McGowan Institute Gets Key Role in Program to Use Regenerative Medicine To Help Wounded Soldiers

By Michele D. Baum

The McGowan Institute for Regenerative Medicine, a collaboration between the University of Pittsburgh and UPMC, has been selected as one of the leaders of a national $85 million program to use the science of regenerative medicine to develop new treatments for wounded soldiers.

A new federally funded initiative—the Armed Forces Institute of Regenerative Medicine (AFIRM)—will be made up of the U.S. Army Institute of Surgical Research and consortia involving one team led by McGowan and the Wake Forest Institute for Regenerative Medicine in Winston-Salem, N.C., and another led by Rutgers University, New Brunswick, N.J., and the Cleveland Clinic. Each group was awarded $42.5 million. The McGowan-Wake Forest team includes collaborators from 15 other institutions.

AFIRM will be codirected by Alan J. Russell, director of the McGowan Institute for Regenerative Medicine, and Anthony Atala, director of the Wake Forest Institute for Regenerative Medicine. The massive project will be dedicated to repairing battlefield injuries through the use of regenerative medicine—science that takes advantage of the body’s natural healing powers to restore or replace damaged tissue and organs. Therapies developed by AFIRM also will benefit people in the civilian population with burns or severe trauma as a result of illness or injury.

“For the first time in the history of regenerative medicine, we have the opportunity to bring translational technologies to wounded soldiers, and to do so in partnership with the armed services,” Russell said. “This field of science has the potential to significantly impact our ability to successfully treat major trauma.”

The McGowan team has committed to developing clinical therapies over the next five years that will focus on: Burn repair; Wound healing without scarring; Craniofacial reconstruction; Limb reconstruction, regeneration, or transplantation; and Compartment syndrome, a condition related to inflammation after surgery or injury that can lead to increased pressure, impaired blood flow, nerve damage, and muscle death.

AFIRM will have multiple research teams working in each area. For example, in the area of burns, researchers will pursue treatments including engineered skin products, in-the-field bioprinting of skin, and repairs using stem cells derived from amniotic fluid.

Russell notes that the team’s ability to deliver 11 new treatments is based on a four-year history of working in partnership with the U.S. Department of Defense on regenerative medicine projects. “Our goal is to use our position as the international leader in developing restorative therapies for battlefield trauma to improve the outcomes for our wounded,” added Russell, who is founding president of the Tissue Engineering and Regenerative Medicine International Society. “Our ability to provide these treatments is in part because of our team’s long experience in this field and our broad pipeline of technologies.”

Twenty-nine McGowan research teams in Pittsburgh will be joined by 16 at Wake Forest and 33 more research teams at 15 other institutions and companies focusing on regenerative medicine. Several developed treatments are now being evaluated in patients. More than 50 technologies from these researchers already have had an impact on treatments for illness and injury.

Researchers associated with McGowan have launched more than 10 clinical trials (three with the Army) using tissue-engineered products that have now been implanted in more than a million patients.

In addition to receiving the announced government funding, the universities and the other partners will provide more than $180 million from academic institutions, industry, and state and federal agencies for the projects—for a total of more than $250 million available for regenerative medicine research on the treatment of soldiers.
Chancellor Nordenberg Announces 2008 Distinguished Research Awardees

By Anthony M. Moore

Pitt Chancellor Mark A. Nordenberg has named the winners of the 2008 Chancellor’s Distinguished Research Award, which has been given to the following five Pitt faculty members:

- **Stephen Badylak**, a professor in the School of Medicine’s Department of Surgery, deputy director of the Pitt-UPMC McGowan Institute for Regenerative Medicine (MIRM), and director of MIRM’s Center for Pre-Clinical Tissue Engineering;
- **G. Bard Ermentrout**, University Professor of Computational Biology and professor in the Department of Mathematics in the School of Arts and Sciences;
- **Michael Sacks**, William Kepler Whiteford Professor in the Swanson School of Engineering’s Department of Bioengineering and director of MIRM’s Engineered Tissue Mechanics and Mechanobiology Laboratory;
- **Peter Wipf**, University Professor in the School of Arts and Sciences’ Department of Chemistry, professor of pharmaceuti-cal sciences in the School of Pharmacy, and codirector of Pitt’s Drug Discovery Institute; and
- **Wen Xie**, a professor in the School of Pharmacy’s Department of Pharmaceutical Sciences and a professor of pharmacology in the School of Medicine.

Badylak, Ermentrout, Sacks, and Wipf were honored in the senior scholar category, which recognizes “an outstanding and continuing record of research and scholarly activity.”

Xie was honored as a junior scholar “whose exceptional early contributions have demonstrated great potential and have already produced a measure of international standing.”

Each awardee received a $2,000 cash prize and was recognized during Pitt’s 32nd annual Honors Convocation during spring term 2008. The names of awardees are inscribed on plaques in the William Pitt Union.

You are a pioneer in the fields of biomaterials and tissue engineering, whose medical advances have been used to treat more than 500,000 patients throughout the world.” Nordenberg wrote in a Feb. 1 letter notifying Badylak of his award. Badylak was one of the first researchers to realize that the best biomaterials for tissue regeneration would be those that are rich in a certain type of protein found in vivo. These special proteins, when implanted in the body at the site of a wound, recruit new cells to form tissues identical to the original, injured structures. In addition, Badylak has invented new materials that repair and replace damaged human tissues.

Nordenberg wrote that Badylak’s “clinical and medical accomplishments are backed up by solid research studies in highly interdisciplinary areas, such as cell biology, surgery, biochemistry, materials science, tissue engineering, and biomechanics.”

The chancellor added that Badylak’s peers praise him as an innovator in his field, describing him as “a model for how science, technology, and medicine might be coupled in the 21st century.”

Ermentrout not only possesses an international reputation in mathematical modeling, but is renowned across several disciplines. He is recognized to be among the world’s top researchers in the field of computational neuroscience.

“There are few fields that your work on mathematical modeling has not touched, and in so doing, made a lasting impact. You are highly sought after for your unique insights and contributions to the modeling of neural and biological systems, ranging from the brain, neurons, and cognition to viruses and olfaction.” Nordenberg wrote. Ermentrout’s work in such leading scientific journals as the Proceedings of the National Academy of Sciences, Nature, and Science has been cited by other researchers more than 13 times per year on the average, with each of his publications receiving an average of more than 27 citations.

Ermentrout’s colleagues, in letters supporting his nomination, described him as “a genius, an outstanding scholar, and a prolific contributor to several disciplines” who has garnered both national and international recognition and respect for his contributions, the chancellor said.

Sacks is a leader in the field of the mechanical behavior of biological and bio prosthetic tissues. He also possesses noted expertise in heart valve analysis and replacement.

In the award letter, Nordenberg praised Sacks, writing that he “has both developed novel methods to analyze tissue structure and conducted pioneering work in the experimental and theoretical understanding of soft tissue mechanics.”

Scientific American named Sacks one of the top 50 researchers for 2006 for his seminal work on the biomechanics of biological scaffolds for cardiac regeneration.

Colleagues regard Sacks as a world leader in heart valve mechanics and, in letters of support for his nomination, described him as “a leading innovator in the solid mechanics and functional fibrous architecture of heart valves and other collagenous tissues.”

Nordenberg wrote. “They conclude that you are at the top of your field,” the chancellor stated in his letter, quoting one of Sacks’ peers saying that Sacks “has established himself as the world leader in heart valve mechanics.”

Wipf is known as one of the preeminent researchers in the field of organic synthesis.

Nordenberg called Wipf “a true leader and visionary … who works at the interface of organic and biological chemistry. You developed a vast repertoire of new synthetic chemistry methodologies, which you have used to create numerous structurally diverse and biologically important organic compounds.”

Nordenberg praised Wipf for his leadership of both the Center for Chemical Methodologies and Library Development and the Combinatorial Chemistry Center, as well as for the 300 peer-reviewed articles he has had published over the past 23 years. Those efforts helped to raise the level of organic chemistry scholarship at Pitt, the chancellor wrote.

Colleagues regard Wipf as one of the world-class stars of contemporary organic chemistry. The chancellor also cited comments from Wipf’s colleagues, who said that Wipf has “shown the world that clever synthetic design, when coupled to comprehensive cellular and in vivo evaluation, cannot only open our eyes to key disease pathways, but lead to useful therapeutics.”

Nordenberg wrote to Wen Xie, an acknowledged pioneer in the field of pharmacogenetics and toxicology, that “your rise to prominence in your discipline has been nothing short of spectacular.”

Xie possesses an impressive record of grant support, which includes three currently funded NIH R01 grants, and has published in such esteemed journals as Science, the Proceedings of the National Academy of Sciences, Nature, and Cell, the chancellor noted.

“Your reputation extends far beyond the University,” Nordenberg added. Letters of recommendation for the award from established senior investigators referred to Xie as “a scientific force to be reckoned with and a rising star in both the nuclear receptor and toxicogenomic fields,” the chancellor wrote.

Mark A. Nordenberg
Pitt Gets $11.4 Million From Gates Foundation To Research Tuberculosis Treatments

By Clare Collins

The University of Pittsburgh Center for Vaccine Research has received an $11.4 million grant from the Bill & Melinda Gates Foundation to develop new strategies to control tuberculosis (TB), a contagious disease that infects one-third of the world’s population and kills almost two million people every year.

This grant will enable Pitt researchers to use new imaging technologies to study TB to shorten and simplify its course of treatment, potentially improving survival and curtailing the global TB epidemic.

“One of the most challenging issues in treating TB and stopping its spread is the length of time it takes to adequately stem the infection,” said Joanne Flynn, principal investigator of the grant and professor of microbiology and molecular genetics in the Pitt School of Medicine. “Current drugs are available, but we don’t fully understand how or why they work. TB treatment must be continued for at least six months to be effective, placing an undue burden on those who are infected—often from the poorest and most disadvantaged countries.”

Flynn said TB is difficult to control because the germs that cause the infection hide from the immune system in small tissue nodules called granulomas, enabling the infection to reactivate years and even decades, later. Although for the most part TB is a curable disease, patients must adhere to treatment long after symptoms have faded. This proves challenging in many regions of the world where medication is not readily accessible. Indeed, an inadequate or incomplete course of treatment is the major factor that causes drug-resistant strains to develop. These strains are alarmingly high in many countries around the world.

“Current medications for TB were developed more than three decades ago,” Flynn said. “To create significantly shorter and simplified approaches to treatment, we must improve our understanding of this disease and how current drugs are localized at the site of infection.”

To understand more about the basic biology of TB, Flynn and her colleagues are using the grant to develop positron emission tomography (PET) and computed tomography (CT) imaging studies in nonhuman primates. By using combined PET/CT, the researchers will be able to follow the progression of the disease in animals over time and analyze changes in tissue and responses to particular drugs. They will be using three imaging technologies—radiomolecules, fluorescence, and mass spectrometry—in combination to develop imaging probes and techniques to precisely locate bacteria associated with TB and to explore the underlying factors responsible for drug metabolism.

“By applying the tools of modern medicine to TB, we hope to lay the groundwork for real-time measurements of TB drug efficacy in clinical trials and develop new targeted therapies that will considerably shorten the length of treatment,” Flynn said.

Tuberculosis is a bacterial disease usually affecting the lungs. Called pulmonary TB, the disease is characterized by a persistent cough, shortness of breath, weight loss, and chest pain. Left untreated, one person with active pulmonary TB will infect on average between 10 and 15 other people every year. The bacteria associated with the disease also can infect nearly any part of the body, such as the lymph nodes, the spine, or bones. TB is deadly if left untreated.

Other coinvestigators on the grant include researchers from the National Institute of Allergy and Infectious Diseases, Vanderbilt University, Cornell University, The Scripps Research Institute, Oxford University, and Novartis Institute of Tropical Diseases.

The Center for Vaccine Research (CVR) at the University of Pittsburgh houses both the Regional Bioccontainment Laboratory and the Vaccine Research Laboratory. Researchers at the CVR, directed by Donald S. Burke, dean of the University of Pittsburgh Graduate School of Public Health and UPMC-Jonas Salk Professor of Global Health, develop new methods and strategies to prevent and treat infectious diseases, potentially improving and protecting global health.

Etch A Sketch® Toy Inspires Pitt Team in Nanotechnology Discovery

New technology may lead to more powerful, compact information technologies

By Morgan Kelly

University of Pittsburgh-led research team developed a process in which the ability to conduct electricity on and off at nanoscale dimensions. This capability holds promise for more powerful and compact information technologies, including ultrahigh density information storage, reconfigurable logic devices, single-electron devices, and quantum computers.

The findings were published online March 2 in Nature Materials with the print version scheduled for April.

Led by Jeremy Levy, a professor of physics and astronomy in Pitt’s School of Arts and Sciences, the researchers discovered how to switch, at will, the interface of two readily formed insulating materials from an electrical conductor to an insulator and back. The research’s considerable technological applications stem from this adjustability, Levy said.

The process works like a microscopic Etch A Sketch®, Levy explained, referencing the drawing toy of his youth that inspired his idea. The interface lies between a crystal of strontium titanate and a 1.2 nanometer-thick layer of lanthanum aluminate, both of which are insulators. Using the sharp conducting probe of an atomic-force microscope, the team created wires less than four nanometers wide at the interface of the two materials. These conducting nanostructures can subsequently be erased with a reverse voltage or with light, rendering the interface an insulator once more.

“This work is not only potentially useful for technological applications, but also fascinating from a fundamental perspective,” Levy said.

“The prospect of making both logic and memory devices with the same materials is very intriguing, and at this small a scale it’s almost unheard of.”

The physical model still needs to be tested in crucial ways but provides an important framework for future research directions, Levy said. The idea originated from a visit Levy made to the University of Augsburg in Germany, where coauthors Jochen Mannhart and his student Stefan Thiel showed Levy how the entire interface could be switched between a conducting and insulating state. Levy thought of adapting the process to nanoscale dimensions, and his student Cheng Cen, the paper’s first author, brought the idea to fruition. Research by C. Stephen Hellberg from the U.S. Naval Research Laboratory contributed to the theoretical understanding of the project. The work was supported by the Defense Advanced Research Projects Agency and the National Science Foundation.

Levy has worked in the field of oxide electronics for the last decade and was recognized by Pitt with the Chancellor’s Distinguished Teaching Award in 2007 and the Chancellor’s Distinguished Research Award in 2004.
ports medicine and training advances developed for elite athletes now are being used to protect and enhance the performance and lives of the elite U.S. Navy SEALs.

Top officials from the University of Pittsburgh and the University of Pittsburgh Medical Center (UPMC), the new Human Performance Research Laboratory, located in the UPMC Center for Sports Medicine, have announced the establishment of the Freda G. and Saul S. Shapira BRCA Cancer Research Program. BRCA 1 and 2 are two genes that, when mutated, dramatically increase the risk of breast, ovarian, and pancreatic cancers.

Women who possess either mutation have a 50 to 80 percent lifetime risk of developing breast cancer, and the disease progresses much more quickly than in individuals without the mutations.

New UPCI Program Targets Genetic Mutations That Increase Cancer Risks

The University of Pittsburgh Cancer Institute (UPCI) has announced the establishment of the Freda G. and Saul S. Shapira BRCA Cancer Research Program. BRCA 1 and 2 are two genes that, when mutated, dramatically increase the risk of breast, ovarian, and pancreatic cancers.

Women who possess either mutation have a 50 to 80 percent lifetime risk of developing breast cancer, and the disease progresses much more quickly than in individuals without the mutations. Experts estimate that as many as one out of every 345 people in the United States carries a BRCA mutation, but for individuals with the NCI.

This initiative is matching these gifts on a dollar-for-dollar basis, for an overall goal of $5 million. Currently, the burden of cancer in the United States carries a BRCA mutation, but for individuals with the NCI.

Already, community leaders and local foundations have contributed $850,000 toward this important program. Founded in 1984, UPCI was designated as a Comprehensive Cancer Center by the National Cancer Institute in 1990. UPCI is the only comprehensive cancer center in western Pennsylvania. The institute receives a total of $154 million in research grants and is ranked 10th in funding from the NCI.
Philosophy Prof Belnap, Katz Alum Smith Elected American Academy of Arts and Sciences Fellows

This is the third consecutive year a Pitt philosophy professor has received this honor

By Patricia Lomando White

uel D. Belnap Jr., Pitt’s Alan Ross Anderson Distinguished Professor of Philosophy, and former Pitt trustee and business school alumnus Raymond W. Smith have been elected 2008 Fellows of the American Academy of Arts and Sciences (AAAS). This is the third consecutive year a Pitt philosophy professor has received this honor.

Belnap also is a professor of the history and philosophy of science and a fellow of Pitt’s Center for Philosophy of Science. Smith is chair of the Visiting Oscar R. Ewing Professorship in Philosophy, and a fellow of the University of Pittsburgh’s Center for Philosophy of Science.


Belnap’s other honors include a Guggenheim Fellowship in 1975-76, a fellowship at the Center for Advanced Study in the Behavioral Sciences in 1982-83; a 1993 Chancellor’s Distinguished Research Award, Senior Category; and a Doctor of Philosophy Honoris Causa from Leipzig University in 2000.

Belnap is a member of the American Philosophical Association and the American Association for the Advancement of Science and has served as an officer of the Association for Symbolic Logic, the Society for Exact Philosophy, and the Mind Association. His present interests lie principally in philosophical logic as well as in metaphysics, the philosophy of the social sciences, and computer science.

Belnap received a BA degree from the University of Illinois in 1952 and MA and PhD degrees from Yale University in 1957 and 1960, respectively.

By John Harvith

F or the second consecutive year, the University of Pittsburgh ranks in the uppermost tier of U.S. public research universities according to The Top American Research Universities, the recently issued 2007 annual report of The Center for Measuring University Performance.

The report again places Pitt in the company of only six other leading public research universities: the University of California at Berkeley, the University of California at Los Angeles, the University of Illinois at Urbana-Champaign, the University of Michigan at Ann Arbor, the University of North Carolina at Chapel Hill, and the University of Wisconsin at Madison.

For its annual report, the center clusters research universities by objectively assessing their performance on nine different measures: total research and development expenditures, federally sponsored research and development expenditures, endowment and annual giving, National Academies members, significant faculty awards, doctorates granted, postdoctoral appointees, and median SAT scores. Tables in the annual report group research institutions according to the number of times they rank among the top 25 universities in these nine categories. The uppermost tier comprises those universities, including Pitt, that rank in the top 25 in all nine categories.

The center’s codirectors—John V. Lombardi, president of the Louisiana State University System, which is also a professor of history, and Elizabeth C. Capaldi, executive vice president and university provost of Arizona State University—have described research universities as “highly competitive enterprises,” saying that “those with the highest performance are successful in almost everything they do. As frequent readers of The Top American Research Universities know, we collect data on nine measures, and the best universities excel on all nine.”

In commenting on the University of Pittsburgh’s performance, Chancellor Mark A. Nordenberg stated: “This reaffirmation that Pitt is performing at the very highest levels across a broad range of important measures is a tribute to the talent and ambition that characterize the people of this community. Pitt’s inclusion in the very top cluster of America’s top public research universities in last year’s edition of this report was testimony to the seriousness of our commitment to quality in everything that we do. Our inclusion in that top cluster for a second consecutive year is especially gratifying because the competition is keen and other universities are constantly improving.”

In the center’s inaugural 2000 study, Pitt was in the fourth cluster of public universities—along with the University of Arizona, Georgia Institute of Technology, Ohio State University, Purdue University, the University of California at Davis, the University of California at San Diego, and the University of Virginia, ranking among the top 25 public universities in six of nine categories.

As was explained in the introduction to that first study, though the center evaluates public and private universities in the same way, it also presents their performance separately “because the public and private research universities operate in significantly different contexts by virtue of their governance and funding structures. Private universities tend to have much larger endowments than public universities, while public institutions enjoy a much higher level of tax-based public support. Public universities tend to serve much more diverse constituencies in ways that affect their size and organization. Private universities often focus their efforts more closely and define their missions more precisely.”

In January 2007, The Center for Measuring University Performance moved from the University of Florida, where it had been founded, to Arizona State University (ASU). The preparation and publication of The Top American Research Universities are now based at ASU.
Pitt, Carnegie Mellon, WVU Consortium Receives Funding for Fossil Energy Research

A consortium of three universities—Carnegie Mellon University, the University of Pittsburgh, and West Virginia University (WVU)—will receive up to $26 million in funding over the next two years to develop clean and efficient technologies for the use of fossil fuels. The results of the consortium’s work could reduce regional air pollution and enhance fossil fuel security, while furthering research into innovative fuels for future generations of Americans and other industrial nations.

The partnership, called CWP Inc., will receive the funding through a subcontract with RDS Inc., an onsite contractor at the National Energy Technology Laboratory (NETL). NETL is the national laboratory for the U.S. Department of Energy’s Office of Fossil Energy with facilities in five states, including Pennsylvania and West Virginia. More than 75 scientists—with student researchers—at the three universities will work with more than 150 NETL scientists and researchers to address key areas of fossil fuel research.

Speaking on behalf of CWP Inc., Pitt Chancellor Mark A. Nordenberg, who also chairs the group’s board, said, “The three university members of this consortium have distinguished records of research, as well as a proud tradition of effective partnering. We are excited by the opportunities presented by the work to be done through this consortium. Our researchers are positioned to have a significant and positive impact on the economy, the environment, and national security, while further establishing our home region as a leader in this area.”

The university team will engage in a range of fossil-fuel research programs aimed at developing new technologies for fossil fuel utilization, reducing the environmental impact of fossil energy use, and optimizing the efficiency of energy production from fossil fuel sources. The combined capabilities and resources of the three universities and NETL create an energy research enterprise with unique capabilities and breadth of scope, Gellman said.

Pennsylvania and West Virginia each have millions of tons of coal, a fuel that can meet the country’s energy needs far into the future. Policymakers are calling on the region and the nation to use more of its plentiful coal reserves to increase the nation’s energy security. NETL’s work is to advance research into better ways to use coal and convert it into cleaner-burning fuels, Gellman said.

“We need to develop improved turbine technologies and new fuel cell technologies that use coal-derived synthetic fuels, along with new ways to capture and store greenhouse gases instead of releasing them into the atmosphere,” Gellman said.

“The National Energy Technology Laboratory is encouraged and proud to work with researchers from Carnegie Mellon University, the University of Pittsburgh, and West Virginia University,” said NETL Director Carl Bauer. “By advancing science and technology in the region and the nation, this collaboration will provide clean, affordable energy for many generations of Americans and help secure national energy security.”

The consortium will address these needs by focusing its research within eight program areas:

• Materials for energy technologies;
• Process and dynamic systems modeling;
• Catalyst and reactor development;
• Carbon management;
• Sensors and systems diagnostics;
• Energy conversion devices;
• Gas hydrates; and
• Ultradeep and unconventional oil and gas production technology.

By Morgan Kelly

The wages for an average working woman in Pittsburgh trail those of her local male counterpart—by 38.3 percent of what local men earn—and of her female colleagues in most of the nation’s large economic regions, according to a study from the University Center for Social and Urban Research (UCSUR) at the University of Pittsburgh.

The study cites as reasons a listless economy and the legacy of heavy industry in the Pittsburgh region. The divergence could pose yet another obstacle to attracting businesses and talented employees to the area, but the situation can be repaired through company policies and promoting the hiring of women in underrepresented fields, the researchers said.

Sabina Deitrick, codirector of UCSUR’s Urban and Regional Analysis Program, and UCSUR regional economic analyst Christopher Briem surveyed census data on full-time, year-round workers. They found that the difference in pay between men and women in the Pittsburgh region exceeds the United States’ average gender-wage disparity across most industries and occupations. This is in spite of the fact that women are better educated than men, earn more than men nationally with 109.1 and 103.7 percent of average earnings, respectively. In the public sector, the earnings gap between male and female managers was narrower than the commercial and nonprofit sectors in both Pittsburgh and the nation.

The study found a narrower discrepancy in such booming areas as San Francisco, Seattle, New York, and San Diego. The wage gap also tends to be smaller in the government sector. Thus Washington, D.C., and state-capital regions show more equitable wages for women and employ more highly educated women than non-capital cities such as Pittsburgh.

At individual levels, policies and programs can address some of these issues. Deitrick and Briem said. Promoting careers in traditionally male-dominated fields in which women are underrepresented—such as technology and science—also can help address gender segregation in the labor force. The study also calls for state and local governments to gather data on gender pay issues, they added.

Deitrick and Briem attribute this disparity primarily to the “legacy effect” of Pittsburgh’s heavy-industry history. Women in Pittsburgh were less likely to enter and remain in the labor force than women in other urban areas. Thus, men dominated Pittsburgh’s labor force for a lot longer than in other regions. As late as 1980, working women comprised more than 40 percent of all employed workers.

With the collapse of the region’s heavy-industrial economy, women streamed into the workforce. By the end of the 1990s, labor force participation for women in Pittsburgh had caught up with the rest of the country, but that late surge in women entering the workforce appears to be one factor in women’s lagging earnings.

The emergence of women into the larger job market was among the most major and important changes to the regional economy and income. “The loss of heavy industry,” Briem said. “The market is now open to the other half of the population, breaking the industrial structure and culture has not come easily to Pittsburgh. Only in the last decade has the physical presence of women in the labor force caught up with the nation. Now, we need to play catch-up on pay equity.”

“The gender pay gap is an index of local economy and idle population growth also hinder wage equity in the Pittsburgh region,” Briem said. “Promoting careers in the workplace and can address some of these issues. Deitrick and Briem said. Promoting careers in traditionally male-dominated fields in which women are underrepresented—such as technology and science—also can help address gender segregation in the labor force. The study also calls for state and local governments to gather data on gender pay issues, they added.

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A notable exception to the local wage gap is the region’s women in farming, who, in 2000, earned substantially more than women farmers nationally and slightly more than men in farming regionally. Women in the region also remain largely underrepresented in certain jobs. Deitrick and Briem found that industries and occupations in the Pittsburgh area are more segregated by gender than are those in the nation’s 100 largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s 100 largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas. Pittsburgh ranks 71st out of the nation’s largest metropolitan areas.
Pitt Launches Center for Energy To Develop Better Fuel Sources

By Morgan Kelly

The University of Pittsburgh has created a new Center for Energy as part of what Pitt Chancellor Mark A. Nordenberg referred to as “the increasing need to address the complex energy challenges of our time, which call for more reliable, efficient, and environmentally friendly energy sources.”

The Center for Energy, housed in the Swanson School of Engineering, comprises more than 40 world-class faculty members and their research teams, who will apply deep and diverse expertise across a broad spectrum of energy-related projects as well as education and outreach activities. The center’s five areas of research are energy diversification, renewable energy, clean coal technologies, hydrogen, and environmental solutions.

“Energy will be a defining social issue for the next generation,” said Provost and Senior Vice Chancellor James V. Maher. “We want Pitt students to pursue careers in the fields of mathematics, the natural sciences, and engineering. The premier undergraduate award of its type in these fields, the Goldwater Scholarship is awarded in either a student’s sophomore or junior year. It covers tuition, room and board, fees, and books—up to a maximum of $7,500 per year—for each student recipient’s remaining period of undergraduate study. Under Professor Wagner’s guidance, Moyle has researched the potential use of vegetable oil as an alternative fuel. His work focuses on developing a blend of vegetable oil and other additives that would run on standard diesel automobiles without modifications. Results of this work, were presented at the National Conference on Chemical Education in July, and Pitt’s energy conference in the fall. Moyle’s primary interest is in pharmaceutical development and production research.

Energy research at Pitt already ranges from areas as diverse as harnessing solar energy and creating clean coal technologies to developing synthetic and biomass-derived fuels, gas hydrates, high-temperature coatings, and fuel cells. Participating in the new center are faculty members from the Departments of Chemical and Petroleum Engineering, Chemistry, Civil and Environmental Engineering, Electrical and Computer Engineering, Geology and Planetary Science, Physics, and Mechanical Engineering and Materials Science.

Pitt’s U.S. Steel Dean of Engineering Gerald Holder said the Center for Energy’s mission extends beyond research to include partnering with industry, government, and other universities. “We have already developed an educational program in nuclear engineering,” Holder said. “We expect to develop partnerships in other areas, including power transmission and mining engineering.”

Brian Gleeson, Harry S. Tack Chair in Materials Science and a professor of mechanical engineering and materials science, serves as the director of the center; Laura Schaefer, a mechanical engineering and materials science professor, is the assistant director.

The new center also will be linked to the Pitt-Bradford energy initiative, which has the mission to facilitate education and outreach programs in energy, particularly the regional resources of petroleum and renewables. More information is available at the Center for Energy Web site: www.energy.pitt.edu.

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Pitt Students Win Goldwater Scholarships

Pitt undergraduates have won a total of 39 Goldwater institutional faculty representative, and nominator of Moyle and Sleasman. “Their faculty advisors have played a special role in making them competitive for this prestigious national award.”

“The outstanding record of undergraduate attainment at Pitt reflects individual student talent and hard work,” said Pitt Chancellor Mark A. Nordenberg. “It also reflects our University’s long-standing commitment to our most fundamental mission—the development of human potential.”

—Mark A. Nordenberg

Charles Richard Sleasman II (left) and Todd Morton Moyle

The Goldwater Scholarship is awarded in either a student’s sophomore or junior year. It covers tuition, room and board, fees, and books—up to a maximum of $7,500 per year—for each student recipient’s remaining period of undergraduate study. Under Professor Wagner’s guidance, Moyle has researched the potential use of vegetable oil as an alternative fuel. His work focuses on developing a blend of vegetable oil and other additives that would run on standard diesel automobiles without modifications. Results of this work, were presented at the National Conference on Chemical Education in July, and Pitt’s energy conference in the fall. Moyle’s primary interest is in pharmaceutical development and production research.

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By Patricia Lemonds White

University of Pittsburgh Honors College students Todd Morton Moyle and Charles Richard Sleasman II have been awarded 2008 Barry M. Goldwater Scholarships for their exceptional independent research in the science and engineering disciplines.

Moyle is a sophomore majoring in chemical engineering in the Swanson School of Engineering, and Sleasman is a junior majoring in chemical engineering in the Swanson School of Engineering, and Sleasman is a junior majoring in chemical engineering in the Swanson School of Engineering. Both Pennsylvania natives, Moyle is from Sayre, Bradford County, and Sleasman is from Connellsville, Fayette County.

“The outstanding record of undergraduate attainment at Pitt reflects individual student talent and hard work,” said Pitt Chancellor Mark A. Nordenberg. “It also reflects our University’s long-standing commitment to our most fundamental mission—the development of human potential.”

—Mark A. Nordenberg
with the idea of developing new pharmaceuticals to combat human diseases and novel and cost-effective methods to manufacture them. Moyle plans to pursue a master’s degree involving pharmaceutical manufacturing. He then will work either toward an MD degree focusing on clinical research of pharmaceuticals and consulting or a PhD degree in biomedical engineering, to concentrate on drug-delivery systems and pharmaceutical manufacturing.

Sleasman began doing research as a second-semester freshman. Under Professor Levy’s direction, Sleasman learned atomic force microscope operation procedures, some scanning electron microscope operation procedures, and LabView. His first project was to map the topography of carbon dots grown on silicon wafers. His most recent research is on ferroelectric thin films for use in quantum computing architectures. He is coauthor of a paper to be submitted to Nature magazine for his work on ferroelectric measurements of strontium titanate grown on silicon.

Most of Sleasman’s experience and expertise is in quantum computing and/or condensed matter physics. Fascinated by group theory and its application to physics, such as in quantum mechanics, he is studying the connections between group theory and physics at the University of Oxford in England during spring 2008.

Sleasman aspires to make a career of conducting physics research and possibly teaching at the university level. Along with pursuing physics research, Sleasman would like to use or even create new mathematical ideas for solving problems in physics.

Support Services for Inmates Reduce Recidivism Rates, Pitt Study Finds

By Sharon S. Blake

Providing services to Allegheny County Jail (ACJ) inmates while they are incarcerated and after their release dramatically reduces the chance that they will return to jail, according to recent data from a study by University of Pittsburgh’s Center on Race and Social Problems (CRSP). Hide Yamatani, professor and associate dean of research in Pitt’s School of Social Work, was the lead investigator in a three-year project that evaluated the Allegheny County Jail Collaborative. The 25-member group, whose members represent the ACJ and the Allegheny County Department of Health and Human Services, provides in-jail services to inmates, including drug and alcohol treatment, GED preparation, computer literacy, stress and anger management, parenting skills, life skills, and vocational training.

The study involved a group of 300 ACJ adult male inmates, half of them Black and half White, who agreed to participate and were among those receiving in-jail services. Upon their release from jail, the men were encouraged to seek support services from more than 60 community-based organizations. The former inmates were then interviewed in face-to-face meetings after 30 days, six months, and one year.

Yamatani found that the group of former inmates had a 50 percent lower recidivism rate (16.5 percent) compared to another group of inmates (33.1 percent) of a similar age one year after being released from the ACJ, prior to the launch of the collaborative. “This is a good model program for other county jails,” said Yamatani, who explained his findings last week in a crowded jail conference room with reporters, Pitt Social Work faculty, foundation representatives, and Allegheny County Chief Executive Dan Onorato and other county officials in attendance. According to Yamatani, the ACJ Collaborative, formed in 1999, is the only system of its kind in the nation to help county jail inmates, though there are some programs at state and federal institutions.

“Were it not for this program, our jail population would be much higher,” said Onorato as he publicly thanked Pitt for the research. “These findings validate the efforts of the ACJ Collaborative to save tax dollars and successfully reintegrate former inmates back into our community, thereby increasing public safety.” Onorato said, adding that reducing recidivism helps eliminate the “revolving door mentality” where people get stuck in a cycle they can’t exit.

Yamatani’s study was funded by the Human Services Integration Fund, comprising 16 local foundations. More information about the Allegheny County Jail Collaborative can be found at www.alleghenycounty.us/dhs/jail.aspx.
The Next Great Thinkers

What does it take to create a new generation of the professoriate?

By Reid R. Frazier

They come to Pitt hungry, eager to read, write, and debate. They train with professors who have spent their careers pushing the boundaries of human understanding. They live on Indian food and coffee and spend copious amounts of time in the library. And when it is over, they are ready to train the next generation of scholars.

They are Pitt’s PhD students, a group whose achievements and sheer numbers have grown in recent years, as Pitt has surfaced near the top of the 400-plus schools in the nation that offer doctoral education.

Across the nation, PhD education has received increased attention, including a recent study by the Carnegie Foundation for the Advancement of Teaching, an independent policy and research center. Three Pitt entities—the Departments of Chemistry and English, and the Center for Neuroscience—were among 84 nationwide asked to participate in the study because of their achievements in doctoral education.

“We were really impressed by the energy at Pitt,” says Chris Golde, associate provost for graduate education at Stanford University and research director for the study. “The faculty we worked with showed a lot of energy and enthusiasm in doing the really hard work at looking at their own practices.”

“Doctoral education is vitally important,” adds Golde. “It’s the crown jewel of all higher education systems. It’s where the best minds are honed and trained and prepared. It’s these folks who advance societies and civilizations.”

A Leader in Doctoral Education

At Pitt, the numbers of PhDs bestowed by the University have risen by 30 percent since 1995, to more than 400 per year. That ranks Pitt 18th among public institutions and 29th among all universities and colleges in the number of PhDs it produces.

Perhaps more impressive is where those PhDs end up—more than half obtain faculty positions at other colleges and universities and most of the others receive postdoctoral fellowships, often the initial step on a path toward tenure or key positions in government or industry.

“The University is clearly a major player on the national stage in terms of doctoral education, and I see only continued improvement in the years to come,” says Pitt Provost and Senior Vice Chancellor James V. Maher. “That’s what great universities do: They produce the next generation of the professoriate for other universities, and, as a great institution, Pitt is committed to producing the next generation of thinkers and scholars.”

To make it all work, University officials say, Pitt adopts a stem-to-stern approach to attracting and training young scholars. “This doesn’t happen by accident,” says Maher. “We begin by recruiting the best students in the country and setting the bar high. Then we give our students the chance to work closely with some of the best faculty in their fields and make sure the students have all the support they need to become strong, independent thinkers.”

“Good mentorship isn’t just holding students’ hands and walking them through the process,” says Nicole Constable, associate dean of graduate studies for the School of Arts and Sciences, the school that produces the largest number of the University’s PhDs. “It’s teaching them to be independent scholars, individuals who, when they’re finished, are prepared to be full-fledged academics.”

Supporting PhD education is expensive, but Pitt provides competitive support packages to its doctoral students because it: fundamental to the University’s mission, says Constable. “We are investing in the future of the professoriate. Getting a PhD is a full-time, all-consuming pursuit. You’re basically saying ‘I’m going to fully understand my discipline.’ It’s academia as a way of life.”

Two areas where the University has consistently excelled in doctoral education are the Department of Philosophy and its sibling program, the Department of History and Philosophy of Science (HPS). Their faculties are consistently given “Top Five” rankings by rating services like The Philosophical Gourmet Report, and both departments attract some of the best students in the country. Their approach to recruiting and training as well as placing PhD students are good examples of best practices in doctoral education at Pitt.

Looking for a Special Imagination

The excellence of the graduate program in the Department of Philosophy starts with finding and attracting the best students. But how do you find hidden talent amidst the sea of applications every year?

Robert Brandom, Pitt Distinguished Professor of Philosophy and a Fellow of the American Academy of Arts and Sciences, says he and his colleagues look for students with “a special imagination” when deciding which of the 250 applicants will fill the department’s six to eight slots annually.

“We’ve got to be able to ask a question other people won’t ask, and find a productive way to pursue an answer. That’s not the same thing as intellectual candlepower,” Brandom says. “You’ve got to be able to read something that hundreds of other people have read and think something no one else has thought about it. That’s what we’re looking for.”

Very often these applicants will be fielding offers from other “Top Five” programs like those at the Massachusetts Institute of Technology and Harvard, Princeton, and New York Universities. So showcasing the department’s strengths go a long way in convincing students to come to Pitt, says Laura Rauchsche, a Pitt philosophy professor and the director of graduate studies for the department.

Joining a Community of Scholars

When Shawn Standefer was finishing up an undergraduate degree in philosophy at Stanford, he paid a visit to Pitt to see firsthand one of the PhD programs he was considering for graduate school. His Stanford professors had told him about Pitt’s excellent reputation for producing original, high-quality scholars.

Standefer was not disappointed by what he found.

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Pitt PhDs Awarded Since 1995

Pitt ranks 18th among U.S. public schools in the number of PhDs it produces

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“One of the other grad students put it well,” says Standefer. “When you’re looking at graduate programs, it’s kind of like looking at different families and deciding which one you want to be born into. You get a sense from visiting different schools that each program has a different personality. There was something about Pitt’s atmosphere that meshed with my own interests.”

Standefer, now in his second year of the PhD program, has taken courses on Wittgenstein, Kant, and Aristotle with some of the most highly regarded scholars in the country. He’s also become involved in the University’s philosophical community: This spring, he helped organize a graduate student conference run by students in philosophy, HPS, and Carnegie Mellon University’s philosophy department.

Pitt’s philosophy department hosts a prospective students’ weekend—a kind of show-and-tell where faculty interact with the applicants who’ve been accepted. Students also get to hear a faculty member give a work-in-progress talk. This year’s presenter was University Professor of Philosophy John McDowell, whose work in linking the analytic and humanistic strains of philosophy has made him a major figure in contemporary scholarship.

“Having the works-in-progress lecture goes a long way in building a philosophy community here,” says Standefer.

Matthew Boyle, one of three Pitt philosophy graduate students on the faculty at Harvard, says he first became attracted to Pitt while reading McDowell’s work. Boyle, who received his doctorate from Pitt in 2005 and accepted a position as an assistant professor at Harvard, says his own work focuses on the role of the self-conscious in rational thought. For his dissertation, Boyle studied the philosophy of mind and the work of Immanuel Kant, both strengths of the department’s faculty.

So when he arrived at Pitt, Boyle found a fertile milieu for philosophical thought. Conversations that began in seminars, on topics like ethics or the essence of knowledge, lasted well past the classroom. “The place seemed like a real community to me,” says Boyle. “After night seminars, we’d often go out for a drink and continue the conversation. There was a lot of talk about philosophy in a communal way. It wasn’t just a job that ended for people at 5 o’clock.”

In addition to seminars and research, teaching is an important element in getting students ready to become faculty. Newton says teaching has helped her distill complicated subjects into concise lessons, a skill she will need once she joins a faculty. “I like the challenge of having to present things very clearly for beginners.”

The job isn’t over until students get jobs.

Once students complete their coursework, they move on to writing a dissertation prospectus. Brandon likens the prospectus to applying for a hunting license: “We ask, ‘What kind of game are you going to be hunting? Where are you going to look for it? What makes you think it’s going to be where you’re looking? How will we know when you’ve bagged it?’”

The student’s prospectus is so important because of its impact on the quality of the dissertation he or she will write, says Ruetsche. “In turn, has a direct impact on students’ job prospects after graduate school.”

“In academia, people don’t ask in a job interview about a paper you wrote for a seminar your second year in graduate school. They ask about your dissertation,” Ruetsche says. “It’s the credential that’s most central to your appointment on a faculty.”

As they finish their dissertations, students begin looking for a job. To support that effort, Pitt faculty put the students through mock interviews and mock job presentations. “The faculty’s job isn’t over until each student has a job,” Brandon says.

For alums like Boyle, the intellectual voyage launched at Pitt will last a lifetime. “My own feeling is that philosophy satisfies some fundamental human impulse. We’re rational animals. We have this power to think about things, and philosophy is the purest expression of that power.”

Making the Scholarly Life.

Most PhD programs at the University of Pittsburgh have the same recipe for success: highly competitive screening, rigorous training, access to great faculty thinkers and researchers, participation in an intellectually diverse community, and detailed preparation for the academic job market. But it all starts with having great students.

At the philosophy department, this approach is embodied in Pitt’s Department of the History and Philosophy of Science’s PhD program, which attracts some of the country’s top young scholars.

When Bryan Roberts was deciding which graduate school for obtaining a PhD degree in philosophy of science, he knew Pitt’s HPS department had an excellent reputation. It wasn’t until his campus visit, though, that he knew he’d choose Pitt over the other schools on his shortlist, which included Oxford University.

“Everybody knows the department has a world-renowned faculty, but the thing that really convinced me, having visited different places, was the intellectual community. They were people I wanted to work with,” says Roberts, who completed bachelor’s degrees in math and philosophy at the University of Washington-Seattle and is now a second-year PhD student at Pitt. “Here you’re surrounded by people thinking hard about really interesting questions.”

HPS is regarded as one of the best of its kind in the English-speaking world, says Sandra Mitchell, chair of HPS. In 2006, the program had an unprecedented “10 for 10”—all 10 of its graduating students received either a tenure-track faculty position or a prestigious fellowship. “When you have 10 people on the market, getting all 10 into jobs is a dream. It’s an acknowledgement of the quality of the students coming out of this program,” says Mitchell. And like Pitt’s philosophy department, HPS boasts some of the finest faculty in the field, not just names in a catalogue or on a Web site, but active participants in the intellectual life of the program.

Students also help each other; says Holly Andersen, a sixth-year HPS student who is writing a dissertation in the philosophy of science. During her first month in program, Andersen participated in the student retreat at a nearby state park. Over bonfires and games of Frisbee, the more senior students explained to the newcomers what would be expected of them, says Andersen. “It was helpful having someone walking you through it.”

Andersen, who received a master’s degree from The London School of Economics in philosophy of science before coming to Pitt, says the energy students bring to the program is palpable. “I’ve never had as stimulating and interesting conversations as I’ve had in this program,” she says. “The day-to-day life of the philosopher is the life I’ve always wanted to live.”

A good place to find these kinds of conversations is the weekly grad student lunch inside the Center for Philosophy of Science on the eighth floor of the Cathedral of Learning, a kind of magnet for visiting scholars from around the world. Over cans of soda and sandwich plates, students and faculty chat about quantum mechanics, the possibility of time travel ("Actually, as one student asserted at a recent lunch), and the growing inability in scientific reasoning.

Setting the Bar High.

HPS students in their third year must write two comprehensive papers in both the history and philosophy of science. Each paper must be given a pass from two professors. The goal is to simulate the publication process of peer-reviewed journals, but it’s a process that evokes winces from those who have gone through it. “It can be brutal,” says...
Jim Tabery, who received his PhD degree from Pitt last year, Tabery, whose dissertation was on the ‘nature vs. nurture’ debate, eventually had both of his comprehensive examinations published in peer-reviewed journals. “I have this memory of my professors saying, ‘What’s your contribution to the field?’ How is it different from what others have done?” says Tabery. “I realize now they were pushing me for a reason, so that I would become not just an adequate philosopher of science, but someone whose writings other people in the field are expected to read.”

‘Comps’ are probably the main reason why some HPS professors cease their degrees, says Mitchell. In the “publish or perish” world of academe, the process ensures each graduate of the program is ready for what lies ahead.

“Comprehensive exams are big hurdles,” says Mitchell, whose own work focuses on the genetics and evolution of the field of the philosophy of biology. “If they pass those, that’s a training for what it’s like to be in the profession. You need to show you have the ability to do independent work and that you can work through an argument. It’s better for them to find out sooner rather than later whether they have what it takes to make it in the profession. Like their counterparts in the philosophy department, HPS students finishing their dissertations prepare to “hit the market” by participating in mock job interviews and giving mock job talks.

“The practice interview is described as being more brutal than the actual job interview ever will be,” says Tabery, who is now an assistant professor in the University of Utah’s Department of Philosophy.

Tabery says he uses some of the exercises and techniques that helped him land a position to prepare his students for entering the job market. “They’re training you to look for a job from the time you walk in the door. Publishing papers and teaching courses puts you in a position to hit the ground running when you’re finished. By the time that sixth or seventh year rolls around, you’re already doing what professional philosophers do.”

Proof of the University’s accomplishments in doctoral education lies in what alumni like Tabery and others do every day, says Maher. Pitt PhDs include a Nobel Laureate, Guggenheim fellows, members of the National Academy of Sciences and National Academy of Arts and Sciences, and dozens of university presidents, deans, and named professors.

“When we produce PhDs,” Mahr says, “we want them to generate the new ideas that will drive the contributions of that discipline or profession. These are people we’re counting on to further human understanding.”

Philosophy Prof Belnap, Katz Alum Smith Elected

Continued from Page 10

Smith began his career as an engineering trainee at Bell of Pennsylvania in 1959. During his time at Bell, Smith held various positions in the company, earning the title of president and CEO in 1983. When the company merged to become Bell Atlantic in 1985, he was named vice chair and CFO, rising to chair, president, and CEO in 1991 and then until 1998. At Bell Atlantic, he oversaw the acquisitions of NYNEX and GTE, two of the largest transactions in business history. In 1999, Smith became chair of Verizon Businesses.

In 2005, Smith was named a Pitt Legacy Laureate; he was formerly recognized with the University’s Bicentennial Medallion of Distinction. He served on the President’s Committee on the Arts and Humanities, the National Forum on Education and Technology, and advisory boards of the U.S. House of Representatives and the Library of Congress.

A long-time supporter of civil rights, Smith launched a campaign at Bell Atlantic to help major civil rights and social justice organizations create a presence on the World Wide Web, as well as to raise awareness of racist activism on the Web. Smith is the first recipient of the Mickey Leland Legacy Award, which recognizes contributions to telecommunications from the National Association of Black Telecommunications Professionals. The NAACP honored him for his continuing service to equal opportunity, and Harvard Business Review recognized him for his leadership in the transformation of corporate cultures.

Among Smith’s other honors are being named CEO of the Year by CNBC, Top Manager of the Year by Business Week, and Outstanding Corporate Leader and CEO of the Year by Financial World. He also received the Spirit of Achievement Award from the National Center for Learning Disabilities in 2005.

An actor in high school and college, Smith has written a one-man show about his father. He is writing his autobiography and in 2005 published a history of Dormont, Pa., where he was born and raised.

In addition to earning an MBA degree at Pitt’s Joseph M. Katz Graduate School of Business in 1969, Smith received a BS degree in industrial engineering in 1959 and a BS degree in electrical engineering in 1960, both from Carnegie Mellon University (then Carnegie Tech), as well as a BA degree in English literature in 1962 from Duquesne University.

Represented among the newly elected AAAS members are more than 50 universities and more than a dozen corporations, as well as museums, national laboratories and private research institutes, media outlets, and foundations.

Pitt has eight other faculty members among the academy’s approximately 4,000 American Fellows and 600 foreign honorary members. They are Thomas B. Starzl, transplant pioneer and Distinguished Service Professor of Surgery, elected to the academy in 1971; Adolf Grünbaum, Andrew Mellon Professor of Philosophy and cochair of the Center for Philosophy of Science, 1993; John H. Morgan, former president of the American Philosophical Association, elected to the academy in 1999; and Distinguished Service Professor of Philosophy, 1992; John S. Earman, University Professor of the History of Philosophy, 1993; Robert Brandom, Distinguished Service Professor of Philosophy, 2000; Peter L. Strick, professor of neurobiology and psychiatry and codirector of the Center for the Neural Basis of Cognition, 2004; Anil K. Gupta, Distinguished Professor of Philosophy, professor of history and philosophy of science, and a fellow of Pitt’s Center for Philosophy of Science, 2006; and Mark L. Wilson, professor of philosophy, director of graduate studies, and a fellow of Pitt’s Center for Philosophy of Science, 2006.

Founded in 1780 by John Adams, James Bowdoin, John Hancock, and other scholars, the academy has elected as fellows and foreign honorary members the finest minds and most influential leaders from each generation, including George Washington and Benjamin Franklin in the 18th century, Daniel Webster and Ralph Waldo Emerson in the 19th century, and Albert Einstein and Winston Churchill in the 20th century. The current membership includes more than 170 Nobel laureates and 50 Pulitzer Prize winners. An independent policy research center, the academy undertakes studies of complex and emerging problems. Current academy research focuses on science and global security, social policy, the humanities and culture, and education.

Former Substance Abusers Rarely Relapse After Organ Transplantation, Pitt Study Finds

By Megan Grate Quatrini

Pharmaceutical companies have made huge strides in treating the rates of alcohol and drug abuse and addiction. Studies have suggested that substance abuse creates a presence on the World Wide Web, as well as to raise awareness of racist activism on the Web. Smith is the first recipient of the Mickey Leland Legacy Award, which recognizes contributions to telecommunications from the National Association of Black Telecommunications Professionals. The NAACP honored him for his continuing service to equal opportunity, and Harvard Business Review recognized him for his leadership in the transformation of corporate cultures.

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Future research should focus on improving the prediction of risk for substance abuse relapse and on testing interventions to promote continued abstinence post-transplant. Interventions are important because, although the risk of relapse is small during any given year, as the years add up the likelihood of relapse increases,” Dew concluded.

Coauthors of the study include Andrea F. DiMartini, Jennifer Steel, Annette DeVito Dubbs, and Mark Unrath from the University of Pittsburgh; Larissa Myaskovsky from Pitt and the Center for Health Equity Research and Promotion at the VA Pittsburgh Healthcare System; and Joel Greenhouse from Carnegie Mellon University.

Dew was supported by funding provided by the International Transplant Nurses Society, Astellas Pharma, and the National Institute of Mental Health.

WPIC is considered to be one of the nation’s foremost university-based psychiatric care facilities and one of the world’s leading centers for research and treatment of mental health disorders. WPIC houses the Department of Psychiatry within Pitt’s School of Medicine and is the flagship of UPMC Behavioral Health, the psychiatric specialty division of the University of Pittsburgh Medical Center.
Researchers from the University of Pittsburgh and the University of Chicago were able to control heart muscle function in a new way after discovering the previously unknown role of two enzymes in heart muscle contraction. Although in the early stages, the research provides fresh knowledge of how heart muscle functions and also holds potential as a treatment for various heart diseases—including congestive heart failure—that is possibly less taxing on the heart than current regimens.

The research is detailed in a cover story of the April 11 Journal of Biological Chemistry.

Experiments on slivers of heart muscle revealed that heart muscle contractions can be regulated by the enzymes histone acetyltransferases (HATs) and histone deacetylases (HDACs), explained Pitt professor Sanjeev Shroff, the Gerald McGinnis Chair in Bioengineering in the Swanson School of Engineering. Shroff and Pitt research associate Stephen Smith collaborated with Mahesh Gupta, a professor of surgery at the University of Chicago, and Gupta research associate Sadhana Samant. The project was funded by a grant from the National Institutes of Health.

The team found that HATs and HDACs influence acetylation of certain heart muscle proteins, a process wherein a radical cluster of atoms called an acetyl group attach to a protein and change its function. HATs facilitate acetylation, and HDACs remove the acetyl group. The team discovered that acetylation renders the muscle fiber more sensitive to calcium, which causes the muscle to contract.

“This is a completely new process in the area of heart muscle contraction. Acetylation is widely known to regulate such events inside the cell nucleus as gene regulation, but it’s never before been associated with heart muscle contraction.”

—Sanjeev Shroff

The team’s next step involves examining HAT- and HDAC-driven regulation of cardiac contraction in the whole animal rather than just muscle samples. Then it can better determine the overall significance of the newly discovered process to the intact heart function and its therapeutic potential.

“We want to see how much protein acetylation matters when operating alongside all the other processes in the heart and the body,” Shroff said. “If this process is shown to be significant under these conditions, it will be an exciting finding.”