

Center for Plant Cell Biology
Fiscal Year 2009-10

INSTRUCTIONS: Please submit four (4) copies of this review to the UCR Office of Research, University Office Building Room 200 and (1) copy to the College Dean as appropriate. For information about the process for preparing an annual report, please contact the Office of the Vice Chancellor for Research at 951.827.5535.

A1. GENERAL NARRATIVE: Please provide a short statement highlighting the main activities in which the center has engaged during the review period and how they relate to the mission, goals and objectives of the research center and to the challenges/issues/problems central to the work of the research center. How did the center contribute to UCR's graduate and undergraduate teaching programs? What activities did the center provide to UCR's external communities?

MAIN ACTIVITIES RELATED TO MISSION, GOALS, AND OBJECTIVES:

1. **Recruitment of Sue Wessler:**

Susan Wessler accepted an appointment as a distinguished professor of genetics and IIGB/CEPCEB researcher in December 2009. Sue Wessler is an internationally recognized leader in the field of mobile genetic elements, or transposable elements (TEs) and their genetic and phenotypic effects. Professor Wessler's pioneering work on the molecular biology and evolution of TEs has been recognized by numerous awards and honors. The most prestigious of these include election to the U.S. National Academy of Sciences, election to the American Academy of Arts and Sciences, service to the Council of the National Academy, selection as a Howard Hughes Research Institute Professor, and recipient of the Distinguished Scientist Award from the Southeastern Universities Research Association (SURA).

In addition to her research program, Dr. Wessler is also engaged in an innovative teaching program as a Howard Hughes Medical Institute Professor, in which she has brought research in genetics and evolution to the undergraduate classroom at the University of Georgia. As a recent recruit to the Center for Plant Cell Biology, Dr. Wessler's research will bring together people who work on evolution, ecology, bioinformatics, development and cell biology and of course, her forte, genetics. She also pioneers an experimental and forward-looking teaching style by exposing undergraduate students to genomes and evolution through experimentation and by getting them excited about scientific discoveries. These class experiences tend to be irresistible and motivational to students, making science the center of lifetime career goals.

UCR Press Release dated December 1, 2009: http://newsroom.ucr.edu/news_item.html?action=page&id=2220

2. **International Collaborative Agreements (MOUs)**

In a spirit of cooperation and reciprocity that is intended to be of mutual scientific benefit, the Center for Plant Cell Biology pursues Memoranda of Understanding (MOUs) with international institutions who share common academic interests. The purpose of these agreements is to develop collaborations and exchanges in fields of shared interest and expertise by encouraging the following types of activities:

- Visits and informal exchanges of faculty, scholars and administrators in specific areas of education, research and outreach.
- Explore ways to cooperate in postgraduate education and training.
- Organize joint conferences, symposia, or other scientific meetings on subjects of mutual interest.
- Exchange of academic information and materials.
- Pursue avenues for graduate and professional student exchange during the academic year or summer terms.
- Pursue avenues for undergraduate student exchange during the academic year or summer terms.
- Explore the possibilities for developing joint research programs and collaborations.
- Other exchange and cooperation programs to which both parties agree.

The Center for Plant Cell Biology currently has active MOUs with the following institutions:

Institute of Plant Physiology and Ecology
Shanghai Institute for Biology Sciences
CHINESE ACADEMY OF SCIENCES, China

Department of Plant Sciences
WEIZMANN INSTITUTE OF SCIENCE
Rehovot, Israel

Manna Center for Plant Biosciences
TEL AVIV UNIVERSITY
Tel Aviv, Israel

3. **Weekly CEPCEB Seminar Series [see Attachment D]:**

Invited prominent speakers, as well as CEPCEB faculty and postdocs, present and discuss noteworthy research discoveries in the field of plant biology. The seminar series offers an opportunity for collaborations to be established across disciplines, institutions and levels of experience. The seminars are scheduled weekly and advertised on the CEPCEB and IIGB homepages.

For a complete list of CEPCEB Seminar speakers for 2009-10, please see **ATTACHMENT D**.

4. **Active CEPCEB ChemGen IGERT Seminar Series [see Attachment D]:**

Prominent scientists with expertise in chemical genomics, chemistry, engineering, bioinformatics/computational sciences, and cell biology are featured. CEPCEB ChemGen IGERT graduate students are directly involved in inviting and hosting these speakers, which enhances their exposure to outstanding scientists and provides contacts that may be of value for many years to come. IGERT Seminars are advertised on the:

- CEPCEB IGERT website (http://cepceb.ucr.edu/IGERT/IGERT_Seminars.htm)
- IIGB homepage calendar

CEPCEB Chem/Gen IGERT Annual Retreat (October 2-4, 2009) [See Attachment B]:

To prepare graduate students participating in the ChemGen IGERT (Integrative Graduate Education and Research Trainee) program, currently in its fifth year, for their interdisciplinary future, an intensive two-day retreat is held annually. The retreat agenda is designed to foster effective interaction and communication between students and faculty of different academic backgrounds, and includes: presentations on current and future projects by participating faculty; an invited keynote speaker who presents on a novel research perspective that is apropos or ancillary to chemical genomics; open discussions; team building activities; interactive workshops; and concludes with formal presentations by students.

The fifth annual CEPCEB ChemGen IGERT Retreat was held at the UCLA Lake Arrowhead Conference Center. **Terence Walsh** from the Discovery Research & Development branch of Dow AgroSciences, opened the retreat on Friday evening with a talk titled: "Selectivity & Plant Fate of Novel Phytotoxins: Some Chemical Genetic Case Studies." The meeting included talks by 17 ChemGen IGERT students and one faculty member who highlighted their Chemical Genomics research. For further information, please visit:

http://cepceb.ucr.edu/IGERT/IGERT_Retreat.htm.

ChemGen IGERT Retreat Speakers and Session Moderators:

RETREAT SPEAKER	SESSION MODERATOR	TITLE	DEPT/GRAD PROGRAM
Karine Le Roch		Assistant Professor	Cell Biology & Neurosciences
Gregory Barding		Graduate Student	Chemistry
Blanca Barrera		Graduate Student	
Sean Boyle		Graduate Student	Genetics, Genomics & Bioinformatics
Michelle Brown	YES	Graduate Student	Genetics, Genomics & Bioinformatics
Eddie Cao		Graduate Student	Computer Science
Andrew Defries	YES	Graduate Student	Plant Biology
Jolene Diedrich		Graduate Student	Analytical Chemistry
Theresa Dinh		Graduate Student	Plant Biology
Kayla Kaiser	YES	Graduate Student	Chemistry
Augusta Jamin		Graduate Student	Cell, Molecular & Developmental Biology
James Kim		Graduate Student	Cell, Molecular & Developmental Biology
Melinda Salus		Graduate Student	Plant Biology
Patrick Schacht	YES	Graduate Student	Genetics, Genomics & Bioinformatics
Melissa Smith		Graduate Student	Plant Biology
Moses Tataw	YES	Graduate Student	Computer Science
Shang Wu		Graduate Student	Plant Biology
Rae Eden Yumul		Graduate Student	Plant Biology

5. **NSF CEPCEB Research Experience for Undergraduates (REU) Symposium:**

An NSF CEPCEB REU (<http://cepceb.ucr.edu/about/REU2010.html#2009>) Poster Symposium was held on Friday, August 21, 2009 In Keen Hall's lobby area where 10 students in the 2009 summer residential program presented talks summarizing their research projects. Now in its eighth year, the CEPCEB REU program has successfully trained 83 students since the program's inception in 2002, and many undergraduates have since pursued graduate studies in the field of plant biology due to this experience. Ninety-five students have now participated in the program. Of the 73 students that have since graduated from university, 56% entered graduate school in science, 16% entered other graduate or professional schools, 9% took a science-based job, and 12% became public school teachers. Sixteen students transferred from community colleges to UC campuses (8 to UCR).

6. **Annual CEPCEB Award Ceremony and Noel Keen Lecture:**

Postdoctoral, graduate student, undergraduate student and high school students achieving research excellence in the fields of plant cell biology, genomics, bioinformatics or engineering were recognized at the Eighth Annual CEPCEB Award Ceremony and Noel Keen Lecture scheduled on October 16, 2009. This event was rescheduled from April 2008 to mark the inauguration of the Genomics Building and became the first event held in the new Auditorium. A leading scientist was invited as the Noel Keen Special Lecturer. CEPCEB faculty, postdocs and students serve on the award committee.

a. Dr. Joseph R. Ecker, Professor, Professor, Plant Molecular and Cellular Biology Laboratory, The Salk Institute for Biological Studies was the 2009 Noel Keen Special Lecturer

b. Outstanding postdoctoral, graduate Student and Undergraduate Student Research Award recipients, accordingly:

VANITHA RAMACHANDRAN (Botany & Plant Sciences/Xuemei Chen's Lab)

KEVIN HORAN (Botany & Plant Sciences/Thomas Girke Lab)

NOLAN M. UNG (Botany & Plant Sciences/Harley Smith's Lab)

7. **Celebration of Jian-Kang Zhu's Election to the National Academy of Sciences: April 27, 2010:**

A reception in honor of the election of IIGB/CEPCEB member, Dr. Jian-Kang Zhu, to the National Academy of Sciences was held in the Genomics lobby on April 27, 2010, with remarks presented by Chancellor Timothy White and IIGB/CEPCEB Director Natasha Raikhel. Jian-Kang Zhu was elected for his excellence in original scientific research involving molecular genetic mechanisms underlying plant responses to adverse environments such as salinity, drought and low temperature. His work has led to the identification of genes for modifying the responses of crops to environmental stresses -- research that carries tremendous impact for agricultural industry and the environment.

Membership in the NAS is one of the highest honors given to a scientist or engineer in the United States. UCR Press Release dated April 27, 2010 regarding Jian-Kang Zhu's NAS election:

http://newsroom.ucr.edu/news_item.html?action=page&id=2320

CENTER'S CONTRIBUTIONS TO UCR'S GRADUATE AND UNDERGRADUATE TEACHING PROGRAMS:

CEPCEB ChemGen IGERT Program (2005-2011):

The goal of this innovative training program is to provide students with a team-based research environment that intercalates engineers, chemists and bio-informaticians into research teams with cell biologists. Students in this program have at least two major professors from two disciplines, and attend lab meetings from both research groups as well as an annual retreat. IGERT students also mentor students participating in the CEPCEB REU program. In fiscal year 2009-10, four new students entered the program, and two students graduated (Colleen Knoth, Plant Biology Graduate Program; Yiqun (Eddie) Cao, Computer Science Graduate Program).

Participating CEPCEB Faculty in the ChemGen IGERT Program: http://cepceb.ucr.edu/IGERT/IGERT_Faculty.htm

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Participating CEPCEB Labs Mentoring ChemGen IGERT Students:

First Year	IGERT Student	Graduate Program	Email	CEPCEB Lab Rotations	REU STUDENT MENTORED BY IGERT STUDENT
2005-06	SAMER ELKASHEF	GGB	selka001@ucr.edu	Shou-wei Ding, PPM Yinsheng Wang, Chemistry	Lauren Quesada (CEPCEB REU 2007)
2005-06	CHARLES JANG	GGB	cjang001@student.ucr.edu	Julia Bailey-Serres, BPSC Thomas Girke, CEPCEB Bioinformatics	Daniel Swank (CEPCEB REU 2007)
2005-06	JAMES KIM	CMDB	jkim082@ucr.edu	Kathy Borkovich, PPM Cynthia Larive, Chemistry	Zhen (Michael) Qin (CEPCEB REU 2007); Roxanne Sebeny (CEPCEB REU 2009)
2005-06	COLLEEN KNOTH (Graduated Summer 08)	Plant Biology	colleen.knoth@email.ucr.edu	Thomas Eulgem, BPSC Thomas Girke, CEPCEB Bioinformatics	Jon Ringle (CEPCEB REU 2004)
2005-06	CHRISTIANA MERRYWELL	Chemistry	cmerr001@ucr.edu	Cynthia Larive, Chemistry Natasha Raikhel, BPSC	Thao Nguyen (Bioanalytical Science REU 2006)
2006-07	EDDIE CAO	Computer Science	vcao@bioinfo.ucr.edu	Thomas Girke, CEPCEB Bioinformatics	
2006-07	JOLENE DIEDRICH	Analytical Chemistry	jdied001@student.ucr.edu	Wenwan Zhong, Chemistry Ryan Julian, Chemistry Zhenbiao Yang, BPSC	Christine Reder (Bioanalytical Science REU 2007)
2006-07	THERESA DINH	Plant Biology	tdinh007@ucr.edu	Xuemei Chen, BPSC	Rhonda Egidy (CEPCEB REU 2007); Michael O'Leary (CEPCEB REU 2008)
2006-07	AUGUSTA JAMIN	GGB	aujamin@gmail.com	Zhenbiao Yang, BPSC	Alex Paya (CEPCEB REU 2007); Evelyn Pereira (CEPCEB REU 2009)
2006-07	KAYLA KAISER	Analytical Chemistry	khame001@student.ucr.edu	Cynthia Larive, Chemistry Julia Bailey-Serres, BPSC	Archie Taylor (Bioanalytical Science REU 2007)
2007-08	SEAN BOYLE	GGB	sboyl001@student.ucr.edu	Stefano Lonardi, CSE Michael Pirrung, Chemistry	
2007-08	MICHELLE BROWN	GGB	michelle.brown@email.ucr.edu	Natasha Raikhel, BPSC	Robert Washington , (CEPCEB REU 2008); Elliott Beltran (CEPCEB 2010)
2007-08	ANNA CHARISI	GGB	acharisi@cs.ucr.edu	Thomas Girke, CEPCEB Bioinformatics	
2007-08	ANDREW DEFRIES	Plant Biology	andrewd@ucr.edu	Sean Cutler, BPSC	
2007-08	MELINDA SALUS	Plant Biology	msalu001@ucr.edu	Thomas Eulgem, BPSC	Julie Stutzbach , (CEPCEB REU 2009)
2007-08	MELISSA SMITH	Plant Biology	msmit024@student.ucr.edu	Linda Walling, BPSC	Rebekah Silva , (CEPCEB REU 2008, 2009)
2008-09	AYESHA BAIG	Plant Biology	ayesha.baig@student.ucr.edu	Thomas Eulgem, BPSC	
2008-09	GREGORY BARDING	Chemistry	gbard001@ucr.edu	Cynthia Larive, Chemistry	
2008-09	PATRICK SCHACHT	GGB	pscha001@student.ucr.edu	Katherine Borkovich, PPM	Oghenemano Evero (CEPCEB

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					REU 2010)
2008-09	MOSES TATAW	Computer Science	tatawm@cs.ucr.edu	Venugopala G. Reddy, BPSC Eamonn Keogh, CSE	
2008-09	SHANG WU	Plant Biology	swu014@ucr.edu	Harley Smith, BPSC	
2008-09	RAE EDEN YUMUL	Plant Biology	rae.yumul@email.ucr.edu	Xuemei Chen, BPSC Zhenbiao Yang, BPSC Patricia Springer, BPSC	Grace Sprehn (CEPCEB REU 2010)
2009-10	AARON DEVRIES	Plant Biology	adevr001@student.ucr.edu	Patricia Springer, BPSC Xuemei Chen, BPSC Harley Smith, BPSC	
2009-10	JESSICA DIAZ	Plant Biology	csungal34@yahoo.com	Harley Smith, BPSC Patricia Springer, BPSC	
2009-10	ROBERT KOBLE	Plant Biology	rkobl001@student.ucr.edu	Patricia Springer, BPSC Zhenbiao Yang, BPSC Natasha Raikhel, BPSC Thomas Eulgem, BPSC	Ilse Argueta (CEPCEB REU 2010)
2009-10	YIFAN LI	GGB	yif.lee@gmail.com	Wenbo Ma, PPM Hailing Jin, PPM Zhenbiao Yang, BPSC Karine Le Roch, CBN	Blair Clark (CEPCEB REU 2010)

CEPCEB Research Experiences for Undergraduates (REU) Program (2005-10)

The NSF Research Experience for Undergraduates (REU) program was first awarded to CEPCEB researchers in 2002 for a period of three years, and renewed in 2005 for five years. In 2010, under PI Howard Judelson and co-PI Patricia Springer, the REU Program was renewed for an additional five years! The 2010-2015 award titled "REU Site: Research Experiences for Undergraduates in Plant and Plant-Pathogen Cell Biology" totaled \$614,097.

As an NSF REU Site, CEPCEB brings research experiences to students of two- and four-year colleges who have limited opportunity to learn about the excitement and career options that research in plant cell biology offers. Eight to twelve students are accepted into the ten-week residential program. The program begins with a one-week workshop, in which students are introduced to techniques and approaches used for analysis of plant and plant fungal pathogen cell function, including basic molecular biology, genomic and bioinformatic analyses, and confocal microscopy methods used to study live cells. Students then spend nine weeks working with a CEPCEB faculty mentor and a graduate or postgraduate mentor on a research project of their choice. Students also participate in workshops to enhance learning skills and professional development, and to discuss ethics in science. Thus far (incl. Summer 2009), 83 undergraduate students have been trained in CEPCEB labs since the program's inception.

Participating Faculty in the CEPCEB REU Program: <http://cepceb.ucr.edu/about/REU2010.html#2009> .

The following 10 students participated in the 2009 REU Program in CEPCEB Labs and presented a poster session at the REU Symposium on Friday, August 21, 2009.

REU Student	College/University	CEPCEB Faculty	Mentor
Lizz Esfeld	Truman State University, MO	Chen Lab	Shengen Li
Shahid Jaffer	St. Olaf College, MN	Springer Lab	Pan-Ya Kim
Evelyn Pereyra	San Bernadino Valley College, CA	Yang Lab	Augusta Jamin
Tim Richardson	Riverside Community College, CA	Reddy Lab	Mariano Perales
Roxanne Sebeny	University of California, Berkeley, CA	Borkovich Lab	James Kim/Sara Wright
Rebekah Silva	Riverside Community College, CA	Walling Lab	Melissa Smith
Julie Stutzbach	Beloit College, WI	Eulgem Lab	Mindy Salus
Alexandra Swidergal	Cornell University, NY	Raikhel Lab	Abel Rosado-Rey
Gilbert Uribe	California State University, Bakersfield	Douhan Lab	Greg Douhan
Donald Van Fossan	Riverside Community College, CA	Rao Lab	A.L.N. Rao

Keck PPM Focus Visit: October 30, 2009

The Institute hosted a seminar/lunch by Sheldon M. Schuster, President and Professor at the Keck Graduate Institute of Applied Life Sciences in Claremont, CA introducing their Postdoctoral Professional Masters (PPM) program. The PPM is a professional masters program available to post-doctoral fellows with backgrounds in science and engineering. This newly accredited masters degree helps PhD scientists and engineers acquire the business and management skills needed to pursue senior management positions within the life sciences industry or embark on entrepreneurial ventures that are intended to commercialize technologies developed in laboratories.

The program curriculum focuses on the unique business environment within the life sciences. Courses combine traditional training in issues such as competitive strategy and marketing with specialized topics such as the role of regulation and medical reimbursement in determining the viability of life science market opportunities.

The program also includes courses in accounting, finance, and organizational behavior that will help scientists and engineers understand how bioscience companies are managed. These skills are often essential in enabling effective teamwork between the technical and business employees of life science companies.

Business/Science Joint Graduate Pilot Program

IIGB Director Natasha Raikhel and Anderson Graduate School of Management (AGSM) Dean David Stewart continue to explore the possibility of formalizing a certificate program for graduate students in the biological sciences to learn business skills. The purpose is to better prepare students for entrepreneurial and commercial career options related to their scientific education and training, and to improve recruitment possibilities for both programs and for UCR. Discussions are currently underway to investigate certificate program requirements and School of Management funding. It is envisioned that business/science programs could be applied to other disciplines on campus, i.e., engineering/business, if a successful model could be created.

OUTREACH ACTIVITIES:

1. High School Recipients of CEPCEB Plant Cell Biology Awards at Science Fairs (judged by CEPCEB faculty, postdocs and students)

- a. The Center for Plant Cell Biology awarded Andrew **Ma**, a high school student from Lynbrook High School in Santa Clara County, the CEPCEB First Place Plant Cell Biology Award (\$500) at the California State Science Fair held May 18, 2010. In 2002, CEPCEB initiated the CEPCEB Award Fund to recognize research excellence in plant cell biology, genomics and bioinformatics by pre-college students, graduate students, and postdoctoral researchers. CEPCEB Academic Coordinators **David Carter** and **Songqin Pan**, IIGB Academic Administrator **Glenn Hicks**, Botany & Plant Sciences Assistant Specialist **Vanitharani Ramachandran** and CEPCEB Award Committee Chair **Katherine Borkovich** attended and evaluated presentations and presented Andrew Ma a cash prize for his poster titled "Regulation of Plant Growth by Two Antagonistic Transcription Factors in the Brassinosteroid Signal Transduction Pathway."

A CEPCEB Honorable Mention Award was also awarded to **Alexander J. Sercel** from Los Angeles County at the California State Science Fair and a cash prize of \$100 for his project titled "Study of a New Apparatus for Testing Effect of Environment on the Transpiration Driven Flux of Two Greenhouse Gases."

- b. The Center for Plant Cell Biology also awarded **Christina Gerges** from Martin Luther King High School in the Riverside Unified School District the 2010 CEPCEB Plant Cell Biology First Place Award (\$100) on April 14, 2010 at the Inland Science and Engineering Fair in San Bernardino, California. The Fair is an annual competition of science projects designed, developed, and displayed by elementary and secondary students from schools in Riverside, Inyo, Mono and San Bernardino (RIMS) counties. CEPCEB annually acknowledges scientific achievement at this fair in the fields of cell and molecular biology, genomics, bioinformatics, or technology development by a student in grades 9-12. The title of Christina's work was "A newly discovered species: A study of the soil dependency of the Brodiaea Santa Rosae." CEPCEB Award Chair **Katherine Borkovich** participated as a judge in this event.

Juan Hernandez from Summit High School in the Fontana Unified School District was awarded a CEPCEB Honorable Mention at the RIMS Science Fair for his project titled "pH and oil-eating freaks."

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- c. All award recipients are acknowledged on the IIGB website, in addition to recipients of past high-school science fair awardees.

IIGB website: <http://genomics.ucr.edu/about/CEPCEB-award-fund.html>

2. **Free Public Lecture by CEPCEB Member as part of the 2010 Spring Science Lecture Series:**
This year the 2010 Spring Science Lecture Series sponsored by the College of Natural and Agricultural Sciences and the Science Circle featured a free public lecture by CEPCEB member Julia Bailey Serres on June 3, 2010. The series focused on the Causes, Impacts and Solution of Global Climate Change, and Julia's lecture was titled "The Food Challenge: Waterproof Rice & Other Solutions. The press release related to this lecture can be accessed at: http://newsroom.ucr.edu/news_item.html?action=page&id=2348.
3. One of the tabletop microscopes in Keen Hall, the Hitachi TM1000 scanning electron microscope, is mounted on a collapsible trolley for deployment across campus or into the community. At an outdoor Chemistry Day at the San Bernardino County Museum, 168 participants examined over 20 different samples and printed over 100 micrographs to take home as souvenirs. Samples included feathers, spider web, animal hair, pollen, snake skin, sand and various freshly found insects. Below are images from this event.



A2. RESEARCH NARRATIVE: Please summarize any significant trends (new research directions, significant increases or decreases in sponsored funding, changes in outreach efforts, etc.) during the review period.

Chemical Genomics

A continuing research approach embraced at CEPCEB stimulating interdisciplinary research efforts is chemical genomics, which is also the foundation of the CEPCEB Chemical Genomics IGERT Program for graduate student training. This is an emerging field at the intersection of chemistry and biology that focuses on the screening of thousands of drug-like chemicals on living organisms using robotic instrumentation for highly automated handling of chemicals and biological samples. Currently, chemical libraries (>60,000 compounds) are housed on the first floor of

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Keen Hall in dedicated freezers as well as fluid robotics (Microscopy and Genomics Cores), chemical database tools (Bioinformatics Core) and expertise in biological screening of chemicals (Glenn Hicks; David Carter) along with PIs, postdocs and students spread across departments. At the Keen Hall Core Instrumentation Facilities, training and use of fluidics robots are provided, as well as microscopy-based screens training through the Microscopy Core. The Institute for Integrative Genome Biology has organized a rate structure for access to chemical libraries in order to maintain and expand collections.

High throughput screening for chemical genomics is an increasingly important area of research. Much of this is funded by the IGERT Chemical Genomics program. A 46,000 chemical pollen germination inhibitor screen was completed using the methodology of Robert et. al. 2008 developed at CEPCEB. A secondary screen was carried out on the Leica SP2, looking for mislocalization of five GFP labeled endomembrane markers. These chemicals may be useful in teasing apart the pathways for trafficking of proteins within a cell. In addition, these libraries will be made available publicly in the near future. The libraries include compounds that block pollen germination and compounds known to have effects on endomembrane trafficking. This has been part of an ongoing fruitful collaboration between the University of Ghent, Belgium, and Natasha Raikhel's lab. The Cutler lab has been heavily involved in getting new chemical libraries online and developing robotic handling capability and yeast assays which can screen thousands of compounds a day. In addition, new discoveries are being made by CEPCEB members. For example, Cutler et al, reported in the journal *Science* the use of chemical genomics to identify a new receptor for the plant hormone Abscisic acid (<http://genomics.ucr.edu/news/news-details.php?id=47>). This groundbreaking work identified the receptor for abscisic acid which has been elusive. This is opening the door for an in depth understanding of plant responses to stress.

Bioinformatics

The number of researchers utilizing IIGB's Bioinformatics Linux cluster has increased by another 18% compared to the previous year. There are currently 150 researchers from ~45 labs using the Linux cluster, from bioscience, biomedical, statistics, chemistry and engineering departments at UCR. A recently awarded NIH equipment grant allowed the Bioinformatics facility in the Genomics building to quadruple the storage and memory on their cluster. This expansion will enable many new data analysis strategies that could not be performed before, especially in the next generation sequence analysis and molecular modeling areas.

Microscopy

The Microscopy Core Instrumentation Facility is a popular resource for biologists and other researchers with imaging needs. In the 2009-10 fiscal year, the Microscopy Core was utilized by 77 UCR PIs and their lab members from 14 departments. By repairing and maintaining the instruments in-house (Microscopy Academic Coordinator), costs are kept down and a wide diversity of supporting equipment is made available. For example, a Singer Mark 2 micro-manipulator was added to the stereo scope system to allow for precise hand-dissection of plants and insects; a macro imaging station with computer-driven D5000 camera was added for imaging of larger items such as plates and whole plants; and a refurbished Nikon Multiphot enlarger stand was set up for imaging atherosclerotic lesions in mouse aortas which are also too big for routine microscopy, but needed to be systematically imaged for area analysis.

The TM-1000 tabletop scanning electron microscope has seen much increased usage this year because it can process samples much more quickly than traditional instruments. Samples require no preparation at all and can be imaged live in under three minutes, or can be snap-frozen or freeze dried for prolonged observation of delicate samples. An air scrubber was installed for safer and easier handling of the isopentane freeze liquid, and the instrument itself was ruggedized for field-deployment. It can now be moved by minivan, set up in under 15 minutes, and run anywhere where there is electricity.

The Microscopy Core has just acquired an Atto Biosciences automated confocal microscope for the high throughput and analysis of biological samples and for chemical genomics-related screening. This new instrument will replace an existing instrument and add many enhanced capabilities.

Proteomics

The Proteomics Core houses four major instruments including Q-TOF nanoUPLC/MS/MS, Q-STAR MALDI/MS/MS, BIACOR X100 and IPGhor 2D-gel, but the Q-TOF nanoUPLC/MS/MS is the most popular system that is suitable to many types of analysis and highly appreciated by users. For the 2009-10 period, the Proteomics Core focused on instrumentation improvement to further strengthen the advantages of the Q-TOF nanoUPLC/MS/MS system so that any protein samples could be analyzed with the MudPIT method in routine basis. Since the upgrade of the nanoUPLC from one- to two-dimensions, the MudPIT approach has become the major method for proteomics analysis. Now it is widely employed in proteomics characterization of important cellular compartments and protein complexes involved in gene

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regulation, cellular trafficking, signal transduction, stress and disease responses such as human cancers and malaria. Site-specific mapping of the post-translational modifications (PTMs) of cellular proteins is another major area of proteomics studies. Important individual proteins from human, plants, fungi and viruses are extensively studied to correlate potential PTMs with their biological functions in both development and pathogenesis. Although the Proteomics Core has advanced to the sophisticated MudPIT technology, it still maintains traditional methods to support users of chemical genomics. The Core was able to overcome technical challenges to allow easy switches between MudPIT and conventional one-dimension LC so that small molecules such as those from chemical libraries and plant hormones could be analyzed with high sensitivity. Multiple services were added in the past year because of improved technology and capability. As such, the Proteomics Core was able to attract more users on campus; 25 PIs from twelve departments used proteomic services with revenue approaching \$40,000. The success of these proteomics studies was a positive factor in the renewal of grants totaling several million dollars.

For the near future, the Proteomics Core anticipates a significant increase in service demands. Continued genome sequencing will provide protein databases to organisms whose cellular proteins are currently unknown. With UCR's next-generation sequencing technology in place, proteomics research may certainly expand into areas that have never been studied before; for example, crops such as rice, wheat, and citrus. PTM mapping for global proteome or individual proteins will still be a major area that may show strong growth in demand. Analysis of plant and insect hormones can potentially become popular since the corresponding analytical methods have been developed and will have a significant impact on our understanding of diseases responses.

With possible surges in service requests and with current instrumentation becoming older, it is essential to add a new high-end LC/MS system such as the LTQ-Orbitrap, which should ensure the availability of the most advanced technologies and methods to campus users. An S10 grant was submitted to NIH in 2009 requesting ~ \$1,000,000 in funding for this instrument; however, it was denied. We will continue to compete for this grant in the coming cycle; however, an institutional commitment will be required for success. The new instrument can provide unprecedented ultra-high mass resolution, accuracy, and sensitivity as well as the most sophisticated XXXXX (ETD) fragmentation technology. It can specifically enhance the facility's ability in the studies of PTM providing a much higher degree of precision. This should secure UCR's position in the forefront of proteomics research.

HIGHLIGHTS OF RESEARCH TRENDS/DIRECTIONS WITHIN CEPCEB:

Agricultural Genomics

Breakthrough research done by **Sean Cutler** greatly accelerated scientists' knowledge of how plants and crops can survive difficult environmental conditions such as drought. Working on abscisic acid (ABA), a stress hormone produced naturally by plants, Sean Cutler's laboratory showed in April 2009 how ABA helps plants survive by inhibiting their growth in times when water is unavailable – research that has important agricultural implications. In only months since Cutler's discovery of a novel receptor for ABA, six research papers in prestigious journals such as *Science* and *Nature* were published that built on his work, a testament to the interest among plant scientists to nail down exactly how stress signaling pathway works in plants. This intense activity in the field was expedited by Cutler's willingness to share information with colleagues before his own research was published – an open approach that is at odds with the often cutthroat competition in hot scientific areas. One of the six research papers that builds on Cutler's work was published online Nov. 18 in *Nature*. The research, led by **Jian-Kang Zhu** fleshes out the domino pathway from the receptor down to the proteins that control plant growth. The results from his lab reveal new insights into ABA signaling mechanisms and define a minimal set of core components of a complete major ABA signalling pathway.

(UCR Press Release dated November 18, 2009: http://newsroom.ucr.edu/news_item.html?action=page&id=2213). Sean's research contribution was also named by *Science* magazine as one of the top 10 breakthroughs of the year! (UCR Press Release dated December 17, 2009: http://newsroom.ucr.edu/news_item.html?action=page&id=2228) ScienceWatch Interview (April 2010): <http://sciencewatch.com/sciencewatch/dr/fbp/2010/10aprfbp/10aprfbpCutl>

CEPCEB member **Julia Bailey-Serres** continued her research on the Sub1A gene that when overexpressed allows rice crops to escape ruination from prolonged submergence during floods. During this period, Dr. Bailey-Serres reported on genetic variation at the Sub1 locus associated with submergence tolerance in rice. The projects, which are leading to the development of rice varieties with greater submergence tolerance, have significant meaning for struggling rice farmers throughout the world whose crop yields are often subject to destruction by seasonal rains. Julia Bailey-Serres also published several articles characterizing the molecular response to low oxygen stress at the cellular, organ and cross-species level, and several reviews on low oxygen stress responses in plants and post-transcriptional gene regulation in

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plants. Julia Bailey-Serres also published articles on the technology for cell-type specific isolation of polyribosomes for the analysis of translatoemes, and established a website for the evaluation of cell-specific gene expression from publicly available data.

Cynthia Larive (Chemistry) and **Julia Bailey-Serres** are making good progress on metabolomics and metabolic profiling experiments in rice that are providing a deeper understanding of the effects of hypoxia stress as well as the way that genotypic differences in the M202 and M202(Sub1) cultivars are expressed through their different metabolic phenotypes.

The **Wenbo Ma** lab is primarily working on understanding the molecular mechanisms underlying plant-bacterial pathogen interactions. Specifically, they are interested in elucidating the functions and evolution of virulence effectors injected by the pathogens to plant cells. Using a natural soybean – *Pseudomonas syringae* pathosystem, they have identified a mutation as a key step driving the evolution of the virulence effector HopZ1. Their data supports a model in which sequence diversification imposed by the plant R gene-associated immunity has driven HopZ1 evolution by allowing allele-specific substrate-binding. These findings are published in the journal *Molecular Microbiology*.

Howard Judelson's lab initiated proteomics studies of sexual and asexual developmental stages of *Phytophthora infestans*, using the UCR Proteomics Core facility.

Biofuels

The focus of Eugene Nothnagel's research continues to be on methylated sugars in plant cell wall polymers. His lab is attempting to identify the methyltransferase that synthesizes 3-O-methyl-L-rhamnose in the moss *Physcomitrella*. Engineering plants with higher or lower levels of polysaccharide O-methyltransferases could have applications in biofuels.

Computational Biology

Bioinformaticians are continuing to collaborate with biologists on grants involving such topics as the epigenetics of malaria (Stefano Lonardi, Karine Le Roch) and crop science (Stefano Lonardi, Tim Close). **Stefano Lonardi's** collaboration with **Tim Close's** lab focuses on barley and cowpea whole-genome sequencing, transcriptome, and BAC-by-BAC sequencing using the Illumina Genome Analyzer Iix. **Stefano Lonardi's** collaboration with **Karine Le Roch's** lab focuses on the epigenomics of the human malaria parasite (nucleosome positioning and DNA methylation).

Thomas Girke's group has developed a novel Sub-HMM method for predicting the most highly conserved regions in protein families from their domain models or profile HMMs (BMC Bioinformatics: 11, 205). This study resulted in the prediction of a comprehensive set of functionally relevant modules in almost 3 million UniProt protein sequences of known and unknown function. Moreover, the method was very efficient in identifying remotely related sequences by sensitive Sub-HMM searching. Furthermore, they have developed the EI-Search and EI-Clustering methods for ultra-fast structure similarity searching and clustering of very large compound data sets. Their acceleration is achieved by applying novel embedding and indexing techniques to represent chemical compounds in a high-dimensional Euclidean space. Their tests have shown that the method can dramatically reduce the search time of large databases by a factor of 40-200 fold, while their clustering time could be reduced by 20 to 80 fold. Most importantly, the EI-Clustering method made it feasible to cluster the 19 million structures in the PubChem Compound data set which is by far the largest small molecule collections available in the public domain. Another important advantage of these general purpose similarity search and clustering methods is that they can be applied to many types of biological data and similarity measures. The corresponding publication in Bioinformatics (26, 953-959) was selected for *Faculty of 1000 Biology*.

IIGB members **Tao Jiang, James Borneman, Frances Sladek, Wenbo Ma, Thomas Girke, and Stefano Lonardi** have collaborated to study computational and informatics issues in microbial community classification, nuclear receptor binding sites and target genes in the human genome, type III secreted proteins in gram-negative bacteria, large databases of chemical compounds, and genome-wide tagSNP selection. They have also started looking at RNA-Seq data and meta-genomics.

Chia-en Chang's group recently published a paper in PLoS Computational Biology, one of the most prestigious journals in this field. The findings in PLoS Computational Biology regarding the role of oligomerization and cooperative regulation in protein function are particularly significant and interesting. They applied both molecular dynamics simulations and coarse-grained Brownian dynamics simulations to study their model system, tryptophan

synthase. Their results highlight the complex roles of protein oligomerization and the fine balance between rigidity and dynamics in protein function.

Genomics/Molecular Biology

The **Stajich** lab was established in July 2009 upon the recruitment of Jason Stajich to CEPCEB and IIGB. Their work is focusing on understanding the fungal cell wall and dynamics of transposon evolution in fungi, and they are actively collaborating with several IIGB and CEPCEB labs, including: **Kathy Borkovich**, **Isgouhi Kaloshian** and **Hailing Jin** (SmallRNAs in Tomatoes in response to fungal infection); **Isgouhi Kaloshian** and **Thomas Eulgem** (WRKY transcription factor evolution in plants); **Thomas Girke** (Bioinformatics tool development and deployment on bioinformatics cluster); **Susan Wessler** (Rice transposable element evolution – NSF funded grant to S Wessler, J Stajich [UCR] and Brutnell, Sun [Cornell]); **Susan Wessler** and **Peter Atkinson** (transposable elements in mosquitoes – proposed research to W.M. Keck Foundation). The Stajich lab is also collaborating with other groups at UCR: **Joel Sachs** (Biology) (evolution of symbiosis in rhizobium associated bacteria), and groups outside of UCR: **Daniel Roos** (U Penn) to develop PanFungal genome database (grant to Stajich and Roos from Burroughs Wellcome Fund). They have hosted 2 visiting postdoc scholars from Uppsala University (Sweden) and University of Idaho to learn more about comparative genomic approaches.

Katherine Borkovich has nearly completed mutation of all 10,000 genes in *Neurospora crassa*.

Dmitri Maslov was awarded an NIH grant R21 (AI088292) “Mitochondrial ribosomes and related RNP complexes in *Trypanosoma brucei*” 06/01/2010 – 05/31/2012.

Venu Reddy’s lab has obtained significant insights into how master regulatory molecule of stem cell maintenance functions in shoot apical meristem stem cell niche of Arabidopsis. They have also obtained insights into the interplay between stem cell specification and growth control by developing computational tools required for image analysis.

Dr. Sharon Walker’s work continued to focus on bacterial adhesion to surfaces. Over this past year her work expanded from mineral surfaces (such as those found in the subsurface) and engineered surfaces (specifically coated surfaces developed for antimicrobial purposes) to reverse osmosis membranes. As part of her sabbatical year (2009-2010) Dr. Walker was part of a Desalination Department at Ben Gurion University. An outcome of this collaboration was a USDA funded grant through the International Science and Education program which will facilitate the exchange of graduate students and faculty for extended visits between Ben Gurion University and UCR. The subject of this program is water reuse.

Chemistry

Cynthia Larive’s lab achieved a major advance with the recent development of a new approach for 1H NMR spectroscopy of the glucosamine residues of glycosaminoglycans. The Larive lab is coupling this approach with expression of 15N-labeled heparan sulfate as a tool for both structural characterization and future ligand-binding experiments.

Michael Pirrung’s lab achieved total synthesis of the anticancer proteasome inhibitor syringolin A.

Small RNAs

Xuemei Chen’s lab has traditionally been focusing on the biogenesis and functions of microRNAs. In this period, they began to probe the functions of endogenous siRNAs in genome stability. In this area, they have uncovered a role of Pol II-generated long noncoding RNAs in recruiting siRNAs to chromatin to trigger DNA methylation. This prompted them to begin to investigate the role of long noncoding RNAs in epigenetic regulation, a research direction that they successfully obtained funding to pursue.

Using a variety of cell biology related techniques, **A.L.N. Rao’s** lab demonstrated for the first time that a satellite RNA could replicate in nucleus in the absence of its helper virus cucumber mosaic virus. In another study, the application of immunofluorescence confocal microscopy to *Nicotiana bethamiana* leaves expressing replication-derived BMV CP as a GFP fusion, in conjunction with antibodies to the CP and double-stranded RNA, a presumed marker of RNA replication, revealed that the subcellular localization sites of replication and CP co-aligned. Temporal analysis by transmission electron microscopy of ultrastructural modifications induced in BMV infected *N. bethamiana* leaves

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revealed a reticulovesicular network of modified endoplasmic reticulum (ER) incorporating large assemblies of double membrane vesicles (DMVs) and convoluted membrane structures in the cytoplasm, resembling those associated with SARS and dengue virus infections. Additionally, for the first time, we have found by ectopic expression experiments that BMV CP itself has the intrinsic property of modifying ER and inducing DMVs similar to those present in whole virus infections.

Shou-Wei Ding's laboratory developed new culture-independent methods for discovering viruses (PNAS 107:1606-11) and viroids in plants and animals, demonstrated an essential role for viral secondary siRNAs in antiviral defense (PNAS 107:484-9), and established a conceptual framework for RNA-based antiviral immunity (Nat Rev Immunol 10:632-44). The Illumina sequencing machine in the core facility of the Institute has been used in all of the papers published in 2010 and cited in the grant applications.

Patents

The following patents were filed during the 2009-10 period:

Sang-Youl Park, Andrew Defries and Sean Cutler: "Control of Plant Stress Tolerance, Water Use Efficiency and Gene Expression Using Novel ABA Receptor Proteins and Synthetic Agonists". Full Application, filed February 12, 2010. Original Provisional filing Feb. 13, 2009.

Sang-Youl Park and Sean Cutler: "MODIFIED PYR/PYL RECEPTORS ACTIVATED BY ORTHOGONAL LIGANDS"; provisional filing, U.S. application serial no. 61/328,999, filed on April 28, 2010/

Patent Pending Active Thomas Eulgem Primary Contributor, Thomas Girke Co-Contributor, Colleen Knoth Co-Contributor Graduate Student UC2008-084-3 METHODS AND COMPOSITIONS FOR PROVIDING SALICYLIC ACID-INDEPENDENT PATHOGEN RESISTANCE IN PLANTS; 07/26/2009.

A3. ORGANIZATIONAL AND MANAGEMENT STRUCTURE: Have any changes been made to the organizational or management structure of the center during the review period? If so, please describe.

NEW MEMBERS:

In FY 2009-10, the following faculty accepted invitations to join the Center for Plant Cell Biology. Currently, 53 faculty (+2 Academic Coordinators and 1 Academic Administrator) from 13 departments are CEPCEB members.

Sue Wessler – Botany & Plant Sciences

LEADERSHIP:

The following faculty assumed notable roles as CEPCEB members in FY 2009-10:

CEPCEB Seminar Committee:

Faculty Members:

Hailing Jin (Chair) –Plant Pathology & Microbiology
Venu Reddy – Botany & Plant Sciences
Tao Jiang – Dept. of Computer Science & Engineering

CEPCEB Award Committee:

Award Committee Members:

Faculty Members:

Katherine Borkovich (Award Committee Chair) –Plant Pathology & Microbiology
Chia-en Chang –Chemistry
Sean Cutler –Botany & Plant Sciences

Other Academics:

Glenn Hicks – IIGB Administrator, Genomics Core
Vanitharani Ramachandran–Botany & Plant Sciences

Graduate Student:

Melissa (Missy) Smith – Plant Biology/CEPCEB ChemGen IGERT Program

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NSF CEPCEB REU Program:

Director: Patricia Springer –Botany & Plant Sciences
Asst. Director: Thomas Eulgem –Botany & Plant Sciences

NSF ChemGen IGERT Program:

Director: Julia Bailey-Serres–Botany & Plant Sciences
Assoc. Director: Sean Cutler–Botany & Plant Sciences

CEPCEB Award Nomination Committee:

Shou-wei Ding, Plant Pathology & Microbiology
Xuemei Chen, Botany & Plant Sciences

NSF CEPCEB IGERT Proposal Renewal (2010)

PI: Katherine Borkovich –Plant Pathology & Microbiology

NSF CEPCEB Research Experiences for Undergraduates (REU) Renewal (2010-15)

PI: Howard Judelson –Plant Pathology & Microbiology
Co-PI: Patricia Spring –Botany & Plant Sciences

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B.1: PARTICIPATING PERSONNEL UCR FACULTY (Senate Members)		Type of Participation (check all that apply)						
Name	Payroll Title	Affiliation	PI/Co-PI on Center Sponsored Award	Center Advisory Committee Member	Speaker at Center Event	Author on Center Publication	Other	(Description of Other)
Bailey-Serres, Julia	Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Gen Bldg Advisory Committee; Gen Bldg Floor Contact (Alt); IIGB Colloquium Speaker; IIGB Forum Participant; CEPCEB ChemGen IGERT PI
Bazhenov, Maksim	Assoc. Professor	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IIGB Colloquium Speaker
Borkovich, Katherine	Professor	Plant Pathology & Microbiology	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Advisory Committee; IIGB Colloquium Speaker; IIGB Forum Participant; CEPCEB Award Committee Chair; Gen Bldg Emerg Staff (BES); PI on IGERT Preproposal (2010)
Chang, Chia-en	Asst. Professor	Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Chen, Xuemei	Assoc. Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB REU Participating Faculty
Cui, Xinping	Asst. Professor	Statistics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Forum Participant
Cutler, Sean	Asst. Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ChemGen IGERT Assoc Dir, Speaker Host
Ding, Shou-Wei	Professor	Plant Pathology and Microbiology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CDVR Symposium Committee Member and Speaker; GGB Director; CEPCEB REU Participating Faculty; CEPCEB ChemGen IGERT Mentor
Eulgem, Thomas	Assoc. Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	REU Asst. Dir; ChemGen IGERT Mentor; CEPCEB Seminar Host
Girke, Thomas	Asst. Professor, Dir of Bioinformatics Facilities	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Innovation Deep Seq Grant Award Committee; IIGB Forum Participant; NIH ARRA High-End Instrumentation Grant Contributor
Jiang, Tao	Professor	Computer Science & Eng	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IGERT ChemGen Co-PI; CEPCEB Seminar Committee member
Jin, Hailing	Asst. Professor	Plant Pathology & Microbiology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminar

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								Coordinator CEPCEB REU Participating Faculty
Judelson, Howard S.	Professor	Plant Pathology and Microbiology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gen Bldg Floor Contact; IIGB Forums; PI, CEPCEB REU Renewal; IIGB Forum Participant
Kaloshian, Isgouhi	Professor	Nematology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pilot Bus/Science Grad Program Coord.
Larive, Cynthia	Professor	Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ChemGen IGERT Mentor
Le Roch, Karine	Asst. Professor	Cell Biology & Neuroscience	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IIGB Innovation Deep Seq Grant Awardee; IIGB Colloquium Speaker, “ Facing the Challenges of Vector-Borne Diseases in the 21st Century”; CEPCEB ChemGen IGERT Retreat Speaker; CDVR Symposium Committee Member and Speaker
Li, Bai-lian (Larry)	Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Liao, Jiayu	Asst. Professor	Bioengineering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Lonardi, Stefano	Asst. Professor	Computer Science & Eng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Lyubovitsky, Julia	Asst. Professor	Bioengineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Ma, Wenbo	Asst. Professor	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB REU Participating Faculty; IIGB Forum Organizer (co- sponsored by GGB)
Maduro, Morris	Asst. Professor	Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Morikis, Dimitrios	Assoc. Professor	Bioengineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Nothnagel, Eugene	Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars
Nugent, Connie	Assoc. Professor	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Pirrung, Michael	Professor, UC Presidential Chair	Chemistry	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IGERT ChemGen Co-PI; co-PI on IIGB grant with Karine LeRoch
Raikhel, Natasha V.	Dist. Professor, IIGB/CEPCEB Dir.	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dir, IIGB and CEPCEB; CEPCEB REU Participating Faculty; CEPCEB ChemGen IGERT Co-PI; CEPCEB Seminar Host/Participant
Rao, A.L.N.	Assoc. Professor	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB REU Participating Faculty
Reddy, Venugopala G.	Asst. Professor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Forum Participant; CEPCEB REU Participating Faculty; CEPCEB Seminar Host and Participating Faculty
Schultz, Jerome	Distinguished Professor	Bioengineering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB Seminars; PI Luncheons; IGERT ChemGen Co-PI
Smith, Harley	Asst. Professor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Forum Participant

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Springer, Patricia S.	Assoc. Professor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Colloquium Speaker, CEPCEB REU Co-PI, REU Participating Faculty
Stajich, Jason	Asst. Professor	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Colloquium Speaker; IIGB Forum Participant
Walker, Sharon	Asst. Professor	Chemical & Env Engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IIGB Forum Participant
Walling, Linda	Professor, Divisional Dean of Life Sciences	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Innovation Deep Seq Grant Awardee; CDVR Symposium Committee Member and Speaker; CDVR Symposium Grant PI; Genomics Bldg Coordinator/Moving Committee; Gen Bldg Floor Contact
Wang, Yinsheng	Assoc. Professor	Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ChemGen IGERT Mentor
Xu, Guanshui	Assoc. Professor	Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Xu, Shizhong	Professor	Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Yang, Zhenbiao	Professor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IIGB Colloquium Speaker
Zhong, Wenwan	Asst. Professor	Chemistry	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Zhu, Jian-Kang	Professor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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For Other Academics: Please list professional researchers, post-docs, visiting scholars, adjunct professors, academic specialists, research associates, academic coordinators, and academic CE appointees who actively participated in Center activities, e.g., PI on a sponsored project administered by the Center, member of a Research Team, speaker at a Center Conference/Event, author on a Center publication, etc. **[Note: this is not a complete list; dependent upon PI response]**

Name	Payroll Title/Faculty Mentor	Affiliation	PI/Co PI on Center Sponsored Award	Center Advisory Committee Member	Speaker at Center Event	Author on Center Publication		(Description of Other)
Aggarwal, Pooja	Postdoc/Reddy	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Aliyari, Roghiyh	Assistant Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Baig, Ayesha	Graduate Student/Eulgem	ChemGen IGERT and Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Barding, Gregory	Graduate Student/Larive	ChemGen IGERT and Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Speaker
Barrera, Blanca	Postdoctoral Scholar	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Speaker
Batelli, Giorgia	Viator/Zhu	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Boyle, Sean	Graduate Student/Pirung	GGB	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Speaker
Brown, Michelle	Graduate Student/Raikhel	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	REU Mentor, CEPCEB ChemGen IGERT Retreat Speaker; Member of Research team
Campbell, Asharie	Postdoc/Borkovich	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cao, Eddie (Yiqun)	Graduate Student/Jiang	Computer Science & Eng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker; Member of Research team
Cao, Mengji	Junior Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Carter, David	Academic Coordinator, Microscopy	Center for Plant Cell Biology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PI, NSF Instrumentation Proposal (multiphoton scanner); IIGB Equipment Committee; IIGB Forum Participant; State Science Fair Judge for CEPCEB Award
Cervantes, Serena	Graduate Student/Le Roch	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Chinnusamy, Viswanathan	Visitor/Zhu	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Chung, Doug	Graduate Student/Le Roch	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Poster Presentation
Defries, Andrew	Graduate Student/Smith	ChemGen IGERT and Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Diedrich, Jolene	Graduate Student/Zhong	ChemGen IGERT and Analytical Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Dinh, Theresa	Graduate Student/Chen	ChemGen IGERT and Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Genomics Building Lab Contact and Building Emergency Staff; Bus/Science Grad

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								Student Participant
Du, Peng	Junior Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Eaton, Carla	Postdoc/Borkovich	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fang, Bin	Postdoc/Jiang	Computer Science & Eng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Fujii, Hiroaki	Postdoc/Zhu	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fukao, Takeshi	Assistant Specialist/Bailey-Serres	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Gao, Zhihuan	Assistant Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Han, Yanhong	Junior Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Hicks, Glenn	Academic Administrator/Assoc. Research Plant Cell Biologist	Inst. for Integrative Genome Biology/Botany & Plant Sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Forum Speaker, IIGB Innovation Deep Seq Grant Coordinator and Award Committee; NIH Instrumentation Proposal (Sequencer) PI; CEPCEB RIMS and State Science Fair Judge
Hwang-Verslues, W	Graduate Student/Sladek	Environmental Toxicology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Jablonska, Barbara	Staff Research Associate/Springer	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gen Bldg Lab Contact
Jamin, Augusta	Graduate Student	ChemGen IGERT and GGB	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Ji, Lijuan	Graduate Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Jones, Carol	Assistant Specialist/Borkovich	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Jovel, Juan	Postdoc/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Juntawong, Piyada	Graduate Student/Bailey-Serres	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Kaiser, Kayla	Graduate Student/Larive	ChemGen IGERT and Analytical Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Kim, James	Graduate Student/Borkovich	CMDB/ChemGen IGERT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Kim, YunJu	Graduate Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Klingler, John	Visitor	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Lee, Seung Cho	Graduate Student/Bailey-Serres	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Li, Dongming	Visiting Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Li, Shaofang	Graduate Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Li, Shengben	Postdoc/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Li, Wei	Graduate Student/Jiang	Computer Science & Eng	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Li, Yang	Postdoc/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Liu, Xigang	Postdoc/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Ma, Kelvin	Undergraduate Student/Bailey-Serres	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Mai, Jungo	Postdoc/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team

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Pan, Songqin	Academic Coordinator, Proteomics	Center for Plant Cell Biology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Co-PI on NIH Instrumentation Grant proposal for Mass Spec ; IIGB Forum Participant; State Science Fair Judge for CEPCEB Award
Pena Castro, Julian	Postdoc/Bailey-Serres	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ponts, Nadia	Postdoc/Le Roch	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Prudhomme, Jacques	Staff Research Associate/Le Roch	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ramachandran, Vanitha	Assistant Specialist/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB High-School State Science Fair Judge; Member of Research team
Rodriguez, Elisandra	Postdoc/Le Roch	Cell Biology & Neuroscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rodriguez-Salus, Melinda	Graduate Student/Eulgem	ChemGen IGERT/Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker; Member of Research team
Roy, Biswajit Gopal	Postdoctoral Scholar	Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Experimental worker on IIGB grant shared with K. LeRoch
Schacht, Patrick	Graduate Student/Borkovich	GGB/ChemGen IGERT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker; REU Mentor
Schroeder, Mercedes	Jr. Specialist/Eulgem	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Servin, Jacqueline	Postdoc/Borkovich	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IIGB Forum Participant
Smith, Melissa	Grad Student/Walling	ChemGen IGERT and Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Stevenson, R.	SRA	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CEPCEB Seminars
Tataw, Moses	Graduate Student/Reddy	ChemGen IGERT and Computer Science	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Tsuchiya, Tokuji	Postdoc/Eulgem	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tsuchiya, Tokuji	Asst. Specialist/Eulgem	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Udomoporn, Petchthai	Visiting Graduate Student/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Wang, Xianbing	Postdoc/Ding	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Wang, Zhengming	Visiting Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wei, Linda	Postdoc/Eulgem	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team; Lab Contact
Won, So Youn	Graduate Student/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Wu, Shang	Graduate Student/Smith	ChemGen IGERT and Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEPCEB ChemGen IGERT Retreat Speaker
Xiang, Qijun	Postdoc/Judelson	Plant Pathology & Microbiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	REU Mentor
Xie, Mingtang	Graduate Student/Reddy	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Yadav, Ram	Postdoc/Girke, Reddy	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Yumul, Rae	Graduate Student/Chen	Plant Biology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	REU Mentor; CEPCEB ChemGen IGERT Retreat

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								Speaker
Zhao, Xin	Visiting Scientist/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Zhao, Yuanyuan	Graduate Student/ Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Member of Research team
Zheng, Binglian	Postdoc/Chen	Botany & Plant Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

GRADUATE STUDENTS [Note: this is not a complete list; dependent upon PI response]

For Graduate Students, please indicate degree being pursued, program/department/institutional affiliation, and faculty mentor.

Name	Degree	Faculty Mentor	Dept/Program
Ai, Rizi	PhD	Chang, C-E	GGB
Baig, Ayesha	PhD	Eulgem, T	Plant Biology
Bao, Ergude	MA	Girke, T	Computational Science
Barding, Gregory	PhD	Larive, C/Bailey-Serres, J	Chemistry
Barding, Gregory	PhD	Bailey-Serres, J/Larive, C	Chemistry, ChemGen IGERT
Beecher, Consuelo	PhD	Larive, C	Chemistry
Bolden, Jennifer	PhD	Pirrung, M	Chemistry
Brinton, Erin	PhD	Bailey-Serres, J	Plant Biology
Bulloch, Daryl	PhD	Larive, D/Schlenk, D	Chemistry
Cabrera, Ilva	PhD	Borkovich, K	CMDB
Cao, Eddie	PhD	Girke, T	Computational Science
Cao, Eddie (Yiqun)	PhD	Jiang, T	Computer Science
Cervantes, Serena	PhD	Le Roch, K	CMDB
Charisi, Anna	MA	Girke, T	Plant Biology
Choi, Soon	PhD	Rao, ALN	CMDB
Chowdhury, Indranil	PhD	Walker, S	Chem & Env Eng
Chung, Doug	PhD	Le Roch, K	CMDB
Cruz, Jennifer	PhD	Larive, C	Chemistry
Diaz, Jessica	PhD	Springer, P	Plant Biology/IGERT
Ding, Theresa	PhD	Chen, X	Plant Biology
Duma, Denise	PhD	Lonardi, S	Computer Science
Elkashaf, Samer	PhD	Ding, S-W	GGB
Gong, Amy	PhD	Walker, S	Chem & Env Eng
Han, Michael	PhD	Maslov, D	CMDB
Harris, Elena	PhD	Le Roch, K/Lonardi, S	Computational Science
Honda, Ryan	PhD	Walker, S	Chem & Env Eng
Hondros, Christopher	PhD	Chang, C-E	Chemistry
Horan, Kevin	PhD	Girke, T	Computational Science
Hou, Yueh Ju	PhD	Zhu, J-K	Plant Biology
Huang, Yu-ming Mindy	PhD	Chang, C-E	Chemistry
Jang, Charles	PhD	Bailey-Serres, J	GGB, ChemGen IGERT
Jayanadinijjar, Parham	PhD	Walker, S	Chem & Env Eng
Ji, Lijuan	PhD	Chen, X	Plant Biology
Jiang, Shushu	PhD	Ma, W	Plant Pathology
Jones, Christopher	PhD	Larive, C	Chemistry
Juntawong, Piyada	PhD	Bailey-Serres, J	GGB
Kaiser, Kayla	PhD	Larive, C/Bailey-Serres, J	Chemistry
Kaiser, Kayla	PhD	Bailey-Serres, J/Larive, C	Chemistry, ChemGen IGERT
Kim, Panya	PhD	Springer, P	Plant Biology/IGERT
Kim, James	PhD	Borkovich, K	CMDB, ChemGen IGERT
Koble, Robert	PhD	Springer, P	Plant Biology/IGERT
Lang, Zhaobo	PhD	Zhu, J-K	Plant Biology
Langesley, Derek	PhD	Larive, C	Chemistry
Lee, Seung Cho	PhD	Bailey-Serres, J	Plant Biology
Lehto, Elizabeth	MS	Ma, W	Biochemistry
Li, Shaofang	PhD	Chen, X	Plant Biology
Li, Wei	PhD	Jiang, T	Computer Science
Limtiaco, John	PhD	Larive, C	Chemistry
Lotfi, Sima	MS	Jiang, T	Computer Science
Lu, Jinfeng	PhD	Ding, S-W	GGB
Luo, Yingjun	PhD	Ding, S-W	CMDB
Marcus, Ian	PhD	Walker, S	Chem & Env Eng
Massou, Theresa	PhD	Pirrung, M	Chemistry
Michkov, Alexander	PhD	Borkovich, K	GGB
Niu, Xiaofan	PhD	Judelson, H	Plant Pathology & Microbiology
Orr, Daniel	PhD	Larive, C	Chemistry
Owraghi, Melissa	PhD	Maduro, M	CMDB/Biology
Patel, Mohini	MS	Bailey-Serres, J	Biochemistry

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UNDERGRADUATE STUDENTS

For Undergraduate Students, please indicate class level, major/department/institutional affiliation, and faculty mentor.

Name	Degree	Faculty Mentor	Dept/Program/Institute
Ahmed, Beheva	BS	Ding, S-W	
Alonzo, Adam	BS	Walker, S	Env Engineering/UCR
Alpert, Matt	BS	Lonardi, S/Close, T	Computer Science/UCR
Bakhtiari, Persiah	BS	Nothnagel, E	Biology/UCR
Barekat, Ayeh	BS	Nothnagel, E	Biology/UCR
Beltran, Elliott	Associate	Raikhel, N	Biology/Chaffey College
Brale, Matthew	BS	Biology	Le Roch, K
Bruton, Matthew	BS	Biology	Le Roch, K
Carrizales, Cassie	BS	Judelson, H	Texas A&M
Chan, Vicky		Ma, W	Biology/UCR
Chavez, Rosalva	BS	Walker, S	Env Engineering/UCR
Chow, Matthew		Chen, X	
Chung, Brittany	BS	Nothnagel, E	Biology/UCR
Contreras, Antonio	BS	Bailey-Serres, J	Biological Sciences/UCR
De Anda, Jessica	BA	Stajich, J	
DeAlwis, Ashni	BS	Nothnagel, E	Neuroscience/UCR
Diala, Fitz-Gerald	BS	Borkovich, K	Biochemistry/UCR
Duchon, Alex	BS	Walker, S	Env Engineering/UCR
Escalera, Julie	BS	Bailey-Serres, J	Biological Sciences/UCR
Esfeld, Lizz		Chen, X	REU/Truman College
Evero, Mano		Borkovich	REU/UCR
Fan, Raymond		Ma, W	Biology/UCR
Flores, Efrain	BS	Raikhel, N	Biology/UCR
Gill, Puneet	BS	Bailey-Serres, J	Biological Sciences/ UCR
Gonzalez, Michelle		Springer, P	RCC
Gurjhal, Jasleen	BS	Borkovich, K	Biology/UCR
Hernandez, Wynter	BS	Nothnagel, E	Biology/UCR
Hsu, Emily	BS	Raikhel, N	Biology/UCR
Hung, Andrew	BS	Springer, P	Biology/UCR
Iargueta, Ise		Springer, P	Chaffey College
Jain, Shika	BS	Nothnagel, E	Biology/UCR
Johnson, Latasha	BA	Raikhel, N	Spanish/UCR
Kan, Dayoung	BS	Raikhel, N	Biology/UCR
Khoobyari, Parnian		Chen, X	
Kim, James	BS	Walker, S	Chemical Engineering/UCR
Kim, Kevin	BS	Chang, C-E	Chemistry
Laussu, Gabriella	BS	Nothnagel, E	Biology/UCR
Le, Xuan Lam		Chen, X	
Lee, Sunny	BS	Chang, C-E	Biochemistry
Luu, Tony		Ma, W	Biology/UCR
Mackenzie, Mollie	BS	Nothnagel, E	Global Studies/UCR
Magistrado, Leila	BS	Maduro, M	Biology/UCR
Manley, Eric		Close, T	
Melchor, Geraldine	BS	Borkovich, K	Biology/UCR
Moore, William	BS	Nothnagel, E	Plant Biology/UCR
Nguyen, Annie	BA	Stajich, J	
Nguyen, Viet	BS	Nothnagel, E	Biology/UCR
Noche, Kathleen	BS	Nothnagel, E	Biology/UCR
Nuygen Huei		Reddy, V	
Opot, Stephen	BS	Walker, S	Env Engineering/UCR
Orozco, Nikolas		Chen, X	
Patino, Jessica		Close, T	
Ramirez, Gerardo J		Chen, X	
Reimer, Mundy		Chen, X	
Richardson, Jordyn	BS	Borkovich, K	Biology/UCR
Roberson, Heather	BS	Maduro, M	Biology/UCR
Rodriguez, Kevin	BS	Springer, P	Biology/UCR

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Rodriguez, Manuel E.		Chen, X	
Romaro, Lisette		Ma, W	Biology/UCR
Servantes, Michael	BS	Biology	Le Roch, K
Shah, Vishwa	BS	Larive, C	Biochemistry/UCR
Sprehn, Charlotte		Chen, X	REU/Tulane U
Suen, Wayng	BS	Maslov, D	Biology/UCR
Syed, Hera	BS	Bailey-Serres, J	Biological Sciences/UCR
Tavakkoli, Montreh		Reddy, V	
Tea, Zueena	BS	Judelson, H	UCR
Thai, Lisa	BS	Nothnagel, E	Biology/UCR
Thant, Wai	BS	Chang, C-E	Biology/UCR
Tien, Da		Zhu, J-K	
Trinh, Lien	BS	Ding, S-W	
Van, Jennifer		Zhu, J-K	
Velez, Erik	BS	Larive, C	Biology/UCR
Weitz, Jonathan	BS	Eulgem, T	Biology/UCR
Wycoco, Marc		Reddy, V	
Yeh, Evan		Chen, X	
Yeung, Elaine	BS	Bailey-Serres, J	Biochemistry Honors/UCR
Zamora, Renee		Chen, X	

B.2: CENTER PUBLICATIONS

CHEMICAL GENOMICS

- Hicks GR** and **Raikhel NV** (2009) Opportunities and Challenges in Plant Chemical Biology. *Nature Chemical Biology* 5:268-272.
- Knoth C, Salus M, Girke T, Eulgem T** (2009) The synthetic elicitor 3,5-Dichloroanthranillic acid (DCA) induces NPR1-dependent and NPR1-independent mechanisms of disease resistance in *Arabidopsis thaliana*. *Plant Physiol*: 150,333-347.
- Rosado A, Raikhel NV (2010) Application of the Gene Dosage Balance Hypothesis to Auxin-Related Ribosomal Mutants in *Arabidopsis*. *Plant Sig & Behavior* 5(4).
- Rosado A, Sohn E-J, Drakakaki G, Pan S, Swidergal A, Xiong Y, Kang B-H, Bressan RA, Raikhel NV** (2010) Auxin-Mediated Ribosomal Biogenesis Regulates Vacuolar Trafficking in *Arabidopsis*. *The Plant Cell* 22: 1-16.
- Surpin M, Zou Y, Xiong C, **Raikhel NV, Pirrung MC** (2010) Iodine Scanning of a Phenazine Inhibitor of Vacuolar Sorting. *Bioorganic & Medicinal Chemistry Letters* 20(5): 1496-1499.
- Turner SL, Ray A** (2009) Modification of CO₂ avoidance behaviour in *Drosophila* by inhibitory odorants. *Nature*. 461, 277-281

COMPUTATIONAL BIOLOGY

- Ai R, Fatmi MQ, Chang CEA** (2010) T-Analyst, a program for efficient analysis of protein conformational changes. *J Comput Aided Mol Des*. p.819-827. 9p.
Website: <http://www.springerlink.com/content/0412u10618032702/fulltext.pdf>
- Bozdag S, **Close T, Lonardi S** (2009) "A Compartmentalized Approach to the Assembly of Physical Maps", *BMC Bioinformatics*, 10:217.
- Cao Y, Jiang T, Girke T** (2010) Accelerated Similarity Searching and Clustering of Large Compound Sets by Geometric Embedding and Locality Sensitive Hashing. *Bioinformatics*: 26, 953-959. [Selected for Faculty of 1000 Biology]
- Cui, X, You, N, Girke, T, Michelmore, R, Van Deynze, A** (2010) Using Recombinant Inbred Line Microarray Expression Data. *Bioinformatics*: in press.
- Fatmi MQ, Ai R, Chang CEA** (2009) Synergistic regulation and ligand-induced conformational changes of tryptophan synthase. *Biochemistry*. Vol. 48: p.9921-9931. 11p.
Website: <http://pubs.acs.org/doi/abs/10.1021/bi901358j?journalCode=bichaw>.
- Harris EY, **Ponts N, Levchuk A, Le Roch K, Lonardi S** (2010) "BRAT: Bisulfite-treated Reads Analysis Tool", *Bioinformatics*, vol.26, no.4, pp.572-573.
- Horan K, Shelton CR, Girke T** (2010) Predicting conserved protein motifs with Sub-HMMs. *BMC Bioinformatics*: 11, 205.
- Li W, Ruegger P, **Borneman J, and Jiang T** (2010) Polony identification using the EM algorithm based on a Gaussian mixture model. *Proc. 10th IEEE International Conference on Bioinformatics and Bioengineering (BIBE)*, Philadelphia, PA, May 31 - June 3, 2010, pp. 220-225.
- Liu L, Wu Y, **Lonardi S, and Jiang T** (2010) Efficient genome-wide tagSNP selection across populations via the linkage disequilibrium criterion. *Journal of Computational Biology (JCB)* 17(1):21-37.
- Peterson FC, DeJong ES, Park SY, Jensen DR, Weiner JJ, Bingman CA, **Chang CEA, Cutler SR**, Phillips Jr, GN, Volkman, BF (2010) Structural basis for selective activation of ABA receptors. *Nature Structural & Molecular Biology*. Vol. 17: p.1109 – 1113. 5p. Website: <http://www.nature.com/nsmb/journal/v17/n9/full/nsmb.1898.html>.
- Pokhriyal N, Ponts N, Harris EY, Le Roch KG, and Lonardi S** (2010) "Novel Gene Discovery in the Human Malaria Parasite using Nucleosome Positioning Data", to appear in Proceedings of LSS Computational Systems Bioinformatics Conference (CSB'10), Stanford, CA.
- Wu Y, **Close TJ, Lonardi S** (2010) "Accurate Construction of Consensus Genetic Maps via Integer Linear Programming", to appear in *IEEE/ACM Transactions on Computational Biology and Bioinformatics*.
- Yang Y, Zhao J, Morgan R, **Ma W, and Jiang T** (2010) Computational prediction of type III secreted proteins from gram-negative bacteria. *BMC Bioinformatics* 11(Suppl 1):S47; also presented at the 8th *Asia Pacific Bioinformatics Conference (APBC)*, Bangalore, India, January, 2010.

GENOMICS

- Arensburger P., K. Megy et al.** (2010) Sequencing of *Culex quinquefasciatus* establishes a platform for mosquito comparative genomics. *Science*. In press.
- Bolotin E, Liao H, Ta T, Yang C, Hwang-Verslues W, Evans J, Jiang T, and Sladek F** (2010). Integrated approach for identification of Human HNF4 target genes using protein binding microarrays. *Journal of Hepatology* 51(2):642-53 (Selected for Faculty of 1000 Biology.)

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B.3: DISTINGUISHED AWARDS RECEIVED OR HELD BY CENTER PARTICIPANTS

Fiscal Year Period: 2007-08

Center Name: Center for Plant Cell Biology

Please list prestigious awards received or held by Center participants from professional organizations, industry, etc.

Recipient Name	Name of Award	Year Award Received
BAILEY-SERRES, JULIA Botany & Plant Sciences	2010 Fellow of the American Society of Plant Biologists (ASPB)	2010
BORKOVICH, Katherine Plant Pathology & Microbiology	B.O. Dodge Award "For exceptional contributions to the Neurospora community", March 2010	2010
CHANG, CHIA-EN Chemistry	HP outstanding Junior Faculty Award, American Chemical Society	2009
CUTLER, SEAN, Botany & Plant Sciences	Top 10 Breakthrough List for 2009, <i>Science</i>	2009
LARIVE, CYNTHIA Chemistry	Chair-elect, American Chemical Society Division of Analytical Chemistry	2010
NOTHNAGEL, EUGENE Botany & Plant Sciences	Academy of Distinguished Teachers at UCR	2006
MADURO, MORRIS Biology	NSF CAREER Award	2010
MASLOV, DMITRI Biology	2010 Fulbright International Scholar Award for Czech Republic	2010
WALKER, SHARON Chem & Env Engineering	Fulbright Fellowship	2009
WALKER, SHARON Chem & Env Engineering	NSF Career Award	2010
ZHU, JIAN-KANG Botany & Plant Sciences	Election to the National Academy of Sciences	2010

Several CEPCEB members have received promotions and major advancements:

Jeffrey Bachant was promoted to Associate Professor, Cell Biology & Neuroscience

Sean Cutler was promoted to Associate Professor, Botany & Plant Sciences

Thomas Eulgem was promoted to Associate Professor, Botany & Plant Sciences

Thomas Girke was promoted to Associate Professor, Botany & Plant Sciences

Connie Nugent was promoted to Associate Professor, Cell Biology & Neuroscience

Cengiz Ozkan was promoted to Professor, Mechanical Engineering

Mihri Ozkan was promoted to Professor, Electrical Engineering

Julia Bailey-Serres was promoted to Step 6, Botany & Plant Sciences

Jian-Kang Zhu was promoted to Distinguished Professor and Cell Biologist, Above Scale

Zhenbiao Yang was promoted to Step 6, Botany & Plant Sciences

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B.4: EVENTS SPONSORED BY CENTER

Fiscal Year Period: 2008-09

Center Name: Center for Plant Cell Biology

Please list events sponsored by Center during the period under review.

Title of Event	Type of Event	Date of Event	Number of Attendees	Names of Featured Speakers	Title and Affiliation of Featured Speakers
NSF CEPCEB ChemGen IGERT Fifth Annual Retreat	Faculty and Student Retreat	October 2-4, 2009	18	TERENCE WALSH	Discovery Research & Development branch of Dow AgroSciences Title: " Selectivity & Plant Fate of Novel Phytotoxins: Some Chemical Genetic Case Studies "
NSF REU Summer Symposium	Student Symposium	August 21, 2009	~50	2009 REU Students (10)	Listed on p. 6
CEPCEB Noel T. Keen Annual Lecture and Award Ceremony	Award Ceremony	October 16, 2009	~70	JOSEPH ECKER	Professor, Plant Molecular and Cellular Biology Laboratory The Salk Institute for Biological Studies Title: "Sequencing Across the Genome/Phenome Divide"
CEPCEB Seminar Series	Seminars	Weekly	~25	See Attachment D	See Attachment A
IGERT Seminar Series	Seminars	8/yr	~25	See Attachment D	See Attachment A
GGB Seminar Series	Seminars	8/yr	~25	See Attachment D	See Attachment A

B.5: SPACE UTILIZED BY CENTER

Please provide explanations or descriptions as required. Changes to number of square feet, space configuration, or space use should be described.

Space Description	Square Feet
Meeting Space	298 (2018 Keen Hall)
Office Support	784*
Research	6518**
Special Use	
Miscellaneous	148
Total Assigned Space	7,748

* Offices assigned to IIGB/CEPCEB

** Core Instrumentation Facilities: Lab/Offices belonging to Genomics.

B.6: SPONSORED FUNDING PROPOSALS AND AWARDS

On the first table below, please list all current (new and continuing) awards for the fiscal year under review. This list should include only those projects where the intellectual content was a result of Center collaborations, not awards that were made possible simply because of the availability of Center facilities and/or equipment.

Current Awards

Proposal Title	PI	Co-PIs	Funding Agency	Period of Funding	Total Award	1 st year Award
REU Site: Research Experiences for Undergraduate Students in Plant Cell Biology	Patricia Springer	Julia Bailey-Serres	NSF	3/1/2005-2/28/2010	\$432,901	\$80,100
REU Site: Research Experiences for Undergraduates in Plant and Plant-Pathogen Cell Biology	Howard Judelson	Patricia Springer	NSF	4/1/2010-3/31/2015	\$614,097	\$534,459
IGERT in Chemical Genomics: Forging Complementation at the Interface	Julia Bailey-Serres	Michael Pirrung; Tao Jiang; Natasha Raikhel; Jerome Schultz	NSF	9/1/2005-8/31/2011	\$2,900,553	\$222,786
Dissection of regulatory networks controlling plant defense gene expression by chemical genomics	Thomas Eulgem	Isgouhi Kaloshian	USDA	7/1/2008-6/30/2011	\$349,128	\$87,258
REU Site: Research Experiences for Undergraduate Students in Plant Cell Biology	Patricia Springer	Julia Bailey-Serres	NSF	3/1/2005-2/28/2010	\$432,901	\$80,100
Genetic dissection of the RNAi-mediated antiviral immunity in <i>C. elegans</i>	Shou-wei Ding	Morris Maduro	NIH R01	5/1/2010-4/30/2014	\$1,150,600	\$287,650

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B.7: NON-SPONSORED RESOURCES

Fiscal Year Period: 2009-10

Center Name: Center for Plant Cell Biology

Sources of Funding		Amount
	CNAS Staff	
Funding Provided by UCR Institutional Sources	funding	\$277,302
	CNAS Operating	
	Budget	\$2,223
Funding Provided by UC System Sources		
	CEPCEB Award	
Funding from Endowments or Gifts	Fund	\$19,960
		\$299,485

DATE	SPEAKER	TITLE	HOST
July '09			
CEPCEB (Friday) **Internal	10 David Carter Academic Coordinator Botany & Plant Science	<i>"Technology Talk: Expanding the Microscopy toolbox with Multiphoton, FLIM and FCS"</i>	David Carter
CEPCEB (Friday) **Internal	17 Nadia Ponts Cell Biology & Neuroscience Department University of California, Riverside	<i>Epigenomics in pathogens: the case of the human malaria parasite</i>	Karine Le Roch
	31 No seminar		
August '09			
CEPCEB (Friday) **Internal	7 Xianbing Wang Department of Pathology & Microbiology University of California, Riverside	<i>"RNAi-mediated viral immunity requires amplification of virus-derived siRNAs in Arabidopsis thaliana"</i>	Shou-wei Ding
	14 No Seminar		
	21 No Seminar		
	28 No Seminar		
Sept '09			
	4 No Seminar		
	10 Henrik Jonsson Dept of Theoretical Physics, Division of Complex Sciences, Lund University, Sweden	<i>"Modeling Morphogenesis in Shoot Apical Meristems"</i>	Venu Reddy
	18 No Seminar- Biochem Symp		
CEPCEB (Tuesday)	22 Olivier Voinnet Centre national de la recherche scientifique Institut de Biologie Moléculaire des Plantes	<i>"Roles and mechanisms of action of silencing small RNAs"</i>	Shou-wei Ding
Oct '09			
IGERT	2 IGERT Retreat		
CEPCEB (Friday)	9 Ming Chen Hammond Assistant Professor of Chemistry University of California, Berkeley	<i>"Discovering and Deciphering the Function of cis-Regulatory RNAs in Plants"</i>	Xuemei Chen
CEPCEB (Friday)	16 Joe Ecker 2009 Noel Keen Lecturer CEPCEB CEREMONY AWARD The Salk Institute for Biological Studies La Jolla, California	<i>"Sequencing across the genome/ phenome divide"</i>	Natasha Raikhel
CEPCEB (Friday) ** Internal	23 Patricia Springer Botany & Plant Sciences University of California, Riverside	<i>CANCELLED</i> <i>It's all about balance- the role of boundaries in Arabidopsis organ formation-</i>	Hailing Jin
CEPCEB (Friday)	30 Sheldon M. Schuster Keck Graduate Institute of Applied Life Sciences	<i>Leadership Opportunities in the Biosciences Industry</i>	Katherine Borkovich
Nov '09			
IGERT	6 H. Eric Xu Distinguished Investigator Laboratory Structural Sciences Van Andel Research Institute Michigan	Structure Biology and Drug Discovery of Nuclear Hormone Receptor	Sean Cutler
CEPCEB (Friday) **Internal	13 Katherine Borkovich Plant Pathology and Microbiology Department University of California, Riverside	<i>CANCELLED</i>	Hailing Jin
CEPCEB (Monday)	16 Jiri Friml Department of Plant Systems	<i>"Hormonal Regulation of Endocytosis and Polarity in Plants"</i>	Natasha Raikhel

		Biology VIB/ Universiteit Gent, Belgium		
CEPCEB (Friday)	20	Yi Zhang Professor and HHMI Investigator The Department of Biochemistry & Biophysics UNC School of Medicine	<i>Could the DNA demethylase please stand up?</i>	Hailing Jin
Dec '09				
IGERT	4	Paul Jensen Associate Research Scientist Scripps Institution of Oceanography	Chemical Ecology of Marine Micro-organisms (tentative)	Katherine Borkovich and Julia- Bailey Serres
CEPCEB (Friday)	11	Dorothy Shippen Professor of Biochemistry and Biophysics Texas A&M University	<i>Beginning to understand the ends: telomere structure and synthesis in Arabidopsis</i>	Connie Nugent
CEPCEB (Friday) **Internal	28	Xianbing Wang Plant Pathology & Microbiology University of California, Riverside	CANCELLED	Shouwei Ding
January '10				
IGERT	8	Steve Kay Divisional Dean of Biological Sciences University of California, San Diego	<i>Circadian Rhythms in Plants and Animals- Chemical Genomics(tentative)</i> CANCELLED PER JULIA	Julia Bailey-Serres
CEPCEB (Friday)	15	David Galbriarh Department of Plant Sciences University of Arizona	CANCELLED BY SPEAKER	Venu Reddy
IGERT- CEPCEB- CHEMISTRY	22	Jeffrey Aubé Department of Medicinal Chemistry University of Kansas Structural Biology Center	<i>Libraries Inspired by Alkaloids and Peptides</i>	Cindy Larive And Julia Bailey-Serres
	29			
February '10				
CEPCEB (Friday)	5	Pat Zambryski Department of Plant and Microbial Biology UC Berkeley	<i>"Plasmodesmata mediated intercellular transport during different stages of development"</i>	Hailing Jin
CEPCEB (Wednesday)	10	Rong Li Stowers Institute for Medical Research Kansas City, MO	<i>A quantitative dissection of the state of cell polarity in budding yeast</i>	Zhenbiao Yang
IGERT	12	Jurgen Ehltng Assistant Professor Centre for Forest Biology University of Victoria Canada	<i>Evolution of a novel phenolic pathway in Arabidopsis thaliana</i>	Thomas Eulgem
CEPCEB (Friday)	19	Shauna Somerville Department of Plant and Microbial Biology UC Berkeley	<i>Defenses at the Plant Cell Wall</i>	Hailing Jin
CEPCEB (Friday)	26	Steven Clark Department of Molecular, Cellular, and Development Biology University of Michigan	<i>Stem cells, cell polarity and phosphoinositols in Arabidopsis</i>	Venu Reddy
March '10				
IGERT	12	Brenda S.J. Winkel Professor, Department of Biological Sciences Virginia Tech	<i>Flavonoids (tentative)</i>	
CEPCEB (Friday)	19	Jonathan Jones Project Leader	<i>Using Pathogen Effectors to Investigate Plant Resistance Mechanisms</i>	Hailing Jin

		The Sainsbury Laboratory UK		
April '10				
CEPCEB (Friday)	1	C. Robertson McClung Professor of Biological Sciences Dartmouth College	<i>Do you know your ABCs? Arabidopsis and Brassica Clocks</i>	Hailing Jin
CEPCEB (Friday)	2	Mary Lou Guerinot Professor Department of Biological Sciences Dartmouth	<i>From the Ionome to the Genome: Identifying genes involved in regulating ion homeostasis in plants</i>	Hailing Jin
IGERT	9	Pamela Green Delaware Biotechnology Institute	<i>Small RNAs, target RNAs and RNA decay</i>	Natasha Raikhel
CEPCEB (Monday)	12	Ben Scheres Professor Utrecht University	<i>Plant architecture and multilevel</i>	Venu Reddy
CEPCEB (Friday)	30	Yi-Fang Tsay Institute of Molecular Biology Academia Sinica, Taiwan	<i>"A new story of an old protein: Sensing and transport are independent functions of the same protein CHL1 TBA"</i>	Anthony Huang
May '10				
CEPCEB (Friday) **Internal	7	Samer Elkashef Plant Pathology & Microbiology University of California, Riverside	<i>"Small molecule inhibitors of RNAi"</i>	Shou-wei Ding
IGERT	14	Erin Carlson Department of Chemistry Indiana University	<i>"Integrating Proteomics and Metabolomics to Map Bacterial Development"</i>	Cynthia Larive
CEPCEB (Friday) **Internal	21	No Seminar		
CEPCEB (Friday) **Internal	28	Xianbing Wang Plant Pathology & Microbiology University of California, Riverside	CANCELLED	Shouwei Ding
June '10				
CEPCEB (Friday) **Internal	4	Mingtang Xie Botany & Plant Sciences University of California, Riverside	<i>Live Imaging Study on Cytokinin Function and Regulation in Stem-cell</i>	Venu Reddy
IGERT	11	Eric Mjolsness Professor Department of Computer Science Center for Computational Morphodynamics UC Irvine	<i>"Foundations for lively geometry in plant morphodynamics"</i>	Julia Bailey-Serres
CEPCEB (Friday) **Internal	18	Takeshi Fukao Botany & Plant Sciences University of California, Riverside	<i>Waterproof Rice: SUB1A-dependent submergence tolerance and its crosstalk with drought toleranceTBA</i>	Julia Bailey-Serres
CEPCEB (Friday) **Internal	25	Shruti Lal Botany & Plant Sciences University of California, Riverside	<i>Understanding the Molecular Mechanisms that Control Floral Evocation in Arabidopsis thaliana</i>	Harley Smith

LEGEND:

CEPCEB (BPS 252) Seminars: Special Topics on Botany

IGERT Seminars

CDVR Seminars

IIGB Seminars

GGB Seminars