

Spirit of INNOVATION

Research, Creativity and Commercialization News

OFFICE OF RESEARCH ADMINISTRATION NEWSLETTER October 2006 (Volume VI, No. 4)

The **Office of Research Administration** supports and advocates research and technology transfer by faculty, graduate students and staff. The ORA provides services in conjunction with external and internal sources of funding for research, along with services related to commercializing discoveries through technology transfer. The goal of this newsletter is to inform the campus community of grants received, to highlight the accomplishments of our faculty, graduate students and staff, and to share with you a calendar of important events and deadlines. Please direct any comments or questions regarding the newsletter to Tamara Kratochvil (kratochvilt@umsl.edu).

RECENT AWARDS

EXTERNALLY FUNDED AWARDS, August 2006

John Blake, Biology, awarded \$5,000 for "Bird Ecology and Conservation in Southern South America: Theory and Practice; Optional Extension - Analysis of Ecological Communities" by the Fish and Wildlife Services.

John Blake, Biology, awarded \$90,445 for "Intergovernmental Personnel Act (IPA) Blake" by the National Science Foundation.

Susan Catapano, Charles Granger, Carl Hoagland, Allison Hoewisch and Kim Song, Teaching & Learning, awarded \$876,673 for "Taking Communities of Practice to Scale in Urban Schools" by the US Department of Education, Non Student Aid.

Jerry Dunn, Child Advocacy Center, awarded \$181,656 for "Parent Child Interaction Therapy for Promoting Positive Discipline" by the St. Louis Mental Health Board.

Jerry Dunn, Child Advocacy Center, awarded \$195,169 for "Integrated Treatment for Complex Trauma with Children with Serious Emotional Disturbance" by the St. Louis Mental Health Board.

Louis Gerteis and Willem Van Bakergem, History, awarded \$52,703 for "Integrating the St. Louis Mechanics Lien Papers into the UM-St. Louis Virtual City Archives" by the Missouri State Library.

Erika Gibb, Physics and Astronomy, awarded \$12,067 for "Comets at Infrared Wavelengths" by the National Aeronautics and Space Administration.

Clark Hickman, Continuing Education & Outreach, awarded \$8,845 for "Special Education Tuition Reimbursement" by the Missouri Department of Elementary and Secondary Education.

Clark Hickman, Continuing Education & Outreach, awarded \$8,183 for "Paraprofessional Tuition Reimbursement" by the Missouri Department of Elementary and Secondary Education.

Michael Nichols, Chemistry, awarded \$100,000 for "Amyloid-Beta Fibrils: A Trigger for the Innate Immune" by the Alzheimer's Association.

James O'Brien, Chemistry, awarded \$172,260 for "Spectroscopy of Pd and Pt Catalytic Mimetics Radicals" by the National Science Foundation.

Patricia Parker, Charles Granger and Patrick Osborne, Biology, awarded \$561,512 for "Missouri Science Teaching and Education Partnerships (MO-STEP) (Track1)" by the National Science Foundation.

Christopher Spilling and Cynthia Dupureur, Chemistry, awarded \$243,108 for "Tetrahydrofurans, Tetrahydroprans and 2H-Furanones" by the National Institutes of Health.

Teresa Thiel and Phillip Weyman, Biology, awarded \$200,000 for "Preparing Inquiring Minds for a Hydrogen-Powered Future" by the National Science Foundation.

Xuemin Wang, Biology, awarded \$210,608 for "Metabolomic Profiling of Lipids and Their Compositional Dynamics in Plant Stress Responses" by the National Science Foundation.

Bruce Wilking, Physics and Astronomy, awarded \$45,471 for "NASA - Missouri Space Grant Consortium" by the National Aeronautics and Space Administration.

Total: \$2,963,700

FUNDING OPPORTUNITIES

Opportunities listed are a sampling only. For additional opportunities, visit [Grants.gov](http://www.grants.gov) (<http://www.grants.gov>), [Grant Advisor Plus](http://www.grantadvisor.com/tgaplus/) (<http://www.grantadvisor.com/tgaplus/>), [InfoEd](http://www.infoed.org/new_spin/spinmain.asp) (http://www.infoed.org/new_spin/spinmain.asp) and the RFP Bulletin of the [Foundation Center](http://www.fdncenter.org/pnd/rfp/index.jhtml) (<http://www.fdncenter.org/pnd/rfp/index.jhtml>), or contact [Tamara Kratochvil](mailto:kratochvilt@umsl.edu) (kratochvilt@umsl.edu) for a customized database search.

INTERNAL FUNDING OPPORTUNITIES

UM-St. Louis Small Grants Fund

The Small Grants Fund is designed to strengthen faculty research and creative activities. Through a competitive process, awards are given to help faculty in all disciplines maintain an active research program. Funding may be requested for only one of the following categories: *Conference Expenses, Equipment and Research Supplies, Professional Development*.

Proposals Due: Monday, Oct. 9, 2006 (also, March 5, 2007) by 5 p.m.

341 Woods Hall

More information: http://www.umsl.edu/services/ora/docs/2007_Smal_Grants.doc, or contact Shannon Muehlberger Nichols (muehlbergers@umsl.edu, 516-5899)

UM-ST. Louis Research Awards

These awards strengthen faculty research and creative activities. Support is provided for research assistants, equipment, supplies, travel to research locations, and salary support for course reductions, research leaves, and summer research. Funds will not be awarded for domestic travel to conferences, but will be awarded for travel to international conferences in conjunction with research-related travel. A significant portion of the funds available for faculty research support is based on facilities and administration cost recovery from externally funded grants and contracts. In order to perpetuate the fund, one purpose of the Research Awards is to support faculty whose competitive position for external funding will be improved by such assistance. Awards also are given to help faculty in all disciplines maintain an active research program, even if external funding is difficult to obtain. Special consideration, particularly for summer research support, will be given to junior faculty to assist them in establishing a strong research record. Generally, tenured faculty will not be awarded summer salary support.

Proposals Due: Monday, Oct. 16, 2006 (also, Feb. 5, 2007) by 5 p.m.

341 Woods Hall

More information: http://www.umsl.edu/services/ora/docs/FY07_Research_Award_guide.doc, or contact Shannon Muehlberger Nichols (muehlbergers@umsl.edu, 516-5899)

NEW ANNOUNCEMENTS: GOVERNMENT AGENCIES

Agency for International Development ([USAID](http://www.usaid.gov))

- Anti Trafficking in Persons Program in Indonesia
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10954>
- Strategic Radio Communication for Development (STRADCOM) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10879>

Department of Agriculture (USDA)

- CSREES Assistive Technology Program for Farmers with Disabilities: State and Regional AgrAbility Projects Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=11075>
- National Research Initiative Competitive Grants Program Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10950>

Department of Commerce (DOC)

- Native American Business Enterprise Center (NABEC Program)
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10897>

Department of Defense (DOD)

- Advances in Biotechnology and the Biosciences for Warfighter Performance and Protection
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=2636>
- MCM Data Fusion Techniques for Multiple Unmanned Sensors & Systems Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10862>
- Research and Analytical Support for the Human Effectiveness Directorate
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=2616>
- US Army Medical Research and Materiel Command Broad Agency Announcement (BAA) O6-1
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10641>

Department of Education (ED)

- Disability and Rehabilitation Research Projects and Centers Program (84.133P) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10980>
- Fulbright-Hays Group Projects Abroad Program (84.021A)
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10971>

Department of Energy (DOE)

- Superconducting Power Equipment - Area of Interest 1
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10567>
- Superconducting Power Equipment - Area of Interest 2
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10568>
- Superconducting Power Equipment - Area of Interest 3
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10569>

Department of Health and Human Services (HHS)

Centers for Disease Control and Prevention

- Assessment of Proposed Revisions to the Youth Tobacco Survey: Impact on Measures of Youth Tobacco Use Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10941>
- NIOSH Exploratory and/or Developmental Grant Program Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10984>
- NIOSH Small Research Grant Program Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10982>

Health Resources & Services Administration

- Bright Futures Pediatric Implementation
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10976>
- Healthy Tomorrows Partnership For Children Program
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10975>

National Institutes of Health

- ALCOHOL EDUCATION PROJECT GRANTS (R25)
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=3229>
- Behavioral Science Track Award for Rapid Transition (B/START) (R03) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10881>
- Biological Response Indicators of Environmental Stress: (U01) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=11073>, (U54) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=11074>

- Centers for Excellence in Ethical, Legal and Social Implications (ELSI) Research (CEERs) (P50) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10951>
- Centers of Research Translation (P50) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10935>
- Environmental Sensors for Personal Exposure Assessment (U01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=11072>
- Exploratory Collaborations with National Centers for Biomedical Computing (R21) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=8852>
- Immunology of Biofilms: (R01) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10781>, (R21) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10786>
- Initiative for Maximizing Student Diversity <http://www.grants.gov/search/search.do?mode=VIEW&oppld=3283>
- Limited Competition for Applications to Analyze Whole Genome Association Data for NIMH (R01) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10946>
- Longitudinal Studies of HIV-Associated Lung Infections and Complications (R01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10949>
- Mechanisms, Models, Measurement, and Management in Pain Research: (R01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10870>, (R21) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10880>, (R03) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10882>, (R21) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10880>, (R03) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10882>
- Membrane Protein Production and Structure Determination (R01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10863>
- Mentoring Programs to Diversify the Mental Health HIV/AIDS Research Workforce through Innovative Educational Initiatives (R25) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=9856>
- NCRR Science Education Partnership Award (SEPA) (R25) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10936>
- Near-Term Technology Development for Genome Sequencing: (R01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=11079>, (R21) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=11077>
- New Technology to Screen for Mild Hearing Loss in Children: (SBIR [R43/R44]) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10917>, (STTR [R41/R42]) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10918>
- NIAID INTERNATIONAL RESEARCH IN INFECTIOUS DISEASES (IRID) R03 PROGRAM <http://www.grants.gov/search/search.do?mode=VIEW&oppld=3327>
- NIDA Research Education Grants in Drug Abuse and Addiction (R25) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10973>
- NIDDK EDUCATION PROGRAM GRANTS (R25) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=3236>
- RESEARCH EDUCATION GRANTS IN DRUG ABUSE AND ADDICTION <http://www.grants.gov/search/search.do?mode=VIEW&oppld=3209>
- Research on Clinical Decision Making in Life-Threatening Illness (R21) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=7428>
- Revolutionary Genome Sequencing Technologies - The \$1000 Genome: (R21) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=11076>, (R01) Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=11078>
- Short-Term Training Program to Increase Diversity in Health-Related Research (R25) <http://www.grants.gov/search/search.do?mode=VIEW&oppld=3439>

Substance Abuse & Mental Health Services Administration

- SAMHSA Conference Grants <http://www.grants.gov/search/search.do?mode=VIEW&oppld=1614>

Environmental Protection Agency (EPA)

- Fall 2007 EPA Greater Research Opportunities (GRO) Fellowships for Graduate Environmental Study Grant http://es.epa.gov/ncer/rfa/2007/2007_star_gro_grad.html
- SOURCES, COMPOSITION, AND HEALTH EFFECTS OF COARSE PARTICULATE MATTER <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10411>
- Uncertainty Analyses of Models in Integrated Environmental Assessments Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10979>

Institute of Museum and Library Services (IMLS)

- IMLS Laura Bush 21st Century Librarians Program
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=9325>

National Endowment for the Humanities (NEH)

- Request for Proposals for Cooperative Agreement to Support American Art in Classroom Program with NEH Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10934>
- We the People Challenge Grants in U.S. History, Institutions, and Culture Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10834>

National Science Foundation (NSF)

- Applied Mathematics Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10900>
- Arctic Research Opportunities Grant <http://www.grants.gov/search/search.do?mode=VIEW&oppld=10913>
- CISE Pathways to Revitalized Undergraduate Computing Education (CPATH) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10974>
- EarthScope National Office (ENO) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10888>
- East Asia and Pacific Summer Institutes for U.S. Graduate Students Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10899>
- Global Environment for Networking Innovations: Establishing GENI Project Office Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10889>
- Human and Social Dynamics: Competition for FY 2007 (HSD) Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10942>
- Process and Reaction Engineering <http://www.grants.gov/search/search.do?mode=VIEW&oppld=7642>
- SBE Doctoral Dissertation Research Improvement Grants Grant
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=10952>
- Science and Engineering Information Integration and Informatics (SEII)
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=1319>
- Separation and Purification Processes (SPP)
<http://www.grants.gov/search/search.do?mode=VIEW&oppld=1257>

NEW ANNOUNCEMENTS: FOUNDATIONS & OTHER

Grant Advisor Plus, PDF Download:

<http://www.umsl.edu/services/ora/about/documents/GrantAdvisorOct2006.pdf>

APPLICATION DEADLINES

October 2006 – January 2007, PDF Download:

<http://www.umsl.edu/services/ora/about/documents/GrantAdvisorOct2006.pdf>

GRANT SUBMISSION POLICY

PeopleSoft Signature Routing Sheet (PSRS)

Must be delivered to the Office of Research BEFORE the grant will be submitted. Applies to any grant being submitted to any agency. Must include ALL signatures (all PIs Co-PIs, Dept. Chairs, Deans of each person, dept, and/or school who has time/resources committed through direct costs or cost sharing/match).

Budgets: Large or complex budgets should be finalized a week before submission so that the PSRS can be prepared and routed for ALL required signatures. Proposal review time must be allowed before asking someone to commit their unit.

Note: If you are going to be away from the University at the time of submission, you must arrange before leaving to sign the PSRS signature page.

Questions? Contact Ginny Schodroski at 516-5284 or ginny@umsl.edu.

NEWS

UNIVERSITY OF MISSOURI NEWS

- Nominations Due Dec. 31 for 2007 UM Faculty and Student Entrepreneurs of the Year

OTHER NEWS OF INTEREST

- MOHELA Board Approves Gov. Blunt's Proposal; Plan Now Goes to General Assembly
- "Rising Above the Gathering Storm" Focuses Nation on Enhancing Science and Technology
- Gov. Perry [Announces \\$30 Million to Lure Nanotech Researchers to Texas](#)
- Nanotechnology Research Updates
- Boeing Says Biofuels Show Some Promise
- Medical Research Gets High-Powered 'Search Engine'

Nominations Due Dec. 31 for 2007 UM Faculty and Student Entrepreneurs of the Year

Awards to Recognize Entrepreneurial Innovation at the University of Missouri

Faculty Award

The purpose of the Faculty Entrepreneur of the Year Award is to honor a University of Missouri faculty member for a record of entrepreneurial innovation that demonstrates commercial utility, contributes to the public welfare and brings visibility to the University of Missouri. Examples may include the receipt of a patent that represents an important scientific breakthrough, a significant contribution to the public good, or significant economic value; involvement in the launch of a start-up company; significant contributions to student entrepreneurship; and others.

The award is for \$15,000, which may be distributed between a cash award and/or being placed in a nonrestrictive campus account.

Nominees must be full-time faculty members who have been employed by the University of Missouri for at least five years prior to September 1, 2006. Each UM campus may submit up to two nominations.

For more information, including nomination format, visit <http://www.umsystem.edu/ums/departments/aa/awards/awards7.shtml>.

Previous Winners

| Year | Honoree | Department | Campus |
|-------------|------------------------|--|--------|
| <u>2006</u> | Jeffrey O. Phillips | Associate Research Professor of Surgery | UMC |
| <u>2005</u> | Wynn A. Volkert | Curator's Professor of Radiological Sciences | UMC |
| <u>2004</u> | Dr Zhi Xu | Associate Professor of Chemistry and Biochemistry | UMSL |
| <u>2003</u> | Dr. Randall S. Prather | Professor and Distinguished Professor of Reproductive Bio-Technology | UMC |
| <u>2002</u> | Dr. Henry W. White | Department Chair, Physics | UMC |

Student Award

This award is designed to honor University of Missouri students who have shown entrepreneurial potential. Examples include students who have demonstrated innovativeness and originality, have developed processes or products that show commercial potential, have created an effective business model, have created a functional entrepreneurial team, or have developed specialized technologies for use at the University of Missouri. The winner receives \$2,500, and all finalists are recognized at the Technology Transfer Showcase.

The nominees must be full-time, undergraduate or graduate students enrolled at the University of Missouri during the fall semester 2006. Individual students or teams of students may be nominated.

For more information, including nomination format, visit <http://www.umsystem.edu/ums/departments/aa/students/entrepreneur.shtml>.

Previous Winners

| Year | Honoree | Department | Campus |
|------|------------------|--|--------|
| 2006 | Paul R. Pattison | School of Engineering | UMC |
| 2005 | Aaron C. Clark | School of Management and Information Systems | UMR |



MOHELA Board Approves Gov. Blunt's Proposal; Plan Now Goes to General Assembly

The board of the Missouri Higher Education Loan Authority (MOHELA) voted 4-2 on Wednesday, Sept. 27, 2006, to approve Gov. Matt Blunt's Lewis and Clark Discovery Initiative for financing capital projects at the state's public colleges and universities. The General Assembly now must approve the plan when it convenes in January 2007.

Under the proposal, MOHELA would transfer \$350 million to the Missouri Development Finance Board, part of the state's Department of Economic Development, during the next six years. Those funds would then be passed on to colleges and universities, including more than \$95 million for projects at all four campuses of the University of Missouri (\$18 million slated for UMSL's science complex). ●

"Rising Above the Gathering Storm" Focuses Nation on Enhancing Science and Technology

From the Executive Summary of "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," a report by the National Academies

The National Academies has a few ideas on how to make sure the United States can compete globally in science and technology.

Upon request by Senator Lamar Alexander and Senator Jeff Bingaman of the Committee on Energy and Natural Resources, the National Academies created the Committee on Prospering in the Global Economy of the 21st Century, which determined 10 actions that federal policymakers could take to ensure success in the global community, along with concrete steps could be used to implement these actions.

The committee, which reviewed hundreds of detailed suggestions from other committees, focus groups, and its own members, grouped the 10 actions under four overarching recommendations focused on K-12 education, research, higher education and economic policy. The recommendations and action items, listed below, were presented at a meeting in Washington, D.C., on Sept. 28.

RECOMMENDATION A: Increase America's talent pool by vastly improving K-12 science and mathematics education.

Action A-1: Annually recruit 10,000 science and mathematics teachers by awarding 4-year scholarships and thereby educating 10 million minds.

Action A-2: Strengthen the skills of 250,000 teachers through training and education programs at summer institutes, in master's programs, and in Advanced Placement (AP) and International Baccalaureate (IB) training programs.

Action A-3: Enlarge the pipeline of students who are prepared to enter college and graduate with a degree in science, engineering, or mathematics by increasing the number of students who pass AP and IB science and mathematics courses.

RECOMMENDATION B: Sustain and strengthen the nation's traditional commitment to long-term basic research that has the potential to be transformational to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life.

Action B-1: Increase the federal investment in long-term basic research by 10% each year over the next 7 years through reallocation of existing funds or, if necessary, through the investment of new funds.

Action B-2: Provide new research grants of \$500,000 each annually, payable over 5 years, to 200 of the nation's most outstanding early-career researchers.

Action B-3: Institute a National Coordination Office for Advanced Research Instrumentation and Facilities to manage a fund of \$500 million in incremental funds per year over the next 5 years -- through reallocation of existing funds or, if necessary, through the investment of new funds -- to ensure that universities and government laboratories create and maintain the facilities, instrumentation, and equipment needed for leading-edge scientific discovery and technological development.

Action B-4: Allocate at least 8% of the budgets of federal research agencies to discretionary funding.

Action B-5: Create in the Department of Energy and organization like the Defense Advanced Research Projects Agency (DARPA) called the Advanced Research Projects Agency-Energy (ARPA-E).

Action B-6: Institute a Presidential Innovation Award to stimulate scientific and engineering advances in the national interest.

RECOMMENDATION C: Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit, and retain the best and brightest students, scientists, and engineers from within the United States and throughout the world.

Action C-1: Increase the number and proportion of U.S. citizens who earn bachelor's degrees in the physical sciences, the life sciences, engineering, and mathematics by providing 25,000 new 4-year competitive undergraduate scholarships each year to U.S. citizens attending U.S. institutions.

Action C-2: Increase the number of U.S. citizens pursuing graduate study in "areas of national need" by funding 5,000 new graduate fellowships each year.

Action C-3: Provide a federal tax credit to encourage employers to make continuing education available (either internally or through colleges and universities) to practicing scientists and engineers.

Action C-4: Continue to improve visa processing for international students and scholars.

Action C-5: Provide a 1-year automatic visa extension to international students who receive doctorates or the equivalent in science, technology, engineering, mathematics, or other fields of national need at qualified U.S. institutions to remain in the United States to seek employment. If these students are offered jobs by U.S.-based employers and pass a security screening test, they should be provided automatic work permits and expedited residence status.

Action C-6: Institute a new skills-based, preferential immigration option.

Action C-7: Reform the current system of "deemed exports."

RECOMMENDATION D: Ensure that the United States is the premier place in the world to innovate; invest in downstream activities such as manufacturing and marketing; and create high-paying jobs based on innovation by such actions as modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.

Action D-1: Enhance intellectual property protection for the 21st century global economy to ensure that systems for protecting patents and other forms of intellectual property underlie the emerging knowledge economy but allow research to enhance innovation.

Action D-2: Enact a stronger research and development tax credit to encourage private investment in innovation.

Action D-3: Provide tax incentives for U.S.-based innovation.

Action D-4: Ensure ubiquitous broadband Internet access.

According to the Committee's report, it believes that its recommendations and the actions proposed to implement them "merit serious consideration if we are to ensure that our nation continues to enjoy the jobs, security, and high standard of living that this and previous generations worked so hard to create." ●

READ COMPLETE EXECUTIVE SUMMARY (PDF download, 3.5 MB)
<http://www.umsl.edu/services/ora/about/documents/RisingAboveTheGatheringStorm.pdf>

Gov. Rick Perry Announces \$30 Million to Lure Nanotech Researchers to Texas

By Matt Slagle
Associated Press
September 27, 2006

DALLAS - Gov. Rick Perry announced a \$30 million public-private investment Wednesday (Sept. 27) to help lure a handful of top nanotechnology researchers to Texas.

Speaking at the nanoTX'06 nanotechnology conference in Dallas, Perry said the goal is to attract seven or eight of the world's leading scientists and their research teams to work for the new Southwest Academy of Nanoelectronics.

Nanotechnology is the science involving the manufacture and manipulation of materials at the molecular or atomic level. At the nano scale, materials are measured in nanometers, or billionths of a meter.

The academy was first announced in July when the University of Texas System regents gave Chancellor Mark Yudof permission to seek grants from the state and industry leaders to help create it. Perry stressed that other fields of nanotechnology ranging from medical applications to micromachines, would be a part of the research, not just nanoelectronics.

The idea is to create a regional center for research and development in nanotech that can quickly grow into commercial applications, he added.

The money includes \$10 million from Perry's \$200 million Texas Emerging Technology Fund, \$10 million from the University of Texas System and \$10 million from businesses such as chip maker Texas Instruments Inc. ●

Nanotechnology Research Updates

From Technology Research News
September 18/25, 2006
On the Web: http://www.trnmag.com/Page_One/2006/Page_One_091806.html

Nanofibers get blood flowing

Nanofibers formed from a protein that initiates blood vessel formation and a biocompatible polymer promote extensive blood vessel growth even though the amount of the protein is too small to promote growth by itself. The technique could be used to grow human tissue including organs. ([Heparin Binding Nanostructures to Promote Growth of Blood Vessels](#), *Nano Letters*, September 2006) ●

Nanotubes tap neurons

A laboratory study shows that neural implants made from arrays of multiwalled carbon nanotube microelectrodes are likely to be safer and more efficient than metal microelectrodes. These neural

prostheses are designed to be implanted in the brain to allow people to control computers and prosthetic limbs. ([Neural Stimulation with a Carbon Nanotube Microelectrode Array](#), *Nano Letters*, September 2006) ●

Swimming nanowire circuits

Silicon nanowires suspended in liquid can bridge pairs of gold electrodes by pulsing voltages in the electrodes, and can switch between different pairs in sets of three or four electrodes. The technique could be used to make new types of reconfigurable computer circuits. ([Dielectrophoretic Reconfiguration of Nanowire Interconnects](#), *Nanotechnology*, October 2006) ●

Boeing Says Biofuels Show Some Promise

Excerpted from Reuters

September 28, 2006

LONDON - Sugarcane and switchgrass are unlikely to fuel the next plane you ride, but a Boeing executive says development of biofuels is gaining momentum as airlines and armed forces seek alternatives to expensive jet fuel.

British billionaire Richard Branson last week committed \$3 billion to help develop alternatives to fossil fuels, whose rising prices have been squeezing airlines.

"Fuel is the biggest four-letter word in the industry," said Billy Glover, director of environmental performance strategy at Boeing Co.

"Fuel efficiency is an economic issue, but it's also an environmental one," said Glover, whose job involves looking at how Boeing can build planes that fly cleaner and quieter.

That means using less kerosene-based JP-8 fuel and looking at alternatives, he said.

"There are a number of feedstocks out there," Glover said, citing sugarcane, switchgrass, soybeans and algae. "Those are being looked at, and there appears to be some promise."

The U.S. Air Force flew a B-52 bomber recently with two of its eight engines using a 50/50 blend of jet fuel and a synthetic alternative.

The test flight reflected growing calls for fuel alternatives for military use, a process likely to feed civil applications as well.

U.S. Calls for Studies

The U.S. Department of Defense's technology development arm, the Defense Advanced Research Projects Agency (DARPA), in July asked for proposals on biofuel development.

It hopes to find a way to convert crop oil into a synthetic jet fuel that will achieve at least a 60 percent conversion efficiency by energy content and eventually a rate of 90 percent.

Boeing's next airliner, the 787 due in 2008, is expected to use 20 percent less fuel and be 60 percent quieter than the 767 model it replaces. Its higher use of composites is expected to make the planes last longer as well. ●

Medical Research Gets High-Powered 'Search Engine'

'Connectivity Map' quickly links diseases with candidate drugs

By E.J. Mundell

Excerpted from HealthDay

September 28, 2006

It could someday be like Googling for a cure.

A group of U.S. scientists says it has successfully tested a prototype "Connectivity Map" -- a high-tech computer program that uses unique genetic patterns as "search words" to link up specific illnesses with the drugs that might treat them.

The achievement has already yielded intriguing insights into cancer and Alzheimer's disease, says a team reporting in the Sept. 29 issue of *Science*.

Someday, researchers around the world could use this genetic search engine to speed up drug discovery and gain a broader understanding of disease, the study authors said.

"It's an electronic library -- it helps you understand what genes are present in disease and how those genes can be affected by various 'perturbations' -- medications or other substances," explained Dr. Len Lichtenfeld, deputy chief medical officer at the American Cancer Society.

He was not involved in the research, which was carried out by researchers at the Massachusetts Institute of Technology and Harvard University.

Using the publicly available, online Connectivity Map, scientists worldwide may soon be able to bypass tedious, time-consuming work in the lab and quickly ascertain whether a candidate drug works against a specific illness -- and how. ●

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