



# Science + Technology

## IN CONGRESS

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### NSF Doubling Bill Moves Forward

In September, two Senate committees marked up the National Science Foundation Doubling Act (S. 2817), sending the bill toward final consideration by the full Senate. The bill would authorize a doubling of the National Science Foundation (NSF) budget over five years from its current FY 2002 funding level of \$4.8 billion to an authorized level of \$9.8 billion in FY 2007, with roughly 15 to 16 percent increases each year.

The Senate Committee on Commerce, Science, and Transportation approved S. 2817 at a markup on September 19 with minimal debate. Sen. John McCain (R-AZ) proposed an amendment to reduce the authorization period to only two years, but was persuaded to withdraw it by Sen. Ron Wyden (D-OR) who argued that basic research needs long time horizons, and therefore a five-year authorization was appropriate. The committee did pass an amendment offered by Senators Wyden and Max Cleland (D-GA) calling for NSF to prepare a report describing the agency's efforts to improve the participation of women, minorities, and the disabled in its programs.

On September 5, the Senate Committee on Health, Education, Labor, and Pensions (HELP) also reported the bill favorably, but included some controversial changes to the

authorization bill that could bog down the doubling effort.

The most contentious issue for the scientific community was the consolidation of two existing Math and Science Partnerships (MSP) programs into a single NSF program. The two Partnerships programs were created by the No Child Left Behind Act (Public Law 107-110) earlier this year, one in the Department of Education (\$12.5 million in FY 2002) and one in NSF (\$160 million in FY 2002).

Both programs aim to improve science and math education through partnerships among states, school districts, universities, colleges, and other partners, but the Education program provides funding to all states through formula grants while the NSF utilizes merit-reviewed competitive grants. The HELP committee inserted language into S. 2817 eliminating Education's program, and converting the NSF program into a two-phase initiative. From FY 2003

>>> *Continued on page 4*

### Patenting Plants

The House Judiciary Subcommittee on Courts, the Internet, and Intellectual Property held a hearing September 19<sup>th</sup> on the Plant Breeders Equity Act of 2002 (H.R. 5119), a bill that would change existing patent law by amending the definition of novelty in plant patent guidelines.

One of the main criteria for receiving a plant patent is novelty or the "newness" of an invented or discovered variety of plant that has been asexually reproduced. This includes cultivated spores, mutants, hybrids, and newly found seedlings. If a plant patent is granted, the owner of the patent has the sole right to reproduce, sell, and use the plant. Once issued, the owner is able to explore possible medicinal, agricultural, or other uses for the plant (and the findings may be applied to a utility patent).

In order to determine novelty, the claims in a plant patent are compared to the "prior art" base. References to prior publications, uses, or sales are considered "prior art." Currently, all prior art that is more than one year old is valid in its ability to disprove novelty.

The bill, as it stands, would change the definition for novelty in plant patents to state that "no plant patent application should be denied... on the grounds that the invention was

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*"[T]he war on terrorism, like the Cold War, is going to be won in the laboratory, as much as on the battlefield.*

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# S&T Intact in Gramm-Miller

In an effort to regain control in the Senate over legislation to establish a new Department of Homeland Security (DHS), Senators Phil Gramm (R-TX) and Zell Miller (D-GA) introduced a substitute bill (no number available at the time of publication) to Sen. Joe Lieberman's (D-CT) version (S. 2452) that is currently being debated on the floor.

The Gramm-Miller substitute bill would mirror many of the proposals offered by the White House—most notably the bargaining

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*"[W]ould create unpredictability for research and public health programs, ...and would not be the optimal way to obtain the integrated work of the best scientific minds."*

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rights of federal employees—that are considered contentious by Senate Democrats and have stalled movement of the bill. For the scientific community, the majority of the science and technology components of the Lieberman and the House bill (H.R. 5005) would survive substantially intact in the Gramm-Miller bill, with some notable exceptions.

Both bills would institute a Senate-confirmed Under Secretary for Science and Technology, it would retain the creation of

a Homeland Security Advanced Research Projects Agency (HSARPA; SARPA in the Lieberman bill), as well as authorize the establishment of an Acceleration Fund for research and development (R&D), a Federally Funded Research and Development Center (FFRDC), and a clearinghouse for private-sector technology proposals.

Notable differences in the Gramm-Miller bill include the lack of a Science and Technology Council for coordinating homeland security R&D across all federal agencies; a component of both the Lieberman and House bills. Rather than a council the bill would assign coordination responsibility to HSARPA. In addition, the bill would actually increase money authorized in the Acceleration Fund from \$200 million to \$500 million, but would limit its focus to existing technology transition and deployment rather than basic and applied research.

One of the more problematic aspects of the Gramm-Miller bill to the biomedical community is that the bill reverts back to the original Administration proposal to transfer responsibility for setting bioterrorism research priorities within the DHS but have the funding funneled through the National Institutes of Health (NIH). Of concern to the research community is that NIH's mission to support fundamental public health needs will be hampered by its inability to set priorities and ensure that funds are distributed through accepted merit evaluation standards.

In a September 24<sup>th</sup> letter to Sen. Gramm, the Association for Microbiology (ASM)

wrote that it "strongly believes that civilian biodefense research is part of the continuum of infectious disease and biomedical research." ASM further reinforced NIH as the appropriate agency for prioritizing and funding research and stated that the transfer of responsibility to DHS "would create unpredictability for research and public health programs, would divert funding from research and would not be the optimal way to obtain the integrated work of the best scientific minds."

Another difference from both the Lieberman and House bills is that it would transfer the entire Office of the Assistant Secretary for Emergency Public Health Preparedness from the Department of Health and Human Services (HHS) to the new DHS. This new Office was created in the Kennedy/Frist bioterrorism bill passed into law earlier this year. It is intended to serve a coordinating function between HHS, NIH, the Centers for Disease Control, and the Food and Drug Administration. This provision is also likely to be met with opposition by the biomedical community because of its role in addressing public health emergencies that are not due to a direct terrorist attack.

Both Senate bills are still caught up in controversial issues that are not related to science and technology, and have been pushed aside as the Senate took up a resolution on Iraq. The likelihood that either one will be voted favorably on the floor diminishes with each day as Congress approaches adjournment and the upcoming elections. ●●●

## AAAS NOTES

- **Darwin's Cathedral: Evolution, Religion and the Nature of Society**

November 12, 2002, 6:00 PM, AAAS Auditorium, 1200 New York Avenue, NW, Washington DC

[www.aaas.org/spp/dser/seminar/rsvp](http://www.aaas.org/spp/dser/seminar/rsvp)

A public lecture. Speakers will include: David Sloan Wilson, Ph.D., Curator of Physical Anthropology at the American Museum of Natural History, and Cynthia S. W. Crysdale, Ph.D., Associate Professor of Religion & Religious Education, Catholic University of America.

- **Federal Biodefense Research FY 2003**

December 3-4, Washington, DC

<http://www.infocastinc.com/Biodefense/home.htm>

This meeting will provide a comprehensive, in-depth status report and outlook for federal government biodefense research, including budgets, priorities, research projects and prospects for commercialization.

# Skepticism Still Lingers on SEVIS

With the one year anniversary of the terrorist attacks having passed, the House Education and the Workforce Committee held a hearing to assess how implementation of the Student Exchange and Visitor Information System (SEVIS) is moving along. The hearing did little to shed light on concerns raised that the Immigration and Naturalization Service (INS) will be able to fully implement the system by the statutory deadline of January 30, 2003.

SEVIS is a new electronic database for monitoring visas issued to foreign students who come to the U.S., and to track those students once they arrive in this country. It was designed to reduce fraud, improve the collection of data that can be analyzed by appropriate agencies, and to augment the INS's enforcement capabilities.

Glenn A. Fine, inspector general for the Department of Justice, acknowledged that though SEVIS would "technically" be operational by the deadline, expressed doubt that the INS will have completed all the necessary steps to ensure "full and proper" implementation. His concerns centered on whether the INS "will assign and train sufficient numbers of dedicated staff to review and approve the school's applications to access SEVIS; whether SEVIS will be operational at all INS ports of entry, service centers, and consular posts; whether the INS will conduct sufficient and thorough site visits of schools applying to accept foreign students; whether the INS adequately will train school officials to use SEVIS; and whether INS will train INS inspectors and investigators adequately to use SEVIS to detect fraud."

Defending the IG's claims was Janis Sposato, assistant deputy executive associate commissioner for the INS. She walked the committee members through a visual presentation of the overall visa issuance process in addition to the SEVIS database. She noted that SEVIS has already been made available to selected schools as of July and that the software would be fully deployed by the January deadline. She acknowledged that not all schools will have been certified to begin using the new system, or that all INS agents will have received necessary training; but that this should not be of enormous concern dryly noting that "it's a

process, not an event."

Any educational institution that wishes to accept foreign students on a full-time basis must first be certified by the INS in order to issue visa applications. As part of the SEVIS system, all schools must be re-certified before they can participate. Sposato stated that the INS had begun reviewing school petitions for eligibility to issue visas as of July and that as of September 11, 2002, 736 were actively putting student records into the electronic system, 595 had submitted a certification petition and were awaiting approval, and an additional 590 schools had created petitions but had not submitted them as yet.

It is estimated that by January 30, 2003, somewhere between 7,500 to 74,000 institutions will be certified and utilizing the SEVIS system. Many of the committee members as well as other witnesses expressed skepticism that this will be achieved.

Of concern to the academic community

is the fact that the final regulations governing "F," "J," and "M" visas have not been published in the Federal Register, so there is some genuine uncertainty on the part of universities as to how to assess and process new applicants.

Adding to the complexity of the situation is the fact that the Enhanced Border and Security and Visa Entry Reform Act required that a temporary system be put in place by September 11, 2002, in order to monitor students on a preliminary basis. This new system, Interim Student and Exchange Authentication System (ISEAS) was launched by the State Department and a representative from the Bureau of Consular Affairs noted that the ISEAS system will not be able to share data with the SEVIS system. Hence, when the January deadline approaches academic institutions and federal agencies will find themselves in the situation of having to register information in two separate systems. ●●●

## CA Passes Landmark Stem Cell Bill

On September 22<sup>nd</sup> California Governor Gray Davis signed into law a bill that would make it legal to derive embryonic stem cells from human embryos and to conduct research using stem cells from "any source," thereby opening the door for institutions to conduct somatic cell nuclear transfer (also referred to as research cloning).

The landmark legislation (S.B. 253) was introduced by State Senator Deborah Ortiz (D-Sacramento) and was intended to release what they considered a logjam created by the Bush Administration's narrow stem cell policy and the inability of the U.S. Congress to pass any legislation related to reproductive and research cloning. Though some states have passed legislation prohibiting the cloning of a human being, California is the first state to take a definitive stand in support of the controversial subject of research cloning.

The bill states that "the policy of the state shall be that research involving the derivation and use of human embryonic stem cells, human embryonic germ cells, and human adult stem cells from any source, including somatic cell nuclear transplantation, shall be permitted, as specified." At the same time it would prohibit a person from "cloning a human being, and from purchasing or selling an ovum, zygote, embryo, or fetus for the purpose of cloning a human being."

A unique aspect to the bill is that it opens the window for the expenditure of state public funds to support stem cell research. It takes that position that "[p]ublicly funded stem cell research, conducted under established standards of open scientific exchange, peer review, and public oversight, offers the most efficient and responsible means of fulfilling the promise of stem cells to provide regenerative medical therapies." The bill, however, stops short of actually authorizing specific funds for research.

By taking this stance California legislators hope to lure companies and other institutions interested in pursuing the field of stem cell research to the state, but have withheld that pursuit due to the existing White House policy and the uncertain environment in Congress as to the future of research cloning legislation. ●●●

## NSF Doubling

*Continued from page 1*

through FY 2005, MSP initially would be authorized as a competitive program but then change to formula grants modeled on Education's current system for the remaining two years.

The Senate bill also contains language to expand eligibility to participate in NSF's Experimental Program to Stimulate Competitive Research (EPSCoR). EPSCoR is designed to enhance the research infrastructure and competitiveness of states that have traditionally been underrepresented as recipients of NSF funds. The current standard entitling a state to participate is if it receives on average less than 0.7 percent of NSF's total R&D portfolio for three years. Currently, 21 states and Puerto Rico take part in NSF's EPSCoR program (\$91 million in FY 2002). The Senate bill would change the eligibility threshold to less than 1.0 percent of NSF's R&D for three years, allowing up to 7 additional states (Utah, Missouri, Rhode Island, Tennessee, Iowa, Delaware, and New Hampshire) plus the District of Columbia to become involved.

The House passed a similar authorization bill (HR 4664) on June 5 (by a vote of 397-25) placing NSF on a doubling track, but there are key differences between the House and Senate bills. The House bill would only authorize funding for three years (FY 03-05) instead of five, and it does not contain the EPSCoR provision or the Math and Science Partnerships transfer.

An important provision where both the House and Senate concur is on the topic of NSF's Major Research Equipment and Facilities Construction account (MREFC). Both bills contain language instructing the NSF Director to prepare a ranked list of facilities construction projects. Currently, the National Science Board prepares a list of approved projects to be considered for funding through MREFC. Because the projects are not ranked in any order Congress often has difficulty in choosing which projects should receive appropriations. The House and Senate bills would require the NSF Director and the National Science Board to rank the projects from high to low priority, provide a rationale for the rankings, and revise them accordingly when new projects are added.

The Bush Administration has indicated its opposition to S. 2817, in a letter from NSF Director Rita Colwell to Sen. Wyden in September. The primary reason for its opposition is that the authorized funding level far exceeds the Administration's FY 2003 budget request for the agency. NSF also opposes expanding EPSCoR eligibility because it could dilute the availability of funds to the states most in need. In addition, Colwell expressed concern over the MSP formula grants requirements forcing the agency to utilize a funding system different from the standard merit-based evaluation process that it has used for years. Finally, NSF objected to the forced ranking of MREFC projects as limiting its ability to reprioritize projects based on shifts in budget projections and scientific opportunity.

It is unclear whether there will be enough time left in the 107<sup>th</sup> Congress for S. 2817 to receive floor time in the Senate and win

full approval. Since it is simply an authorization bill it may be considered by some to be relatively noncontroversial. Thus, there is a possibility that it may be approved by voice vote or by unanimous consent before the end of the year.

The major obstacle to getting an NSF authorization bill signed into law this year, however, will be the need to convene a House-Senate conference to iron out the differences between the House and Senate bills over the Math and Science Partnerships, EPSCoR, and whether to provide authorization for three or five years. ●●●

*Kei Koizumi*  
*R&D Budget and Policy Program*

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### FOR MORE INFORMATION:

AAAS R&D Website: [www.aaas.org/spp/rd](http://www.aaas.org/spp/rd)

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## The Honorable Sherwood Boehlert (R-NY) Speech to National Academy of Sciences, October 3, 2002 "Partnering Against Terrorism"

"[P]artnership in Washington has fallen prey to partisanship and intensive ideological warfare. And, sadly, we have reached a level of recrimination and stalemate that I have not witnessed before - and I've been in Washington since 1964. There are many reasons for this - some of them long-term institutional shifts that go beyond the current electioneering and personality conflicts - but, nonetheless, I am confident that we will once again be able to move forward after November, whatever the outcome.

"In the meantime, this is a good moment to point out that all the bickering and bitterness mask a remarkably broad consensus on the issues that you are here to discuss today.

"Here are some of the key points of agreement:

"One - Homeland security has to be a primary focus of activities across the federal government.

"Two - We need a Department of Homeland Security, so that one agency is especially focused on our security needs, and so that security-related activities can be better coordinated.

"Three - Science and technology have to be essential elements of the work of a Department of Homeland Security and of any homeland security strategy.

"Four - Cybersecurity is one of the critical areas to address through our homeland security science and technology efforts.

"Five - The structure of a Department of Homeland Security has to reflect the significance of science and technology and enable the Department to attract the expertise needed to oversee science and technology.

"Six - Science and technology activities for homeland security need to be carried out in partnership with industry and academia.

"Seven - The dispersed nature of the homeland security threat requires that government and industry work together more closely than ever before.

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## CONGRESSIONAL RESEARCH SERVICE

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*Copies of CRS reports for congressional use are available by calling 202/707-7132.*

- **Chemical Plant Security (RL31530)**

This report summarizes the issues surrounding the adequacy of federal laws to protect chemical facilities that might be vulnerable to direct attacks. It addresses the risks associated with access to information on chemical facilities, existing federal regulations designed to both reduce risk and allow for public disclosure to ensure communities right-to-know. It highlights initiatives launched by the administration and the private sector, and outlines policy options.

- **Critical Infrastructures: What Makes an Infrastructure Critical? (RL31556)**

A function of the proposed Department of Homeland Security is to protect the nation's critical infrastructure. Numerous reports over the last few years have offered general definitions for what constitutes a critical infrastructure. This report summarizes the various perspectives for defining critical infrastructures as well as suggestions for prioritizing a national list in order to facilitate policy making in the future.

- **Particulate Matter Air Quality Standards: Background and Current Developments (RL31531)**

This report provides a summary of the air quality standards for particulate matter promulgated by the EPA in 1997 and which will soon be implemented. It discusses the science underlying the establishment of the standards, the costs associated with implementation, and provides an overview of legal challenges to the standard, as well as individual state regulations initiated.

## GENERAL ACCOUNTING OFFICE

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*Copies of GAO Publications are available online at [www.gao.gov](http://www.gao.gov) or by calling 202/512-6000.*

- **Export Controls: Processes for Determining Proper Control of Defense-Related Items Needs Improvement (GAO-02-996)**

This report provides an assessment of how the Department of Commerce implements the commodity classification process and the State Department implements the commodity jurisdiction process for defense-related items. It provides recommendations to improve the transparency, consistency, and timeliness of the commodity classification and commodity jurisdiction processes.

- **Military Space Operations: Planning, Funding, and Acquisition Challenges Facing Efforts to Strengthen Space Control (GAO-02-738)**

DOD is drafting a space control strategy that is to outline objectives, tasks, and capabilities for the next 20 years. This strategy does not yet define roles and responsibilities among the services, departmentwide priorities and end states, and

lacks concrete milestones. Unless DOD adopts knowledge-based practices, space control acquisitions, such as the Space-Based Surveillance System, may well face higher cost and schedule risks.

## NATIONAL ACADEMIES

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*Government offices may obtain single complimentary copies by calling the Office of Congressional and Government Affairs at 202/334-1513. Others may order copies from the National Academy Press (800/624-6242, [www.nap.edu](http://www.nap.edu)).*

- **Science and Technology and the National Science Education Standards: A Guide for Teaching and Learning (ISBN: 0-309-07032-5)**

This is an addendum to the National Science Education Standards developed to bring students to appropriate levels of understanding in science and technology. This book provides a framework for teachers to effectively identify and explore the relationship between science (know-why) and technology (know-how) across K-12 curricula. It discusses the progression of understanding at the elementary, middle, and high school levels, and suggests grade-appropriate activities and resources, including material newly available on the Internet.

- **The Genomic Revolution: Unveiling the Unity of Life (ISBN: 0-309-07436-3)**

The last fifty years have ushered in a revolution of knowledge in how organisms develop, function, and replicate. Scientists are now engaged in an epic task that will catapult the revolution to new heights: the sequencing of the human genome. This book provides a basic presentation of ideas about heredity through the essential principles of molecular biology, including an exploration of the ethical implications of the genome project for individuals and society.

- **Responsible Research: A Systems Approach to Protecting Research Participants (Prepublication: 0-309-08546-2)**

This report addresses ways to improve the protection of human research subjects involved in clinical trials. It recommends that broader federal oversight be utilized, for both publicly and privately funded research, in order to better protect human subjects. In order to achieve this it states that Congress should require every organization conducting research with human subjects to do so under the authority of a research participant protection program, which would be subject to federal oversight.

- **The Polygraph and Lie Detection (Prepublication: 0-309-08605-1)**

This report provides an analysis of the scientific validity and reliability of using polygraph testing to identify personnel who may jeopardize national security. It concludes that the polygraph's accuracy is not good enough for security screening. In addition, the report finds that testing rests on weak scientific underpinnings despite nearly a century of study.

# scientific definitions

1. The act of making clear and distinct.
2. the act of stating a precise meaning or significance.

## PLANT BIOLOGY

**Adventitious Plant** Plantlets that develop asexually from a parent plant: a rooted plantlet forming on a part of the mother plant.

**Bulb** Tightly packed fleshy leaves used as a storage organ. Onions and tulips both have bulbs.

**Cultivar** A man-made (cultivated) variety.

**Cuticle** The thin skin of the plant. Sometimes is thicker and waxy to maintain moisture in emersed growth.

**Division** A method of propagation in which the rhizome or vegetative cone is cut into pieces, each of which is capable of becoming a complete new plant.

**Epiphytic** A plant that grows on another plant but is not parasitic.

**Endemic** A species found only in one specific location.

**Eutrophic** Rich in dissolved nutrients, often caused by pollution.

**Hybrid** The offspring of two parents of different species or varieties.

**Node** The point on a plant stem from which the leaves and/or roots appear.

**Photosynthesis** The conversion of light energy into chemical energy: carbohydrates, (sugar and starch), are produced from carbon dioxide and water through the action of light on the chlorophyll of green plants. Oxygen is released in the process.

**Rhizome** Creeping stalk from which stalks and roots grow.

**Sporangium** The reproductive organ of primitive plants like ferns and mosses.

**Spore** The reproductive unit of primitive plants.

**Stolon** Creeping offshoot or "runner" from which young plants arise.

**Tuber** A swelling of root or underground stalk that functions as a storage organ as in a potato.

**Tissue Culture** The production of new plants from small amounts of plant tissue under carefully controlled laboratory conditions.

SOURCE: Aquatic Botanic, [www.aquabotanic.com/glossary.htm](http://www.aquabotanic.com/glossary.htm)

## Partnerships

*Continued from page 4*

"These are beliefs shared by both parties, in both houses of Congress, at both ends of Pennsylvania Avenue and across the ideological spectrum. Now, those seven conclusions may seem self-evident now, especially to the people in this room, but that was not the case in Washington just a few months ago.

"To take just one example of how far we've come, let me point out that when the House Science Committee began its work on homeland security legislation at the end of June, we had to overcome resistance from the Administration to create an Under Secretary for Science and Technology at the new Department.

"But by the time the bill came to the House floor at the end of July, our proposal had been endorsed by Tom Ridge, and it has since been backed by the President's Council of Advisors on Science and Technology, or PCAST....

"The existence of the undersecretary and his or her secretariat will give R&D the heft it was sorely lacking in the original bill. And what that means is that the Department's R&D functions...will be more than the sum of the tiny, disparate pieces that are going to be transferred into the new Department from other federal agencies. And that has to be the case if we are to succeed in the war on terrorism.

"As I often say, the war on terrorism, like the Cold War, is going to be won in the laboratory, as much as on the battlefield. So that laboratory has to be adequately stocked.

"As in every other area of R&D, the federal government is going to have to work cooperatively - in partnership - with academia, industry and the states. That's especially true in the area of homeland security because the problems are so varied, because the needed expertise resides in almost every discipline, and because the results of any R&D are going to have to be applied as much by the private sector as by the government." ●●●

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### FOR MORE INFORMATION

*The National Academies:*  
[www.nationalacademies.org/step/index.html](http://www.nationalacademies.org/step/index.html)

## Plant Patents

*Continued from page 1*

described in a printed publication... unless the invention was described in a printed publication in this or a foreign country more than ten years prior to the date of application for patent in the United States." This could exclude from the prior art base all known and publicly documented description of plant varieties less than ten years old unless a grandfather clause backdating prior art is adopted.

Supporters of the legislation, namely plant breeders, base their argument for a

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*"[T]rade and economic development policies of the United States should respect... agricultural and biological resources, traditional knowledge, and technologies."*

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more limited prior art base as compensation for time lost in the plant quarantine process. They argue that plant quarantine for imported plants can delay the process of filing a plant patent application for up to eight years. However, according to the International Center for Technology Assistance, plant quarantine regulations "exist at the behest of, and for the benefit of, American nurseries and breeders" and "most plants under plant patent never have to undergo even a day of quarantine."

Proponents also point out that this legislation could balance an in-house U.S. Patent and Trademark Office (PTO) decision in January 2001 where "without forewarning to the horticulture industry, the PTO reversed the long-held PTO view of what constitutes prior art...." Prior to January 2001, "pre-publication basis for denial of a patent would not generally operate against plant patents on the reasoning that pre-publication of a plant variety was not suf-

ficiently enabling to permit one skilled in the art to practice the patent and breed the subject plant."

H.R. 5119 was introduced by Rep. Darrell Issa, a Republican from California—a state that represents approximately one-quarter of all horticulture sales according to the Horticulture Census. In a press statement, Rep. Issa charged that "[t]he US Patent & Trademark Office's abrupt change in its once stable and reliable examination procedure is potentially devastating for the horticulture industry.... A legislative proposal is the swiftest way to correct this injustice."

Opponents of the H.R. 5119 cite several implications of the proposed change in patent law.

First, the notion of the patent system rewarding ingenuity and inventiveness could be significantly altered. Under the proposed legislation, someone may read a journal article describing a plant that is up to ten years old and then successfully apply for a patent on the plant described in the publication. Hence, plant patents would be approved for plant species or varieties that are not new.

Secondly, all deliberate attempts to document plant knowledge as prior art throughout the past ten years may prove to be fruitless. This issue is important for traditional knowledge holders who are battling the inappropriate expropriation of knowledge, also referred to as biopiracy. Due to the increase of biopiracy over the past few years, centuries-old traditional knowledge, primarily from the third world, has been patented by Western intellectual property regimes. As a proactive measure, indigenous communities have been documenting knowledge about their biological resources in order to establish prior art. Changing the patent law to only recognize prior art documented for at least ten years could affect the role of documentation of

traditional knowledge causing it to be freely open to biopiracy.

Rep. Maxine Waters (D-CA) agrees with these concerns and pointed to H. Con. Res. 260 that she introduced last year. The bill expresses the sentiment that "trade and economic development policies of the United States should respect and support the rights of African farmers with respect to their agricultural and biological resources, traditional knowledge, and technologies." It further states that the patenting of agricultural and biological life forms violates those rights.

The Judiciary Committee plans to hold additional hearings in the future. ●●●

*Justin W. VanFleet  
Science and Human Rights Program*

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### FOR MORE INFORMATION:

*House Judiciary Committee: <http://www.house.gov/judiciary/courts.htm>*

*Traditional Ecological Knowledge Prior Art Database: <http://ip.aaas.org/tekindex.nsf>*

### A Note to Our Readers...

*This issue contains a new section of Science and Technology in Congress entitled "Frontiers in Science." Frontiers will appear on the back page of each issue, and will include brief updates on the latest, most important scientific breakthroughs. As always, we welcome your comments and suggestions at [congress\\_center@aaas.org](mailto:congress_center@aaas.org).*

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# Frontiers in Science

**Sequencing Malaria** • The genome sequence for *Anopheles Gambia*, the primary mosquito species that carries malaria, and *Plasmodium falciparum*, the malaria parasite were published in companion issues of *Science* and *Nature*. The breakthrough, along with the sequencing of the human genome, completes a triad of knowledge needed to conduct research into improved insecticides, antimalarial drugs, and genetic manipulation of the genome itself. According to the team leaders the availability of the genomic sequences of the three important components "will clarify the patho-physiologic relationships among human host, parasite, and vector."  
---> *Science*, October 4, 2002/*Nature*, October 3, 2002

**Pluto Downgraded?** • Astronomers at the California Institute of Technology have detected and measured a small icy body, roughly half the size of Pluto, in the outer reaches of our solar system circling our Sun in a region known as the Kuiper Belt. The Kuiper Belt is comprised of rocks and icy debris left over from the formation of the solar system and extends over 7 billion miles from the Sun. The discovery is significant in that it is the first and largest body in our solar system detected since the discovery of Pluto 72 years ago.

The object, dubbed Quaoar, is only 1 billion miles from Pluto, the ninth planet in our solar system. Astronomers now claim that the discovery of Quaoar raises the question whether Pluto should actually be considered a Kuiper Belt object rather than a planet.  
---> *American Astronomical Society, Meeting of the Division of Planetary Sciences*

**Genetics of Breast Cancer** • Molecular biologists at Cold Spring Harbor Laboratory in New York have discovered a gene that is unlike other cancer-causing proteins and may be the first member of a new family of genes. The gene, called DBC2, was found to be mutated in 50% or more of breast and lung cancer tissues. Even more intriguing, when the researchers inserted DBC2 into a cultured cancer cell it stopped growing. The findings, reported in the Proceedings of the National Academy of Science, could help to shed light into the potential causes of non-hereditary mutations that result in breast cancer; something that scientists up to now have found difficult to track.  
---> *PNAS*, October 7, 2002