



# IGBNEWS

Achievements, awards, and information about the IGB community

Volume 5, Number 4



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## {Upcoming Events}



**IGB BBQ**  
June 1, 2012  
12:00 p.m.—  
1:00p.m.  
IGB Concourse

Join us rain or shine for the IGB BBQ. Tickets are required and can be picked up at theme reception desks from May 15 to May 23.

**IGB Seminar**  
June 6, 2012

10:00 a.m.  
612 Institute for Genomic Biology

Neil Price, PhD  
Research Chemist  
United States Department of Agriculture,  
Agricultural Research Service  
National Center for Agricultural Utilization  
Research, Peoria, Illinois

**“Biosynthesis of the tunicamycins: trans-  
locase-I inhibitors that target the synthesis  
of bacterial peptidoglycan and eukaryotic  
N-glycoproteins”**

**Water in Bioenergy**  
**Agroecosystems Workshop**  
June 12-13, 2012

Gleacher Center, Chicago, IL

Join us at this EBI sponsored workshop to delve deeply with a group of water experts into the uncertainty surrounding estimates of water usage associated with biomass production.

More info and registration available at  
[http://conferences.igb.illinois.edu/  
waterbioenergy/agenda](http://conferences.igb.illinois.edu/waterbioenergy/agenda)

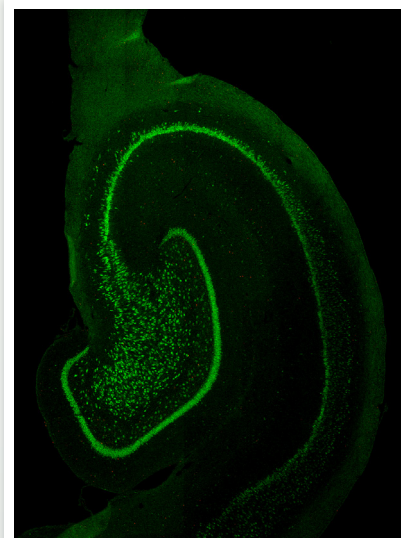
**3rd Pan American Congress on  
Plants and Bioenergy**  
July 15-18, 2012

I Hotel and Conference Center  
1900 S. First Street, Champaign, IL 61820

The Congress will encompass feedstock genomics and breeding, feedstock culture, feedstock handling and logistic, biofuel production, biofuel systems analysis, and environmental sustainability.

For full information and registraton, visit:  
<http://conferences.igb.illinois.edu/panamerican/>

## {Image of the Month}



This month's image, “Hippocampal section from a 3-week old piglet” is provided by Matthew Conrad of Rod Johnson's Lab.

Neurons have been labeled with NeuN (green) and newly divided cells have been labeled with BrdU (red). The goal is to determine how long after cell division a newly divided neuron starts to express NeuN.

## IGB News

Share your news with the IGB. Send your story ideas to [nvasi@illinois.edu](mailto:nvasi@illinois.edu)

## Harris Lewin Elected to National Academy of Sciences

*Harris Lewin has been elected to the National Academy of Sciences (NAS), it was announced today. Lewin, an emeritus faculty member in the Department of Animal Sciences and founding director of the Institute for Genomic Biology (IGB), was recognized for research he conducted during his 27 years at the University of Illinois. He is now vice chancellor for research at the University of California, Davis, where he earned his doctorate in 1984.*

Lewin joins an august body of approximately 2,200 members and 420 foreign associates. Members are elected to the NAS in recognition of their distinguished research achievements. Election to the National Academy is one of the highest professional honors a scientist can receive.

“As a faculty colleague since his arrival on the Illinois campus 27 years ago I am absolutely delighted that Harris has been selected for this recognition,” said Robert Easter, president-designate of the University of Illinois. “It is a wonderful honor for him and for the University of Illinois.”

Lewin is widely known for his research in comparative mammalian genomics and immunogenetics.

“Harris has made fundamental contributions to biology,” says Gene Robinson, professor of entomology, director of the IGB and also an NAS member, “and he always will be remembered on this campus for his visionary leadership in helping to establish and then direct the IGB.”

“Harris’s involvement in sequencing both the bovine and swine genomes has placed the University of Illinois in a unique position to be an international leader in functional genomics of these major food-producing animals,” says Neal Merchen, head of the Department of Animal Sciences.

Lewin’s research has advanced the understanding of mammalian chromosome evolution. He led research that showed that different parts of the genome have different evolutionary histories and that areas of the chromosome more prone to breakage are a rich source of genetic variation.

The IGB, which has made the University of Illinois a leader in interdisciplinary research in



genomics, would not exist without Lewin’s vision and energy. Lewin served as the IGB director for eight years, from its founding until last year.

“The creation of the IGB has been a major factor in making the University of Illinois a leading institution in 21st century biology, and Harris was instrumental in that,” says Robinson.

In 2010 Lewin also received the Wolf Award (described by some as the Nobel Prize in Agriculture) for his bovine leukemia work. Lewin also is a member of the Royal Swedish Academy of Agriculture and Forestry and is a fellow of the American Association for the Advancement of Science. ■

» IGB Founding  
Director Harris Lewin

## {Monthly Profile}

### Madhu Khanna Complexity is Interesting

Madhu Khanna, professor in the Department of Agricultural and Consumer Economics, is particularly interested in choices individuals and firms make with regard to adopting new technologies. Why, for example, are people sometimes slow to adopt a technology that “from a simple calculation of costs and benefits” provides clear economic benefit and is also environmentally beneficial?

One of her early projects, for example, examined why electric utilities in India were so slow to adopt electricity-producing technologies that would increase efficiencies and reduce emissions. What were the hidden barriers to adopting this technology, she wondered. Her investigation revealed several previously unidentified disincentives due to government policies and institutional constraints.

In other cases, people are resistant to change due to lack of information. This is what she

found when investigating the use of precision farming technologies by farmers in the Midwest. Although this technology would help farmers pinpoint how much fertilizer to apply in different parts of their field and so reduce both the cost of those chemicals and their environmental impact, Khanna found that farmers were uncertain about how the technology worked and how to benefit from it, and so were reluctant to use it.

Teasing apart the various threads, the factors that influence human behavior, is complicated. Khanna relies on retrospective studies using data from large samples of farmers or firms obtained either through surveys or through publicly available sources.

Upon observing a new trend towards “greening” of management systems among Fortune 500 companies, for example, Khanna decided to examine whether it is driven by economic self-interest or altruistic motives.



## » Monthly Profile cont.

“As an economist it is very puzzling to think about why firms would do something that impose costs on them and goes beyond compliance with environmental regulations,” says Khanna. “We’re trying to understand what the ingredients are that encourage voluntary behavior in order to make them effective.”

There is a bit of a carrot and stick process occurring, she found. Where there is a threat of regulation, firms see some benefit of using voluntary measures to preempt regulation. Without that “stick,” adoption is weaker. So, for example, the EPA requires companies to report toxics release emissions in a way that is publicly available and easily viewed and monitored, and companies work to reduce those emissions. In the case of greenhouse gas emissions (GHG) the regulatory threat is much weaker and companies are less likely to voluntarily track their GHG emissions.

Khanna also found that when firms can be certified for their behavior (by a group like the International Standards Organization) they change their environmental performance. Even though there are no regulatory consequences, these certifications can be “carrots” in terms of the firms’ reputations. Often downstream firms prefer to buy from companies that have an environmental stamp of approval, for example.

“Decision-making is a complex process, but my work does help explain some of the economic motivations that are borne out by reality,” she says of her research. “Economics can explain some part of behavior.”

For the last several years she has focused on studying the economics of Miscanthus production and the effects of biofuel policies in the U.S. on allocation of land among food and fuel production and on GHG emissions. She is in the midst of launching a survey to understand the factors that will motivate farmers to cultivate Miscanthus.

“Models often assume perfect certainty, perfect foresight, and farmers who are not concerned about risk, but in reality that is not the case,” says Khanna. “So we are studying what factors would influence a farmer’s decision about which crop to grow and how much land to allocate to it.”

Her survey will identify which issues matter the most to farmers. Do they care if a crop is native or non-native? If a crop has a long or short lifespan? Are farmers even familiar with energy crops as an option?

“Some farmers are still asking, what is biomass? It is not a conventional crop,” says Khanna.

Research projects that try to analyze human behavior in the marketplace can be frustratingly complex, but Khanna loves the challenge.

“Markets add to the complexity of analyzing human decisions, especially when government interventions and institutional constraints affect the functioning of markets and the actions of consumers and producers,” says Khanna. “If markets were working perfectly, they wouldn’t be as interesting to study.”

Khanna is skeptical of what she calls unrealized “win-win” opportunities. Generally if such opportunities existed they’d already have been spotted and “the dollar bills sitting on the floor would be picked up,” she says.

Still, Miscanthus as a fuel crop caught her attention about a decade ago. Here was a biofuel that seemed almost too good to be true (there’s that skepticism again). It appeared to be hardy and have enormous yield potential and yet didn’t require as many nutrients as other crops. It seemed to be both a source of renewable fuel, and a way to sequester carbon in the soil, not to mention it appears to reduce nitrogen leaching.

As a member of the EBI theme of the IGB Khanna finds it easy to collaborate with a variety of faculty who are looking at the agronomics of growing Miscanthus and its environmental effects and incorporate the data generated by them in her economic analysis. Her colleagues provided data about the heterogeneity of yields across locations and about what nutrients would be required. That research also enabled her to assess the economic incentives to grow these crops. Khanna and her research group have developed an economic model to examine the effects of biofuel production using a variety of feedstocks, including Miscanthus, at a national level.

“If we didn’t have this synergistic thing going on with all of these different groups simultaneously working on different aspects of this problem the work would be going much slower,” she says. “We benefit from the knowledge they are creating and are able to use that in our analysis.”

While many of Khanna’s analyses confirm her hypotheses, there have been surprises along the way. For example, Khanna posited that the renewable fuel standard (RFS), which requires the production of 36 billion gallons of cellulosic

biofuel by 2013, would impose economic costs on the U.S. and be a more costly way to reduce GHG than a straightforward carbon tax. But her analysis found the opposite.

“I started out thinking RFS would impose significant economic costs as opposed to, say, a carbon price policy,” says Khanna. “Economic theory tells us, when dealing with a particular problem, find a policy instrument to directly target it rather than go about it in a roundabout way. But we discovered that the RFS leads to a net economic



» “If markets were working perfectly, they wouldn’t be as interesting to study,” says EBI theme member Madhu Khanna

benefit (in the US) and that benefit is larger than if we just imposed a carbon tax.”

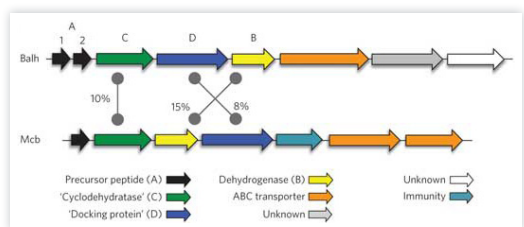
Because the RFS may increase food prices, a U.S. export, and reduce fuel prices, a U.S. import, it has the potential to improve the terms of trade (ratio of the price of exports to the price of imports) for the U.S. That benefit, suggests Khanna, could more than offset the domestic cost of switching to a more expensive domestic technology, cellulosic biofuels. According to Khanna’s calculations the carbon price would have to be very high, \$110-\$150/ton, to have the same effect. Otherwise a carbon policy would simply reduce fuel use but not create incentives for new biofuel technology.

Humans being the complex creatures they are, Khanna’s work will always be satisfyingly challenging. Add to that the fact that her findings help improve future policy making and you have a perfect “win-win” situation. ■

## {Research}

### Previously Unknown Enzymatic Function Assigned to Protein Family

Douglas Mitchell, Assistant Professor of Chemistry and faculty member of the Mining Microbial Genomes research theme, recently had his work published in *Nature Chemical Biology*. The paper, "YcaO domains use ATP to activate amide backbones during peptide cyclodehydrations," sheds new



light on the role of ATP and examines heterocycle formation in closer detail.

From the abstract: Thia-

zole/oxazole-modified microcins (TOMMs) encompass a recently defined class of ribosomally synthesized natural products with a diverse set of biological activities. Although TOMM biosynthesis has been investigated for over a decade, the mechanism of heterocycle formation by the synthetase enzymes remains poorly understood. Using substrate analogs and isotopic labeling, we demonstrate that ATP is used to directly phosphorylate the peptide amide backbone during TOMM heterocycle formation. Moreover, we present what is to our knowledge the first experimental evidence that the D-protein component of the heterocycle-forming synthetase (YcaO/domain of unknown function 181 family member), formerly annotated as a docking protein involved in complex formation and regulation, is able to perform the ATP-dependent cyclodehydration reaction in the absence of the other TOMM biosynthetic proteins. Together, these data reveal the role of ATP in the biosynthesis of azole and azoline heterocycles in ribosomal natural products and prompt a reclassification of the enzymes involved in their installation.

"YcaO domains use ATP to activate amide backbones during peptide cyclodehydrations," Kyle L. Dunbar, Joel O. Melby, & Douglas A. Mitchell, *Nat Chem Biol*. 2012 Apr 22. doi: 10.1038/nchembio.944. ■

## {IP @ IGB}

### What is patentable?

The intellectual property must be:

#### Useful

- The invention must provide benefit to the public.
- This excludes inventions that are inoperable, immoral, or contrary to public policy.
- This also excludes inventions that are ineffective or unsafe pharmaceutical compounds, as well as chemical compounds that do not have utility.

#### Novel

- The invention must not have been known or used in this country, patented, or published anywhere. ("Prior Art" is any information that is publicly available and relevant to the invention that exists prior to the filing date of a patent application. A "public disclosure" may be considered prior art. For more details about what constitutes a public disclosure, see IGB Newsletter Volume 5, Number 1.)
- The inventor must not have abandoned the invention.
- The inventor must be the true inventor of the intellectual property.

#### Non-obvious

- The subject matter of the claims in the patent must not be obvious to someone working in the field at the time the invention was made.
- This is often based on the prior art (including public disclosures). If a combination of prior art yields predictable results, the invention is most-likely obvious.

Want to know more?

Contact Jen Rice at [jenrice@illinois.edu](mailto:jenrice@illinois.edu) at the Office of Technology Management: [www.otm.illinois.edu](http://www.otm.illinois.edu). ■

## {Around the IGB}

### Conference

#### EBI Biofuels Law & Regulation

The economy, the market, the future, and the uncertainty of the Renewable Fuel Standard were the focus of this year's Fourth Annual Energy Biosciences Institute Biofuels Law and Regulation Conference.



» L to R: Slating, Simon, and Kesan

The renewable fuel standard, or RFS, was first mandated by the U.S. Energy Policy of 2005 requiring 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. That mandate was changed in 2007 when the U.S. Energy Indepen-

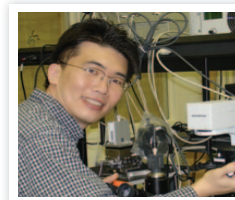
dence and Security Act expanded the renewable fuel standard (known as RFS2) to include diesel, increased the volume from 9 billion gallons in 2008 to 36 billion gallons by 2022, and established new categories of renewable fuel.

Tim Slating, EBI regulatory associate, began the conference with an overview and historical perspective of the renewable fuel standard as it stands today, followed by Jay Kesan, Business, Economics, and Law of Genomic Biology research theme leader, who detailed the three RFS policy goals: to enhance U.S. energy security, produce environmental benefits, and stimulate the economic environment.

Determining how to grow the biofuels program was the focus of keynote speaker Karl Simon, director of the Transportation and Climate Division for the U.S. EPA. Simon is working with the RFS2 program to help it continue to stabilize and mature, and provide regulatory clarity. ■

### Profile

#### Taekjip Ha



TJ Ha, leader of the Cellular Decision Making in Cancer research theme, was recently featured in 'The Author File' in the May 2012 edition of *Nature*

*Methods*. The article, titled "Labeling proteins for single-molecule studies," discusses the difficulty in imaging individual proteins in action, and the steps Ha and his team took to overcome the problems they faced to produce consistently efficient results.

Read the full text at <http://www.igb.illinois.edu/sites/default/files/upload/nmeth.1980-1.pdf> ■



## {Around the IGB}

### Awards

#### Huimin Zhao



Huimin Zhao has been awarded a 2012 Guggenheim Foundation Fellowship. Professor Zhao was one of 181 distinguished scholars chosen to receive the annual award. ■

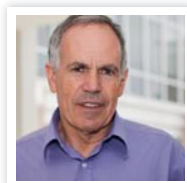
#### Hyunjoon Kong



Hyunjoon Kong was named a recipient of the 2012 Engineering Dean's Award for Excellence in Research. This award is made annually to four assistant professors in the

College of Engineering. ■

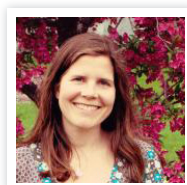
#### Stephen Long



Stephen Long has been named the recipient of the Charles F. Kettering Award by the American Society of Plant Biologists, for his work in the role of photosynthesis

in mitigating climate change, and changes in the physical environment. ■

#### Elizabeth Ainsworth



Elizabeth Ainsworth has been named the recipient of the Charles Albert Shull Award by the American Society of Plant Biologists for her research on current and potential

impacts of global and environmental change on plant ecosystems. ■

#### H. Rex Gaskins

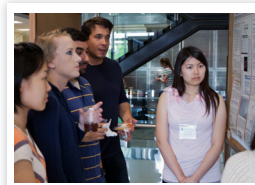


H. Rex Gaskins was elected President-elect of the Society for Experimental Biology and Medicine. Founded in 1903, the SEBM is a not-for-profit scientific society

formed to promote investigation in the biomedical sciences. The Society publishes the journal *Experimental Biology and Medicine*. ■

### Symposium

#### IGB Fellows Symposium



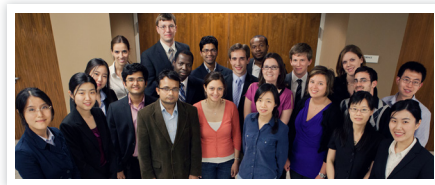
Guest speakers, presentations, and posters were part of this year's annual IGB Fellows Symposium that took place

on May 3 at the Institute.

From research on the stickleback fish to exploration of the primate gut microbiome to the commercialization of university technologies, the symposium gathered post-docs, graduate and undergraduate students and others to the yearly

### Graduation

#### Certificate in Entrepreneurship and Management Graduation



More than 20 students graduated from the Certificate in Entrepreneurship and Management (CEM) program and are ready to help bring research and ideas to the marketplace.

Ritika Mohan, Chinmay Soman, and Dan Wichelecki were among the graduates from the program this year and were excited about the opportunities they received.

Mohan, who is a third year graduate student, said her research is in antibiotic screening and resistance, and wanted to learn more about the business side of that technology. "I learned how to turn your idea into a business and how to plan a business model," she said.

For Soman, a postdoc studying agricultural and environmental issues, learning how to commercialize the technology was invaluable. "I am interested in being part of the solution and how it goes into the marketplace," he said. "This experience has been tremendously useful. I encourage others to go for it and enter the CEM program."

Wichelecki said before he came to CEM he was not very informed about the commercialization process. "Now I know how to protect my research and how to set aside funds and take my research from the lab to the marketplace."

For more information about the CEM program, visit [www.igb.illinois.edu/cecm](http://www.igb.illinois.edu/cecm) ■

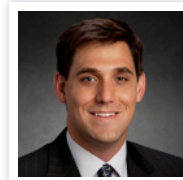
discussion to hear about current issues in the life sciences.

Speakers for the symposium were Jim Davis, Carl Yeoman, Osee Sanogo, Hsiao-Shan Yang, Taekjip Ha, and Kou-San Ju. The keynote speaker was Nancy Moran from Yale University, who spoke about the symbiotic associations between insects and bacteria as they relate to genomic evolution.

A poster session and reception concluded the day with more than 30 posters on display. The symposium is sponsored by the Institute for Genomic Biology and is organized by the IGB Fellows, who are members of the Institute's various themes. ■

### New Arrivals

#### Gregory Underhill



Professor Gregory Underhill has joined the IGB as an affiliate in the Regenerative Biology and Tissue Engineering Research Theme. ■

### Grant

#### Grant Renewal

The NIH/NIGMS P01 Grant "Discovery, Design and Development of Phosphonic Acid Antibiotics" has recently been renewed for a further 5 years, at a total funding amount of just under \$8M. This marks the first renewal grant for the IGB and is a wonderful accomplishment for the Mining Microbial Genomics research theme. Some key participants include PI William Metcalf, co-PIs Wilfred van der Donk, Huimin Zhao, and Satish Nair, and postdoc Bradley Evans. Congratulations! ■

### Core Facilities

#### New Equipment

The Core Facilities group will be receiving new capabilities with the addition of an objective inverter to augment an existing nonlinear optical microscope. This will allow for non-invasive imaging of live intact organs and tissues, specifically enabling such possibilities as neural imaging, measuring intestinal stem cell proliferation in living tissue, or real time observation of developmental changes in germ cells in testis. As part of the IGB's microscopy core facility, this equipment is available to the entire UIUC campus community (with the required training). ■

# ADMINISTRATIVE NEWS

## {Biotechnology Information Center}

### Library Services for Biomedical Research Update

Several of the science librarians are retiring at the end of June. This includes Tina Chrzastowski, Chemistry Librarian ([chrz@illinois.edu](mailto:chrz@illinois.edu)), Diane Schmidt, Biology/Veterinary Medicine Librarian ([dcschmid@illinois.edu](mailto:dcschmid@illinois.edu)), and Katie Newman, Biotechnology Librarian ([florador@illinois.edu](mailto:florador@illinois.edu)). Tina and Diane will return in September part time, until replacements can be found. The Biology Library is closed, with its collection housed within the Funk Library; a link can be found to the Virtual Biology Portal from the Funk Homepage (<http://www.library.illinois.edu/funkaces/>). The Chemistry and Veterinary Medicine Libraries remain open; currently a search is underway for a new Veterinary Medicine Librarian. A search is also underway for a biomedical sciences librarian, whose mandate will be to work with researchers from across campus; this is a new position.

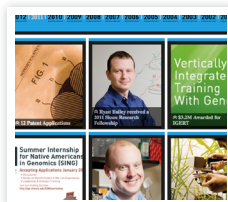
The Biotechnology Information Center, a virtual branch of the University Library, which is located in 2130 IGB, will be closing at the end of June. Many of the services offered over the years will be available from other University librarians. For example, for help tracking down a citation or gaining access to an article, please contact one of the Funk Librarians: Pat Allen ([allen2@illinois.edu](mailto:allen2@illinois.edu)); Melody Allison ([mmalliso@illinois.edu](mailto:mmalliso@illinois.edu)); or Sarah Williams ([cwillms@illinois.edu](mailto:cwillms@illinois.edu)). The Funk Librarians are also available to teach information literacy sessions in your classes, or help set up research literature alerts in databases such as PubMed, Web of Science, Scopus, BIOSIS, etc. If you need assistance creating a data management plan, please contact Sarah Williams.

Other services are available from librarians affiliated with our central resources. For questions having to do with EndNote or RefWorks, please contact Jenny Emanuel ([emanuelj@illinois.edu](mailto:emanuelj@illinois.edu)), a member of the Reference, Research, and Scholarly Services group. Sarah Shreeves, head of the Scholarly Commons (<http://www.library.illinois.edu/sc/>) and IDEALS, can help you determine your rights as an author are, and can help keep those rights when publishing. Sarah can also help add your publications to IDEALS, the university repository for academic research and scholarship (<http://www.ideals.illinois.edu/>).

If you have any questions or concerns, please contact Katie Newman, 2130 IGB, [florador@illinois.edu](mailto:florador@illinois.edu), or at 265-5386. ■

## {Communications}

### IGB Timeline



If you'd like to view some of the key events in the history of the IGB, there is now a timeline section on the website. From the approval of the building back in 2000 to where we are today, experience some of the exciting highlights as the Institute has grown over the years.

Do you have an idea or a suggestion for something to include on the IGB website? We would love to hear it. Please contact Nicholas Vasi at [nvasi@illinois.edu](mailto:nvasi@illinois.edu) and give us your feedback. ■

## {Safety}

### Training

IGB Occupational Safety Coordinator Bob Mann will be performing autoclave safety training for all themes. If you have questions or would like to schedule a training session, please contact him by phone at 217-244-8346, or email at [bobmann@igb.illinois.edu](mailto:bobmann@igb.illinois.edu). ■

## {Business}

### Travel Expense Management (TEM)

As of May 14, 2012, the IGB is now live with the TEM system. Effective immediately, you will need to be aware of the following policy and procedure changes:



- Paper vouchers will no longer be accepted from your unit to reimburse employees and pay vendors including employee reimbursements of any type, miscellaneous vendor payments such as honoraria, prizes and awards, and non-employee reimbursements.
- Employees requesting reimbursement must submit their own expense reports using the TEM system – this function may not be delegated, however a proxy may create the expense report on their behalf.
- Travel Cards (T-Cards) issued to employees in your unit may now be used to purchase qualified travel expenses and business meals. Policy regarding the T-Card can be found on the TEM Resource Page.
- P-Cards issued to employees in your unit may no longer be used to pay for business meals or travel-related expenses. The policy for the P-Card after TEM implementation is also on the TEM Resource Page.

Be sure to visit the TEM Resource Page of the OBFS Website: <http://www.obfs.uillinois.edu/tem-resources/>

University Payables has also added a new Post Go-Live Open Lab to the TEM Registration Page (<http://training.obfs.uillinois.edu/index.cfm?campus=o>). These sessions are available for individuals in units that have already gone live with the TEM system. Our University Payables staff will work with you to resolve problem transactions in TEM and answer your questions about the TEM System, procedures, and policies. Please read the Prerequisites and Course description before registering to attend a Post Go-Live Open Lab.

The staff of University Payables continues to look forward to working with you and your unit now that you have implemented the TEM system. If you have any questions about the TEM system, T-Card or P-Card, please contact University Payables and Corporate Card Customer Service:

UPAY - Customer Service: 217-333-6583 or 888-872-9953

[TEMhelp@uillinois.edu](mailto:TEMhelp@uillinois.edu)

Corporate Card Office: 217-244-9300 or 800-260-9113, Fax: 217-239-6735  
[cco@uillinois.edu](mailto:cco@uillinois.edu) ■

## Cluster Changes over the Summer

Very soon, CNRG will start moving the existing IGB cluster components over to a new system. This new system, called **biocluster.igb.illinois.edu**, will be a single point of contact for all IGB cluster systems. So instead of logging into computation and lm-cluster, you will be able to simply log into biocluster and choose an appropriate job queue for your application.

In addition, this new system will have 300TB of storage, which should solve the current cluster storage needs. These combined capabilities will make cluster usage much simpler going forward. See below for information on training for the new cluster system. ■

## High Performance Computing Class

Interested in learning how to properly use a cluster? Have questions about how the new biocluster system will work? Then join us on June 19 for our first cluster training session. We plan to discuss the pieces of the biocluster system and how it can be best used.

If interested, please register at:

<http://www.igb.illinois.edu/content/cluster-usage-class-sign> ■

## CNRG Now Supports Carver Biotechnology Center

As of April 1, the Computer and Network Resource Group has been providing support for the Carver

Biotechnology center. By integrating the information technology needs of these two departments, we are able to offer improved services to the IGB and to the campus. ■

**ROY J. CARVER** UNIVERSITY OF ILLINOIS  
**BIOTECHNOLOGY CENTER**

## Conference Center AV Upgrades



Over the summer we will see upgrades to the projectors and other components of the audio-visual systems in IGB rooms 612 and 607. The most noticeable of these upgrades will be the addition of brighter, high resolution projectors in both rooms. This will improve the quality of the presentations and resolve some of the image issues. ■