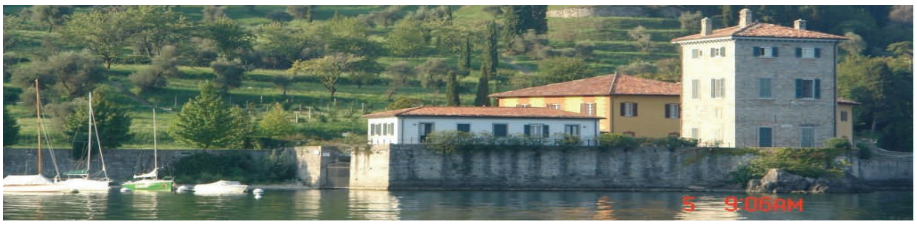
PIPRA
public intellectual property resource for agriculture

Enabling access
to agricultural intellectual property
for public benefit.

Fall 2006 Issue 6

# PIPRA Sizes Up a Global Alliance for Agricultural IP at Bellagio

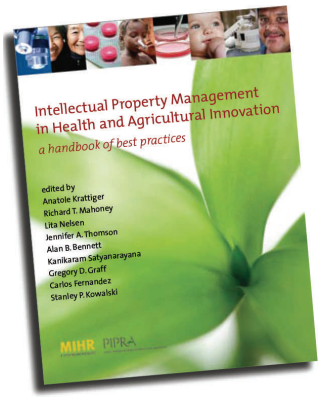


PIPRA convened an international workshop titled "**A Global Alliance for Access to Public Intellectual Property in Agriculture**" at the Bellagio Study and Conference Center in Bellagio, Italy (pictured above) on September 5-7. Representatives from countries that are major developers of agricultural technology and institutions that are holders of agricultural intellectual property (IP)—including both developed and innovative countries—gathered to discuss public sector IP management in agriculture. The workshop objectives were to catalyze a global framework for public-sector agricultural IP management to promote the broadest applications of existing and emerging agricultural technologies, to identify elements of and a common philosophical framework for public-sector collaboration in IP management, and to determine next steps for creation or enhancement of national and regional initiatives for public-sector collaboration.

There were several major conclusions of the workshop. First, a consensus emerged that there is indeed value to be found in creating a global network to support access to agricultural IP. Articulation of desired outcomes and

*(continued on page 2)*

# PIPRA and MIHR Announce Forthcoming IP Handbook




MIHR and PIPRA are proud to announce that *Intellectual Property Management in Health and Agricultural Innovation: a Handbook of Best Practices* will be forthcoming in the Spring of 2007, in hardcopy and online.

The *Handbook* is a major endeavor. Prepared for policy makers, leaders of public sector research establishments, technology transfer professionals, licensing executives, and scientists, the book offers information and strategies for utilizing the power of both IP and the public domain. It illustrates how IP can be judiciously leveraged to forge stronger partnerships and usher in a new age of collaboration and sharing.

The book puts aside ideological debates to focus on pragmatic considerations and practical opportunities. Written by practitioners in the field, its ~135 chapters are a comprehensive resource on current IP management issues and approaches. While the authors always keep their eye on the big picture, the *Handbook* eschews general proclamations. Instead, it puts forward thoughtful dialogue aimed at real-world problems faced by those who want to put IP to work for the public sector and public interest.

Visit www.iphandbook.org for more information, to view sample chapters, and to pre-order a copy for your institution.

**Inside this issue:**



**PIPRA, The Public Intellectual Property Resource for Agriculture, is an organization committed to the strategic management of intellectual property owned by universities and not-for-profit research institutions, encouraging the broadest applications of existing and emerging agricultural technologies for the development of subsistence crops for developing countries and specialty crops in developed countries.**

**www.pipra.org**

## Bellagio workshop (*continued from page 1*)

benefits of the global network and the services that the network should provide to achieve those outcomes.

Second, there was agreement that the existing PIPRA network meets the operational criteria for such a network and that indeed the most efficient path forward would be to encourage international expansion of the current PIPRA network, while at the same time exploring development of regional nodes or interactions with relevant regional networks where they exist to address geographic disparities.

Third, a recommendation was made to re-assess the governance structure of PIPRA in order to accommodate a more global charter.

Fourth, the group stressed the necessity of developing a demonstration project to test whether the PIPRA network can indeed enable specific projects by delivery of a technology package with FTO.

Participants also made individual commitments to move the debate forward and attempt to engage public sector institutions worldwide in the global network.

Finally, while this workshop focused on countries with advanced research capacity that comprise the major global technology developers, an additional workshop was recommended to further expand the global network to developing countries that are more likely to be technology users.

## Three new PIPRA Members in Asia:

### Total PIPRA membership now exceeds 40 institutions

**Hanoi Agricultural University** is the leading national institution in Vietnam charged with advancing agricultural and rural development through education, research, and technological advance.

**China Agricultural University (CAU)** is a leading agricultural educational and research institution in China. As a national key university it is directly subordinated to the Ministry of Education. It resulted from a 1995 merger between the former Beijing Agricultural University (BAU) and Beijing Agricultural Engineering University (BAEU), but its history traces to the founding in 1905 of the College of Agriculture by the Qing Dynasty.

**Birla Institute of Technology,** located in Mesra, Ranchi, India, and founded in 1955, is home to a new department of biotechnology pursuing basic research on biofuels, biodiversity conservation, and cultivation of endangered medicinal plants and a new "Biotech Information Hub" and biotech business park.

The addition of these three institutions reflect the growth of interest globally in PIPRA's core mission.

## UPCOMING EVENTS

**PIPRA 2007 Annual Member's Meeting**

**March 7, 2007**
**Renaissance Parc 55 Hotel**
**San Francisco, CA**

The PIPRA Annual Member's Meeting is an opportunity for technology transfer managers, researchers, and administrators at PIPRA member institutions to share in depth information on agbio IP issues, briefings on the latest PIPRA activities, provide input and ideas on PIPRA strategy, and participate in important decisions for the future of the organization.

The 2007 meeting has been scheduled to coincide with AUTM's 2007 Annual Meetings, which will be at the San Francisco Marriott, March 8-10, 2007.

**More information for registration and accommodations coming soon.**

## Welcoming Kathy Bess to the PIPRA staff in Davis

**Kathy Bess, new Operations Assistant at PIPRA**

Kathy Bess has joined the PIPRA staff as Program Operations Assistant. Kathy is a University of California, Davis graduate and is happy to be back on campus working to help streamline the day to day office tasks for the rest of the PIPRA staff. Kathy has worked for many years as administrative support, and for several of those years coordinated training events in Asia Pacific for a larger corporation. Kathy will help organize conferences and travel, and will be providing general support for PIPRA's activities. Join us in welcoming Kathy. She can be contacted through e-mail at klbess@ucdavis.edu.

## New PIPRA Executive Committee

PIPRA has a new Executive Committee in place for 2006-2007. The Executive Committee is the governing board that provides oversight to the organization. Executive Committee members are nominated from among the PIPRA members and approved by the entire membership.

We would like to thank those who have rolled off the committee for the time and commitment they have given PIPRA. These include Karel Schubert of the Donald Danforth Center, who was serving as the Executive Committee chair, Lisa Lorenzen of Iowa State University, Henry Lowendorf of Yale University, and Carlos Fernandez at Fundación Chile, now with FIA.

Members who will continue on from last year include Gerard Barry of the International Rice Research Institute, John Byatt of the University of Florida, and Irvin Mettler of University of California, Berkeley. We would like to welcome the following new members to the committee: Robert Goodman of Rutgers University, Keith Jones of Washington State University, Charles Kitima of St. Augustine University, Tanzania, and Alan McHughen of University of California, Riverside. As these appointments are recent, a new chair has yet to be elected.

# A PIPRA Latin America workshop held in Mexico City

On November 6-7, 2006 PIPRA and CONACYT, the Mexican National Science and Technology Council, co-hosted a Latin American workshop focused on **"Strategies to Manage Intellectual Property in Support of Public-Private Collaborations for Agricultural Innovation"** at the University of California's historical *Casa de California* in Mexico City.

The workshop initiated a dialogue with some of the leading institutes of Latin America engaged in agricultural biotechnology research and the management of intellectual property. Participants gathered from Argentina, Brazil, Chile, Columbia, Costa Rica, Mexico and Uruguay, for two days of high level presentations and discussions. Talks characterized the current state of intellectual property in agriculture in Latin American countries. And possibilities were discussed for creating a regional Latin American network for managing agricultural intellectual property in public institutions that could be linked to PIPRA. For more information please go to http://www.pipra.org/latinamerica/LA_Workshop.htm

**Workshop participants gathered at University of California's *Casa de California* in Mexico City.**

# Providing IP Support for Research Consortia:

## PIPRA forges a novel approach for Pierces' Disease research

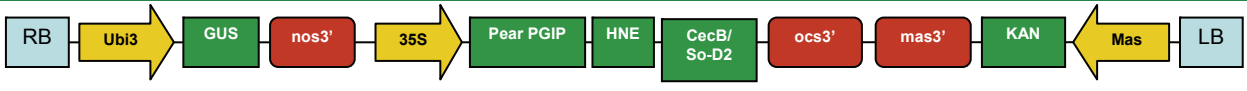
Research consortia have historically been comprised of groups of researchers or research institutions that share complementary expertise and interests in solving targeted research problems. Each researcher and their institution would tend to manage their part of the process relatively autonomously, with results shared through publications and conferences. In the era of genomics and biotechnology, changes have been afoot in terms of the increased pace and complexity of the research enterprise and the increasingly proprietary nature of research inputs and outputs. These changes suggest that research consortia would benefit from a stronger collaborative infrastructure. One critical element that could be embodied in such infrastructure is an effective intellectual property (IP) management strategy that promotes a collaborative approach to managing the proprietary inputs and outputs of consortia projects.

An excellent example is the California Department of Food and Agriculture's (CDFA) ***Pierce's Disease (PD)/Glassy-Winged Sharpshooter Board*** (the Board) which manages a research consortium focused on addressing the threat of Pierce's disease in grape, funding multiple researchers at a range of institutions. The Board began working with PIPRA in 2005 to analyze and address the IP issues confronting the work of their consortium. They felt the threat that Pierce's disease poses to California's $16.5 billion wine industry required foresight and proactive management in seeking and securing options for the commercial deployment of feasible technologies that they hope would eventually result from the research that they funded. In terms of IP, the Board wanted to ensure that a technology with the potential to control Pierce's disease in grape could be promptly deployed without becoming tangled in a protracted legal web of patent rights, licenses, and freedom to operate.

PIPRA recognized, early on, that an effective IP management strategy for the Pierce's disease consortium would adhere to the same basic principles as the current PIPRA IP management model and practices. In particular, the PIPRA model emphasizes a multilateral approach to maximizing the potential of each separate member institutions' intellectual assets. Rather than focusing solely on IP protection, the PIPRA model sets milestones for technology development, assesses marketing opportunities, and seeks for a better negotiating position during IP exchange. This model, given a bit of adjusting, could aid the Board in coordinating IP to allow for access and protection, both of which are essential to the productivity of research across multiple institutions, while creating opportunities and incentives for further commercial development.

Within the last year, PIPRA has made available a number of information resources custom tailored to the Pierce's disease research community. These resources include a publicly accessible, live, comprehensive database of all patents and scientific literature related to Pierce's disease, an analysis of the IP and scientific literature surrounding Pierce's disease research, and the IP landscape surrounding one particular biotechnology approach to controlling Pierce's disease (the genetic construct is illustrated in the Figure below). The database can be accessed at http://pierces-disease.m-cam.com. Collectively, the resources created by PIPRA give scientists an integrated view of both the technical and legal sides of the work involved in their projects. Such a view helps those funding the consortium to think of the IP generated by consortium participants in terms of a virtual "IP portfolio".

PIPRA and the Board recognize that information resources are but a tool, a first step in being able to implement a successful IP management strategy. To support the consortium to advance R&D on emerging solutions, PIPRA, in the upcoming year, will begin exploring the impact Board funding in particular has had on Pierce's disease research and conduct a more in-depth "IP audit" of a target technology in order to identify embedded IP and contractual obligations that could affect its commercialization.




**An illustration of an anti-microbial plant transformation vector designed to confer PD resistance in grapes (**U.S. Patent Application Serial No. 10/846,172 **). PIPRA's landscape analysis identified several dozen proprietary technologies. For many of them, PIPRA was able to recommend substitutes that could be licensed from PIPRA member institutions and others that could be freely utilized merely because they are in the public domain.**

# New Technology by PIPRA Members

**Notice the new format!**

This section is now concentrating on first publications of new technologies ... and listing them by categories.

## TRANSFORMATION AND EXPRESSION

### Transcriptional termination of transgene expression using host genomic terminators

The present invention relates to a method for expressing a transgene in a host cell that permits transcriptional termination of the transgene to occur without having to rely on a functional termination site in the DNA used for the transformation. Additional 3' regulatory sequences and 3' end processing enhancing sequences and/or structures can be present in the transformation vector or as a fusion with the transgene of interest.

**Agri-Food Canada**

**US 20060168677**, published July 27, 2006
**WO 2006/076808**, published July 27, 2006

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### MicroRNAs (miRNAs) for plant growth and development

The presently disclosed subject matter provides methods and compositions for modulating gene expression in plants. Also provided are plants and cells comprising the compositions of the presently disclosed subject matter.

**North Carolina State University**

**US 20060236427** , published October 19, 2006
**WO 2006/034368**, published March 30, 2006

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### Cloning and characterization of microRNAs from rice

The present invention provides new miRNAs in rice. The nucleic acids of the invention can be used to control gene expression in plants.

**University of California, Riverside**

**US 20060236429**, published October 19, 2006
**WO 2006/105436**, published October 5, 2006

## RNAi

### Composition and methods for controlling fungal disease

The present invention relates to compositions and methods for controlling fungal infestation of plants and crops. In particular, the present invention provides vectors comprising sequences designed to control fungal plant diseases by RNA interference (RNAi) and transgenic plants transformed with such vectors.

**Kansas State University**

**US 2005000662225**, unpublished
**WO 2006/101854**, published September 28, 2006

## PLANT GENETIC TRAITS

### Enhancement of beta-carotene content in plants

The present invention relates to a nucleic acid construct having a nucleic acid molecule configured to silence ß-carotene hydroxylase expression, and host cells, expression systems, plants, and plant seeds having the nucleic acid construct. The present invention also relates to a method of enhancing beta-carotene content by growing a transgenic plant from a plant or seed transformed with the construct.

**Boyce Thompson Institute**

**WO 2006/068946**, June 29, 2006

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### Cloning and characterization of the broad-spectrum resistance gene P12

Compositions and methods for enhancing or creating plant disease resistance to plant pests are provided. Transforming a plant with a novel rice Pi2-like disease resistance gene of the invention enhances disease resistance of the plant. Transformed plants, plant cells, tissues, and seed having enhanced disease resistance are also provided.

**Ohio State University**

**US 7094951**, published August 22, 2006
**US 20040210957**, published October 21, 2004
**JP 2006/507840**, published March 9, 2006
**CN 1688694**, published October 26, 2005
**AU 3276868**, published March 29, 2004
**WO 2004/022715**, published March 18, 2004

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### Transgenic evaluation of activated mutant alleles of SOS2 for salt tolerance in *Arabidopsis thaliana*

The present invention provides a method of increasing salt tolerance in a plant by overexpressing a gene encoding a mutant S0S2 protein in at least one cell type in the plant. The present invention also provides for transgenic plants expressing the mutant S0S2 proteins.

**University of Arizona**
**Consejo Superior de Investigaciones Cientificas** (Spain)

**US 20060168698**, July 27, 2006
**WO 2006/079045**, July 27, 2006

## PLANT GENETIC TRAITS (cont.)

### Root specific phosphate transporter promoters

The current invention provides plant promoter sequences. Compositions comprising the promoter sequence are described, as are methods for the expression of transgenes in plants comprising the use of these sequences. The methods of the invention include the direct creation of transgenic plants with the promoters by genetic transformation, as well as by plant breeding methods.

**Samuel Roberts Noble Foundation**

**WO 2006/110506**, published October 19, 2006

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### Plant phytase genes and methods of use

The invention provides secreted plant phytase coding sequences. Also provided are constructs comprising these sequences, plants transformed therewith and methods of use thereof. In certain aspects of the invention, transgenic plants are provided exhibiting improved phosphorous utilization.

**Samuel Roberts Noble Foundation**

**WO 2006/110507**, published October 19, 2006

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### Plants with increased phosphorus uptake

The invention provides plant acid phosphatase coding sequences. Also provided are constructs comprising these sequences, plants transformed therewith and methods of use thereof. In certain aspects of the invention, transgenic plants are provided exhibiting improved phosphorous utilization.

**Samuel Roberts Noble Foundation**

**WO 2006/110508**, published October 19, 2006

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### Alteration of tobacco alkaloid content through modification of specific cytochrome P450 genes

Compositions and methods for reducing the level of nornicotine and N'-nitrosonornicotine (NNN) in *Nicotiana* plants and plant parts thereof are provided. The compositions comprise isolated polynucleotides and polypeptides for cytochrome P450s that are involved in the metabolic conversion of nicotine to nornicotine in these plants. Expression cassettes, vectors, plants, and plant parts thereof comprising inhibitory sequences that target expression or function of the disclosed cytochrome P450 polypeptides are also provided. Methods for the use of these novel sequences to inhibit expression or function of cytochrome P450 polypeptides involved in this conversion are also provided.

**North Carolina State University**

**University of Kentucky**

**WO 2006/091194**, published August 31, 2006

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### Regulating the ethylene response of a plant by modulation of F-box proteins

The relationship between F-box proteins and proteins involved in the ethylene response in plants is described. In particular, F-box proteins may bind to proteins involved in the ethylene response and target them for degradation by the ubiquitin/proteasome pathway. The transcription factor EIN3 is a key transcription factor mediating ethylene-regulated gene expression and morphological responses. EIN3 is degraded through a ubiquitin/proteasome pathway mediated by F-box proteins EBF1 and EBF2. The link between F-box proteins and the ethylene response is a key step in modulating or regulating the response of a plant to ethylene. Described herein are transgenic plants having an altered sensitivity to ethylene, and methods for making transgenic plant having an altered sensitivity to ethylene by modulating the level of activity of F-box proteins. Methods of altering the ethylene response in a plant by modulating the activity or expression of an F-box protein are described. Also described are methods of identifying compounds that modulate the ethylene response in plants by modulating the level of F-box protein expression or activity. utilization.

**Salk Institute**

**US 20060200875**, published September 7, 2006

## BIOMANUFACTURING / BIOMATERIALS

### *Nicotiana* hybrids and plant varieties for use in production of pharmaceuticals

The present invention relates to a method of producing a non-food crop *Nicotiana* plant that is optimized for producing plant-manufactured biologicals. These can be industrial or research enzymes or proteins, as well as pharmaceutical or therapeutic proteins such as vaccines, antigens, enzymes, antibodies, etc. that can be isolated and purified and administered to a subject. *Nicotiana* hybrids with high biomass produced by the method of the invention, and the seeds, tissue cultures, methods of selecting these plants and regenerating these plants.

**University of Kentucky**

**US 20060236433,** published October 19, 2006

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### Starch-vegetable oil graft copolymers and their biofiber composites, and a process for their manufacture

A new starch-vegetable oil graft copolymer, wherein the vegetable oil has been reacted onto the starch backbone using thermal or free radical initiators has been produced in a twin-screw co-rotating extruder. The starch-vegetable oil graft copolymer can further be reinforced with biofiber in the presence of an optional modifier such as maleic anhydride by reactive extrusion processing to form composites suitable to be injection molded into biodegradable articles.

**Michigan State University**

**US 20060252901** , published November 9, 2006

**EP 1719797**, published November 8, 2006

# Current PIPRA Member Institutions

1. Agriculture and Agri-Food Canada
2. Arizona State University, represented by Arizona Technology Enterprises LLC
3. AVRDC, The World Vegetable Center, Taiwan
4. Birla Institute of Technology, India
5. Boyce Thompson Institute
6. China Agricultural University, China
7. CIMMYT, International Maize and Wheat Improvement Center, Mexico
8. CIP, International Potato Center, Peru
9. Cornell University
10. Donald Danforth Plant Science Center
11. Fundación Chile, Chile
12. Hanoi Agricultural University, Vietnam
13. Institute of Agricultural Genetics, Vietnam
14. Iowa State University
15. IRRI, International Rice Research Institute, Philippines
16. Kansas State University
17. Michigan State University
18. North Carolina State University
19. Ohio State University
20. Oregon State University
21. Parco Technologico Padano, Italy
22. Purdue University
23. Salk Institute
24. St. Augustine University of Tanzania
25. Samuel Roberts Noble Foundation
26. State University of New Jersey, Rutgers
27. University of Arizona
28. University of Arkansas, Division of Agriculture
29. University of California-Berkeley
30. University of California-Davis
31. University of California-Riverside
32. University of Florida
33. University of Georgia Research Foundation
34. University of Idaho
35. University of Kentucky
36. University of Missouri-Columbia
37. University of Saskatchewan, Canada
38. University of Tennessee
39. University of Wisconsin, represented by Wisconsin Alumni Research Foundation
40. Virginia Tech, College of Agriculture and Life Sciences
41. Washington State University

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