President’s Corner

I had an opportunity to visit Japan twice this past fall and it was interesting to compare and contrast our respective university technology-transfer programs. Government, university and industry executives in Japan are seeking to develop effective technology-transfer programs and are eager to learn about STC’s programs and experience. The legislation permitting universities to take title to government-sponsored research in Japan was passed in 1999, almost twenty years after the Bayh-Dole legislation became law in the U.S. Universities in Japan are moving quickly to adopt practices consistent with strong university technology-transfer programs in the U.S. I had the opportunity to present STC’s program at an international workshop at Doshisha University in Kyoto in November.

At the same time and as you will note in this issue of the newsletter, Congress is considering changes to U.S. patent law which would substantially weaken our patent system. The changes would be detrimental to universities, individual inventors, investors, entrepreneurs, start-up companies and other companies that rely on patents as the basis of their proprietary position. Many organizations are making their positions known to Congress by opposing these sweeping changes to patent law.

The Association of University Technology Managers recently announced the results of its survey of university technology-transfer programs. Some of the highlights include a record number of start-up companies created last year and other summary data listed below:

- $45 billion in R&D expenditures were received by U.S. academic centers
- 697 new products were introduced into the market in 2006 (4,350 introduced from FY1998 through FY2006)
- 553 new start-up companies were launched in 2006
- 5,724 new start-up companies were launched from FY1980 through FY2006
- 12,672 licenses and options were managed, yielding active income (each single license represents a one-on-one relationship between a company and a university, hospital or research institution that earns income on products that benefit our communities)

STC’s Lobo VentureLab has moved and expanded its Accelerator space, adjacent to its offices in UNM’s Science & Technology Park (south campus). See our “Tidbits” section for information on services and space.

STC has reorganized its
The DR M Game

The war over illegal use and distribution of digital files has been a popular topic recently. With the internet and other file sharing devices, unauthorized distribution of copyrighted digital or electronic files, better known as digital piracy, has increased tremendously.

In an effort to strengthen the digital anti-piracy movement, the Digital Rights Management (DRM) system was developed to protect the rights and continued revenue stream of copyright holders by preventing unauthorized duplication of digital works.

The use and concept of the DRM system, however, has been very controversial. DRM currently has a very negative connotation associated with it because of the unreasonable restrictions legitimate users say are placed on their use of the content. In other words, opponents are accusing copyright holders of attempting to restrict use of copyrighted materials in ways not included by law.

Dr. Greg Heileman, Professor and Associate Chair of the Department of Electrical and Computer Engineering, and his team have developed a new DRM concept that promotes a more reasonable balance between content vendors and consumers, and better supports desirable properties such as re-usability, portability, standardization, and interoperability.

This new concept puts the DRM system in an environment that models a number of current approaches as games. These games represent a number of important long-term interactions between consumers and vendors. Dr. Heileman’s DRM concept incorporates a new architectural component, called the trust authority, to construct a different type of DRM environment, an environment in which a consumer’s actions are influenced more by rewards and less by the punishments that vendors attempt to attach to file sharing.

New Innovative Cystic Fibrosis Breath Test

Cystic fibrosis (CF), also called mucoviscidosis, is a hereditary disease that affects the entire body, causing progressive disability and early death. CF affects 30,000 people in the United States (70,000 worldwide) and is one of the most common inherited diseases in the US.

The progressive lung damage and deterioration of respiratory function in CF arises from a characteristic pattern of bacterial colonization of the lung, with chronic Pseudomonas aeruginosa infections being centrally important. Cystic fibrosis has been transformed from a life-ending, to a life-shortening disease through aggressive therapy aimed at P. aeruginosa. After initial infection with wild-type, non-mucoid strains, conversion of P. aeruginosa to the mucoid phenotype in the CF host occurs and increases bacterial resistance, not only to host clearance and defense mechanisms, but also to antibiotic interventions. Accordingly, mucoid conversion results in a poor prognosis for CF patients, so knowing when mucoid conversion occurs would be extremely useful for treatment.

However, equally important, is knowing the onset of first infection with P. aeruginosa, and monitoring the response to anti-pseudomonal therapy—if we have the diagnostic tools available to monitor these parameters rapidly and in real-time, we could potentially delay colonization and lung damage. The current tools available (serology, bacterial culture etc.) are not capable of providing this information. Furthermore, after establishment of P. aeruginosa, much therapy is aimed at reducing bacterial burden; yet again, these tools are not useful for this.

Rapidly knowing when infection occurs, when mucoid conversion has occurred, and the extent of lung pseudomonas burden would greatly improve therapies. Currently, there is no non-invasive method to rapidly determine these parameters in CF patients; however, this technology could be the first. This technology could also improve patient outcomes since it tests the entire lung for infection and because the diagnostic information it provides can result in improved therapies. Additionally, because this technology is rapid and non-invasive, can lower overall costs and can be used with existing diagnostic platforms, it potentially changes the way CF is treated.

Rapid Detection of P. aeruginosa and Mucoid P. aeruginosa in Cystic Fibrosis Patients

Graham Timmins, Ph.D.
College of Pharmacy
Health Sciences Center
University of New Mexico

Vojo Deretic, Ph.D.
Department of Molecular Genetics and Microbiology
Health Sciences Center
University of New Mexico

Gregory L. Heileman, Ph.D.
Department of Electrical & Computer Engineering
University of New Mexico

Dr. Graham Timmins and Dr. Vojo Deretic from the University of New Mexico’s Health Sciences Center have developed a method for detecting P. aeruginosa infection, mucoid status and its burden in the lungs of patients with CF by a special breath (or other body fluid) test that sensitively and specifically detects these parameters.

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STC has filed patent applications on these exciting new technologies and is currently examining commercialization options.
UNM GaN Nanowire Technology Basis for Start-Up

In the fall 2007 issue of Portal al Mercado, STC profiled UNM technology developed by Dr. Steven Hersee, Professor in the Electrical and Computer Engineering (ECE) Department and at the Center for High Technology Materials. The technology, high quality gallium nitride (GaN) nanowires grown using a pulsed MOCVD growth technique, has led to the formation of a New Mexico start-up company, Nanocrystal, LLC.

The company was formed in 2007 by Dr. Petros Varangis, President & CEO, and has negotiated certain exclusive rights with STC to manufacture the GaN nanowires on a variety of substrates such as silicon, silicon carbide and sapphire.

Dr. Varangis has extensive experience in the research and development of innovative semiconductor technologies. He received his Ph.D. in Electrical Engineering from UNM in 1997 and was a Research Assistant Professor in the ECE Department in 1999. In 2000, he co-founded Zia Laser Inc., a start-up company focused on the development of quantum dot semiconductor lasers.

Gallium nitride is the most important semiconductor since...silicon. Gallium nitride is the most important semiconductor since the commercialization of silicon with a multi-billion-dollar market for silicon-based devices that is rapidly growing. Applications include ultraviolet, blue and green LED's for displays, white-light illumination and remote sensing; blue-violet lasers for high-density optical storage for next-generation DVD players and recorders; UV photodetectors for chemical sensing; and high-frequency transistors for wireless communications, and high-power, high-temperature power rectifiers for switching applications in the avionics and automotive fields.

Currently, the most critical issue that prevents gallium nitride material from realizing its true potential is the poor quality of GaN wafers. A real and very significant market need exists for high-quality (i.e., low-defect density) and cost-efficient GaN wafers. Such a technical breakthrough can lead to GaN devices with improved performance, reliability, operating lifetime, yield and reduced cost, and in turn enables disruptive applications, such as white light general illumination by high-brightness and high-power LEDs that would replace less efficient incandescent and fluorescent lamps, and high-volume consumer applications such as high-speed and high-definition DVD recorders.

In August 2007, Nanocrystal closed on a seed round of funding, led by the Verge Fund in Albuquerque, New Mexico, with the objective of evaluating the application of the UNM nanowire technology in the development of low-defect density GaN wafers for the manufacturing of high-performance micro- and opto-electronic devices. The company plans to raise a second round of funding during 2008.

About STC.UNM & the Portal al Mercado

STC.UNM strives to support the University of New Mexico and its partners as the source for innovation management and commercial development.

Additionally, STC.UNM desires to play a vital role in New Mexico economic development and to be an innovator in commercialization worldwide.

Portal al Mercado is a publication of STC.UNM, produced in-house, and is published bi-annually, coinciding with the beginning of the fall and spring semesters, for the University’s faculty and New Mexico’s business community.

Editor: Denise Bissell (dbissell@stc.unm.edu)

To learn more about STC.UNM and our activities, please visit us on the web at www.stc.unm.edu.

David Bissell, Editor, denise.bissell@stc.unm.edu

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Dr. Petros Varangis, President & CEO, Nanocrystal, LLC

Lisa Kuuttila, President & CEO
kuuttila@stc.unm.edu / 505-272-7905
Tidbits

STC.UNM President Keynote Speaker at International Workshop in Japan

STC President and CEO, Lisa Kuuttila, gave an invited keynote address at Doshisha University in Japan on November 15th. Her talk, “Leading-Edge Technology Commercialization in a University Setting: The Case of the University of New Mexico,” opened the international workshop entitled “Opportunities and Challenges in Health Ventures Launched from Universities.” The talk highlighted the successful technology-transfer model at STC and, in particular, its transfer of technologies related to health care. The workshop was hosted by the Doshisha Institute for Health Policy and Business at Doshisha University. Attendees were from various fields related to medical care and technology transfer.

Innovation Symposium Held at UNM

STC.UNM took part in an innovation symposium held on October 2, 2007 on main campus which was jointly sponsored by the UNM School of Engineering, Anderson School of Management, Mesa del Sol, Albuquerque Economic Development and STC. The symposium was part of a series of events to mark the inauguration of President Schmidly and explored innovation as the key in meeting the twin challenges of increasing global competition and solving large-scale world problems. Speakers included Dr. R. Keith Sawyer, Professor of Psychology and Education at Washington University in St. Louis, and Robert W. Galvin, retired Chairman and CEO of Motorola and founder of the Galvin Electricity Initiative. Dr. Sawyer’s talk was entitled “Creativity, Innovation and the New Sciences of Learning” and Mr. Galvin spoke about “Three Major Innovative Strategies to Create Wealth and Solve World Problems.” Ms. Kuuttila was the moderator for a panel discussion following Mr. Galvin’s presentation.

University of Washington Talks About foliodirect

foliodirect spoke recently with Gail Dykstra and Lisa Heinz from UW’s TechTransfer Digital Ventures unit about UW TechTransfer’s experience as a member of foliodirect. Digital Ventures is the software and digital media licensing arm of the University of Washington’s technology-transfer office.

Ms. Dykstra is a Software Licensing Officer responsible for managing intellectual property rights and creating commercialization opportunities for digital media, databases and software materials created by researchers at UW. Ms. Dykstra received her master’s degree in Library and Information Science from UW and has a background in publishing, software and competitive intelligence, and product development in the information and software industries and public-interest sector. She has been a consultant in digital rights and product development, a Research Manager in Information Services at Microsoft Corporation, a Director of Content and Business Development at Micromedia Limited and a Senior Director of Research and Programs for the Canadian Law Information Council.

As Contract Manager at UW TechTransfer’s Digital Ventures unit, Ms. Heinz is responsible for monitoring compliance and invoicing license agreements, legal docketing for IP, managing the Computing and Communication trademark portfolio and managing the Digital Ventures’ office. Ms. Heinz received her bachelor’s degree in Anthropology from UW.

What has been the value of foliodirect to UW TechTransfer?

Ms. Dykstra explained that UW TechTransfer enters into many thousands of licenses a year. Some licenses cover high-value software and information products that require individual negotiation and time to transact. The unit also has express licenses for software and digital media that are self-service license agreements with standard terms and published schedules of fees. Express licenses require no negotiation and use agreement templates with preset terms and conditions. Then, there’s foliodirect, which is used for those technologies that have a widespread market, have low license fees, and can be licensed quickly through credit card transactions. “foliodirect has been a boon for UW TechTransfer,” she said, “because it is an excellent distribution channel for high-volume, low-fee licensing. It is another market-sensitive method for extending the reach of our technologies to the general public.”

Ms. Dykstra gave the following example of foliodirect’s flexibility and agility to illustrate her point:

In the middle of finalizing a transaction for a multi-year licensing arrangement with a large federal government agency, there was a problem processing payment with the agency’s credit card. The window of opportunity for solving this problem literally came down to an hour. The stakes were high for UW TechTransfer—failure to solve the problem would have meant losing the window of opportunity for the multi-year licensing deal. A call to foliodirect’s technical support team saved the day. The team was able to quickly set up payment through foliodirect.

Ms. Dykstra enthusiastically stated that foliodirect provided “super service and tech support to us. Most of our processing problems are user errors and we don’t have the staff to solve these kinds of technical problems. Having foliodirect really helps us in providing support and, conversely, in giving great service to our customers.”

Read more on the web at foliodirect.net.

STC.UNM to Launch New Accelerator

The Lobo VentureLab Accelerator, an STC. UNM-affiliated program providing facilities and services for brand new start-up companies, has relocated and renovated its Accelerator to provide fully enclosed, furnished offices and a conference room for meetings.

Benefits include:

- Competitive leasing rates
- Private, furnished office with sound insulation
- Telephone, internet and fax connections
- Use of conference room for meetings, upon availability
- Ample parking for tenant and visitors
- Complimentary coffee bar
- Card key and key access to Accelerator and office
- Access to program support from Lobo VentureLab interns (preference given to UNM start-ups)

foliodirect ... saved the day.

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few New Mexicans would argue that change has not been good for the New Mexico economy. Unemployment is down, personal incomes are up, and New Mexico is among the few states with a budget surplus.

However, we must be careful that we not be misled to believe that all change is, in fact, positive progress. And, we must be diligent in helping our representatives in Washington make wise choices—choices that foster changes that move us forward but reject changes that erode the foundation for our recent and continued success.

Key among the many factors contributing to New Mexico’s impressive economic gains is the growth we’ve experienced in high-wage sectors of the economy including biotechnology, aviation, high-tech manufacturing, renewable energy and film production.

Whether it is the discovery of a life-saving therapy, the development of a sustainable way to generate power or the creation of a film, all these activities have a common thread—they are based not on a thing but on a thought. With the growth of these sectors New Mexico is becoming a “knowledge-economy,” an economy for which innovation and entrepreneurialism are the keys to success.

Innovation requires two things: ideas and courage.

New Mexico’s leaders have similarly encouraged innovation and entrepreneurialism that is fostering a robust infrastructure for the creation of start-up companies.

We have a rich technology base in our universities and national laboratories. The state has committed over $355 million in the investment in venture capital and start-up companies. A recent survey of venture capital activity in New Mexico shows investments this year have jumped 500 percent in comparison with last year. Venture capital firms invested $93.3 million into 11 New Mexico companies in the first half of 2007. New Mexico has been cited in recent studies as being one of the top states in the nation in terms of its climate for entrepreneurship.

New Mexico’s founders foresaw the value of innovation and entrepreneurialism when they explicitly spoke to the creation of a patent system in the U.S. Constitution. Innovation requires two things: ideas and courage. Patents allow ideas to be shared without the threat of theft. Patents also reward the courage needed to pursue those ideas by granting innovators and the investors who back them with a limited period of market exclusivity.

What New Mexico has done is impressive. Without robust protection for the ideas of New Mexico’s innovators and early stage investors, however, it may be in vain.

Congress is currently considering a wholesale restructuring of the U.S. patent system. Though some updating of the patent system may be in order, an overhaul that creates uncertainty, that significantly weakens patent protections, and that lessens the potential penalties for violating patents would be very detrimental.

The Patent Reform Act of 2007 would erode the footing on which much of New Mexico’s recent growth and plans for the future have been built.

The U.S. patent system is the strongest in the world. It is integral to the long-term economic success of our nation and state. Changes that improve the quality of patents and modernize the patent system are welcome, but not all changes take us in this direction. Congress should carefully consider each proposed alteration of the patent system.

Patents have served us well for more than two centuries. Change for the sake of change is not progress and haste in this arena may make more than waste. It could stop cold the progress New Mexico has made.

Patent Protection Crucial for State
In Memoriam:
Dr. Terry Yates (1950-2007)

Dr. Terry L. Yates, UNM Vice President for Research and Economic Development and STC Board member, has died after a brief illness. Dr. Yates had been a faculty member at UNM since 1978. He was a Professor of Biology and Pathology as well as Curator of Genomic Resources for the Museum of Southwestern Biology. Dr. Yates was an international authority on the hantavirus and was responsible for identifying the species of deer mice responsible for carrying the disease. During his tenure as Vice President for UNM research, research awards increased from $247 million to nearly $300 million. Dr. Yates served on the STC Board of Directors from July 2001 until his death. He was a passionate believer in STC’s mission to bring UNM faculty inventions to the marketplace. We will miss his invaluable support and southern charm.
Megan joined STC as a marketing intern in the life sciences division in the fall of 2005. She was born and raised in Las Cruces, New Mexico, and came to UNM because it was “just right”—it was in-state, not too far away from home but not too close to home either! Megan graduated in May 2007 with double degrees in biology and criminology and is taking additional coursework at UNM to prepare for graduate studies in biomedical forensics. She is also a morphology technician at UNM’s Office of the Medical Investigators where she performs autopsies and related procedures, takes photographs and x-rays, and helps to maintain the laboratory equipment, facilities, and supplies.

We asked Megan what aspect of her job at STC has been most satisfying and valuable. Without a doubt, she replied that she enjoys being a part of the commercialization process for STC’s life sciences technologies. As a marketing intern, Megan is involved in preparing non-confidential summaries of technologies which are then sent to targeted companies for possible licensing opportunities. She really enjoys learning about the technology, working with UNM investigators, and helping to conduct marketing campaigns to find the companies that might be interested in commercialization. The absolute best part of the internship, according to Megan, is getting a positive response from a company and knowing that she is part of transferring important technology to the marketplace. Megan feels that as a science major with little exposure to business practices, she’s been able to learn how research can be developed into a business opportunity.

Megan describes the STC office as an “awesome” place to work with “generous, helpful and caring staff.” In her opinion, any student offered the chance to work at STC should seize the opportunity! Benefits include working with UNM researchers and STC’s experienced tech transfer managers and also knowing that the job experience at STC is a valuable reference for future educational and career goals.

Megan plans to continue her internship at STC through the spring and summer of 2008 and is currently in the process of applying for admission to the graduate program at the Biomedical Forensics Program at Boston University’s School of Medicine for fall 2008.

Any student offered the chance to work at STC should seize the opportunity.
Drug Discovery: The Delicate Dance Between Biology and Chemistry*
Presented by Christopher A. Lipinski, Ph.D.
Scientific Advisor, Melior Discovery
January 24, 2008 (4:00pm to 6:00pm)
University of New Mexico Health Sciences Campus

Starting a Company from the Sidelines: How to See Your Technology Commercialized in a Start-Up Without Founding a Company Yourself*
Presented by Carolyn Mold, Ph.D.
Professor, Department of Molecular Genetics & Microbiology
University of New Mexico School of Medicine
February 7, 2008 (12:00pm to 1:00pm)
University of New Mexico Health Sciences Campus

Entrepreneurship in New Mexico and the Global Economy
Presented by Trevor Loy
Flywheel Ventures
February 20, 2008 (12:00pm to 1:00pm)
University of New Mexico Main Campus

Seminar Title Forthcoming*
Presented by Ashutosh Chilkoti, Ph.D.
Professor, Department of Biomedical Engineering
Duke University
February 21, 2008 (12:00pm to 1:00pm)
University of New Mexico Main Campus

Patent Law for Your Technology
Presented by Tim Hsieh, Ph.D., J.D.
MH² Technology Law Group, LLC
March 5, 2008 (12:00pm to 1:00pm)
University of New Mexico Main Campus

New Anticipated Developments in Patenting Inventions and What You Can Do to Prepare*
Presented by Henry Coleman, Ph.D., J.D.
Coleman, Sudol & Sapone, PC
March 13, 2008 (12:00pm to 1:00pm)
University of New Mexico Health Sciences Campus

* Co-sponsored with the University of New Mexico Health Sciences Center
Boxed lunches will be served to registered attendees. Locations are subject to change without notice. Please visit the STC.UNM website for the most current information and to register for any of these events at www.stc.unm.edu/events