

ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

Volume 28, Number 5
September/October 2001

Inside This Issue

Dan Bush Elected to Lead
2002-03

Roger Hangarter to Serve
as Secretary; Adrienne
Clarke Elected to
Executive Committee

Plant Biology 2001
Highlights

Vicki Chandler Assumes ASPB Presidency October 1

Dr. Vicki Chandler is currently professor in the Department of Plant Sciences, University of Arizona. She was raised in California and earned her bachelor's degree in biochemistry at the University of California at Berkeley in 1978. She received her Ph.D. in biochemistry in 1983 from the University of California, San Francisco. From 1983 to 1985 she was a National Science Foundation Plant postdoctoral fellow in the laboratory of Virginia Walbot in the Department of Biological Sciences at Stanford University. From 1985 to 1997 she moved through the professorial ranks in the Department of Biology and the Institute of Molecular Biology at the University of Oregon in Eugene. In 1997, she moved to the Department of Plant Sciences at the University of Arizona in Tucson, where she is a full professor. She is also a member of the Interdisciplinary Program in Genetics and has a joint appointment in the Molecular Cell Biology Department at U-AZ.



Vicki's research focuses on gene regulation in plants, using the anthocyanin biosynthetic pathway in maize as a model system. In addition, she uses the easily assayed phenotypes of the anthocyanin genes to study regulation of transposable elements and gene silencing mechanisms in plants. Vicki's early work on the epigenetic control of Mutator transposable elements demonstrated a strong correlation with transposon silencing and DNA methylation. Her

laboratory has investigated the mechanisms of tissue-specific gene regulation in plants. Currently both genetic and biochemical approaches are being used to determine how the regulatory genes of the pathway, which encode transcription factors that activate the biosynthetic genes, are themselves regulated by tissue-specific and environmental signals. Mutant screens have identified at least one previously unknown regulator of the pathway and identified putative candidate genes that regulate the known transcription factors. Another major ongoing effort is to use both forward and reverse genetic approaches to identify genes involved in chromatin-level gene regulation and determine how they modulate transposon activity and gene silencing. Using a genetic screen, Vicki's laboratory has isolated mutations in several genes that affect multiple epigenetic phenomena, such as paramutation and transposon and transgene silencing. Current experiments are to clone these genes and determine how they are involved in chromatin-level gene control.

At the University of Oregon, Vicki taught introductory genetics and biochemistry lecture and lab courses to biology majors, as well as advanced-level undergraduate courses in genetics and molecular genetics. At the University of Arizona, she has been teaching a graduate-level course in genetics for the Molecular Cell Biology Department and an advanced genetics course for plant sciences graduate students. She has served on numerous competitive grant panels, including the NSF Plant Biology Postdoctoral Fellowship Panel; the DOE Advisory Panel Member



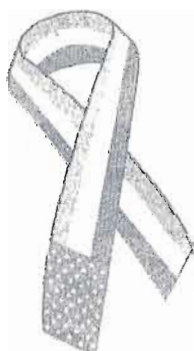
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ASPB Officers & Staff

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Biological Energy Research Program; NSF Eukaryotic Genetics Panel Member; NIH Special Reviewer Genetics Study Section and Molecular Cytology Study Sections, NIH Study Section Genetic Training Grants; NSF National Young Investigator Panel; USDA Plant Genetic Mechanisms panel; and the NSF Waterman Award Committee. Vicki was appointed this year to the NSF Biological Directorate Advisory Committee. She is currently serving on the editorial boards of *Plant Physiology* and *Genetics*. She has been active in several societies and was elected to serve on the Genetics Society board of directors from 1995 to 1997. She is currently on the board of directors for the International Society of Plant Molecular Biology. In 1994, Vicki chaired the Plant Molecular Biology Gordon Conference and co-founded and co-chaired the Epigenetics Gordon Conference in 1995. She is on the board of trustees for the Gordon Research Conferences (1997–2003) and is currently chair of the board. Her awards include 1983–85, NSF Plant Biology Postdoctoral Fellowship; 1985–90, Presidential Young Investigator Award Recipient; 1988–91, Searle Scholar Award Recipient; and 1991–96, NSF Faculty Award for Women Scientists and Engineers.

Vicki's vision for 2002? "One of the most important roles for our Society is to make an impact on human resources by promoting education, mentoring, and diversity. A second area in which our organization really makes a difference is through public outreach. My goal is to continue expanding our programs in these areas during the coming year." ❧

Corrections

In the article "Three ASPB Members Elected to National Academy of Sciences" in the July/August 2001 issue of the *ASPB News*, we mistakenly nicknamed Clark Lagarias "Chuck" Lagarias. We apologize for the error.

In "The Bioethics Imperative II" (July/August 2001, page 12), the author did not intend to imply that The Greens were an ecoterrorist group. The sentence should have read "... our interactions with the public, especially The Greens and ecoterrorist groups."

President's Letter

Old and New Challenges

This is my last letter as ASPB president, so I'll take some moments to review the past year and consider future challenges for the Society. ASPB's mission is to foster the growth and development of plant biology, and this has traditionally been done via its publications and annual meeting. These continue to be major, successful activities of the Society, but we are also expanding in various other ways to serve the growing community of plant biologists. These new efforts include sponsorship of undergraduate research opportunities and a new meeting on plant genetics, increased outreach to the public via ASPB Education Foundation activities (including an hour-long film on agriculture and genetic engineering), a new partnership with a commercial publisher for future plant biology textbooks and monographs (the details are just now being finalized), and more active engagement of the Society with Congress and funding agencies to help shape public policy and promote plant biology research. We have negotiated membership discounts for electronic access to *The Plant Journal*. Our web site has been greatly enhanced, thanks to new staff member Wendy Sahli, and we hope to bring you enhanced services through the web site. Electronic balloting was implemented this year, and we've made great use of the web to have public discussions of important issues, such as the change of the name of the Society. As I write, we are planning to open public discussion on an issue that Natasha Raihkel, the editor-in-chief of *Plant Physiology*, has brought to the fore, namely the name of this key journal. This issue is one in which the voices of the membership, who ultimately own the journal, need to be heard, and full opportunities to hear all sides will be possible via a web discussion page. A membership drive is currently under way, and I ask you to help us increase our membership so we can more effectively serve the plant biology community.

The public debate on genetically modified plants continued this year, fueled by the Starlink corn debacle and aggravated by what

appear to be further ecoterrorist vandalism and arson of plant biology laboratories. As far as I know, no ill effects of Starlink corn have been reported (other than economic), and the scare about Bt corn wiping out the Monarch butterfly was diminished by new studies. Still, fears about this technology continue to run high in some sectors of our nation as well as abroad. In a moving speech at the ASPB annual meeting, Ingo Potrykus spoke about his experiences dealing with anti-GMO groups and emphasized the need for scientists to take an active and informed stance on this issue. It is also prudent that we keep a watchful eye for unanticipated consequences of deploying this technology. The ASPB Public Affairs Committee has been extremely active in working to present a science-based view of the GMO issue, as well as in keeping a watchful eye on funding for plant biology.

Earlier this year I challenged you to think about the greatest successes and greatest future challenges for our field of study. In the end I received about a dozen replies. Not great, in a membership of nearly 6,000. In case you are interested, some of the nominations for great (past) successes include the mechanism of photosynthesis; the discoveries of phytochrome, hormones, and phototropin; and the identity (T-DNA) of the tumor-inducing principle of crown gall. Most respondents focused on the (future) unsolved problems, and there was rather little consensus on what these are. Some of the nominations included mechanisms of cell differentiation, dedifferentiation, and totipotency (this area got the largest number of nominations, which perhaps says something about future directions of research by members); the roles of secondary metabolites; the regulation of cellulose assembly and secretion of other extracellular biopolymers; lateral gene transfer; plant tolerance to environmental stresses (especially cold and freezing); the evolution-

continued on page 4

Plant Biology 2001: Crossing Borders with Knowledge

More than 1,400 attendees congregated at the Rhode Island Convention Center in Providence for Plant Biology 2001. This event was the quadrennial joint annual meetings of the American Society of Plant Biologists and the Canadian Society of Plant Physiologists. Attendees enjoyed New England's charm and warm, sunny weather and participated in numerous scientific and social events. Here are a few of the highlights!

Six Major Symposia Are Cornerstone of Meeting

Surely a major highlight of Plant Biology 2001 were the six symposia focusing on such diverse areas as Metabolite Signaling and Gene Regulation (chaired by Jen Sheen), Intracellular Communication (chaired by Danny Schnell), Plant Physiology 75th Anniversary Symposium—2000 and Beyond: Breaking the Mold (chaired by Natasha Raikhel), Strategies and Mechanisms for the Development of Pattern (chaired by Kathy Barton), Signal Transduction Mechanisms in Plant Defense Activations (chaired by Andrew Bent and Michele Heath), and Gene Silencing (chaired by Dan Cosgrove).

Education Foundation Documentary Film Premiere

Plant Biology 2001 attendees were among the very first to see ASPB's new documentary film on the history of agriculture. This film was sponsored by the ASPB Education Foundation. Foundation chair Bob Goldberg elaborated on the film's concept, production, and purpose. See the January/February 2001 (page 4), the March/April 2001 (page 3), and the current issue (page 5) of the newsletter for more about the film.

Online Abstracts, Schedule, and Program

The electronic submission of abstracts once again made it possible for the abstracts and program schedule to be available in a fully searchable and printable PDF format accessible through ASPB's web page several months before the meeting. Many attendees used this feature, which allows the creation and

customization of a personal meeting agenda. Those who traveled to Providence received a complete abstract supplement and printed program.

Exclusive Afternoon and Evening Poster and Exhibit Sessions

The format for Plant Biology 2001 was modeled after the more dynamic meeting schedule that debuted two years ago and featured 18 minisymposia. These minisymposia were selected by the Program Committee from among the submitted abstracts, suggestions from the membership, and hot topics. In addition, more than 1,000 ASPB and CSPP posters were on display in the exhibit hall for four full days. An exclusive four-hour poster and exhibit session featuring free beer and snacks was held on Sunday afternoon and again Monday evening.

Variety of Workshops

Plant Biology 2001 featured workshops in several strategic areas. The Committee on Public Affairs sponsored one on Saturday entitled "Perspectives of Science Leaders." This session was very well attended and featured the distinguished Dr. Ingo Potrykus, whose leading research on golden rice offers the promise of preventing blindness and deaths for millions in developing nations. Dr. Potrykus was also awarded the 2001 ASPB Leadership in Science Public Service Award.

Two special careers workshops targeted to postdoctoral associates and graduate students took place Monday evening. These workshops were organized by the Women in Plant Biology Committee. The participants chose between "Where Are the Jobs?" and "Survival Skills." Both workshops were very well attended.

The Education Workshop was also held Monday evening. Sponsored by the ASPB Education Committee, it was led by Bob Beckmann, Botany Department, North Carolina State University, whose presentation focused on the construction of a Teaching Portfolio (see page 24 of this issue).

Featured Luncheons and Speakers

The conference also featured two well-received luncheon programs. On Sunday, the Committee on Minority Affairs sponsored a luncheon featuring Dr. C. S. Prakash of Tuskegee University. Dr. Prakash's topic was "Bridging the Genetic Divide: How Can Biotechnology Serve the Poor?" The Women in Plant Biology Committee sponsored a luncheon on Monday that featured Dr. Nancy Hopkins of MIT. Dr. Hopkins's presentation was titled "A Report on the Status of Women Faculty at MIT Leads to New Initiatives for Faculty Diversity."

Earlier Time and Spotlight for Awards Symposium and Ceremony

The ASPB Awards Symposium and Ceremony was highlighted as the opening event Saturday afternoon. ASPB President Dan Cosgrove announced the 2001 award winners, and CSPP President Gregory Taylor spotlighted the CSPP winners. The ASPB Hales Prize Symposium, "Environmental Control of Plant Growth as Mediated by Hormones," was given by Dr. Jan Zeevaert of Michigan State University.

Plant Biology 2001 Undergraduate Networking Pre-Mixer/Poster Session

This event was sponsored by the ASPB Membership Committee and was free for all undergraduate attendees. Many of the participants brought their posters and were able to network informally with each other to get a broad orientation on how to get the most out of Plant Biology 2001. This is the second year for this event, which has proved to be very worthwhile for new attendees.

Exhibits and Internet Café

An excellent selection of exhibitors presented their products and services to all attendees in the exhibit hall for three days. Attendees and exhibitors continued to enjoy the format that featured an exclusive afternoon and evening

of exhibits and posters. An Internet Café was also available in the exhibit hall for attendees to check their e-mail throughout the meeting.

Special Functions

Other functions at the meeting included the Small Colleges/Primarily Undergraduate Institutions Breakfast, which enjoyed a successful turnout and discussion early on Sunday morning; the Plant Runners Stampede 5k and 10k Fun Run on Tuesday morning; and the New England Clambake Tuesday evening with live music and plenty of good food and libations. Attendees danced the night away!

Plant Biology 2002

This stimulating and enjoyable meeting is now behind us, and the Program Committee is already immersed in planning Plant Biology 2002, which will be held August 3-7, 2002, at the Adams Mark Hotel in Denver, Colorado. We look forward to an interesting week of science and other diversions at the gateway to the Rocky Mountains! Mark your calendars and watch the *ASPB News* and the Society's web site for further details!

Dan Bush

ASPB Secretary and Program Chair

Susan Chambers Rosenberry

ASPB Program Committee Staff Liaison



ASPB president Dan Cosgrove.



Machi Dilworth and Govind C. Sharma at NSF-USDA-DOE exhibit booth.



CSPP president Gregory Taylor.



ASPB Leadership in Science Public Service Award recipient Ingo Potrykus.



ASPB staff members Kelley Noone and Donna Gordon at the registration booth.

(more pictures on pages 8 and 9)

Plant Biology 2001!



Jan Zeevaert presenting the Hales Prize Symposium.



Brandon Stillb, Robert Grebenok, David Koetje, and Gary Kuleck at the ASPB Education Booth.



ASPB staff members Lauren Ransome, Melissa Junior, Jennifer Fleet, and Beth Staehle at the Publications Booth.



Pamela Weathers (left) and Karen Hicks (center) with incoming president Vicki Chandler.



A busy ASPB Publications Booth.



Kristen M. Briggs, Amy Butler, Amy Helms, and Jill Montgomery with their poster "Undergraduate Experience with the Scientific Method."

Researchers Make Key Plant Genome Public on the Internet

The following is a press release from the University of Washington.

Researchers at the University of Washington School of Medicine, DuPont, and the University of Campinas in Brazil, with partial funding from the National Science Foundation, have sequenced the genome of an important organism, *Agrobacterium*, and made it freely available on the Internet. This information is available at <http://www.agrobacterium.org>. *Agrobacterium* has the unique property of inserting small pieces of genetic material into a plant, animal, or fungal cell that it colonizes. The bacterium has had great utility in molecular studies of botany, and has enabled scientists to study the effects of plant genes on various properties of plants such as growth rate, maturation, flower color, and yield. The

organism also serves as a useful tool to study a number of infectious human diseases in which the inciting organism injects material into a cell. On a practical side, *Agrobacterium* is a basic tool for genetic engineering of foodstuffs to produce crops that are more nutritious; less allergenic; and disease-, insect-, salt, and cold-resistant, and [that display] a whole host of other promising traits.

The sequencing of the bacterial genome will provide insights into the unique properties of this organism, which enable it to undertake the genetic engineering of its host cells. This work is the culmination of almost two decades of work at the University of Washington by a group of microbiologists including Dr. Eugene Nester, Dr. Milton Gordon, and Dr. Mary-Dell Chilton. The scale of the project was so large that the team included

Dr. Maynard Olson, professor of medicine and genetics, and his researchers at the University of Washington Genome Center; researchers from DuPont and its subsidiary, Pioneer, who have a large sequencing facility; and the Brazil group, who had previously determined the sequence of another organism important to agriculture. The genome of *Agrobacterium* is complex, containing a total of more than 5.67 million base pairs.

The UW researchers say that from a broader perspective, this work is part of an ongoing second Green Revolution in agriculture. They say this revolution holds the promise of meeting the needs of an increasing world population—at a time when water, agricultural land, and forests are becoming increasingly scarce.

More Pictures from Plant Biology 2001!



Henri Batoko: Best Paper Award Winner, *The Plant Cell*



Thomas Girke: Best Paper Award Winner, *Plant Physiology*



Sue Keegstra and Nancy Winchester, ASPB director of publications, show off the Society's smashing PollenNation tee-shirt.



Dancing up a storm at Tuesday night's clambake.

For more pictures of Plant Biology 2001, visit
<http://www.aspb.org/meetings/pb-2001/pictures.cfm>.

Genetically Modified Crops & Foods Workshop Now on Video

With support from the ASPB Education Foundation, Maarten Chrispeels, of the University of California San Diego (UCSD), Division of Biology, conducted an "outreach workshop" that was recorded as part of UCSD-TV's "Frontiers of Knowledge" series. The goal of the workshop, held February 2, 2001, was to explain where academic scientists stand on the issues surrounding genetically modified (GM) foods. The workshop was first aired on local cable television in San Diego on July 4, 2001, in a two-hour-long format.


The resulting film from this workshop, "Genetically Modified Crops & Foods," is an excellent resource for understanding the current issues involving GM foods. The experts explain, in simple terms and with clear examples, the history and progression of modified foods. Presenters include Peggy Lemaux, from the University of California at

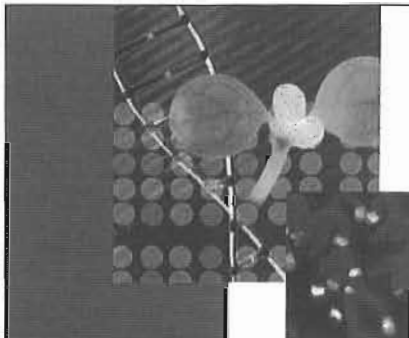
Berkeley, Department of Plant and Microbial Biology, and chair of the ASPB Committee on Public Affairs; Carl Winter, director, University of California *Foodsafe* Program; Joanne Chory, Salk Institute for Biological Studies; Martin Yanofsky, University of California San Diego, Division of Biology; and Maarten Chrispeels, director, San Diego Center for Molecular Agriculture at UCSD.

This film is aimed at the non-scientists who wants to know the basics of GM foods: their history, their application to the U.S. farming industry, consumers' attitudes toward consumption, impact on malnutrition in developing nations, and some of the moral and environmental issues currently under debate. It is also helpful for those ASPB members who would like to plan a similar workshop.

A limited number of single copies of "Genetically Modified Crops & Foods" is avail-

able in either videocassette or CD (RealMedia) format to ASPB members (one free copy per member; extra copies or non-ASPB members, \$10 each). You may e-mail your request to Paula Brooks at paula@aspb.org or write to Paula Brooks, ASPB, 15501 Monona Drive, Rockville, MD 20855-2768 USA (allow two to three weeks for shipping). Please specify the format you prefer. The CD format comes on one disk for individualized viewing on a computer (in condensed form). You can view a segment of this film by visiting the ASPB web site at www.aspb.org.

For more information about setting up the workshop, see the article "ASPP Members Organize Workshop for Press, Legislative Aides on GM Crops" in the March/April 2001 issue of the *ASPP News* (vol. 28, no. 2, p. 7). 



A Special Collection of Articles from *The Plant Cell*
September 1999–January 2001

Plant Genomics: Emerging Tools

As we enter the new millennium, the age of genomics is in full swing. Much more than the study of individual genes and their functions, genomics implies the study of the interacting networks of genes, proteins, and metabolites that make up a whole organism. Large-scale genome sequencing projects form the base of all genomics studies, but radiating out from this base is a host of other tools that allow us to figure out the biology that is governed by DNA sequence.

Between September 1999 and January 2001, *The Plant Cell* published a series of articles on genomics technologies and

approaches specially written for the plant science community. These articles, together with a number of research papers on plant genomics published during this period, have been bound into a volume called *Plant Genomics: Emerging Tools*. This compilation provides readers interested in the applications of genomics to plant science with a single resource covering the most recent developments in this emerging field.

Plant Genomics: Emerging Tools
ISBN 0-943088-42-9. Item 30044. Price \$25.00

For ordering information go to
www.aspb.org

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The Bioethics Imperative III

Scenario: You meet a woman in a grocery store holding a new baby. You admire the baby. You chat a while and she asks what you do. She then confides that she is worried about the effects of genetically modified organisms on her child's health. She asks you, as a scientist, to remove all the food from her basket that has been genetically modified. Oh, and please take out anything that contains a mutation, too.

Unfortunately, this scenario happened to me. . . .

My mind raced as I broke into a squirmy sweat, and I thought to myself: In which century did mankind begin to modify food? Do I subject this hapless woman to a long diatribe about the Fertile Crescent or the breeding of maize in pre-Incan civilization? Where do I myself draw the line between "genetically modified" a la the Greens and traditional breeding?

And oh boy, what do I tell her about muta-

tions in her food sources, possible mutations in her own body and in that of her child?! I stood there looking at the corn in her basket, thinking that over half this genome are transposons, viruses that can cause mutations and cancer!

I talked to myself. "Okay, Dina, think out the options." Option 1: I initiate a long conversation that must not turn into a lecture lest I be dismissed as a snob and lose my audience. Option 2: I trivialize the process and say, "Trrrrrust me, Hy'm a scientist." Where the perils of the former are evident, the ethics of the latter are dubious.

As I wove my way through the conversation about food and genes and mutations good-and-evil, it dawned on me that the real danger is that this could quickly become personal. Far from being remote and esoteric, as I once thought ethical issues were, issues such as this one touch our lives everyday if we think about them.

"So, you seen Ellen, these are not simple choices, even for me" I wound up saying.

"Oh well, I trust you," she smiled. "You chose for me."

Inwardly, I groaned. The clerk was waiting for me to choose what this woman and child are going to eat. In the end, the mother and baby left happy, and I scooted home with a sigh of relief.

Later on, I reflected on the core of the problem: Societal evolution has not kept pace with technological change. These things have been "mokita" for too long. The result? We have a long way to go before students in class no longer ask, "If I eat corn with all those transposons in it, will I get cancer?"

Next issue: Ethics in Data Management. ❖

Dina Mandoli

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The Perspective of a Foreign Student: What Are the Take-Home Messages from Science in a Developed Country?

Okay, I realize the topic is very broad and I could write a book about it (well, maybe I couldn't, but others could for sure). And I know that space is limited, so I will write just about the most striking differences I have observed between science in developed countries and science in developing nations.



Cintia Coelho

First of all, let's talk about the financial support dedicated to science. Vastly more money is spent on research in developed countries. Since more funding means more and better equipment, more rapid access to chemicals and technologies, and, perhaps, more qualified people, there is a direct and positive correlation between the amount of money targeted to science and the quality of that science. Therefore, my first take-home message is that the money given to science in developing countries must increase. We, as scientists,

must make every effort to secure increased funding; otherwise it will be difficult to develop centers of research excellence in our own countries. Let's face it, without money we can't do much, even with the best of intentions.

The second difference that strikes me is the number of people trained and employed in science in developed versus developing countries. In developing countries only a small percentage of the total population has the opportunity to attend a university, and of these people, relatively few complete their

undergraduate education and even fewer pursue a master's or Ph.D. degree. I believe that with more people working in science, there will be a higher probability of having outstanding individuals making a significant impact. So here is my second take-home message: We must increase the number of people who have the opportunity to attend university for training in science at all levels (quantity may lead directly to good quality!).

Finally, the last difference concerns the need for the vision required to move science for-

ward in the right direction and at a rapid pace. As an example of what I mean, let's take the study of maize in Brazil (my area of research and my country of origin, stuff that I believe I know something about). In the 1970s, the Brazilian government began to invest money in the creation of a center to study maize and, immediately following and as a direct result, maize research advanced significantly. Although we cannot do anything about the late start, we in developing countries can look to the future and concentrate our efforts on en-

couraging individuals to pursue careers in science and providing them with the funds to complete their training and carry out their research. ✎

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Perspectives from Industry

A Postdoc's Experience at TMRI

Early this year, I moved from Dr. Daniel Cosgrove's laboratory at Penn State University to the Plant Health group of the Torrey Mesa Research Institute (TMRI) in San Diego to continue my postdoctoral training. I would like to share what I have learned at TMRI with those of you who are interested in doing postdoctoral work in industry in the future.

TMRI was formerly the Novartis Agriculture Discovery Institute, Inc. (NADII), which was established in 1998 and now is a part of Syngenta. The research of the Plant Health group at TMRI is focused on gene discovery and establishing leads for Syngenta's agricultural applications.

My first impression of TMRI was that it offers state-of-the-art genomics and proteomics facilities. In addition, it provides all sorts of services and training to its scientists. It is obvious that these good facilities and services are aimed at maximizing the speed of making scientific discoveries.

Like academic laboratories, TMRI is striving for excellence in science. First, it recruits outstanding scientists who have solid publication records. Some of them come to TMRI from well-established positions in academic

institutes, whereas others come from other industry laboratories. Second, the institute has a very good seminar series that brings in leading scientists in the areas related to the institute's research. TMRI also fosters collaboration with academic scientists. These collaborations generate new ideas and make full use of the resources in the company.

One of the concerns I had before I joined TMRI was the freedom to choose research topics and to publish. I had been told many times that industry laboratories have lower priorities for publishing relative to academic labs. Surprisingly, TMRI encourages scientists to publish their work. This is extremely important for postdocs, because our future careers depend on publications. In terms of research freedom, it is not a big issue at TMRI. In general, postdocs can choose their projects as long as they are in areas that are of interest to the supervisors.

There are some differences between TMRI and an academic institute. First, the scope and focus of the seminar series are different from the ones in universities. Many seminars at TMRI are technology and business oriented. Second, although scientific communication is greatly encouraged, employees of the insti-

tute have the legal responsibility to not make scientific discoveries public prior to the completion of patent applications. Industrial labs often project a sense of project instability, since the needs of the company may shift quickly in response to demands of the business. TMRI is not immune to this type of pressure, but the management of the institute attempts to create a working environment where long-term projects aimed at understanding basic biological mechanisms can flourish.

So far, several postdocs at TMRI have had the good fortune of getting jobs in industry, in some cases with less than a full year's training at TMRI. We expect that current and future TMRI postdocs will be able to compete effectively for academic positions as well. ✎

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The Mystery of the Red Primrose

by Talos

Gaudin had just cracked his first egg in preparation for one of his legendary omelettes when the telephone rang. Sitting in his living room, I half-heard his end of the conversation. Duty, it seemed, was calling. As expected, Gaudin emerged from the kitchen with the awkward look of a host about to tell his houseguest that there had been a decided downturn in the events planned for the day.

"Beaulieu has made a deathbed confession," he said simply.

"The murderer?" I asked.

Gaudin nodded. "Yes. It seems that Beaulieu made friends in prison with the same facility with which he made friends on the outside. This morning he was knifed in the prison shower. As he was dying he confessed to the murder and indicated to those present that the body of his victim could be found in the field across from the site of his planned country estate."

"This is good news, Inspector Gaudin! The case is now closed, *n'est ce pas?*"

"No, there can be no closure—not for me, not for the family—until the body is located and recovered. And I'm afraid, *mon ami*, that I must abandon you this afternoon while I orchestrate the search."

"Don't be absurd. I'm coming with you," I replied.

Gaudin considered my proposal dubiously. "Well," he reluctantly concluded, "I suppose the more eyes the better."

As we drove, Gaudin filled me in on the details of the case. Beaulieu, a wealthy Zurich financier, had been carrying on an affair with the victim for several years; he had been the last person to be seen with the victim before her disappearance; the victim had just discovered that she was pregnant. Most important, forensic scientists had found a trace of blood on one of Beaulieu's golf clubs that precisely

matched a sample of the victim's blood that had been drawn by her gynecologist. Motive, opportunity, and method had been established, but no body had been found.

Gaudin pointed to the field, about 10 hectares, as we approached. A dozen policemen armed with shovels and pickaxes had already assembled in advance of Gaudin's arrival. Gaudin surveyed the rough terrain as he stepped out of the car and sighed, "Finding this body will be neither quick nor easy."

Gaudin's suspicions proved correct. Six hours and a hundred small excavations later, only a rusty cowbell had been revealed. "We'll have to hire a contractor to systematically shave off the topsoil a few centimeters at a time until we locate the body. A damnable expense." Gaudin called the toiling gendarmes over to inform them of the change in plans. I bent down and plucked a curious red *Primula* and placed it in my lapel.

I waited for Gaudin to finish his speech before I called out to one of the gendarmes carrying a shovel, "Excuse me, sir, but would you indulge me by striking your shovel where I stand?" The policeman deferred to Gaudin, who nodded his assent. With a shrug of his shoulders, the policeman plunged his shovel into the soil. The first spade-full came up empty; the second revealed a woman's shoe; the third a human fibula.

Shouts of "*Voici*" filled the valley, and all present rushed to the site of the discovery. One by one, 13 pairs of eyes looked up at me with various expressions of perplexity, astonishment, and even suspicion "How, how..." Gaudin stammered, "how did you know?"

"This little flower told me," I said, triumphantly removing the red flower from my lapel for their inspection. "It's unusual, is it not?"

"Well, yes, now that you mention it," said Gaudin, "the wild primroses in these parts are usually yellow."

"Precisely, but you may remember A. Mussack's 1932 paper [ed. note: Vol. 50:391–

392] in *Berichte der Deutschen Botanischen Gesellschaft?*" There was a collective look of befuddlement. "Allow me to remind you. Mussack found that the usually yellow flowers of *Primula auricula* became red when grown on soil fertilized with blood."

"*Incroyable*," exclaimed the spade carrier. "Do you mean to tell us that these little flowers suck up blood like...like vampires?"

"No, no, my dear constable. Without further experiments, of course, one cannot be absolutely certain of the exact mechanism of the reddening effect, but if I had to guess I would hypothesize that is related to the excess of iron in the soil. Excess iron in plants is thought to lead to oxidative stress, and flavonoids, some, such as the anthocyanins, which are red in color, are known to accumulate in response to oxidative stress."

"*Ah bien oui, mon ami*," said the jubilant Gaudin with a wink to the gendarmerie, "Silly of me not to think of that! Now, how can we repay you? How about dinner in one of Zurich's finest hotels?"

"I would prefer a hardy dinner at the inn up the road with all the diggers."

"An even better idea!" Gaudin exclaimed as we headed for the car, leaving the coroner and her assistants alone with their grisly task. ❧

Natasha V. Raikhel, editor-in-chief of *Plant Physiology*, is leaving the Michigan State University—Department of Energy Plant Research Laboratory at the end of this year. She is joining the University of California at Riverside as The Ernst and Helen Leibacher Chair Professor in Plant Molecular, Cell Biology, and Genetics; Distinguished Professor of Plant Cell Biology; and director of the Center of Plant Cell Biology. Starting in January 2002, you can contact Natasha at the following address:

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Executive Committee in Action at Plant Biology 2001

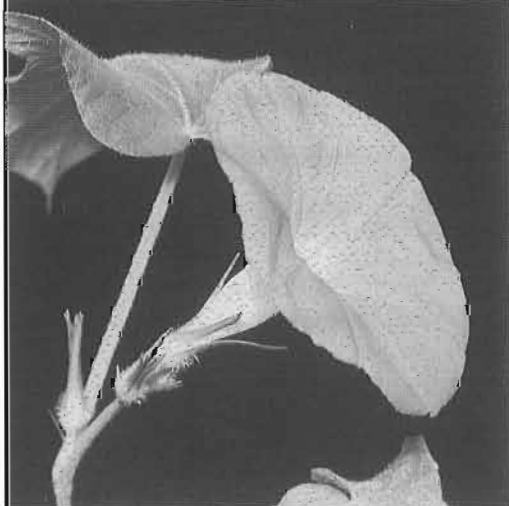
ASPB's Executive Committee met on July 20, 2001, and again on July 24, 2001, during the Society's annual meeting in Providence, Rhode Island. President Dan Cosgrove opened the meeting by noting the Society's many accomplishments during the year, including the name change; the dynamic membership drive that is now under way; the newly redesigned and expanded *ASPB News*; the new and improved web site; the initiation of electronic voting; and the Education Foundation's largest project to date—a film on the history of agriculture formatted for television. He also commended staff for their help and dedication, noting that "ours is a complex organization."

Actions taken by the committee included

- Approval of the 2002 operating budget of \$6,032,353.
- Approval of the digitization of back issues of both journals, to 1989 for *The Plant Cell* and to 1993 for *Plant Physiology*
- Funding of an exhibit booth at the National Science Teachers Association's 2002 convention
- Approval of grants totaling \$35,000 for travel to the 2002 annual meeting
- Funding of an exhibit booth at the annual meeting of the Society for the Advancement of Chicanos and Native Americans in Science
- Approval of funding for 2002 for a Summer Undergraduate Research Fellowship Program as a continuation of last year's successful program in which eight undergraduates participated.
- Concurrence with the Board of Trustees to adopt a revised investment policy and change the Society's investment advisers
- Approval of President-Elect Vicki Chandler's appointment of Lou Sherman to the Board of Trustees, Jan Zeevaert to the Constitution and Bylaws Committee, and Bob Fischer to the Publications Committee.
- Referral of the proposal to change the ASPB ad hoc International Committee to a standing committee to the Constitution and Bylaws Committee for proper wording prior to the membership vote.
- Approval of a partnership with John Wiley & Sons to develop an ASPB-Wiley book program
- Discussion about ASPB members receiving the online version of *The Plant Journal*, the premier publication of the Society for Experimental Biology, at a substantial discount (since the meeting, this was approved at a member price of \$30)
- Authorization to appoint a task force to write an ethics statement for the Society regarding biotechnology
- Invitation of Pacific Rim countries to actively participate in Plant Biology 2003 in Hawaii, similar to the arrangement with Japan and Australia for the 1997 annual meeting in Vancouver.

In addition, it was noted that Robin Lempert had been hired as the director of the Education Foundation and that Wendy Sahli was the Society's first dedicated webmaster. ❧

Plant Physiology 75th Anniversary Conceptual Breakthroughs in Biology



Three major technological advances stand out as crucial to plant science during the past 25 years: the development of molecular tools, the development of plant transformation, and the widespread adoption of *Arabidopsis* as a model organism.

To celebrate the 75th anniversary of *Plant Physiology*, the flagship journal of the American Society of Plant Biologists, 42 short commentaries were featured in the January 2001 issue that attempt to summarize these and other conceptual breakthroughs. The authors, representing various fields of study, compiled a concise overview of the important concepts and paradigms that have emerged during the past 25 years. These commentaries are fascinating taken one at a time, but together they demonstrate just how far plant biology has come in a relatively short while.

Along with analysis of the three breakthroughs mentioned above, the remaining articles draw from research in the following areas: whole plant physiology and biochemistry; signal transduction; developmental, cell, and molecular biology; genetics; and biotechnology. They have been reprinted in this special book to commemorate the enormous advances in plant science.

**Plant Physiology 75th Anniversary
Conceptual Breakthroughs in Plant Biology**

ISBN 0-943088-41-0. Item 30050. Price \$25.00

For ordering information, go to www.aspp.org



New Staff

After a long search for the “ideal” candidate, the Education Foundation has a director. Robin Lempert joined ASPB as its first permanent Education



Foundation director on August 13. Many ASPB members met Robin at the annual conference in Providence in July. Robin wants the members to know, “The Education Foundation has an exciting mission, and I am looking forward to working with ASPB’s members and the Education Foundation board on many exciting projects to help increase the public’s understanding of the importance of plant biology. There are so many new and exciting developments taking place, and it will be important to present an accurate picture of this work to many different audiences. As the foundation charts its course, I would like to encourage each one of you to contact me by e-mail or phone to share your ideas and thoughts at any time.”

Robin was formerly the executive director of the Distributors Education Foundation of the American Wholesale Marketers Association (AWMA) based in Washington, DC. As a vice president of AWMA, she was responsible for planning, designing, and directing foundation operations and all association education, training, research, and member service programs. Her credentials demonstrate strength in creating successful programs, being responsive to members’

needs, and incorporating technology with education to its best advantage. Especially captivating was her ability to start and build an endowment to over \$4 million while working with budgets of just over \$1.5 million. She has worked in the not-for-profit sector for most of her career—writing, marketing, teaching, and managing projects.

Robin lives in Maryland with her husband and children. She is an active volunteer at her children’s pre-school and, in her limited spare time, tries to catch up on her reading and see a few good movies. She studied math and music at SUNY Binghamton and the University of Michigan and traveled in Europe while directing a folk dance troupe. Be sure to add Robin Lempert’s name to your ASPB directory. Her phone number is 301-251-0560, ext. 110, and her e-mail address is rlempert@aspb.org.

Stefanie Shamer joined ASPB in June as the new accounts payable specialist. In this position she will be handling vendor invoices and payments. Prior to joining ASPB, she was the administrative assistant to the president and CEO of Hartz & Company, a men’s clothing manufacturer based in New York, and an accounting assistant at Alexis International, an Internet-based human resources software company. Stefanie was also employed for eight years as a florist. She replaces Donna Litman.



Leslie Csikos, or Ash, as she is called by her friends and co-workers, recently graduated from The Richard Stockton College of New Jersey where she received a B.A. in philosophy and religion.



Alongside her major field of study, she took several classes in art and studied Japanese language and culture. Outside the academic world, she devoted a great deal of time to learning about web design and served as the vice president and graphic artist for her school’s “Gaming Guild.”

An unfortunate accident at her previous place of employment, an equestrian learning center, brought Ash to us here at ASPB. Working with horses has been a cherished part of her life since childhood, and although she can no longer spend long days with these animals, she can still be found riding every chance she gets.

Ash joins ASPB as a manuscript coordinator for *Plant Physiology*, where her experience with the Internet will prove useful as we prepare to launch Bench>Press, our new web-based manuscript management system. She works with Leslie Malone in guiding the many manuscripts *Plant Physiology* receives through the peer review process.

National Science Foundation Graduate Research Fellowship Program

All applicants are expected to use NSF’s FastLane Graduate Research Fellowship Program (GRFP) process (<http://www.fastlane.nsf.gov>) to apply.

The application must be submitted via FastLane by 5:00 p.m. in the applicant’s local time zone on November 7, 2001.

Biochemistry & Molecular Biology of Plants: The First Year!

Published just one year ago, *Biochemistry & Molecular Biology of Plants*, by Buchanan, Grissem, and Jones, is a Society success story. It was the first major book publishing project undertaken by ASPB, and what a project it was! With 1,400 pages, 1,100 full-color original drawings, 500 photographs, and the contributions of 53 world-renowned plant biologists, this book's publication is a major triumph for the Society.

And the project is still developing, with the recent release of a new version of the CD-ROM, this one in 300-dpi resolution, with user-friendly PowerPoint capability. Just like the lower-res CD, this product contains all the book's illustrations and is proving very popular with faculty and presenters who need top-flight plant biology illustrations. More intuitive to use than the original, this CD-ROM helps you create dynamic, exciting presentations for students and colleagues with no trouble at all. Introduced at the ASPB annual meeting in July, the CD-ROM is off to a strong start—helped by a special offer for those of you who bought the original version. Purchasers of the previous CD-ROM can buy the upgraded release for just \$24.95 (the list

price is \$49.95). The original, 150-dpi version is still available for \$29.95.

The book itself is selling very well, too. Sales figures are approaching 8,000 just 14 months after publication. Add to that nearly 1,500 CD-ROMs, and you see a gratifying sales picture, given the extraordinary costs of producing this top-notch textbook.

If you're in Italy, Japan, or China, there are translations under way into those three languages. Zanichelli editore S.p.A. is working on the Italian edition; the Japan Scientific Society Press is handling the Japanese translation; and Science Press is handling the Chinese translation and an English-language reprint for China.

The reviews are still coming in. Just recently, the *Journal of Plant Physiology* had this to say:

"Presently, there exists no other book that brings together so much up-to-date information in such an extended and yet easily understandable form. [T]his appealing...textbook can be recommended to all students and scientists in plant biology and biochemistry. It is also of interest to researchers in many related fields such as biotechnology, cell biology,

pharmaceutical biology, and agriculture, as well as the food science and agribusiness industries. It will undoubtedly find a very wide readership."

Other reviews are equally glowing. *Trends in Plant Science* called it

"an essential reference for practicing plant biologists and for the increasing number of scientists from other disciplines who are entering the field of plant biology. To exploit fully the wealth of new information provided by the genome projects and to integrate the metabolic, regulatory, and signal transduction pathways of complex organisms, biologists will require a solid command of biochemistry and physiology. For this reason, the publication of Biochemistry & Molecular Biology of Plants could not have come at a more opportune and auspicious time."

Go to the book's web site to see the reviews that have appeared in *Cell* and *Science*, as well as those quoted here, and to view sample chapters. You can order the book or CD via mail, phone, fax, e-mail, or the web, using our secure online order form at www.aspb.org/biotext.

Deadlines for ASPB News

We invite you to submit articles and letters to the ASPB News.

Deadlines for submission of copy follow:

Issue	Deadline
January/February 2002	December 10, 2001
March/April 2002	February 10, 2002
May/June 2002	April 10, 2002
July/August 2002	June 10, 2002
September/October 2002	August 10, 2002
November/December 2002	October 10, 2002

Senator Bond and Committee Boost Plant Genome Funding to \$75 Million

The Senate Appropriations Committee recommended \$75 million for the National Science Foundation plant genome research program for fiscal year 2002. This amount is \$10 million higher than both the budget request of NSF for FY2002 and the current fiscal year funding.

Senator Bond Kit (R-MO) led efforts again this year to provide funding for plant genome research significantly higher than the amount requested by NSF. ASPB voiced support for the plant genome research program and the overall NSF research budget in advance of the report. If enacted, the committee recommendation will bring to \$290 million the amount of funds that Senator Bond and his colleagues have provided for the plant genome research program over five years.

ASPB President Dan Cosgrove credited Senator Bond, Senator Barbara Mikulski (D-MD), and their colleagues for bringing plant science forward into the exciting genomic era. Cosgrove said the wealth of knowledge gained from genomic and related basic plant research will bring profound benefits to the lives of all Americans and our world neighbors.

In its overall recommendation for NSF, the Senate Appropriations Committee provided \$4,672,520,000. This amount is \$256,130,000 more than the FY2001-

enacted level and \$200 million above the budget request.


The committee recommendation of \$3,514,481,000 for research and related activities is \$171,851,000 more than the FY2001-enacted level and \$187,500,000 above the budget request. The recommended amount for the NSF Biological Sciences Directorate is \$529 million, which represents a substantial increase of 9 percent.

The House of Representatives approved \$4,840,160,000 for NSF and \$529 million for the Biological Sciences Directorate. Congressman James Walsh (R-NY) led efforts in the House to support NSF.

Following is language from the Senate Committee report on the plant genome initiative:


“The committee’s recommendation includes \$75,000,000 for the plant genome initiative, an increase of \$10,000,000 over the request. Over the last three years the plant genome program has generated massive amounts of data on major crop plants and model organisms. The committee urges the Foundation to emphasize the use [of] these datasets and resources to identify, isolate, and investigate genes associated with plant processes of economic importance, including nutritional quality, production of industrial chemicals, disease resistance, and tolerance

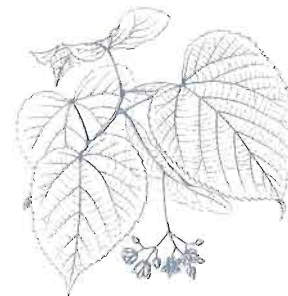
to environmental stresses. The committee also supports the recent recommendations of the Interagency Working Group on Plant Genomes that significant funding be invested in high-throughput sequencing of the gene-rich regions of economically important crops, such as corn, wheat, and barley. Recent advances in technology have made it feasible and cost-effective to sequence the gene-rich regions of large, complex plant genomes. The committee expects NSF to fund such an initiative that invests in high-throughput sequencing, including full-length cDNA sequencing, of economically important crops, such as corn, wheat, and barley. This initiative will help to ensure that fundamental genetic information is publicly accessible to all public and private plant breeders and geneticists.”

There has been support within the maize science and producer community for high-throughput sequencing of gene-rich regions of maize. High-throughput sequencing of gene-rich regions of plant genomes of “economic importance” is one of the recommendations in the plant genome research program progress report issued in November 2000 by the White House-appointed Interagency Working Group on Plant Genomes. 

Prakash, Science Group Protest Sri Lankan Biotech Ban

The AgBioWorld Foundation called on the Sri Lankan government August 16 to rethink its ban on biotechnology food imports imposed earlier this month. “This was a reckless decision,” said ASPB member C. S. Prakash,

professor of plant genetics at Tuskegee University and president of the AgBioWorld Foundation. “And it will prevent the Sri Lankan people from benefiting from this safe and promising technology.” 



Senate Committee Seeks 30 Percent Increase for NRI

The Senate Appropriations Committee is recommending an increase of more than \$31 million for the National Research Initiative Competitive Grants Program (NRI) for fiscal year 2002. The committee-approved bill (Senate Bill 1191) and committee-approved accompanying report (Senate Report 107-41) recommend providing \$137 million to the NRI in FY2002.

The NRI is receiving \$105.7 million in FY2001. The U.S. Department of Agriculture requested \$105.7 million for FY2002, which the House of Representatives approved.

The committee recommendation for FY2002 represents an increase of 29.5 percent for the NRI, by far the highest increase seen for the NRI in a committee report. Senator Herb Kohl (D-WI), chair



Senator Herb Kohl

of the Appropriations Subcommittee on Agriculture, led efforts for this increase. ASPB campus contacts in Wisconsin and other key states sent timely letters in support of the NRI to Congress. The bill is expected to be considered by the full Senate in September. Following the Senate vote, a House/Senate Conference will reconcile differences between the two bills.

In the House, Representative Eva Clayton (D-NC) offered an amendment July 11 that would have transferred funds from the NRI to the 1890 institutions. She withdrew the amendment after nearly 20 minutes of debate. She said that she expects the Appropriations Committee's future conferees to work with her in the eventual House/Senate Conference to address her concerns.

Representative Clayton acknowledged that "many people have trouble on where the money would come from" in her amendment. A number of ASPB campus contacts and their colleagues contacted their congressional offices in the days leading up to July 11, which helped prompt calls from members of Congress to Clayton's office concerning problems with targeting the NRI for a reduction of funds. Indications of lack of support by colleagues for a provision in an amendment can help lead to the eventual withdrawal of the amendment. If ASPB members had not contacted their members of Congress, their representatives might not have been aware of the effect of the proposed amendment on the NRI and NRI-supported researchers in their state and district. The Clayton amendment would have cut \$10 million or nearly 10 percent from the NRI.

Representative Sheila Jackson Lee (D-TX) joined Representative Clayton in support of

the amendment in floor debate. They presented a chart that indicated that 0.5 percent of NRI funds goes to 1890 colleges. Representative Lee said they were not trying to "take over" what the 1862 institutions win in awards from the NRI. The majority of peer-reviewed NRI award funds are won by scientists at 1862 institutions.

Subcommittee Chair Henry Bonilla (R-TX) led the successful opposition to the amendment in floor debate. He and his colleagues also protected the NRI earlier this year from attempts to reduce funding for the competitive grants program in the committee report.

Instead of supporting attempts to take money from one research program to move to another, ASPB has been supporting a broad-based coalition initiative that is seeking increased funding for all USDA research programs including the NRI, formula funds for 1890s and 1862s, Agricultural Research Service (ARS), Initiative for Future Agriculture and Food Systems (IFAFS), and other agricultural research programs.

The Senate bill provides \$120 million in funding for IFAFS. The House bill would preclude funding IFAFS. Funding for ARS is \$1.004 billion in the Senate committee recommendation. The House bill calls for \$971.3 million for ARS, which is \$74.5 million higher than the current year. ☞

Senate Votes for Increase for DOE Energy Biosciences

The Senate has voted to provide \$34.4 million for basic plant and microbial research sponsored by the Department of Energy (DOE) Energy Biosciences program for fiscal year 2002. This is \$686,000 higher than the FY2001 amount and \$2 million higher than the department's request.

The House has approved \$32.4 million for the Energy Biosciences program, the same amount as DOE requested. Differences between the two bills will be reconciled in a House/Senate Conference expected after the summer recess.

ASPB was joined by the National Corn Growers Association, representing more than

30,000 members, and the American Phytopathological Society, representing 5,000 scientists, in submitting comments on April 9 and April 30 to the House and Senate Appropriations Subcommittees on Energy and Water Development in support of basic plant and microbial research sponsored by the Energy Biosciences program in FY2002. ☞

Dr. Ingo Potrykus Accepts Leadership In Science Public Service Award

The ASPB Leadership in Science Public Service Award was presented July 21, 2001, at Plant Biology 2001 in Providence to Dr. Ingo Potrykus in recognition of his outstanding contributions to science and humanity.

Dr. Potrykus has pioneered efforts in engineering an enhanced variety of rice known as golden rice that could revolutionize health and nutrition efforts for mass populations in the developing world. His research offers the potential to save millions of children from being stricken blind from nutritional deficiencies. ASPB President Dan Cosgrove presented the award to Dr. Potrykus.

In a stirring presentation given during the Perspectives of Science Leaders Program, Dr. Potrykus addressed the scientific, legal, and political obstacles he has tried to overcome in his work with golden rice. After years of research, he has addressed many of the most challenging science questions faced in engineering higher levels of β -carotene in rice to counter vitamin A deficiencies in the human diet. Vitamin A deficiencies reportedly lead to the deaths of at least 1 million children and nearly 500,000 cases of blindness among children each year in the developing world.

Legal and especially political obstacles have


been more vexing. Despite encountering some initial resistance, Dr. Potrykus has been able to gain agreement from firms holding patent restrictions that could apply to golden rice to make the rice available to poor farmers.

One of the most persistent challenges to bringing golden rice to the developing world has been from non-governmental organizations such as Greenpeace. Dr. Potrykus lamented the chilling effect resulting from misleading rumors circulated by anti-biotech interests that have convinced many farmers and others in India, for example, that they will suffer fearful physical maladies if they eat genetically engineered rice. Dr. Potrykus remarked that Greenpeace appears to have a financial stake in the GMO debate: Raising concerns among the public serves to raise funds for Greenpeace. He said there is a need for more investigative reporting into Greenpeace and its sources of substantial contributions.

In discussing why he has dedicated several decades to his plant research to meet the nutritional needs in developing nations, Dr. Potrykus noted a sense of obligation. He said scientists are fortunate to conduct work that they enjoy. If scientists can lead rewarding

careers working at something they like, they should feel obliged to provide service to less fortunate people, he reasoned.

Committee on Public Affairs Chair Peggy Lemaux moderated the question-and-answer session after Dr. Potrykus's presentation. ASPB members responded with sustained and standing ovations to his talk and his responses to various questions.


See page 20 for a story from the July 22 edition of *The Providence Journal* on Dr. Potrykus's research on golden rice and his acceptance of the ASPB Leadership in Science Public Award. 



Dan Cosgrove presents Ingo Potrykus with the ASPB Leadership in Science Public Service Award during Plant Biology 2001

Siedow Addresses Safety of GMOs at Major Food Service Meeting

ASPB Committee on Public Affairs member James Siedow spoke July 15 on food safety issues associated with genetically modified foods as part of a symposium on food safety at the annual meeting of the American School Food Service Association. The meeting, which draws a huge number of attendees, was held at the Opryland Hotel in Nashville.

Siedow also gave a presentation March 26 on modified foods at the American Commodity Distribution Association annual meeting in Greensboro. He is joined by many ASPB members who are active in conducting education outreach activities concerning plant biotechnology and modified foods. 

ASPB Undergraduate Research Fellowships

Deadline for applications is March 1, 2002.

For details contact Paula Brooks at paula@aspb.org or see our web site at <http://www.aspb.org/education/summerundergrad.cfm>.

Golden Rice Goes Against the Grain

PROVIDENCE, July 22—A Swiss scientist who spent more than a decade developing genetically altered rice that may help malnourished children in poor countries was honored for his achievement last night by a group of plant scientists.

Ingo Potrykus, 67, modified a rice plant to produce “Golden Rice,” a yellowish-colored grain that contains beta carotene, one of the building blocks of vitamin A. The American Society of Plant Biologists, which is holding its annual conference here, presented Potrykus with its Leadership in Science Public Service award.

His research, according to Brian Hyps, a spokesman for the society, could help save the lives of millions of children who die every year in developing nations from a lack of vitamin A. It could also help avert blindness for another half-million children each year.

Potrykus’s work, however, has not escaped the controversy that has surrounded the science of genetically altering plants. Several groups oppose such tinkering, arguing that we can’t be sure that the genetically modified organisms won’t create more problems than they solve. Potrykus, a former professor at the Swiss Federal Institute of Technology in Zurich, Switzerland, spent much of the 1990s trying to develop a better rice that would help alleviate some of the malnourishment suffered by those living in countries where rice is the main source of food. He wanted to give the seeds away to poor farmers.

His personal experience may have motivated him. His father, a doctor, died in the final days of World War II, and Potrykus, at age 11, fled eastern Germany. He and his brothers were forced to steal for food. “I wanted, as a scientist, to contribute to the food security of poor people,” Potrykus said in an interview yesterday.

Using DNA material from daffodils and from bacteria, he and a collaborator, Peter Beyer of the University of Freiburg in Germany, finally succeeded in 1999. They developed a plant that produced rice that was pale-yellow in color, thanks to beta carotene. That orange-yellow pigment is normally found in vegetables such as carrots and squash, but not in processed rice. The tasteless nutrient is used by the body to make vitamin A.

“It was of course, very pleasing, very exciting,” Potrykus said. The scientific community didn’t believe it was possible, he said. His work landed him on the cover of *Time* magazine last summer.

Golden Rice is still several years away from being distributed. It still faces at least four years of breeding experiments and safety studies. It could take even longer, Potrykus said, if groups opposed to genetically modified organisms, such as Greenpeace, are able to derail his plans.

Opponents say that such genetic tampering could produce plants that create unforeseen problems. There is a fear that some could harm animals or the environment. They often cite a 1999 experiment involving “Bt” corn—genetically modified corn plants—that were designed to produce a toxin that wards off the European corn borer. In a laboratory setting, pollen from Bt corn was dusted on plants populated by monarch butterfly caterpillars, and some of the insects died. Even so, it is not yet clear whether Bt corn poses a danger to these caterpillars outside of the laboratory.

Some opponents have gone to extremes to stop such research. Last month, “ecoterrorists” destroyed a field of pea plants containing transplanted genes on the West Coast. Last summer, opponents cut down \$10,000 worth of experimental poplar trees in Maine.

Potrykus said his research greenhouse in Zurich has been built to protect his plants from an attack.

There is a bitterness in his voice when he talks about those who want to stop his research. “They are not willing to discuss detailed questions. They are, by principle, against the use of transgenic plants.”

There is already widespread use of genetically altered plants in this country. This year, more than 51 million acres, or 68 percent, of soybeans grown in the United States are genetically engineered, according to a survey by the Department of Agriculture. About one in four corn plants growing on U.S. farms are genetically altered.

Cosgrove, president of the American Society of Plant Biologists, said biotechnology research has given us crops that are more resistant to insects. That means farmers can use less insecticides and get a greater yield from the plants. “Those who have studied this are confident there are no hidden monsters that are going to be unleashed on the world using this technology,” Cosgrove said.

Potrykus said he remains focused on moving ahead with getting the rice in the hands of those who need it the most. “The major task is to make sure Golden Rice reaches the poor farmers in rice-growing countries,” he said, “as Greenpeace and other radical opponents [of genetically modified organisms] are doing everything to try to prevent it.”

Digital Extra: Read more on the opposing views in the debate over genetically modified rice: <http://projo.com/extra/rice/>. ❖

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Plant Researchers Eligible for NSF Graduate Fellowships and ITR Awards

NSF recently announced the NSF Awards Program on Graduate Research Fellowships and the NSF Awards Program for Information Technology Research.

NSF Awards Program on Graduate Research Fellowships

New 2002 Guidelines for Submission of Applications for National Science Foundation Graduate Research Fellowships are available at the following web site: <http://www.nsf.gov/pubs/2001/nsf01146/nsf01146.pdf>. This program is open to graduate students in plant biology and other science programs. The program aims to ensure the vitality of the human resource base in science, mathematics, and engineering in the United States and to

reinforce its diversity. It offers about 900 graduate fellowships each year. Fellowships provide three years of support for graduate study leading to research-based master's or doctoral degrees in the fields of science, mathematics, and engineering supported by NSF. Fellowships are intended for students in the early stages of their graduate study. Awards include a \$20,500 stipend for a 12-month tenure plus \$10,500 cost-of-education allowance per tenure year.

NSF Awards Program for Information Technology Research

The program announcement for the NSF Awards Program for Information Technology Research can be found at <http://www.nsf.gov/pubs/2001/nsf01149/nsf01149.htm/>. In the current year, the program will expand to enable research and education in multidisciplinary areas, focusing on emerging opportunities at the interfaces between information technology and other disciplines. The types of projects that are encouraged include areas studied by plant scientists. Small project awards range up to \$500,000. Medium project awards are up to \$5 million with no more than \$1 million per year. Large project awards are up to \$15 million with no more than \$3 million per year.

We appreciate the help of Dr. Machi Dilworth in providing this information. ❧

Agricultural Biotechnology Offers an Invaluable Tool for Humanity

The following perspective on agricultural biotechnology is offered by ASPB Committee on Public Affairs member Dawn Luthe of Mississippi State University. Her commentary was first published in the Spring 2001 issue of the *Research Highlights* publication of the Mississippi Agricultural and Forestry Experiment Station. Colleagues in other science disciplines are among the important audiences plant scientists can address in education outreach efforts. (As with other perspectives printed in the *ASPB News*, the opinions expressed are those of the author and not necessarily of ASPB or the *ASPB News*.)

PERSPECTIVE Agricultural Biotechnology— An Invaluable Tool for All Humanity

Over the past century, science has made amazing advances—many beyond what we may have believed possible. Technology has affected almost every aspect of daily life, and its impact is particularly evident in the field of agriculture. Today, biotechnology and genetic engineering are revolutionizing the way we farm and feed a growing world population.

Research and other indicators show that biotechnology is an invaluable tool for the benefit of all humanity. U.S. consumers benefit from improved product quality and food costs that are 53 percent lower today than

they were in 1961. Likewise, farmers will prosper through the use of more economical and efficient production practices, millions of malnourished people could benefit from genetically enriched food supplies, and the world's natural resources could be sustained despite its ever-growing population.

Farmers benefit from biotechnology because it improves yields, eases their workload, reduces the need for pesticides, and conserves soil quality by reducing tillage. Many of these benefits are as good for the environment as they are for the farmer. For example, Bt cotton and corn with built-in pest control have significantly reduced insecticide use. Roundup Ready soybeans allow more efficient weed control. Crops that are more tolerant of environmental stress and that can more

efficiently use fertilizers will further reduce production costs. Research is being conducted that will lead to the development of plants resistant to fungal and viral diseases.

Biotechnology and genetic modification of foods seem the best hope to feed the world's growing population and sustain environmental resources. Malnutrition affects more than 800 million people, 40,000 of whom die each day. Biotechnology has helped produce such promising developments as golden rice, a vitamin A-enriched crop that may help prevent blindness in malnourished children. Plants with increased iron content will alleviate iron deficiency, one of the most prevalent nutritional disorders. Using genetic engineering, it will be possible to improve the quality of starch, protein, and oil in seeds that are used for human and animal consumption.

The world's population is escalating more and more rapidly, but the amount of arable land will not increase. The use of biotechnology to develop crops that grow where poor soil and climate conditions limit production will be essential for those who rely on this marginal land for food production.

There are other health and economic benefits of agricultural biotechnology. For example, the vaccine for hepatitis B, a leading cause of cancer, is being produced in bananas so that it can be given orally at low cost to children in developing countries. In the future, other vaccines and pharmaceuticals may be produced in tobacco and other crops. Biotechnology could make possible the production of completely new products, such as plants that make biodegradable plastics or novel fibers.

Genetic modification is certainly not a new phenomenon. All organisms are genetically modified through the natural act of breeding. Intentional genetic modification through classical selective breeding techniques is as old as civilization. Conventional breeding brings a multitude of additional genes along with a single beneficial gene; these often include undesirable traits that require years to eliminate. Biotechnology, on the other hand, enables us



Dawn Luthe of Mississippi State University. Photo by Fred Faulk, MSU University Relations.

to precisely insert a single gene to provide advantageous characteristics to a crop variety and is a much faster process than conventional breeding. For example, it has taken more than 20 years to develop high-lysine corn, an accomplishment that could have been achieved much quicker using genetic engineering.

Despite the benefits, no new technology is free of risk. We must weigh all the benefits of genetic modification against any possible drawbacks. To me, the risks are far outnumbered by the positive health, environmental, and economic implications of biotechnology. Some concerns that have been raised include food safety, cross-pollination with nearby wild species, and development of pesticide-resistant insects. Sound, science-based testing is essential to evaluate the levels of these risks and to address any significant problems identified. While science cannot rule out all possible disadvantages, it can be used to regulate and help prevent biotechnology-related problems.

Years of rigorous testing by the USDA, EPA, and FDA indicates that genetically modified foods are as safe as conventional foods. In fact, one advantage of biotechnology is the ability to eliminate some food allergens and to more easily monitor food safety.

Despite the efforts of biotechnology advocates, the decision to use genetic modification is ultimately up to consumers. The demands of everyday people will determine how biotechnology is incorporated into agricultural practices. The key to earning and maintaining consumer confidence is careful testing and open communication. The role of scientists in this exchange is to provide accurate information that allows the public to make good, informed decisions.

Through this public exchange, the world will better understand that agricultural biotechnology has many significant positive implications. As more people learn about the science of biotechnology and weigh the benefits for themselves, I believe most will accept this technology and value its positive impact on their lives. ✎

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Teaching Portfolios and Their Significance

Compiled and edited by Gary Kuleck, Biology Department, Loyola Marymount University, 7900 Loyola Blvd., Los Angeles, CA 90045, e-mail gkuleck@lmumail.lmu.edu

Dr. Robert Beckmann of the Botany Department at North Carolina State University led the Teaching Portfolios Workshop at the ASPB annual meeting in Providence this past July. The main message: The teaching portfolio should be considered seriously as a major curriculum vitae component for faculty at all institutions but especially those where teaching is a primary component of evaluation.

Dr. Beckmann emphasized that the teaching portfolio is a relative newcomer to the academic community at larger institutions. Not surprisingly, it engenders considerable discussion, often marked by skepticism, as to both its merit and its use. Beckmann posed three questions that frequently are asked by both current and potential members of academe:

1. What is a teaching portfolio? Beckmann reiterated that a teaching portfolio is a personal representation of not only content and presentation but, more important, your motivation for teaching in your particular style. Second, the portfolio is not simply an iteration of the annual faculty report because you maintain control of the content. The content and source of the essential elements can be as diverse as the format of the portfolio itself.

2. Why take the time to prepare the portfolio? The portfolio is the vehicle for presenting your accomplishments in the most favorable and effective manner. From the graduate student seeking employment, to the assistant professor seeking promotion and tenure, to the full professor interested in awards and recognition, the portfolio enhances your competitive status.

3. What is the role of the teaching portfolio in the scholarship of teaching? The portfolio requires profound reflection on your teaching, and the outcome of this is almost invariably positive. Such reflection can help

improve your teaching and help you establish contacts with other educators. The portfolio is prepared in consultation with this peer group, thus providing a non-threatening environment in which you can both receive and provide constructive criticism.

Dr. Beckmann believes that although the teaching portfolio is relatively new on the scene, its use is growing. Its reputation as an effective tool is increasing, and it is now used by more than 800 colleges and universities in the United States. It is an asset that will provide valuable returns throughout one's academic career. Considering the high turnout at, and vigorous participation in, the workshop, we believe our membership is interested and we encourage the consideration of such a portfolio. For additional information on teaching portfolios, contact Dr. Robert Beckmann, Botany Department, Box 7612, North Carolina State University, Raleigh, NC 27695-7612; telephone 919-515-5024, fax 919-515-7519.

2001 PKAL National Assembly

The 2001 Project Kaleidoscope (PKAL) Faculty for the 21st century (F21) National Assembly will meet at the University of Wisconsin–Madison October 19–21, 2001. This year's assembly, "Science at the Cutting Edge," will emphasize bringing cutting-edge advantages to the undergraduate learning environment. Three of the tracks of particular interest include biotechnology, informational technology, and environmental science.


The annual PKAL National Assembly is a key opportunity for F21 members to exchange ideas and experiences with peers and with seasoned agents of change within the national Science, Mathematics, Engineering Technology (SMET) community. The National Assembly provides opportunities to explore new

directions in science and technology and to develop modules and tool kits for bringing those advances into the undergraduate learning environment in courses and labs for students at all levels. One goal is that all participants leave with specific materials to adapt in bringing cutting-edge science to their own campuses, with special attention to issues relating to ethics, writing, undergraduate research, and technology. Participants leave with an action agenda for the coming months and year focusing on opportunities and challenges of integrating research and education into their scholarly agenda.

If you are interested in attending the meeting or becoming a PKAL faculty, please visit the web site at <http://www.pkal.org> for more information.

CUR National Conference 2002

The Council on Undergraduate Research (CUR) National Conference will be held at Connecticut College, New London, on June 19–22, 2002. The theme is "Undergraduate Research for All," with diverse workshop activities covering topics such as the nature of undergraduate research, internal and external funding and support, research responsibilities, and assessment. There will be plenty for everyone at CUR 2002: Administrators, faculty, graduate students, and particularly those seeking employment at primarily undergraduate institutions are all welcome. Administrators will be especially interested in sessions on assessment and research ethics. This conference is a great opportunity for those doing research while working to improve undergraduate education.

For further information, online registration, and details on how to submit a workshop proposal or poster application, visit <http://www.cur.org/conferences.html>. 

ASPB News publishes dates, titles, locations, and contact names and addresses for meetings, courses, seminars, and the like that are of interest to ASPB members. Submit announcements via e-mail to sbraxton@aspb.org or mail to Sylvia Braxton Lee, ASPB News, 15501 Monona Drive, Rockville, MD 20855-2768 USA. Faxed transmissions are not accepted.

2002: Denver, Colorado

Saturday, August 3, through
Wednesday, August 7

2003: Honolulu, Hawaii

Saturday, July 26, through
Wednesday, July 30

2004: Orlando, Florida

Saturday, July 24, through
Wednesday, July 28

info@keystonesymposia.org or JISchroeder@ucsd.edu. Visit Web site at www.keystonesymposia.org.

MARCH

March 2–4
Southern Section's Annual Meeting
Georgia Center for Continuing Education
University of Georgia Campus, Athens
Ruth Grene (formerly Alscher) is the organizer, working with Scott Merkle, local host. For information contact Ruth Grene, Department of Plant Pathology, Physiology and Weed Science, Virginia Tech, Blacksburg, VA 24061-0330; telephone 540-231-6761, fax 540-231-5755, e-mail ralscher@vt.edu.

2001

OCTOBER

October 27–30
X National Congress of Biochemistry and Molecular Biology of Plants and 4th Symposium Mexico–USA
La Paz, Baja California Sur, Mexico
Deadline for poster abstracts is July 30th, 2001. For more information on the academic program, abstract formats, costs, lodging, etc, visit our Web page at <http://www.cibnor.org/anuncios/bioplanta>. For questions, contact cib-smb@cibnor.mx or Dr. J. L. Díaz De León at jldleon@uabcs.mx.

NOVEMBER

November 11–15
6th ISSR Symposium *Roots: The Dynamic Interface Between Plants and the Earth*
Nagoya, Japan
Organizers: Japanese Society for Root Research (JSRR) and International Society of Root Research (ISSR). For information, e-mail Dr. S. Morita at anatomy@mail.ecc.u-tokyo.ac.jp or visit the Web site at <http://www.soc.nacsis.ac.jp/jsrr/issr/>.

November 19–21
"Oxygen, Free Radicals and Oxidative Stress in Plants"
Nice, France
Information can be obtained on our Web site at <http://www.unice.fr/PlantRadicals2001/>. For additional information contact Alain Puppo at puppo@unice.fr.

DECEMBER

December 4–6
International Symposium
Irrigation and Water Relations in Grapevine and Fruit Trees
Mendoza, Argentina
For information, contact Facultad de Ciencias Agrarias–UNCuyo, Alte. Brown 500, Casilla de Correo N° 7, Chacras de Coria, Mendoza–Argentina CPA M5528AHB. Telephone +54-261-496-0004, ext. 2023 or 1019, fax +54-261-496-0469, e-mail secretariat@irrigationsymposium.com.ar, Web site <http://www.irrigationsymposium.com.ar>.

December 8–12
41st ASCB Annual Meeting
Washington Convention Center, Washington, DC
For information, contact us at telephone 301-347-9300, e-mail ascbinfo@ascb.org, web site <http://www.ascb.org>.

2002

JANUARY

January 22–27
Keystone Symposium on Specificity and Crosstalk in Plant Signal Transduction
Granlibakken Resort, Tahoe City, California
Organizers: Julian I. Schroeder, Mark A. Estelle, Masaki Furuya. Abstract Deadline: September 21, 2001. Early Registration Deadline: November 20, 2001. For information contact 800-253-0685, fax 970-262-1230, fax 970-262-1525,

March 23–26
6th International Conference on Plasma Membrane Redox Systems and Their Role in Biological Stress and Disease
Ravenna, Italy
For information contact Paolo Trost, Department of Biology, University of Bologna, telephone +39-051-2091329, fax +39-051-242576, e-mail trost@alma.unibo.it, or visit the web site at <http://www.unibo.it/redox2002>.

APRIL

April 8–12
Society for Experimental Biology
Annual Main Meeting
Swansea, Wales, United Kingdom
Contact the SEB office at: telephone, +44-207-439-8732, fax +44-207-7287-4786, e-mail c.trimmer@sebiology.org. See web site at www.sebiology.org.

April 11–14
5th Workshop on Sulfur Assimilation in Higher Plants: "Sulfur Transport and Assimilation—Regulation, Interaction, Signaling"
Montpellier, France
For more information on program and how to register, visit the web site at http://cost829.dhs.org/planned_meetings/. Workshop limited to 120 participants. Contact Prof. Jean-Claude Davidian, ENSA-M / INRA (UMR 5004) 2, Place Viala, 34060 Montpellier, France, davidian@ensam.inra.fr.

April 15–17

17th Long Ashton International Symposium
 “New Frontiers in Plant Development: From
 Genes to Phenotype”

Bristol, United Kingdom

For information contact Christine Cooke at +44-
 1275-549341, fax +44-1275-549397, e-mail
 Christine.Cooke@BBSRC.AC.UK.

April 23–27

VI International Meeting on Biology and
 Biotechnology of the Plant Hormone
 Ethylene

Murcia, Spain

For information contact Dr. M. Vendrell, e-mail
 mvmagr@cid.csic.es, or Dr. F. Romojaro, e-mail
 ethylene@cebas.csic.es. Meeting Secretariat:
 CEBAS-CSIC, Campus Universitario de
 Espinardo, Apartado de Correos 4.195, 30100
 Murcia, Spain; telephone +34-968-396328, fax
 +34-968-396213.

MAY

May 20–22

Urban Agriculture: Emerging Opportunities in
 Science, Education, and Policy

Dallas, Texas

Call +972-231-5362 for more information or
 visit <http://urbanag.tamu.edu>.

JUNE

June 23–28

11th International Symposium on Iron Nutrition
 and Interactions in Plants

Udine, Italy

Contact: Roberto Pinton, Department
 Produzione Vegetale e Tecnologie Agrarie,
 University of Udine, Via Delle Scienze 208 I-
 33100 Udine, Italy; telephone +390432558641,
 fax +390432558603, e-mail iron.symp@
 dpvta.uniud.it, Web site <http://www.ironymp2002.unimi.it>.

JULY

July 7–12

XXIst International Carbohydrate Symposium
 Cairns, Queensland, Australia

For information, contact The Secretariat,
 Congress West, 12 Thelma Street, PO Box 1248,
 West Perth, Western Australia 6872; fax +61-8-
 9322-1734, e-mail conwes@congresswest.com.au,
 web site <http://www.ics2002.uwa.edu.au/>.

July 28–August 1

Plant Growth Regulation Society of America
 Westin Nova Scotian, Halifax, Nova Scotia
 Contact Dr. Wayne A. Mackay, Program Chair,
 Texas A&M University, 17360 Coit Road,
 Dallas, TX 75252-6599; telephone 972-231-
 5362, fax 972-962-9216, e-mail w-mackay@tamu.edu, Web site <http://www.griffin.peachnet.edu/pgrsa>.

AUGUST

August 3–7

The Annual Meeting of the American Society of
 Plant Biologists

Adams Mark Hotel

Denver, Colorado

For information see <http://www.aspb.org/meetings/pb-2002/index.cfm>.

SEPTEMBER

September 1–6

13th International Congress of the Federation of
 European Societies of Plant Physiology (FESPP)
 Heraklion, Crete, Greece

For information please contact Professor Kalliopi
 A. Roubelakis-Angelakis; telephone +30-81-
 394073; 304459, fax +30-81-394459, e-mail
poproube@biology.uoc.gr; fespp@biology.uoc.gr;
 Website www.biology.uoc.gr/meetings/fespp.

ASPB Placement Service

This form may be used only by members of the American Society of Plant Biologists.
Please print or type your placement information on this form (curriculum vitae will not be accepted) and send to
Donna Gordon, ASPB Headquarters, 15501 Monona Drive, Rockville, MD 20855-2768 USA; e-mail dgordon@aspb.org

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CITY	STATE	ZIP	COUNTRY
TELEPHONE	FAX	E-MAIL	

I am seeking the following position (check all that apply):

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| <input type="checkbox"/> Academic | <input type="checkbox"/> Government | <input type="checkbox"/> USA only | <input type="checkbox"/> Outside USA |

US citizen? Yes No **Date available:** _____

Fields of interest, specialties, and publications titles: _____

Thesis, dissertation topics, professor: _____

Professional societies and honors: _____

Degree/year	Major	Minor	College/university and location

Postdoctoral study (specialty and with whom, where, and when): _____

Employer and location	From	To	Position, title, and duties

References (names, addresses, and telephone numbers):



I. Registering with the ASPB Placement Service and Obtaining Placement Files

ASPB operates a placement service in which are kept active two files of resumes of individuals who are seeking employment. Employers are urged to survey the resume files for those seeking permanent positions and those seeking postdoctoral or similar positions. The files cost \$25 each and may be ordered from Donna Gordon, ASPB Placement Service, 15501 Monona Drive, Rockville, MD 20855-2768 USA. Those seeking employment should complete the Placement Service Form on the previous page to be included in the service.

II. Placing a Position Ad in the ASPB News and on the ASPB Homepage

Submit all ads by e-mail to Sylvia Braxton Lee at sbraxton@aspb.org (or by mail to Sylvia Braxton Lee, 15501 Monona Drive, Rockville, MD 20855-2768 USA). If you are submitting a chargeable ad, please include billing information when you send the ad.

- **Academic/Government/Industry Permanent Positions (Ph.D. level):**
Fee: \$150. Includes listing in one issue of the *ASPB News* and 12 weeks on the ASPB online Job Bank.
Word Limit: 200 for print ad; no limit for online ad.
- **Postdoctoral Positions**
Fee: No charge for universities, non-profit organizations, and government installations; \$150 for commercial companies. Includes listing in one issue of the *ASPB News* and 12 weeks on the ASPB online Job Bank.
Word Limit: 200 for print ad; no limit for online ad.
- **Research/Technical Positions (non-Ph.D.)**
Fee: No charge for universities, non-profit organizations, and government installations; \$150 for commercial companies. Includes listing in one issue of the *ASPB News* and 12 weeks on the ASPB online Job Bank.
Word Limit: 200 for print ad; no limit for online ad.
- **Assistantships, Fellowships, Internships**
Fee: No charge; ad will appear in two issues of the *ASPB News*—the first time at full length and the second time in an abbreviated form—and 12 weeks on the ASPB online Job Bank.
Word Limit: None.

ACADEMIC/GOVERNMENT/INDUSTRY PERMANENT POSITIONS (Ph.D.)

Two Research Scientist Positions
PhytaGenics, Richland, Washington
(Received 07/06)

PhytaGenics is a newly founded plant biotechnology company for novel plant gene discovery, protein production for pharmaceutical and industrial applications, and metabolic engineering for phytochemical manufacture.

Position I: molecular biology/protein purification.

Candidates should have demonstrated expertise in standard molecular cloning, vector construction for transgene expression, and molecular and biochemical analyses of expressed proteins in transgenic plants. Previous experience in large-scale protein purification is preferred. A Ph.D. in (plant) molecular biology, biochemistry, or a closely related area is required.

Position II: plant molecular biology/plant physiology.

Candidates should have demonstrated expertise in standard molecular cloning, protein expression in transgenic plants, molecular and biochemical characterization of transgene expressed products in plants, and plant tissue

culture and transformation. Experience in plant physiology and horticulture is preferred. A Ph.D. in plant molecular biology, plant physiology, botany and related areas is required. Good communication skills and the ability to interact with technical peers are necessary. Please send a current curriculum vitae, a letter of research interests and experiences, and the names, telephone numbers, and e-mail addresses of three references by e-mail to Dr. Brian Hooker, Director of Research at PhytaGenics, brian.hooker@phytagenics.com.

Landscape Horticulture Specialist
University of California, Davis
(Received 07/13)

This is a career track appointment in the Department of Environmental Horticulture (80%) and the Landscape Architecture program (20%) in the Department of Environmental Design, at the University of California, Davis. This is a cooperative extension position (100%), with emphasis on urban landscape horticulture. The landscape horticulture specialist will develop a statewide program in landscape horticulture focusing on issues critical to the general public, landscape management industries, and relevant government agencies. The appointee will establish a cooperative research program with

faculty, specialists and farm advisors, and will publish findings in peer-reviewed media. The incumbent will also develop and disseminate educational materials, will provide leadership and coordination for University of California landscape horticulture advisors, and will be a resource for the statewide Master Gardener program. Applicants must hold a Ph.D. degree in horticulture, urban forestry, plant biology or ecology, or related fields with a research area relevant to contemporary urban landscape issues. Deadline for submission of application materials is October 1, 2001. For further application information, contact Dr. Alison M. Berry, Department of Environmental Horticulture, University of California, One Shields Ave., Davis, CA 95616-8587; telephone 530-752-7683, e-mail amberry@ucdavis.edu.

Assistant Professor Positions
Purdue University, West Lafayette, Indiana
(Received 07/17)

The Department of Botany and Plant Pathology at Purdue University is seeking outstanding applicants with strong records of research accomplishment for two tenure-track assistant professor positions in the area of functional genomics. These academic year (10-month)

THE DEADLINE FOR ADS FOR THE NOVEMBER/DECEMBER ISSUE OF ASPB News IS OCTOBER 31, 2001.

Check ASPB's Web site (<http://www.aspb.org/jobbank/>) every Friday for new job listings. Jobs with early application deadlines are listed on the Web site but might not appear in the *ASPB News*.

appointments will expand and strengthen basic plant pathology in the department and support Purdue's overall initiative in plant genomics. The successful applicants will be expected to develop strong, externally funded research programs that address relevant questions regarding plant-pathogen interactions, such as molecular and genetic mechanisms of disease resistance in crops or model systems, or mechanisms of pathogenicity and virulence in plant pathogens. Teaching responsibilities will include undergraduate and graduate courses in plant pathology as well as mentoring graduate students. A Ph.D. in plant pathology or related discipline is required and postdoctoral experience is desirable. Applicants should submit their curriculum vitae, a short statement of research interests, a statement of teaching interests and philosophy, and the names and contact information of four references to Dr. Ray Martyn, Head, Department of Botany and Plant Pathology, 1155 Lilly Hall, Purdue University, West Lafayette, IN 47907-1155. Applications should be received by October 31, 2001, to ensure full consideration. Departmental web site: <http://www.btny.purdue.edu>. An EO employer.

Assistant or Associate Professor
Colorado State University, Fort Collins
(Received 07/18)

A tenure-track research and teaching assistant or associate professor position is available in plant genomics/proteomics. Responsibilities include fundamental research relevant to quality and value of flowering plants; obtaining external funding; and contributing to interdisciplinary research with emphasis on topics such as flower development, embryogenesis, seed biology, etc. Candidate will teach one to two courses per year and advise graduate students. Qualifications: Ph.D. in plant biology or relevant field. Postdoctoral experience preferred. Application, curriculum vita, transcripts, description of research and teaching interests, and four professional reference letters should be sent to Dr. Stephen J. Wallner, Head, Department of Horticulture and Landscape Architecture, Colorado State University, Fort Collins, CO 80523-1173; telephone 970-491-7018, fax 970-491-7745, e-mail swallner@agsci.colostate.edu. Applications and nominations will be considered until the position is filled; however, applicants should submit applications by November 1, 2001. Colorado State University is an equal opportunity employer.

Interdisciplinary
Supervisory Research Geneticist (Plants)
Supervisory Plant Physiologist
Supervisory Research Plant Pathologist
USDA/ARS, Hilo, Hawaii
(Received 07/25)

The USDA/ARS, Hilo, Hawaii, invites applications for the position of center director of the Pacific Basin Agricultural Research Center, GS-15 (\$79,710-\$103,623 per annum (+ 16.5% COLA), salary commensurate with experience). The center director has overall responsibility for formulating and guiding a broad-scale multidisciplinary research program covering crop production, fundamental and applied plant sciences, plant protection, pre-harvest and post-harvest plant physiology, plant genetics/plant germplasm conservation and enhancement, and entomology. The incumbent will also conduct a personal research program within one or more of the program missions. A Ph.D. or equivalent in plant genetics/plant physiology/plant pathology or a closely related field is desired. This is a competitive, permanent appointment and U.S. citizenship is required. ARS is an equal opportunity provider and employer. Women and minorities are encouraged to apply. Applications must be marked "ARS-X1W-1451." For specific application procedures and requirements, please call Ms. Loretta Okamoto, 808-959-4301. You may obtain a copy of the vacancy announcement from Ms. Okamoto or from the ARS home page (<http://www.ars.usda.gov/afm/hrd/resjobs/index.html>) under announcement ARS-X1W-1451. Applications must be postmarked by September 28, 2001.

Professor and Head
The University of Tennessee, Knoxville
(Received 08/10)

The University of Tennessee, Knoxville, invites nominations and applications for the position of professor and head of the Department of Plant Sciences and Landscape Systems (see ohld.ag.utk.edu/psls/). The head will provide leadership to a diverse department having research, extension and academic missions involving production of ornamental, food, forage, fiber and turf crops; biotechnology; weed science; landscaping; public horticulture; and environmental sustainability. Qualifications include a Ph.D. in plant biology or closely related field, administrative experience, appreciation of the Land Grant mission, and nationally recognized accomplishments in teaching, research, and/or extension. Applicants should have a commitment to equal employment opportunity and affirmative action. Send formal letter of application, resume, and names, postal and e-mail addresses, and telephone numbers of five professional references to Dr. Robert Augé, Chair, Plant Sciences and Landscape Systems Department Head Search Committee, 252 Ellington Building, The University of Tennessee, PO Box 1071, Knoxville, TN 37901-1071; telephone 865-974-7324, fax 865-974-1947, e-mail auge@utk.edu. Review of applicants' credentials will begin on November 10, 2001, and will continue until the position is filled. The

University of Tennessee is an EEO/AA/Title VI/Title IX, Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

Assistant Professor
Mississippi State University, Mississippi State
(Received 08/17)

A tenure-track position with 12-month appointment is available. Candidate is expected to develop and sustain an internationally-recognized and extramurally-funded research program in plant molecular biology. Preference given to candidates having interdisciplinary interests in conducting collaborative research on economically-important crops. Appointee will develop and teach graduate courses in his/her area of specialty. MSU ranks 8th among U.S. universities in total agricultural research expenditures and has a commitment to advancing biotechnology. Commercial applications of biotechnology are encouraged. A Ph.D. in plant molecular biology or related field is required and postdoctoral experience desirable. Send letter of intent, curriculum vitae, statement of research and teaching interests, and names of three references to Search Committee, Plant and Soil Sciences Department, Box 9555, Mississippi State University, Mississippi State, MS 39762. Applications accepted until October 1, 2001, or until position is filled. For further information contact Dr. Alan Wood, Director, Life Sciences and Biotechnology Institute at 662-325-9208. AA/EEO Employer.

Assistant Professor
University of Nebraska, Omaha
(Received 08/21)

The Biology Department, University of Nebraska at Omaha, announces a tenure-track, assistant professor position in plant physiology, starting August 2002. A completed Ph.D. in plant physiology or closely related discipline is required. Postdoctoral research and/or teaching experience is desirable. Applicants with research interests in any area of plant physiology will be considered. Teaching responsibilities include an upper-division/graduate plant physiology course with a laboratory and participation in introductory biology survey courses. Graduate courses in the area of specialization may be developed. The successful candidate is expected to establish an active research program. The university and department are strongly committed to achieving diversity among faculty and staff. We are particularly interested in receiving applications from members of underrepresented groups and strongly encourage women and people of color to apply. For more information about the department, see the web site at www.unomaha.edu/~wwwbio/. Screening of applications will begin October 1, 2001, and continue until the

position is filled. Send curriculum vitae, statements of teaching and research objectives, and three letters of recommendation to Chair, Biology Department, University of Nebraska at Omaha, 6001 Dodge St., Omaha, NE 68182.

Integrative Physiologist
University of Colorado, Boulder
(Received 08/31)

The Department of Environmental, Population and Organismic Biology (<http://www.Colorado.EDU/epob/>) at the University of Colorado, Boulder (<http://www.colorado.edu/>), invites applications for a tenure-track integrative physiologist who applies molecular and/or biochemical approaches to the study of cellular function within a comparative and/or environmental context. Individuals working with any taxa and/or model system are encouraged to apply. The department anticipates hiring at the assistant professor level. However, applications at other levels may be considered. The tentative start date is August 19, 2002. Teaching duties will include an undergraduate core course in cellular and integrative physiology and upper level courses in areas of specialty. Applicants should submit a current curriculum vitae, statements of research and teaching interests, and have three individuals send letters of recommendation under separate cover. Submit materials by October 15, 2001, to Integrative Physiologist Search Committee, Dept. of EPO Biology, Campus Box 334, University of Colorado, Boulder, CO 80309-0334. Queries about the position can be sent to cynthia.carey@colorado.edu. The University of Colorado at Boulder is committed to diversity and equality in education and employment.

POSTDOCTORAL POSITIONS

Postdoctoral Fellow
University of Kalmar, Kalmar, Sweden
(Received 07/03)

A postdoctoral position for up to two years is available from October 1st to study the regulation of sesquiterpene biosynthesis in plants. Of particular interest is sesquiterpenoid phytoalexins induced as response to pathogenic attack (elicitation). Both wild-type and transgenic plants/cell cultures expressing key biosynthetic enzymes under the control of inducible promoters (e.g. tetracycline) will be used in these studies. The successful candidate should possess a Ph.D. with a strong emphasis in molecular biology and demonstrate experience with plant molecular biological techniques. The candidate should also preferably have experience with various biochemical methods such as enzyme isolation and characterization as well as metabolite analysis (GC-MS). Additionally, the candidate should have publications in generally

accessible peer-reviewed international journals. Please send complete curriculum vitae along with names of three references to peter.brodelius@hik.se or to P. Brodelius, Department of Chemistry and Biomedical Sciences, University of Kalmar, 39182 Kalmar, Sweden.

Postdoctoral Position
University of Kentucky, Lexington
(Received 07/05)

One postdoctoral position is available immediately in the Department of Agronomy, University of Kentucky, Lexington. The successful candidate will join a very active research team focusing on (1) development of novel molecular genetic tools and germplasm for molecular pharming/farming, and (2) molecular regulatory mechanisms underlying leaf senescence in Arabidopsis (for more information, please visit <http://www.uky.edu/~sgan/>). While the incumbent is expected to concentrate on (1), the candidate is also expected to use modern molecular genetic techniques to analyze a genetic insulator that we have isolated from Arabidopsis. Applicants should have received their Ph.D. degree in biochemistry, genetics, bacteriology or a closely related field within past two years. Applicant should be highly motivated and career-oriented. Extensive working experience in molecular biology is a must, and experience with Arabidopsis is a plus. To apply, please fax or e-mail your application with curriculum vitae, and names, telephone numbers and e-mail addresses of three references to Dr. Susheng Gan at 859-323-1077 (fax) or sgan@pop.uky.edu. EOE.

Postdoctoral Position
Texas A&M University, College Station
(Received 07/06)

A postdoctoral position is available to study the functional genomics of plant response and adaptation to adverse environments using microarrays. The person hired will join a dynamic team of researchers working on two NSF sponsored genome projects focused on the environmental stress tolerance of plants using sorghum as a model species. Please send a curriculum vitae and list of references to Dr. John Mullet (jmullet@tamu.edu) and Dr. Patricia Klein (pklein@tamu.edu), Institute for Plant Genomics and Biotechnology (ipgb@tamu.edu), Texas A&M University, College Station, Texas.

Postdoctoral Position
University of Florida, Gainesville
(Received 07/12)

A postdoctoral position in plant molecular biology is available at the Horticultural Sciences Department, University of Florida, Gainesville. The project focuses on the synthetic pathways of beta-alanine and beta-alanine betaine. For

background work see *Physiologia Plantarum* 109, 225–231, 2000; and *Plant Physiology* 126, 1241–1246, 2001. Candidates should have a Ph.D. in any area of plant biology. Strong skills in molecular cloning and biochemistry, as demonstrated by thesis work and publications, are required. Salary and start dates are negotiable. To apply send a copy of your curriculum vitae (preferably by e-mail) and contact information for three references to Dr. Bala Rathinasabapathi, Assistant Professor, Horticultural Sciences Department, University of Florida, Gainesville, FL 32611-0690; telephone 352-392-1928. ext. 323, fax 352-392-5653, e-mail brath@mail.ifas.ufl.edu.

Postdoctoral Position
University of Arizona, Tucson
(Received 07/12)

Applicants are invited for an NSF-funded postdoctoral position in the area of plant functional genomics at the University of Arizona. The responsibilities of this position, funded for two years, involve the production of maize cDNA/EST microarrays, including one for a maize unigene set, and using these for analysis of gene expression. We are looking for enthusiastic, hard-working, and diligent applicants to help lead our interdisciplinary team, which also interfaces with other microarray-based projects in plant functional genomics. Applications and enquiries should be directed to Drs. David Galbraith and Vicki Chandler, University of Arizona, Department of Plant Sciences, 303 Forbes Building, Tucson, AZ 85721. Applications should include a curriculum vitae and the names of three references to David W. Galbraith, Professor of Plant Sciences, Department of Plant Sciences, University of Arizona, 303 Forbes Building, Tucson, AZ 85721; telephone 520-621-9153, fax 520-621-7186, e-mail galbraith@arizona.edu, Web site <http://latin.arizona.edu/galbraith>. Plant-Insect Interaction program: <http://ag.arizona.edu/pii-rtg>.

Postdoctoral Position
INRA, Versailles, France
(Received 07/13)

The following postdoctoral fellowship position is available immediately at INRA (<http://www.inra.fr>), Versailles, France, and is restricted to non-French applicants. Applicants available to start in January 2002 are also encouraged to apply. We require a motivated and experienced postdoctoral fellow to work on molecular physiology and genetics of branching in pea and Medicago. The applicant should have a Ph.D. and should demonstrate experience in plant genetics, molecular biology, particularly gene expression techniques, generation, and analysis of transgenic plants. Experience with plant physiology is highly desirable. The postdoctoral

fellow will contribute to the understanding of branching in plants by studying genes controlling two novel long-distance signals specifically involved in branching and by characterizing new mutants in collaboration with C. A. Beveridge (The University of Queensland, Brisbane; see Beveridge C. A., Long-distance signalling and a mutational analysis of branching in pea. *Plant Growth Regul* 32, 193–203, 2000). Interested applicants should send a curriculum vitae, list of publications, brief statement of experience, skills and qualifications, and the names of two referees to Catherine Rameau, Station de génétique INRA, Route de Saint-Cyr, 78026 Versailles cedex, France; telephone +33-1-30833289, fax +33-1-30833319, e-mail rameau@versailles.inra.fr.

Postdoctoral Position

University of Florida, Gainesville
(Received 07/17)

A postdoctoral position is available in biochemistry, genomics and engineering of plant one-carbon and folate metabolism (see *J Biol Chem* 274, 36089, 1999; *Trends Plant Sci* 5, 206, 2000; *Plant J* 25, 575, 2001; www.hos.ufl.edu/meteng/1Cpage1.html). A strong background in molecular biology and biochemistry is essential. Applicants must have good scientific writing skills and be able to work independently. Please send curriculum vitae, cover letter describing research interests and experience and names of three references to Andrew Hanson, University of Florida, Horticultural Sciences Dept., Gainesville, FL 32611-0690; telephone 352-392-1928 ext. 334; e-mail adha@mail.ifas.ufl.edu.

Postdoctoral Position

Johns Hopkins University, Baltimore, Maryland
(Received 07/20)

A postdoctoral position in the Department of Biology will be available September 1, 2001. The subject of research will be the chloroplast ATP synthase. In particular, we are interested in the regulation of activity and in the structure of this complex enzyme (see McCarty et al., *Annu. Rev. Plant Physiol.*, 51, 83–109; 2000). Please send your curriculum vitae and names and contact information for two references to Dr. Richard E. McCarty, preferably via e-mail (rem1@jhu.edu). Mailing address: 237 Mergenthaler Hall, Johns Hopkins University, 3400 N. Charles St., Baltimore, MD 21218.

Postdoctoral Position

Virginia Tech, Blacksburg, Virginia
(Received 07/25)

A postdoctoral position is available to study the genes involved in synthesis of D-chiro inositol. The project will focus on isolating plant (*Arabidopsis thaliana*) genes required to

synthesize D-chiro-inositol and transferring these genes into transgenic plants for production to treat Type II Diabetes. Applicants should have a Ph.D. degree in biochemistry or biology or a related field with emphasis on molecular biology. Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates including women, minorities, and people with disabilities. Send curriculum vitae and contact information for three references to Dr. Glenda Gillaspay, Department of Biochemistry, Virginia Tech, Blacksburg, VA 24061; e-mail gillaspay@vt.edu.

Postdoctoral Research Position

Vienna Biocenter, Vienna, Austria
(Received 07/27)

A postdoctoral research position is available at the Institute of Microbiology and Genetics at the University of Vienna. The research program is on signal transduction of abiotic and biotic stresses (Cardinale et al., *J. Biol. Chem.* 275, 36734–36740, 2000; Hirt Proc. Natl. Acad. Sci USA 97, 2405–2407, 2000; Kiegerl et al., *Plant Cell* 12, 2247–2258, 2000; Jonak et al., 12, 1467–1475, 2000) and includes genomic, proteomic, and in vivo cell biology studies in *Arabidopsis*. Experience in plant and molecular biology is required. The successful candidate will become a Wittgenstein fellow and work on the team of Prof. Heribert Hirt who was recently awarded this prize. The Hirt lab is located in the Vienna Biocenter, a Center of Excellence, in the center of Vienna. Vienna is one of the most attractive places in the world, offering social and cultural highlights and a beautiful environment. Employment will include an attractive salary, including social security and health insurance. Applicants should submit a curriculum vitae, resume, GRE/TOEFL scores, and three letters of reference to Prof. Dr. H. Hirt, Inst. of Microbiology and Genetics, Vienna Biocenter, Dr. Bohrgasse 9, A-1030 Vienna, Austria; e-mail hehi@gem.univie.ac.at.

Postdoctoral Positions

Kansas State University, Manhattan
(Received 07/27)

Two NSF-funded postdoctoral positions are available immediately to study signaling processes in plant metabolism and stress responses. Position one is to investigate phospholipase-mediated signaling processes. The incumbent will characterize novel phospholipases, identify cellular targets of lipid messengers, and determine physiological functions of lipid-based signaling cascades. Candidates must have a strong background and demonstrated ability in molecular biology and biochemistry techniques. Experience in plant stress physiology is a plus. Position two is to participate in a multi-disciplinary project that uses metabolomic

approaches to study the dynamics and functions of membrane lipid turnover and to identify the molecular and cellular machinery that generates and regulates the membrane functions. In addition to having a solid background in biochemistry and molecular biology, working experience in mass spectrometry and stress physiology is desired. Interested applicants should send curriculum vitae and arrange to have three letters of reference sent to Dr. Xuemin Wang, Professor, Department of Biochemistry, Kansas State University, Manhattan, KS 66506; telephone 785-532-6422, fax 785-532-7278, e-mail wangx@ksu.edu.

Postdoctoral Position

University of Florida, Gainesville
(Received 07/31)

A two-year postdoctoral research position is available for the study of mitochondrial biogenesis and function in plants. Research exploits the S system of cytoplasmic male sterility (CMS) in maize, in which a novel mitochondrial gene initiates programmed cell death leading to pollen collapse and male sterility. Restorer-of-fertility (Rf) alleles at many different nuclear loci suppress or compensate for the expression of the mitochondrial CMS gene to condition male fertility. The postdoctoral associate will use transposon display and/or TAIL PCR to clone nuclear Rf alleles recovered from CMS-S plants with active Ac/Ds or En/Spm systems and will have the opportunity to develop a related project addressing the role of mitochondria in plant programmed cell death or the molecular mechanisms of fertility restoration by nuclear genes. Applicants should send via e-mail a curriculum vitae, a statement of scientific interests and career goals, and the names and contact information (including e-mail) for three references to Dr. Christine Chase, Horticultural Sciences Department, Box 110690, University of Florida, Gainesville, FL 32611-0690; telephone 352-392-1928 ext. 316, e-mail ctcd@mail.ifas.ufl.edu, web site <http://www.hos.ufl.edu/ctcdweb/index.htm>.

Postdoctoral Research Associates

Washington State University, Pullman
(Received 08/02)

Two well-trained, eager and imaginative molecular geneticists are sought to join a multidisciplinary program to understand and manipulate the pathways of lipid synthesis in oilseeds. One project involves screening for desirable modifier mutations in transgenic *Arabidopsis* and cloning the affected genes. A second project is to alter the expression of specific genes in transgenic plants. Applicants should have experience in genetics and/or molecular biology but prior work with plants is not essential. My laboratory of 15 graduate

students and postdocs already has projects on fatty acid and lipid synthesis, and the Institute of Biological Chemistry at Washington State University is an excellent research environment for the work that is planned. The position will be available from November (but the start date is flexible) for up to three years possibly. Salary will be commensurate with experience. Review of applications will begin immediately, and continue until the position is filled. Send curriculum vitae, a statement of research interests and career goals, representative publications, and three letters of reference to John Browse, Institute of Biological Chemistry, Washington State University, Pullman, WA 99164-6340, USA; telephone 509-335-2293; fax 509-335-7643, email jab@wsu.edu EOE/AA/ADA.

Postdoctoral Position

State University of New York, Stony Brook
(Received 08/02)

A postdoctoral position in the Department of Biochemistry and Cell Biology is available starting immediately. The research projects will focus on identification and characterization of Arabidopsis proteins that interact with Agrobacterium virulence proteins and on the use of a genetic assay to identify Arabidopsis mutants with altered cell-to-cell protein transport. Required qualifications: experience in molecular biology, biochemistry and Arabidopsis biology, record of publications. Eligibility for outside funding is preferred. For more details or applications (curriculum vitae and three letters of reference), please contact Dr. Vitaly Citovsky, Department of Biochemistry and Cell Biology, State University of New York, Stony Brook, NY 11794-5215; telephone 631-632-9534, fax 631-632-8575, e-mail vitaly.citovsky@sunysb.edu. The University at Stony Brook is an equal opportunity/affirmative action employer. Applications from women, people of color, disabled persons, and/or special disabled or Vietnam era veterans are especially welcome.

Postdoctoral and or Research Positions

University of Georgia, Athens
(Received 08/02)

Three new positions remain available in an ongoing genomics program. Effort will focus on microarray evaluation of genome expression utilizing our >14,000-member unigene set and continued development of our current Oracle database and methods for mining it. The postdoctoral position is dedicated primarily to the wet-lab aspects of microarrays, while a second position is dedicated to bioinformatics. For further details see <http://www.botany.uga.edu/~prattlab>. For the wet-lab position, send curriculum vitae with contact information for

three references to Dr. Lee Pratt, Department of Botany, University of Georgia, Athens, GA 30602; telephone 706-542-1841, fax 706-583-0210, e-mail leepratt@uga.edu. For the bioinformatics position respond similarly to Dr. Alan Gingle, Office of the Vice President for Research, University of Georgia, Athens, GA 30602; telephone 706-583-0226, fax 706-583-0210, e-mail agingle@arches.uga.edu.

Postdoctoral Fellow

The Samuel Roberts Noble Foundation
Ardmore, Oklahoma
(Received 08/06)

A NASA-funded postdoctoral fellowship is available to investigate the cellular mechanisms underlying gravitropism in plant roots. The research will employ advanced optical microscopy and cell biological techniques to help define the dynamics and role of the cytoskeleton and other cell regulators such as pH and auxin during root growth and gravitropism. A Ph.D. in cell and molecular biology or plant biology is required. Experience in fluorescence/confocal microscopy, molecular techniques, the cytoskeleton, and/or gravitropism would be advantageous. Interested candidates are encouraged to review the job description and download an application at <http://www.noble.org> and send a complete curriculum vitae (position number must be included) and names and contact information of three professional references to Human Resources - #PB1PD-EB191, The Noble Foundation, PO Box 2180, Ardmore, OK 73402; telephone 580-223-5810, e-mail NFHR@Noble.org. Informal inquiries can be directed to Dr. Elison Blancaflor, telephone 580-221-7364, e-mail eblancaflor@noble.org.

Postdoctoral Fellow Positions

University of Hong Kong, China
(Received 08/07)

Two positions are available immediately in the Department of Botany for one year (renewable for up to three years) in the areas of plant genomics and biotechnology at the University of Hong Kong. Applicants should have a Ph.D. in plant biology-related disciplines and must have demonstrated skills in molecular biology. We seek interactive and self-motivated individuals to manage developing projects in plant genomics and biotechnology. Salary range is on a four-point scale at HK\$ 30,785, \$33,705, \$36,940, \$40,500 per month (current exchange rate: 1US\$~7.8HK\$), commensurate with experience. Hong Kong is one of the major gateways into Asia and is an exciting cosmopolitan city that offers diverse modern conveniences as well as a rich cultural heritage. Interested applicants should send their vitae and three letters of reference to Dr. Eric Lam, Chair of Botany,

University of Hong Kong, Pokfulam Road, Hong Kong; e-mail ericl89@hotmail.com. Closing date for applications is December 1st, 2001.

Postdoctoral Positions

North Carolina State University, Raleigh
(Received 08/09)

Two postdoctoral positions are available October 1, 2001, to study brassinosteroid signal transduction in Arabidopsis.

Position 0105

The primary experimental objectives will be to identify the in vivo autophosphorylation sites of the Arabidopsis BRI1 receptor kinase and determine if autophosphorylation events are brassinosteroid-dependent. Techniques employed will include immunoprecipitation of BRI1 from purified membrane preparations followed by advanced analysis by mass spectrometry in collaboration with experts in that field (Oh et al., *Plant Physiology* 124, 751-765, 2000).

Position 0106

Role of TRIP-1 in BR signaling (Jiang & Clouse, *Plant J* 26, 35-45, 2001). The primary experimental objectives will be to determine if the TGF-beta Receptor Interacting Protein homolog in plants is a substrate of the BRI1 receptor kinase in Arabidopsis. Minimum requirements include a Ph.D. in biochemistry, genetics, molecular biology or plant physiology, and experience with recombinant DNA techniques and protein biochemistry. Expertise in immunoprecipitation of proteins and kinase biochemistry would be particularly relevant. Apply to position number by sending curriculum vitae and e-mail addresses of three references to Dr. Steve Clouse, Box 7609, North Carolina State University, Raleigh, NC 27695-7609; e-mail steve_clouse@ncsu.edu. Equal opportunity employer.

Postdoctoral Research Position

The Samuel Roberts Noble Foundation
Ardmore, Oklahoma
(Received 08/16)

A postdoctoral position is immediately available in the Forage Biotechnology Group of the Noble Foundation. The successful candidate will work on genetic manipulation of flowering time in forage crops. Applicants should have a Ph.D. with a strong background in plant developmental biology/molecular biology. The project is supported by the Noble Foundation and the position is initially available for two years with the possibility of renewal for an additional year. Annual salary is in the range of \$31,090-\$46,630 depending upon qualifications and experience. Application and job description obtainable from our Web site, www.noble.org. For details of the project, contact Dr. Zengyu Wang at zywang@noble.org or 580-224-6830. For application, send a cover letter, detailed

curriculum vitae, and arrange for three letters of reference to be directly sent to Human Resources Department, Attn: Job# FBG1ZW86, The Samuel Roberts Noble Foundation, PO Box 2180, Ardmore, OK 73402; e-mail NFHR@noble.org.

Postdoctoral Positions

Boyce Thompson Institute at Cornell University
Ithaca, New York
(Received 08/17)

Two postdoctoral positions are available immediately, to study nuclear gene products required for plant organelle biogenesis. One project will focus on phage-like RNA polymerases and associated factors, using biochemical, genetic and genomic approaches (Chang et al., 1999, *Plant Cell* 11, 911–926; 1999). The other project will utilize *Chlamydomonas reinhardtii* as a model system to investigate global and gene-specific regulation of chloroplast RNA stability (Esposito et al, *Curr. Genet.*, 39, 40-48; 2001). Familiarity with molecular techniques and prior exposure to genetics are preferred, but not essential. For consideration, applicants should have publications in peer-reviewed journals and be able to travel to Ithaca for an interview. The initial appointments will be for two years, with possible renewal. Please send a letter outlining research goals and experience, a curriculum vitae, and the addresses of three references to Dr. David Stern, Boyce Thompson Institute at Cornell University, Tower Rd., Ithaca NY 14853; telephone 607-254-1306, e-mail ds28@cornell.edu. Information about Dr. Stern's laboratory can be viewed at www.plantbio.cornell.edu/faculty.php?fid=43. The Boyce Thompson Institute is an equal opportunity employer/recruiter.

Postdoctoral Positions

University of Nebraska, Lincoln
(Received 08/20)

Postdoctoral positions are available October 1, 2001, to study the signaling pathways and structural proteins in drought and salt stress in *Arabidopsis* and rice. The experimental approaches include microarrays, proteomics, genetics, transient assays and transgenic plants. Particular emphasis will be on protein:protein interactions and protein phosphorylation using UNL's state-of-the-art proteomics facilities and on genetic screens using RNA-suppression strategies in single cells. Minimum requirements include a Ph.D. in biochemistry or molecular biology. Send curriculum vitae and e-mail addresses of three references to Dr. Michael Fromm, N300 Beadle Center, University of Nebraska, Lincoln, NE 68588-0660; telephone 402-472-2968, e-mail mfromm@unlnotes.unl.edu. Equal opportunity employer.

Postdoctoral Position

University of California-Riverside
(Received 08/24)

A postdoctoral position will be available starting in October 2001 to investigate the regulation of protein synthesis in plants. Molecular studies will include protein-protein and protein-RNA analysis between the poly(A)-binding protein and translation initiation factors using yeast two-hybrid, immunoprecipitation, and GST pull-down assays. Genetic analyses of their developmental role will also be studied using transgenic plants exhibiting altered expression profiles. Further research description is available at www.biochemistry.ucr.edu/faculty/gallie.html. Candidates must have a strong background in molecular biology and/or biochemistry. Salary will be commensurate with experience. Applicants should send a curriculum vitae by e-mail, statement of research accomplishments, and three letters of recommendation to Dr. Daniel R. Gallie, Department of Biochemistry, University of California, Riverside, CA 92521; fax 909-787-3590, e-mail drgallie@citrus.ucr.edu.

Faculty Research Assistant/Postdoctoral Research Associate

Oregon State University, Corvallis
(Received 08/27)

A full-time faculty research assistant/postdoctoral research associate position is available to study the interaction between tomato and *Botrytis cinerea*, the causal agent of gray mold. A Ph.D. (research associate) or M.S. (research assistant) in molecular biology, biochemistry, microbiology, or genetics; strong training/experience in molecular and biological techniques; lab manager/supervisory experience; and experience writing grant proposals are required. For further information contact Henrik Stotz, 541-737-5468; stotzhe@bcc.orst.edu. Send letter of research interest, professional resume, photocopies of academic transcripts, and three reference letters to Viki Freeman, OSU Horticulture Department, 4017 ALS, Corvallis, OR 97331-7304; telephone 541-737-5475, fax 541-737-3479. For full consideration, apply by September 20, 2001. Oregon State University is an affirmative action/equal opportunity employer and has a policy of being responsive to the needs of dual-career couples.

Postdoctoral Research Associate Position

Rutgers University, New Brunswick, New Jersey
(Received 08/29)

A postdoctoral research associate position is available at the Biotech Center at Rutgers University to study the effects of pokeweed antiviral protein (PAP) on mRNA stability in yeast. PAP is a ribosome inactivating protein with broad-spectrum activity against viral and

fungal pathogens. PAP recognizes the cap structure on cellular and viral RNAs and inhibits translation by depurinating the capped RNA. A postdoctoral research associate is sought to characterize the mechanism by which PAP interacts with the cap structure and destabilizes mRNA. Qualifications include a Ph.D. in a related field, experience with RNA biochemistry and molecular biology, and demonstration of an active publication record. Please send the names and addresses of three references to Dr. Nilgun Tumer, Biotech Center, Foran Hall, Cook College, Rutgers University, New Brunswick, NJ 08901-8520; e-mail tumer@aesop.rutgers.edu.

Postdoctoral Positions

Donald Danforth Plant Science Center
St. Louis, Missouri
(Received 08/31)

Postdoctoral positions are anticipated at the Donald Danforth Plant Science Center in a variety of scientific disciplines including biochemistry, computational and structural biology, cell biology, virology, immunology, molecular pathology and physiology, and genetics. Successful candidates will have good publication records and command of the English language. Descriptions of openings and contact information can be found under Job Opportunities at www.danforthcenter.org. The Donald Danforth Plant Science Center is an equal opportunity/affirmative action employer and encourages applications from underrepresented groups, including minorities, women and people with disabilities.

Postdoctoral Position

University of Zurich, Switzerland
(Received 08/31)

A postdoctoral position is currently available in my group at the Institute of Plant Biology to study the molecular physiology of raffinose family oligosaccharides (RFOs) in plants. RFOs are primary photosynthetic products that fulfill many vital physiological functions such as storage, translocation, and metabolic utilization of carbon as well as protection against environmental stresses. The successful candidate will be using a physiological, biochemical, and molecular-genetic approach to further explore compartmentation, regulation, and physiological roles of RFOs in *Ajuga reptans* (common bugle) and *Arabidopsis thaliana* as the model systems. Qualifications: a Ph.D. in plant biology, molecular biology, biochemistry, or a related area; cDNA cloning and plant transformation experience is essential. The position is available immediately or as soon as possible and is offered for a term of two to three years. Please send a letter of interest, curriculum vitae, and names and e-mail addresses of three references to Dr.

Felix Keller, Institute of Plant Biology, University of Zurich; telephone +41-1-634-8225, fax +41-1-634-8204, e-mail fkel@botinst.unizh.ch, web site http://www.unizh.ch/botinst/Physiol_Website/kellerf_home.html.

RESEARCH/TECHNICAL POSITIONS
(Non-Ph.D.)

Research Assistant

Rutgers University, New Brunswick, New Jersey
(Received 07/18)

A Ph.D. research assistant position is available to work on turfgrass transformation. Experience in tissue culture and molecular biology is required. Please send curriculum vitae by mail or e-mail (belanger@aesop.rutgers.edu) to Dr. Faith Belanger, Biotech Center, Foran Hall, Cook College, 59 Dudley Road, New Brunswick, NJ 08901.

Research Assistant

The Ohio State University, Wooster
(Received 07/20)

Applications are sought to fill a research assistant 1 position in the Department of Horticulture and Crop Science at The Ohio State University R&D Center located in Wooster, Ohio. The successful candidate will be involved in managing a laboratory that investigates the molecular regulation of flower senescence by plant hormones. This is a permanent, hard money-funded position with a starting salary range of \$19,011-\$25,000. Minimum qualifications are a B.S. degree in horticulture, biology, biochemistry, molecular biology, or related field. Lab experience with molecular techniques and a desire and willingness to learn new techniques is essential. Experience with tissue culture, plant transformation, and plant-hormone interactions is desired. Responsibilities will include serving as a technical resource and assisting in conducting research in molecular biology and physiology in a floriculture biotechnology lab. Specific duties will include conducting lab and greenhouse experiments; performing tissue culture and plant transformations; conducting daily lab operations; supervising and assisting students; and assisting with data analysis, manuscript preparation, and literature searches. To apply, send cover letter, a detailed curriculum vitae or resume, and the names and contact information of three references to Dr. Michelle L. Jones, The Ohio State University/OARDC, Department of Horticulture and Crop Science, 1680 Madison Avenue, Wooster, OH 44691; e-mail jones1968@osu.edu. The Ohio State University is an equal opportunity/affirmative action employer.

Ph.D. Graduate Research Position
Vienna Biocenter, Austria
(Received 07/27)

A graduate research position to pursue a Ph.D. in molecular genetics at the Institute of Microbiology and Genetics at the University of Vienna is available. The research program is on signal transduction of abiotic and biotic stresses (Cardinale et al., J. Biol. Chem. 275, 36734-36740, 2000; Hirt, Proc. Natl. Acad. Sci USA 97, 2405-2407, 2000; Kieger et al., Plant Cell 12, 2247-2258, 2000; Jonak et al., 12, 1467-1475, 2000) and includes genomic, proteomic, and in vivo cell biology studies in Arabidopsis. Preference will be given to students holding a master's degree or equivalent with experience in plant and molecular biology. The successful candidate will become a Wittgenstein fellow and work in the team of Prof. Heribert Hirt who was recently awarded this prize. The Hirt lab is located in the Vienna Biocenter, a Center of Excellence, in the center of Vienna. Vienna is one of the most attractive places in the world, offering social and cultural highlights and a beautiful environment. Employment will include an attractive salary, including social security and health insurance. Applicants should submit a curriculum vitae, resume, GRE/TOEFL scores, and three letters of reference to Prof. Dr. H. Hirt, Inst. of Microbiology and Genetics, Vienna Biocenter, Dr. Bohrgasse 9, A-1030 Vienna, Austria; e-mail hehi@gem.univie.ac.at.

Faculty Research Assistant/Postdoctoral
Research Associate
Oregon State University, Corvallis
(Received 08/27)
See complete description on page 33.

Technical Positions

Donald Danforth Plant Science Center
St. Louis, Missouri
(Received 08/31)

Full time positions are available for research assistants or research associates in the areas of plant membrane transport/stress physiology (D. P. Schachtman) and the molecular manipulation of the phenylpropanoid pathway (O. Yu). For more details on the projects contact Dr. Yu or Dr. Schachtman or visit our web site. M.S. in biochemistry, genetics or plant physiology is preferred and skills in molecular biology are essential. Candidates with a B.S. and strong experience in molecular and biological techniques will be considered. Salaries offered will be commensurate with degree and years of experience. All positions include a full benefit package (health, dental, life insurance, retirement contributions, sick leave and vacation time). Relocation expenses are negotiable. Danforth Center is a new state-of-the-art plant science research facility in St. Louis (see www.danforthcenter.org). Submit letter of interest and resume to Daniel Schachtman or Oliver Yu at dschachtman@danforthcenter.org or oyu@danforthcenter.org or by mail to Donald

Danforth Plant Science Center, 893 N. Warson Rd., St. Louis, MO 63141. The Donald Danforth Plant Science Center is an equal opportunity/affirmative action employer and encourages applications from underrepresented groups, including minorities, women, and people with disabilities.

ASSISTANTSHIPS, FELLOWSHIPS,
INTERNSHIPS

Graduate Research Assistantship

Clemson University, Clemson, South Carolina
(Received 07/05)

A combined research/teaching assistantship is available January 2002 for studies leading to the M.S. or Ph.D. degree in the newly formed Department of Genetics and Biochemistry at Clemson University. The student will be involved in the study of auxin transport involvement in nodulation using the model legume *Medicago truncatula*. A B.S. with a strong background in molecular biology, biochemistry or genetics is required. Students will use molecular biological, biochemical and genetic techniques to study auxin mutants and their nodulation phenotypes. Further details can be found at <http://www.clemson.edu/~jfrugol>. The assistantship carries a combined research/teaching stipend of \$15,000. The Department of Genetics and Biochemistry is committed to ethnic and gender diversity; therefore women and minority candidates are encouraged to apply. Clemson University is an equal opportunity/affirmative action employer. Interested applicants should contact Julia Frugoli, Department of Genetics and Biochemistry, 122 Long Hall, Clemson, SC 29634; telephone 864-656-1859, e-mail jfrugol@clemson.edu.

Graduate Assistantship

University of Louisiana, Lafayette
(Received 07/09)

A graduate research & teaching assistantship is available at the Biology Department, University of Louisiana, Lafayette. The assistantship is for a Ph.D. candidate with a masters degree. Research work will focus on novel plant proteins involved in microtubule and actin microfilament organization, including analysis of AtKSS, a plant katanin homologue [recent work has been published *Protoplasma* 216, 181-190, 2000]. Research methods include fluorescence and confocal microscopy and basic molecular biology techniques. The ideal candidate will be motivated in plant cell developmental and physiology research. The assistantship requires a minimum total of 1,000 in verbal and quantitative parts of the GRE. Recipients must be U.S. citizens or hold a green card. Information on graduate studies at the University of Louisiana, Lafayette, can be obtained from <http://>

www.usl.edu/Departments/BIOL. To apply, please mail curriculum vitae to Regina McClinton, Assistant Professor, Department of Biology, PO Box 42451, University of Louisiana, Lafayette, LA 70504-2451; telephone 337-482-5153, fax 337-482-5834, e-mail rsm1241@usl.edu. Application materials can be downloaded from <http://www.usl.edu/Departments/BIOL/mcclinton.html>.

Graduate Research Assistantship
Kansas State University, Manhattan
(Received 07/25)

A graduate research assistantship is available in the Division of Biology for a qualified student for studies leading to Ph.D. Research will be in the area of signal transduction in plant defense (Shah et al., *Plant Cell* 11, 191–206, 1999; Shah et al., *Plant Journal* 25, 563–574, 2001; Kachroo et al., *Proc. Natl. Acad. Sci. USA*, in press, 2001). Students will have the opportunity to apply the concepts of genetics and techniques of molecular biology, biochemistry, and physiology toward developing a better understanding of plant defense responses. The assistantship is available beginning spring 2002 and carries an annual stipend of \$15,000. Students with an M.S., a B.S., or a B.A. in plant physiology, plant pathology, genetics, biochemistry, molecular biology, or related fields are encouraged to apply. For more information about the research

project, application requirements, and materials, please contact Dr. Jyoti Shah, Assistant Professor, Division of Biology, Kansas State University, Manhattan, KS 66506; telephone 785-532-6360, e-mail shah@ksu.edu. The KSU Web site is <http://www.ksu.edu>. Kansas State University is an equal opportunity employer and actively seeks diversity among its employees.

Graduate Research Assistantship
Texas A&M University, College Station
(Received 08/27)

A graduate research assistantship is available in the Department of Soil and Crop Sciences at Texas A&M University to pursue an M.S. or a Ph.D. in agronomy or in molecular and environmental plant sciences. The objective of the research in rice crop physiology is to improve management to enhance the combined yield and quality of the first (or main) crop plus the second (or ratoon) crop. A combination of cellular- and field-level approaches is anticipated. The Texas A&M Center in Beaumont is well equipped to conduct rice research with a large research farm primarily dedicated to rice, satellite research centers representing the diverse rice-growing regions of Texas, and a faculty of state and USDA scientists with interests in rice ranging from the ecological to the genomic levels. Applicants should have a strong background in agronomy, plant physiology, or a related

biological science. Texas A&M Graduate School admission requirements are described on the web site (<http://vpr.tamu.edu/>). The Department of Soil and Crop Sciences (<http://soilcrop.tamu.edu/>) and the Molecular and Environmental Plant Sciences (<http://soilcrop.tamu.edu/meps/index.html>) web sites provide additional information. Information about the TAMU Center at Beaumont can be viewed at its web site (<http://agresearch.tamu.edu/pubs/beaumont/rice.html>); see also <http://aesrg.tamu.edu/>), and the USDA research at the Beaumont Center is introduced at its web site (<http://usda-ars-beaumont.tamu.edu/>). For additional information about the assistantship and the research, please contact Dr. Lee Tarpley, Assistant Professor of Plant Physiology, Texas A&M Agricultural Research and Extension Center, 1509 Aggie Dr., Beaumont, TX 77713; telephone 409-752-2741, ext. 2235, fax: 409-752-5560, e-mail ltarpley@tamu.edu. EEO/AA.

Graduate Research Assistantship
West Virginia University, Morgantown
(Repeat)

Contact Sven Verlinden, Division of Plant and Soil Sciences, PO Box 6108, Morgantown, WV 26506; telephone 304-293-6023, e-mail sverlind@wvu.edu; division office telephone 304-293-4817. (Details July/August 2001 *ASPB News*)

ASPB Headquarters

Telephone Extensions and E-Mail Directory

For your convenience, keep this listing of extension numbers and e-mail addresses handy when you contact ASPB headquarters so that you can reach the person best able to assist you.

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