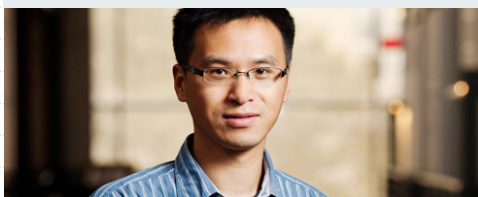
This event is open to the community, and refreshments will be provided.

## AWARDS



### ROY DAR

Roy Dar, Assistant Professor in Bioengineering (Gene Networks in Neural & Developmental Plasticity) received a Career Transition Award from the National Institutes of Health (NIH) National Institute of Allergy and Infectious Diseases.



### TING LU

Ting Lu, Assistant Professor in Bioengineering (Biosystems Design) received a 2016 Young Investigator Award from the Office of Naval Research for his proposal "Developing Designer Probiotic Cocktails to Reduce Foodborne Illness among Warfighters." Lu also received a National Science Foundation Faculty Early Career Development (CAREER) award to further his research on bacterial communities.

## SUMMER CAMP



### POLLEN POWER

Registration for Pollen Power summer camp at the IGB is now open! Pollen Power is a week-long day camp for girls entering 6th-8th grade to learn about the biological sciences, climate change, and research careers. Find out more and sign up at <http://pollensummerncamp.illinois.edu/>.

## SYMPOSIUM



### Plants *in silico* Symposium

May 18-20, 2016

National Center for  
Supercomputing Applications  
(NCSA)

University of Illinois  
at Urbana-Champaign

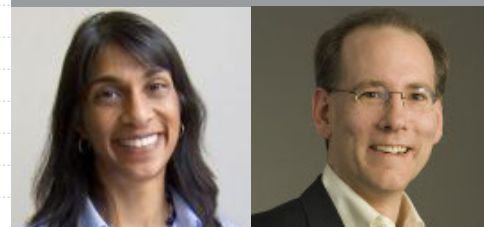
### PLANTS IN SILICO SYMPOSIUM

Plants *in Silico* Symposium & Workshop will be held from May 18-20, 2016, at NCSA.

The Symposium will kick off with a public lecture at 5 p.m. Wednesday, May 18, in the NCSA Lecture Hall by Daniel Beard, Professor of Molecular and Integrative Physiology at the University of Michigan and the developer of the Virtual Physiological Rat, a modular multiscale modeling platform representing molecular-to-whole-organ function.

More details at: [sustainability.illinois.edu/outreach/plants-in-silico-conference/](http://sustainability.illinois.edu/outreach/plants-in-silico-conference/)

## LECTURE



### ENTREPRENEURSHIP LECTURE SERIES

The IGB is pleased to announce the return of the Entrepreneurship Lecture Series. The series is designed to inform academics about business, economic and legal issues within the lab and scientific start-up ventures, as well as entrepreneurship opportunities on the Illinois campus. Upcoming talks include Lisa Dhar from the Office of Technology Management on March 29th at 12 pm. Her talk is titled "Technology Transfer at the University of Illinois" and will be in IGB room 612. Mark Tracy, President of Tracy Bioconsulting, will be presenting the second lecture in the spring series on April 13th at 4pm.

# DEPARTMENT ANNOUNCEMENTS

## UNIVERSITY LIBRARY

### OPEN ACCESS TO RESEARCH ARTICLES

On October 19, 2015, the Senate of the University of Illinois at Urbana-Champaign campus approved a University Policy on Open Access to Research Articles (<http://www.senate.illinois.edu/sc1512.pdf>). The Open Access Policy enables research to be disseminated widely, which benefits the state and the world and raises the visibility of University of Illinois researchers. This policy grants the University a nonexclusive, irrevocable, worldwide license to exercise all rights under copyright to the scholarly articles produced by faculty members. With the policy, researchers retain copyright to their work.

One way that faculty can comply with the Open Access Policy is by depositing qualifying articles in the campus' institutional repository – IDEALS (<https://www.ideals.illinois.edu/>). IDEALS (Illinois Digital En-

vironment for Access to Learning and Scholarship) collects, disseminates and provides persistent and reliable access to the research and scholarship of faculty, staff and students at the University of Illinois at Urbana-Champaign.

Policy waivers are available for individual articles upon request (e.g., if a journal publisher requires authors to opt out of institutional open access policies). To opt out and obtain a waiver for an article, a faculty member completes a brief form (<https://illinois.edu/fb/sec/2971847>), including the citation for the article that requires a waiver.

The University Library's Open Access Policy guide (<http://guides.library.illinois.edu/oapolicy>) provides more information and links to IDEALS and the waiver form. If you have questions about the University's Open Access Policy, please contact the Library's Scholarly Commons office ([sc@library.illinois.edu](mailto:sc@library.illinois.edu)). ■

## BUSINESS

### IGB POLICY ON MEALS, REFRESHMENTS, AND ALCOHOL

In light of continuing budget uncertainties and challenges, the Office of the Chancellor and the Office of the Provost have asked all units to carefully monitor and reduce expenditures for meals and entertainment. We have been advised that all funds, not just state funds, should be evaluated, including the use of unrestricted gift funds.

Effective immediately, the Office of the Chancellor and the Office of the Provost have asked that all units under their umbrella adhere to the following expectations regarding meals, refreshments, and alcohol:

#### Meals and Refreshments

- Discontinue or significantly reduce "routine" business meals, such as weekly or monthly meetings for staff or faculty. Consider changing the time of the meeting so it doesn't occur over the noon hour.
- Discontinue or significantly reduce group lunches/dinners where faculty and staff meet with students, research groups, or each other, especially if weekly.

The Chancellor and Provost are requiring that any exceptions to these guidelines be approved in advance by IGB Administration, with the directive that the IGB Business Office retain the appropriate documentation for all approval exceptions.

To simplify the process, the IGB Meals, Refreshments, and Alcohol (MRA) committee has given prior approval for the following meal events:

1. Monthly theme research meetings in which the Theme leader feels strongly that lunch is the only time that the majority of the theme members, i.e. faculty, staff, Postdocs, and students, could meet to discuss important Theme research matters.
2. Budgeted meals and refreshments on sponsored research awards.
3. Meals involving outside visitors and guests.

Any additional requests to the blanket approvals listed above should be submitted to the IGB MRA committee for review at the following e-mail address: [IGB-MRA@igb.uiuc.edu](mailto:IGB-MRA@igb.uiuc.edu).

**For those meals which receive an approval exception, the Chancellor and Provost have indicated that any amounts in excess of the current per person OBFS limits listed below will not be approved:**  
**Employees only**

- Breakfast, lunch, refreshments, receptions - \$25 per person
- Dinner - \$40 per person

#### **Employees and Guests**

- Breakfast, refreshments, receptions - \$25 per person
- Lunch - \$40 per person
- Dinner - \$60 per person

#### **Alcohol**

The Chancellor and Provost have asked units to carefully consider the necessity of offering alcohol at events. Both the Chancellor and Provost have indicated that both of their offices have nearly eliminated alcohol from their events, and have asked units to do likewise until further notice. If units wish to serve alcohol at an event, the standard Alcohol Approval Form request is still required to be submitted in advance (at least 10 days to the Office of the Chancellor or the Office of the Provost) for review and approval.

In order to be in compliance with these new guidelines handed down from the Office of the Chancellor and the Office of the Provost, the IGB has established a general policy that it will no longer host events with alcohol. Any exceptions to this general policy will be considered on a case by case basis. Please submit any requests for exception to the IGB MRA committee at [IGB-MRA@igb.uiuc.edu](mailto:IGB-MRA@igb.uiuc.edu).

The maximum allowable amount per person for alcohol approved events is \$20. We have been informed that requests for approval for amounts exceeding the \$20 per person limit will not be approved by the Chancellor or Provost. ■



## RECENT PUBLICATIONS

Please include your connection to the IGB in your author byline when submitting publications, as it will greatly help track potential newsworthy items and increase the possibility of coverage.

Despres J, Forano E, Lepercq P, et al. Unraveling the pectinolytic function of bacteroides xylanisolvens using a RNA-seq approach and mutagenesis. *BMC Genomics*. 2016;17(1):147-016-2472-1.

Gomez A, Petrzelkova KJ, Burns MB, et al. Gut microbiome of coexisting BaAka pygmies and bantu reflects gradients of traditional subsistence patterns. *Cell Rep*. 2016.

Soleh MA, Tanaka Y, Nomoto Y, et al. Factors underlying genotypic differences in the induction of photosynthesis in soybean [*glycine max (L.) merr.*]. *Plant Cell Environ*. 2016;39(3):685-693.

Dibattista JD, Roberts MB, Bouwmeester J, et al. A review of contemporary patterns of endemism for shallow water reef fauna in the red sea. *J Biogeogr*. 2016;43(3):423-439.

Wang X, Rahil Z, Li ITS, et al. Constructing modular and universal single molecule tension sensor using protein G to study mechano-sensitive receptors. *Sci Rep*. 2016;6.

Southey BR, Zhu P, Carr-Markell MK, et al. Characterization of genomic variants associated with scout and recruit behavioral castes in honey bees using whole-genome sequencing. *PLoS ONE*. 2016;11(1).

Li X, Park A, Estrela R, Kim S-, Jin Y-, Cate JHD. Comparison of xylose fermentation by two high-performance engineered strains of *saccharomyces cerevisiae*. *Biotechnol Rep*. 2016;9:53-56.

Webster RJ, Driever SM, Kromdijk J, et al. High C3 photosynthetic capacity and high intrinsic water use efficiency underlies the high productivity of the bioenergy grass *arundo donax*. *Sci Rep*. 2016;6.

Luo Y, Enghiad B, Zhao H. New tools for reconstruction and heterologous expression of natural product biosynthetic gene clusters. *Nat Prod Rep*. 2016;33(2):174-182.

Mulder NJ, Adebisi E, Alami R, et al. H3ABioNet, a sustainable pan-african bioinformatics network for human heredity and health in africa. *Genome Res*. 2016;26(2):271-277.

Mozdzen LC, Rodgers R, Banks JM, Bailey RC, Harley BAC. Increasing the strength and bioactivity of collagen scaffolds using customizable arrays of 3D-printed polymer fibers. *Acta Biomater*. 2016.

Blodgett JA, Zhang JK, Yu X, Metcalf WW. Conserved biosynthetic pathways for phosalacine, bialaphos and newly discovered phosphonic acid natural products. *J Antibiot*. 2016;69(1):15-25.

Brenner MD, Zhou R, Conway DE, et al. Spider silk peptide is a compact, linear nanospring ideal for intracellular tension sensing. *Nano Lett*. 2016.

Klionsky DJ, Abdelmohsen K, Abe A, et al. Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*. 2016;12(1):1-222.

Cann I, Bernardi RC, Mackie RI. Cellulose degradation in the human gut: *Ruminococcus champanellensis* expands the cellulosome paradigm. *Environ Microbiol*. 2016.

Glowacka K, Kromdijk J, Leonelli L, Niyogi KK, Clemente TE, Long SP. An evaluation of new and established methods to determine T-DNA copy number and homozygosity in transgenic plants. *Plant Cell Environ*. 2016.

Chekan JR, Cogan DP, Nair SK. Molecular basis for resistance against phosphonate antibiotics and herbicides. *MedChemComm*. 2016;7(1):28-36.

Yuan Y, Andersen E, Zhao H. Flexible and versatile strategy for the construction of large biochemical pathways. *ACS Synth Biol*. 2016;5(1):46-52.

Lee H-, Mitra J, Lee S, et al. Kaposi's sarcoma-associated herpesvirus viral interferon regulatory factor 4 (vIRF4) perturbs the G1-S cell cycle progression via deregulation of the cyclin D1 gene. *J Virol*. 2016;90(2):1139-1143.

Vetting MW, Bouvier JT, Gerlt JA, Almo SC. Purification, crystallization and structural elucidation of d-galactaro-1,4-lactone cycloisomerase from agrobacterium tumefaciens involved in pectin degradation. *Acta Crystallogr Sect F Struct Biol Commun*. 2016;72:36-41.

Wang M, Yu C, Zhao H. Identification of an important motif that controls the activity and specificity of sugar transporters. *Biotechnol Bioeng*. 2016.

Jayakody LN, Lane S, Kim H, Jin Y-. Mitigating health risks associated with alcoholic beverages through metabolic engineering. *Curr Opin Biotechnol*. 2016;37:173-181.

Mao J, Lu T. Population-dynamic modeling of bacterial horizontal gene transfer by natural transformation. *Biophys J*. 2016;110(1):258-268.

Mcneill MS, Kapheim KM, Brockmann A, McGill TAW, Robinson GE. Brain regions and molecular pathways responding to food reward type and value in honey bees. *Genes Brain Behav*. 2016.

Samee MAH, Lim B, Samper N, et al. A systematic ensemble approach to thermodynamic modeling of gene expression from sequence data. *Cell Syst*. 2015;1(6):396-407.

Shpigler HY, Robinson GE. Laboratory assay of brood care for quantitative analyses of individual differences in honey bee (*apis mellifera*) affiliative behavior. *PLoS ONE*. 2015;10(11).

Hudson GA, Zhang Z, Tietz JI, Mitchell DA, Van Der Donk WA. In vitro biosynthesis of the core scaffold of the thiopeptide thiomuracin. *J Am Chem Soc*. 2015;137(51):16012-16015. ■



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