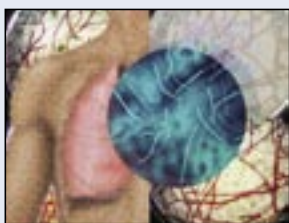


Newsletter

Week of June 5, 2006

Vol. 7, No. 12

Inside this issue ...



Anthrax relatives non-friendly but nonlethal

A Laboratory team working as part of the Department of Energy's Joint Genome Institute has explored the genomes of nonlethal bacteria closely related

to the cause of anthrax, *Bacillus anthracis*. A paper in last month's *Journal of Bacteriology* describes the genomic sequencing and comparative analysis of *Bacillus thuringiensis* 97-27 and *Bacillus cereus* E33L. **Page 3**

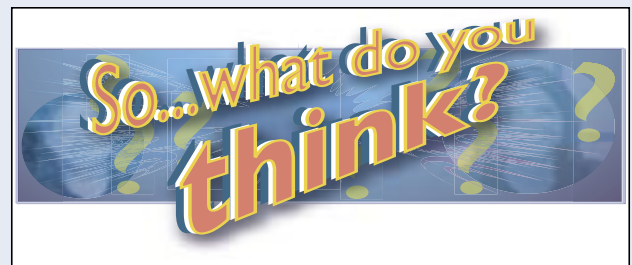


Los Alamos National Laboratory's Technology Transfer (TT) Division has the most innovative program for technology transfer at any national laboratory. In its broadest definition, innovation is "the creation of something new." TT helps facilitate new technology from Laboratory inventors to create new products with commercial partners. **Page 4 and 5**

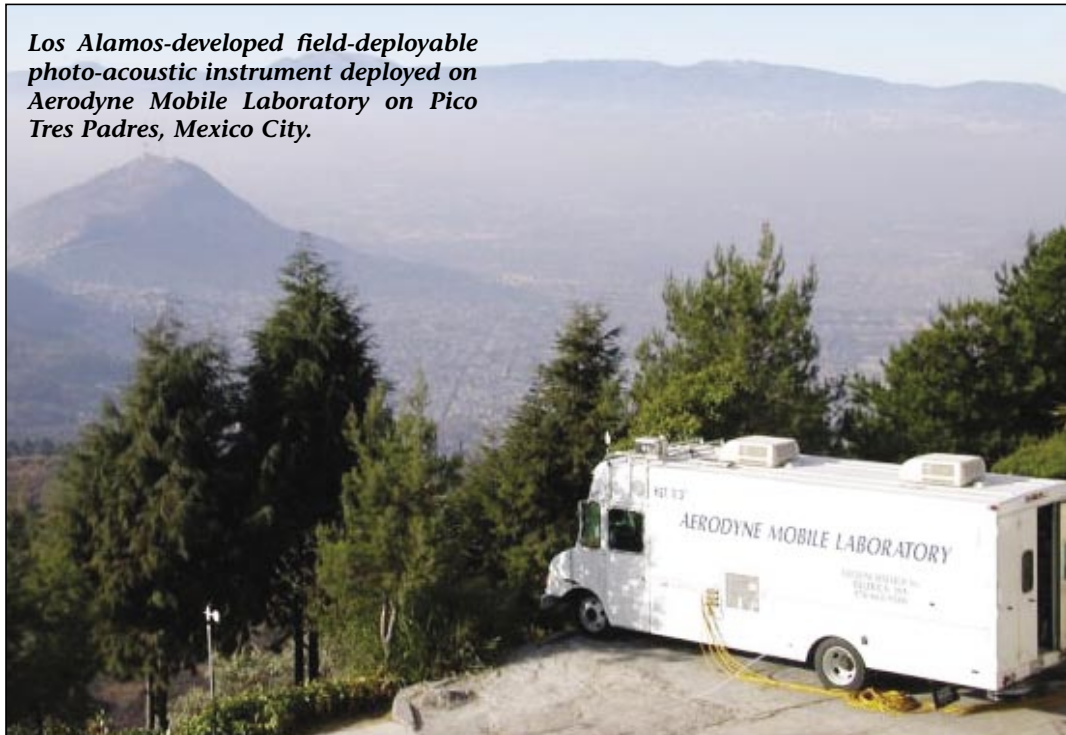


Celebrating an era with pride and honor

The Laboratory recently celebrated the University of California's 63 years of service to the nation through its management of the Laboratory. **Page 8**



How useful do you think surveys are in helping develop effective communication vehicles for employees and would you participate in such a survey if asked? Learn what your co-workers had to say on Page 6.



Los Alamos-developed field-deployable photo-acoustic instrument deployed on Aerodyne Mobile Laboratory on Pico Tres Padres, Mexico City.

Laboratory scientists study soot in megacity pollution

Todd Hanson

A team of Los Alamos scientists recently returned from a month-long data-gathering trip to Mexico City as part of an international, multi-agency environmental science collaboration. The campaign was designed to examine the chemical and physical transformations of gases and aerosols in the polluted outflow from the Mexico City metropolitan area. With a population of 25 million, Mexico City is North America's largest city, what scientists are calling a megacity. As such, it provides an excellent testing ground for understanding the regional and global impacts of increasing urbanization.

The Los Alamos team was led by Manvendra Dubey of Hydrology, Geochemistry and Geology (EES-6) and included Claudio Mazzoleni of Space and Remote Sensing Sciences (ISR-2) and Thom Rahn of Atmospheric, Climate and Environmental Dynamics (EES-2). Together, they performed measurements of the radiative and optical properties of soot using a state-of-the-art Los Alamos-developed field-deployable photo-acoustic instrument. The Los Alamos team also provided the only measurements of molecular hydrogen in Mexico City. The Los Alamos measurements were designed to provide a unique data set for quantifying Mexico City's atmospheric soot, which is little more than fine carbon particles.

Soot is produced by diesel combustion, burning of biomass and power plants. Soot-containing aerosols absorb solar radiation, which causes atmospheric warming. However, soot's warming potential is determined by complex interactions with other anthropogenic aerosols, such as sulfate and organics, which by scattering solar radiation tend to offset the warming caused by pure soot.

The data are already beginning to tell the story of Mexico City's environment. A very regular daily profile has emerged revealing peak concentrations of both hydrogen and soot in early morning caused by the high traffic volume and pollution close to the ground. The instrumentation recorded levels of hydrogen at 5 parts per million, which is 10 times more than normal background levels. Scientists theorize that most of the hydrogen is coming from automobiles.

One of the key objectives of the Los Alamos team now is to integrate the net radiative effects of all pollutants: carbon dioxide, aerosols and ozone, and changes in the amount of light that reaches the ground that are observed in Mexico City could help determine the global warming potential of a megacity.

The Los Alamos work was part of the MILAGRO (Megacity Initiative: Local and Global Research Observations) campaign. The scientists studied Mexico City and its surrounding areas as part of a larger effort to understand the local, regional and global impacts of air pollution from a megacity. MILAGRO, in turn, is part of the Megacity Impacts on Regional and Global Environments (MIRAGE) project, a collaboration made up of scientists from more than 60 institutions, including the Department of Energy, National Center for Atmospheric Research, the Molina Center on Energy and the Environment in La Jolla, Calif., and NASA.


NewsLetter

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For Your Safety

Barbecue safety

Summer family barbecue's can be great fun.



They also can become potentially dangerous when mixed with carelessness, especially alcohol. The combination of a party atmosphere, drink flowing freely, children dashing around and an open fire can quickly cause a tragic accident.

Following are some simple precautions to reduce the risks of barbecue mishaps.

- Always site a barbecue on a firm, level base sheltered from gusts of wind and well away from anything flammable, such as garden sheds, garages, fences, shrubs and so-on.
- Do not hold makeshift barbecues in woods or fields.
- Have at least one bucket of water handy at all times, just in case.
- Never use any flammable liquid, such as petrol, to start a barbecue. Only use recommended firelighters or fluids and always follow manufacturer's instructions.
- Do not allow barbecues to burst into flames or burn fiercely.
- Never wear loose, flowing clothes when tending a barbecue and tie back long hair.
- Ensure that children are kept well away from barbecues — their fascination and curiosity can easily lead to a dreadful accident.
- Consuming alcohol and cooking with a barbecue don't mix. If you are the "chef," take responsibility and avoid indulging in drinks until cooking duties are completed.
- After cooking, allow embers to cool completely before disposing of them. Pour water over them to be absolutely sure they are extinguished.

Editor's note: This message was issued to Laboratory employees on June 1, the first day Los Alamos National Security, LLC, assumed the management and operations of the Laboratory.

Partnering for the future

by Laboratory Director Michael Anastasio

Today marks the start of a new era in the illustrious history of Los Alamos National Laboratory, and I am extremely honored and proud to be a part of the new management team that will lead the Laboratory into its next phase.

Los Alamos has been unparalleled in its scientific and technological excellence since its inception more than 63 years ago, and I strongly believe that the best is yet to come. Transitions and changes are never easy, and I won't pretend that the next several months will not be challenging as we sort our way through immediate adjustments and prepare for the challenges that lay ahead. Yet, I look forward to the opportunities the challenges will afford us, and I am certain that each and every one of you is more than up to the task.

Science at the highest level must continue to thrive at Los Alamos so that we can accomplish our missions. This requires all of us working together to create an environment that enables unparalleled science through leadership, innovation, best business practices and a focus on safe and secure operations. Your tireless efforts over the years have helped ensure the nation's safety and security. I am confident you will work as a team to make Los Alamos the premier national security science laboratory for the 21st century. You have my commitment that I will do all in my power to help ensure that you have the necessary tools to continue the Laboratory's legacy of excellence.

Each of you has a role in the success of Los Alamos National Laboratory, and every one of you is critical to this success. Accomplishments are of greatest value when advancing our progress toward the institution's goals. Further, accomplishments are not solely the result of one person's efforts, but rather the result of support that the individual receives from others.

In the coming weeks, I and other members of the senior management team intend to travel about the Laboratory meeting with as many of you as possible. I want to hear your thoughts about how we can accomplish our mission, achieve our goals and meet our challenges. Taking the Laboratory into the future is a team effort, and I cannot stress enough the importance of your role as part of that team.

Again, I am honored to serve as director of this remarkable institution, and on behalf of the entire management team, I thank you for your commitment. I am excited about what lies ahead.



Michael Anastasio

Los Alamos National Laboratory management team

Director's Office

- Michael Anastasio, Director
- John Mitchell, Deputy Director

Principal Associate Directors

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- Weapons Program, Glenn Mara
- Operations, Jan Van Prooyen

Associate Directors

- Business Services, Doris Heim
- Engineering and Engineering Science, Scott Gibbs
 - Environmental Programs, Andy Phelps
- Environment, Safety, Health Quality, Dick Watkins
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 - Stockpile Manufacturing, Mike Mallory
 - Theory, Simulation and Computation, Alan Bishop
 - Threat Reduction, Doug Beeson
 - Weapons Engineering, Bret Knapp
 - Weapons Physics, Charles McMillan

Los Alamos National Laboratory NewsLetter

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Los Alamos National Laboratory is operated by Los Alamos National Security, LLC, for the National Nuclear Security Administration (NNSA) of the U.S. Department of Energy and works in partnership with NNSA's Sandia and Lawrence Livermore national laboratories to support NNSA in its mission.

Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.



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Anthrax relatives nonfriendly but nonlethal

by Nancy Ambrosiano

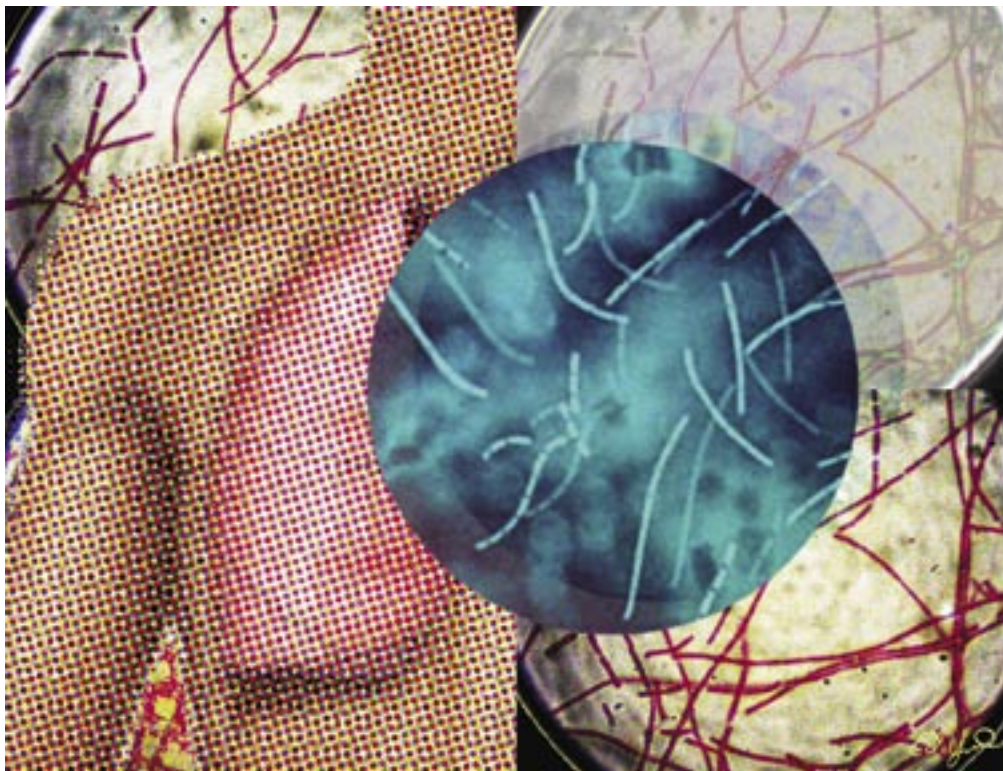
A laboratory team working as part of the Department of Energy's Joint Genome Institute has explored the genomes of nonlethal bacteria closely related to the cause of anthrax, *Bacillus anthracis*. A paper in last month's *Journal of Bacteriology* describes the genomic sequencing and comparative analysis of *Bacillus thuringiensis* 97-27 and *Bacillus cereus* E33L.

The sequences of these two new *B. cereus* group members will contribute significantly to studies of the evolution of host range and virulence, said Jean Challacombe of Genomic Sequencing and Computational Biology (B-5), among the leads of the 46 listed authors on the paper, "Pathogenomic Sequence Analysis of *Bacillus cereus* and *Bacillus thuringiensis* Isolates Closely Related to *Bacillus anthracis*" in the May issue of the journal.

The paper points to the relatively small genetic diversity among *B. anthracis* isolates, because unlike the two new samples, "B. anthracis rapidly kills its host and therefore has little opportunity for genetic exchange," Challacombe said.

Other members of the *B. cereus* family show far greater genetic diversity, and while they may cause illness or infection, they and their hosts tend to survive. One of the organisms, *B. thuringiensis* 97-27, was isolated from the wound of a soldier in Bosnia, and appears to be an opportunistic pathogen. The other, *Bacillus cereus* E33L was obtained from the soil environment in Namibia and is probably not disease causing, despite having been collected from the carcass of a zebra.

The *B. cereus* group of bacteria comprises a diverse set of organisms that are widely



distributed in the environment. This group includes *B. cereus*, which can cause a variety of infections, most notably food poisoning; *B. thuringiensis*, which produces toxins that kill insects and is currently used as a biopesticide on such crops as fruit trees and vegetables and; the deadly *B. anthracis*, an animal and human pathogen that gained public attention in 2001 due to its presence in letters that resulted in the deaths of U.S. Postal Service workers.

In addition to food poisoning, *B. cereus* bacteria have been associated with a variety of infections, including abscesses, bacteraemia and septicemia, cellulitis, ear and eye infections, endocarditis, meningitis, kidney infections, osteomyelitis, and pulmonary and wound infections.

It is unlikely that the *B. cereus* was the fatal infection for the zebra, however. "We don't know what killed the zebra because the carcass was dragged around by other animals before the swab was taken, so it is strongly likely that the E33L isolate got onto the carcass from the soil," said Challacombe.

There is considerable debate in regard to the systematic classification of members of the *B. cereus* group. Historically, these organisms were classified into three species (*B. cereus*, *B. thuringiensis* and *B. anthracis*) on the basis of distinct physical or functional differences that defined them.

While the relationship between these organisms still is not clearly understood, recent molecular approaches have revealed extensive similarities between genomes and relatively few consistent differences warranting the segregation of isolates into discrete species classified as *B. anthracis*, *B. cereus* and *B. thuringiensis*. In a classification scheme examining much of the *B. cereus* group as members of an asexually derived clonally population, *B. thuringiensis* 97-27 and *B. cereus* E33L are both members of

the *B. anthracis* lineage.

Importantly, the *B. anthracis* lineage provides a molecular-based distinction that separates commercially important *B. thuringiensis* strains from pathogenic *B. anthracis*, say the paper's authors.

Electronic reprints of the journal paper can be downloaded from the *Journal of Bacteriology* Web site at <http://jb.asm.org/cgi/reprint/188/9/3382> online.

The DOE Joint Genome Institute, supported by the DOE Office of Science, unites the expertise of Los Alamos, Lawrence Berkeley, Lawrence Livermore, Oak Ridge and Pacific Northwest national laboratories, along with the Stanford Human Genome Center to advance genomics in support of the DOE mission related to clean energy generation and environmental characterization and clean-up. DOE JGI's Walnut Creek, Calif. Production Genomics Facility provides integrated high-throughput sequencing and computational analysis that enable systems-based scientific approaches to these challenges.

More information about DOE JGI can be found at <http://www.jgi.doe.gov/> online.

Intellectual Property

by Tom Bowles, chief scientist



As we enter a new era with a renewed focus as the top science and technology laboratory in support of national security, it is fitting to reflect on a key aspect of our sustained leadership: intellectual property. IP includes the know-how of [the Laboratory's] people as well as the collection of our patents and copyrights.

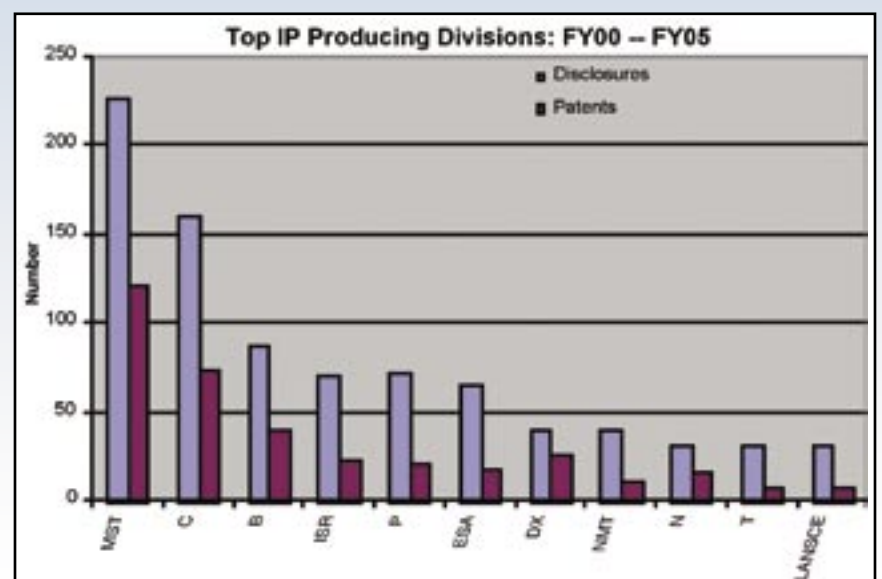
The diversity of our Laboratory inventions is impressive. The 2006 Patent and Licensing Awards ceremony recognized more than 200 patents and several hundred inventors. As shown in the graph at right, we have disclosures and patents from many different technical divisions, both experimental and theoretical. The breadth and quality of our science is consistently noted as the top reason industry partners are drawn to work with the Laboratory.

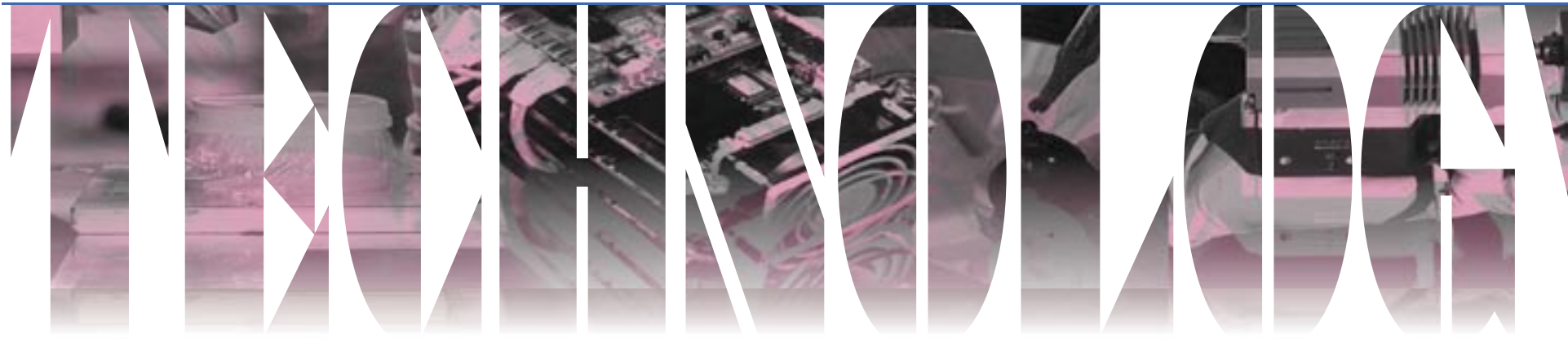
The ability to see ideas put into practice in commercial products also is an important motivator for many of our staff. The applications provided by industry strengthen our programs by providing real-world tests of modeling and simulation capabilities, new outlets for innovations in materials and chemistry and systems integration for individual technologies.

With the organization of the Laboratory into capability-based organizations with clear connections to program missions, the

importance of managing our intellectual capital has never been higher. Our Laboratory assets include a professional staff in IP law and technology transfer to manage intellectual property and connect to outside partners.

Commercializing [the Laboratory's] intellectual property is an important mission, and protecting intellectual property is a responsibility of every [Laboratory] employee. With the IDEAS system (www.lanl.gov/my_idea), a Web-based tool for capturing new inventions, this has never been easier.





Technology transfer innovations

by Duncan McBranch, Technology Transfer (TT) Division leader

The Laboratory's Technology Transfer (TT) Division has the most innovative program for technology transfer at any national laboratory. In its broadest definition, innovation is "the creation of something new." TT helps facilitate new technology from Laboratory inventors to create new products with commercial partners. We also have created many new programs cited as best practices by peer organizations around the country.

Here we highlight how these innovations help the Laboratory's contractual mission for technology transfer. To strengthen programs by partnering with industry, we have strategic alliances and our Industrial Fellows program. To increase the Lab's positive impact on the regional and U.S. economy, we have High-Impact Technologies and Technology Maturation programs (see "Technology Maturation Fund Turns Three" on Page 5). To meet our obligations to protect intellectual property and train new staff, we have an array of entrepreneurial support services. When working together, these programs create enormous leverage and exciting new opportunities.

Strategic Alliances

At Los Alamos, we have been successful at demonstrating continued research and development leadership through partnerships with industry. For example, our Strategic Alliance for Advanced Energy Solutions with Chevron Corp., established in early 2005, has taken technologies in acoustics, materials chemistry, wireless communications and modeling rapidly into the field to speed recovery of oil and gas reserves to meet national energy security needs.

The Los Alamos-Chevron partnership recently was featured in TechComm: The National Journal of Technology Commercialization. Manny Gonzales, Chevron Alliance manager and a long-time oil industry entrepreneur, summed up for TechComm what is unique about Los Alamos: "We use two approaches. We ask Los Alamos to describe technologies they have developed that may be of interest to us, and we also describe our actual challenges and ask, 'Got a solution?'"

Two of the first three projects already have been fielded, including a new polymeric liquid that shrinks when heated, eliminating the rupture of deep sea oil wells in the Gulf of Mexico (saving \$100 million per well), and a wireless communication



Duncan McBranch

technique that enables real-time measurements of pressure and temperature in wells several thousand feet below ground without the need for power electronics, using 1/1000 the power of a 30-watt light bulb. Currently, the alliance is expanding to address more than a dozen important technical challenges that impact U.S. energy independence.

Industrial Fellows

Our Industrial Fellows program has proven essential to building working collaborations, such as the Chevron Alliance, that involve multiple projects and divisions.

Any successful relationship between large organizations requires dedicated internal advocates, thus, each Industrial Fellow is assigned to work at least 50 percent at a partner company location to translate cultural differences and to match up industry needs with Laboratory capabilities.

Otis Peterson, our Industrial Fellow at Chevron, has many years experience in developing and managing innovation in chemistry and physics. Currently based in Houston, Peterson spends his days connecting with new potential customers. "Since the drilling engineers started telling their friends the range of things we've accomplished and the kind of ideas we've generated, I have been running full speed to meet all the people who have challenges we can help to address," Peterson said.

In addition to Chevron, TT has a strong history of effectively using the Industrial Fellows program with Procter & Gamble (a Laboratory partner for more than a decade). In July 2006, new Industrial Fellow Steven Stringer of the Advanced Computing Laboratory (CCS-1) will replace Kevin Jakubenas of TT who is completing a 27-

continued on Page 7

Regional success for technology transfer

Common questions posed to Laboratory officials by the New Mexico congressional delegation are "How have you leveraged your vast technology base to benefit the regional economy? How many businesses have you spun out from the Lab? What have you done for our constituents?"

Since the passage of the Bayh-Dole Act* in 1980, universities have been an increasing resource for technology-based economic development through the transfer and commercialization of their inventions. Regions such as Silicon Valley, Route 128 (Boston) and Research Triangle Park (Raleigh, N.C.) have managed to consistently capture the value of university research locally with vast positive economic impact.

Like a university, the Laboratory represents a treasure chest of science and technology innovation that can be leveraged to advance the economic diversity and health of the Northern New Mexico region. The ability to cite examples of effective regional transfer to the congressional delegation demonstrates Los Alamos' ability to leverage public investment dollars for regional economic benefit — measured by the creation of new jobs and wealth in local communities.

Laboratory technologies transferred to regional companies have been used to create new product lines, enhance processes and create business efficiencies — and in some cases to create new companies from the ground up. In this way, the Laboratory uses its vast reservoir of technology and talent to benefit the regional economy by helping to build a local supplier base, creating

continued on Page 7



Former Lab researcher Ben Warner hands a check to Laboratory licensing executive Laura Barber for the license to MESA for his startup company, Caldera Pharmaceuticals.

File photo



Technology maturation fund turns three

More than 35 projects helped on the road to commercialization

Are you a Laboratory inventor whose project needs just a little more development to make it a commercially viable concept? If so, the Technology Transfer (TT) Division may be able to help you. Since December 2002, TT has provided more than \$1.6 million in development funding to help more than 35 Laboratory technical projects clear the last hurdle to adoption of these technologies by commercial industry. Although all the projects undertaken have received less than \$50,000 each, the returns have been impressive. These projects have catalyzed more than \$12 million in nongovernment investment for further development or licensing of the technologies.

The premise of the Technology Maturation Fund is that Los Alamos has many technologies developed through years of hard work and programmatic funding that have application in the broader commercial world but need one last demonstration or prototype to convince an industrial partner of their potential. Because the commercial application usually is significantly different than original programmatic goals, traditional funding doesn't exist for this final step. However, the Laboratory's prime contract allows TT to provide such maturation funding. In addition, TT commits part of the Laboratory's annual royalty revenue to support these projects.

In this way, ionic liquids become improved rearview mirrors for automobiles, radiation detectors become a means for better medical PET scanning and novel explosives have the potential to become lower-cost, lighter-weight plastic bottles. The goal is to move technologies from the Lab to the market while generating increased technology licensing revenue that can be reinvested in future projects.

Over the last three years, TMF projects have resulted in nine new patentable inventions, nine revenue-generating licenses and six joint projects with commercial companies. In addition, three start-up companies have formed based on technology assisted by the fund. These results are particularly noteworthy given that the commercialization process is neither short nor easy. "These results are a testament to the determination of [Laboratory] staff to see society reap the benefits of their hard work," says Kevin Jakubenas, of TT Division, administrator of the TMF.

The TMF has received praise not only for its effectiveness but also for its friendliness. "All interactions with the selection panel, from

Technology Maturation Fund: Proven Results

- \$1.6 million invested in 35 projects from 15 technical divisions
- Nine new inventions
- Six new CRADA/WFOs with \$5.5 million total lifetime value
- 15 new licenses with \$2.4 million total lifetime value
- Three startup companies with \$7.1 million in funds raised

project inception to final report, were pleasant and effective," said John Ramsey of Electronic and Electrochemical Materials and Devices (MST-11). "The Technology Maturation Program has been the most efficient and red-tape free program of all Laboratory programs/initiatives I have been exposed to since I came here in 1997," adds Piotr Zelenay also of MST-11. To date, more than 100 researchers have been involved in project submissions with overwhelmingly positive feedback.

The fund has been widely recognized. It has been featured in R&D Magazine and in an invited talk at the May 2006 annual meeting of the Federal Laboratory Consortium in Minneapolis. Sandia National Laboratories piloted a new program this year modeled on the fund, and this approach provides the basis for an expanded technology maturation program under Los Alamos National Security, LLC.

Applying for funding is quick and easy. Project proposals are accepted on an ongoing basis and reviewed monthly. Typical time from proposal to funding of a selected project is about six weeks, with TT staff assistance and feedback throughout the process. The only requirements for submission are that the subject technology must have an associated invention disclosure (which can be submitted electronically at ideas.lanl.gov) and the total project does not surpass \$50,000. Participation in TT's course on commercialization of technology is helpful to applicants but not mandatory. The short application form is available from the TT Division Web site at www.lanl.gov/orgs/tt/tech_mat.shtml.



Laboratory employees and the public can learn about the many external awards Lab staff and organizations have received by going to the new AWARDS database.

Managed by the Awards Office in the Technology Transfer (TT) Division, this new, searchable, comprehensive database institutionalizes the solicitation, preparation, tracking and reporting of Laboratory institutional and staff accomplishments. Laboratory chiefs of staff have been briefed on the approval process and are an integral part of this effort.

Recognition and broad publication of the external achievements of Laboratory staff increase the Laboratory's ability to obtain funding, establish new programs and collaborations, and attract and retain key talent. However, tracking and appropriately crediting award winners has been a challenging task left to individuals and

groups throughout the Laboratory in the absence of any central repository.

Last spring, Don Rej, Office of Science director, proposed establishment of an Awards Office. The idea was quickly embraced by Duncan McBranch, TT Division leader, and Terry Lowe, Science and Technology Base (STB) Programs director. According to Lowe, "The creation of an easy-to-use database with the capability to generate reports for a variety of purposes will greatly benefit the Laboratory and its staff."

The Awards Office solicits and submits high-quality award nomination packages to prestigious competitions such as the R&D 100 Awards, the E. O. Lawrence Award, the Presidential Early Career Award for Scientists and Engineers, the U.S. Presidential Award: National Medal of Science, the Enrico Fermi Presidential Award, Federal Laboratory Consortium Technology Transfer



Awards and several other competitions, such as Nano50 and Micro25.

A major effort of the Awards Office has been the development of the AWARDS database, currently populated by more than 1,000 entries of archived Laboratory award information. However, the office needs help from Laboratory staff to bring the information up-to-date in order to make the database a valuable tool for tracking the Laboratory's many outstanding employee achievements.

External visitors can peruse the database to review Los Alamos' impressive contributions to U.S. science and technology. Lab managers can use the database to track the accomplishments of their employees and groups.

Employees can enter their own information into the database. As soon as online division approval has been entered, the information is entered into the database and is available on the Lab's Web site, awards.lanl.gov.

continued on Page 7

So... what do you think?

Q: How useful do you think surveys are in helping develop effective communication vehicles for employees and would you participate in such a survey if asked?



Nikita Goyal of Solid Waste and Regulatory Compliance (ENV-SWRC)

Surveys are a good method for getting effective feedback. If I were asked to participate in a survey, I would do so, depending on what it involves.



Dave Frank of Environmental Characterization and Remediation (ENV-ECR)

I'm participating in a survey now. Online surveys seem to attract more participants.



Regina Trujillo of Occupational Medicine (HSR-2)

Surveys only are valuable when suggestions for improvements are actually taken into consideration and changes are implemented.



Mike Clevenger of ENV-ECR

Most surveys have no follow up. [I have] been completing surveys for the last 15 years with no obvious results.



Cassandra Toledo of HSR-2

Surveys are very useful because they give all employees the opportunity for input about any situation happening here at the Lab. They also have the tendency to inform all readers about any situation.



Pat O'Grady of TA-54 East Operations (NWIS-TA54E)

I believe a survey can be effective if the participants are from a wide variety of backgrounds.



James Coggeshall of Thermonuclear Applications (X-2)

Yes, I would participate because it is an issue that needs to be addressed. A survey would be an effective means of making improvements in this area.

PEOPLE



Rube Williams

Lab's Williams receives Emerald Honors award

Rube Williams of Nuclear Design and Risk Analysis (D-5), a nuclear engineer currently on entrepreneurial leave from the Laboratory, won the 2006 Emerald Honors Minorities in Research Science Award in the Community Service and Educational Leadership categories. He will be honored at the Minorities in Research Science Conference in September and profiled in Science Spectrum magazine.

"Rube's ability to secure this award demonstrates his outstanding expertise in science, his love for education and an uncanny ability to make the most complex scientific ideas highly accessible and real world," said Tara Voit of Bioscience (B) Division, co-author of Williams' nomination and member of the African American Diversity Working Group.

Williams is a founder of Jet Learning Laboratory Inc. (JLL), a learning center that provides advanced instruction in mathematics and the various science disciplines to young people with an emphasis on teaching children to become critical thinkers. Since its inception in May 2004, more than 600 students have come through the doors of JLL.

"Rube inspires gifted children and others by his own multi-faceted vocations and avocations, as he speaks passable Japanese and Russian, is an instrument-rated pilot and one of the most experienced people in the country at performing experiments in near-zero gravity conditions aboard NASA KC-135 aircraft," said nomination co-author Beverly Neal-Clinton of Applied Physics (X) Division.

Williams is the only African-American engineer to be nominated from the Lab.

Williams holds doctorate, master's and bachelor's degrees in nuclear engineering from Texas A&M University and has published several papers in the areas of adaptive filtering, advanced fusion concepts and zero-gravity testing. He also has received research appointments by the Institute of Space and Astronautical Science in Japan and NASA and community service awards from the YMCA, Boy Scouts of America and Rotary International.



Los Alamos Medal recipients honored

Then-Laboratory Director Bob Kuckuck hands 2006 Los Alamos Medal recipient Keith Boyer his medal during a presentation ceremony in the J. Robert Oppenheimer Study Center at Technical Area 3. Boyer and Stirling Colgate, standing left, of Theoretical Astrophysics (T-6) are the 2006 Los Alamos Medal recipients. The Los Alamos Medal is the highest honor and most prestigious award the Laboratory can bestow upon an individual or small group. Photo by LeRoy N. Sanchez

Regional success ...

continued from Page 4

alternative job opportunities and attracting new business and capital to the region.

Since 1997, TT Division has worked with 46 start-up companies in the region affiliated with the Laboratory through a formal technology transfer agreement or through the employment of former Laboratory staff. Twenty-eight Laboratory employees have taken Entrepreneurial Leave of Absence to engage in the creation and growth of these new entities. Two examples of recent Laboratory regional technology transfer efforts include interactions with CleanAIR Systems of Santa Fe and the Laboratory spin-off, Caldera Pharmaceuticals Inc. of Los Alamos.

CleanAIR is evaluating NO_x (nitrogen oxide) HyCat — a recent Laboratory invention — for use in trucks, buses, power generators, construction equipment and other nonautomotive applications. NO_x HyCat promises to lift the brown haze choking major American cities while reducing our dependence on foreign oil.

Inventor Kevin Ott of Actinide, Catalysis and Separations Chemistry (C-SIC) says “[The Laboratory’s] technology cleans the exhaust stream from diesel engines, which can dramatically reduce NO_x air pollution from diesel exhaust — the cause of the brown haze.” Ott’s technology is the first catalytic system to span the temperature range from 150 Celsius to more than 500 C found in vehicle exhaust. CleanAIR Systems specializes in providing emission control products that meet strict air quality regulations throughout the world.

In 2006, the partners are focusing on transferring the technology to CleanAIR for technical and market validation. If successful, CleanAIR intends to launch a product based on the technology during 2007.

Caldera Pharmaceuticals Inc. spun out from the Laboratory in late 2005. Caldera licensed Los Alamos’ MESA (measuring enzyme-substrate affinities) technology, originally developed by Ben Warner formerly of the Chemistry (C) Division. Warner took entrepreneurial leave from the Laboratory to launch the company.

MESA is a low-cost assay for detecting the binding of drugs to proteins without the biasing influence of added fluorescent molecular labels. Caldera plans to address the core of how many pharmaceuticals work: the binding of chemicals and proteins. The Caldera system allows researchers to test a single chemical against thousands of proteins at once instead of testing a few chemicals against a single protein at a time. “We can do in eight minutes what others can do in a day,” said Warner. The company’s proprietary system for testing how proteins bond with chemicals has the potential to save the \$40 billion-a-year drug discovery industry hundreds of millions of dollars — by weeding out potentially dangerous drugs before they

reach expensive clinical trials. Caldera currently is investing \$700,000 at the Laboratory through two Work-for-Others agreements to advance specific applications of its first product. Caldera currently has raised \$2.5 million in private financing.

The Laboratory has executed more than 100 agreements with New Mexico companies enabling hundreds of new products and services along with a dramatic positive impact on regional employment resulting from these products.

**The Bayh-Dole Act allows for the transfer of exclusive control over many government funded inventions to universities and businesses operating with federal contracts for the purpose of further development and commercialization.*

Technology transfer ...

continued from Page 4

month assignment to P&G. Over the last five years, P&G Industrial Fellows have screened more than 400 collaboration ideas with the most recent project launch being in simulation and modeling of complex materials. TT has previously placed Industrial Fellows at many other companies, including General Motors, Dow Chemical, Caterpillar, PPG Industries, IBM, Parke-Davis (now Pfizer) and Motorola.

High-Impact Technologies

TT Division’s High Impact Technologies (HITs) program is designed to provide additional focus and marketing muscle to Laboratory innovations that will have strong institutional impact as measured by

- Positive influence on the Laboratory’s reputation;
- Startup businesses; and
- Funds in to Los Alamos research programs.

EnergyFit is one of a dozen or so HITs designated in 2005. The commercialization of EnergyFit is an example of how the Laboratory contributes to saving energy through new technology. EnergyFit uses a novel patent-pending algorithm that lowers energy consumption of a computer CPU by up to 40 percent with minimal effect on computing speed. By minimizing the energy produced by individual CPUs in a cluster,

EnergyFit can dramatically reduce overall power consumption — the largest cost component — in a data center.

Due in part to the visible marketing campaign for EnergyFit, AES Corp., one of the world’s leading power companies, recently obtained exclusive rights to EnergyFit. In this way, our HITs program leveraged the development of a new strategic alliance. Through a recently signed Cooperative Research and Development Agreement (CRADA), AES and Los Alamos have identified several collaborations in areas such as carbon sequestration, greenhouse gas conversion, and more efficient means of power production and consumption. “This partnership offers a unique opportunity to apply Los Alamos’ broad capabilities in science and technology to energy security challenges with AES, a world leader in rapidly implementing new technology solutions in alternative and clean energy. EnergyFit is an exciting first solution in our partnership,” said Terry Wallace, acting principal associate director for science.

Applying a systematic business development and marketing strategy to our HITs results in an accelerated path to market and a more consistent positive message about the Laboratory’s contributions to technology. To view the current list of HITs, go to www.lanl.gov/partnerships online.

AWARDS ...

continued from Page 5

For more information contact Kim Sherwood at 5-1305, or write to awards@lanl.gov by e-mail.

- A few examples of Laboratory staff successes during the past five years include
- Fellows of the American Physical Society — 23 awards
 - Federal Laboratory Consortium Regional and National Awards of Excellence — 18 awards
 - Society for Technical Communications — 114 awards
 - DOE Pollution Prevention — 22+ awards
 - Governor’s Award for SuperComputing Challenge — 2005 awards
 - Nano 50 Awards — 2 awards
 - R&D 100 Awards — 19 awards (Lab has won 87 in the past 18 years)
 - NNSA Awards of Excellence — 3 awards
 - DOE/NNSA Defense Programs Awards of Excellence — 2 awards
 - Asian American Engineer of the Year Award from the Chinese Institute of Engineers USA. A Los Alamos scientist has received this award for five consecutive years. — 5 awards
 - E.O. Lawrence Award (DOE sponsored) — 3 awards.

In Memoriam

David “Dwain” Keith

Laboratory employee David “Dwain” Keith of Radiation Protection Services (HSR-12) died May 16 at Los Alamos Medical Center. He was 50.

He was born in Stanford, Ky., on Oct. 14, 1955, and served in the United States Army from 1974 to 1994. Keith moved to Los Alamos in 1994 to work as a health and safety officer and trainer for Johnson Controls, a Laboratory contractor.

In February 1998, Keith officially joined the Lab in Radiation Protection Services (HSR-12) (then known as ESH-12) as a health physicist/radiological engineer and was appointed project leader in December 2003.

He received a master’s in nuclear engineering from the University of New Mexico in 1997 and his bachelor’s in occupational education from Wayland Baptist University in 1993.

Keith is survived by his wife, Janice “Jani”; daughter Casey; son Dwain of Hazardous Materials Response (HAZMAT); three grandchildren; a brother, Wendell and a sister, Sheila.

Robert G. Schrandt

Robert G. Schrandt died Jan. 20 following a brief illness. He was 79.

He was born in Stacyville, Iowa, and served in the United States Navy during World War II and the Korean War.

Schrandt joined the Laboratory in 1954 as a research assistant in the Theoretical (T) Division. At the time of his retirement in 1990, Schrandt was staff member in the Applied Physics (X) Division.

He received his bachelor’s and master’s degrees in mathematics from the University of New Mexico.

He is survived by sons Bill of Albuquerque, Tom of Holliday, Texas, John of El Guique, N.M.; daughters Julia of Salinas, Calif., Mary of Ruidoso, N.M. and Connie of Seaside, Ore.; 12 grandchildren and numerous other relatives and friends.



Lab celebrates 63 years of service to the nation

The Laboratory recently celebrated the University of California's 63 years of service to the nation through its management of the Laboratory. "Celebrating an Era with Pride and Honor" included Laboratory workers, subcontract personnel, retirees and their families and friends for a day of exhibits, entertainment, food and fun.

The highlight of the celebration was the dedication of the new National Security Sciences Building at Technical Area 3, which included a ribbon-cutting ceremony, self-guided tours of the facility and the unveiling in the NSSB courtyard of a commemorative piece from the Pentagon building that was attacked on Sept. 11, 2001.

Photos by LeRoy N. Sanchez of Public Affairs and Bill Flor of Hazardous Materials Response (HAZMAT)



Melissa Porter of Principal Associate Director for Nuclear Weapons Program (PADNWP)



Protection Technology Los Alamos Color Guard



Commemorative piece from the Pentagon building that was attacked on Sept. 11, 2001.



Laboratory Director Michael Anastasio, left and then-Director Bob Kuckuck



Cutting the ribbon to the National Security Sciences Building are Former Laboratory Director John Browne; Linton Brooks, National Nuclear Security Administration administrator; Rep. Tom Udall, D-N.M.; then Director Bob Kuckuck; Sen. Pete Domenici, R-N.M.; Vic McNallie, executive vice president for Hensel Phelps Construction, the general contractor for the NSSB; University of California Regent Norman Pattiz; and Gov. Bill Richardson.



A youngster tries on a level A vapor protective suit, which are worn by responders for hazardous materials response where the materials are especially toxic.



The Laboratory's remote controlled hazardous devices robot attracted children and adults with demonstrations on its use and the opportunity for candy. It was set up in the parking lot next to the J. Robert Oppenheimer Study Center.