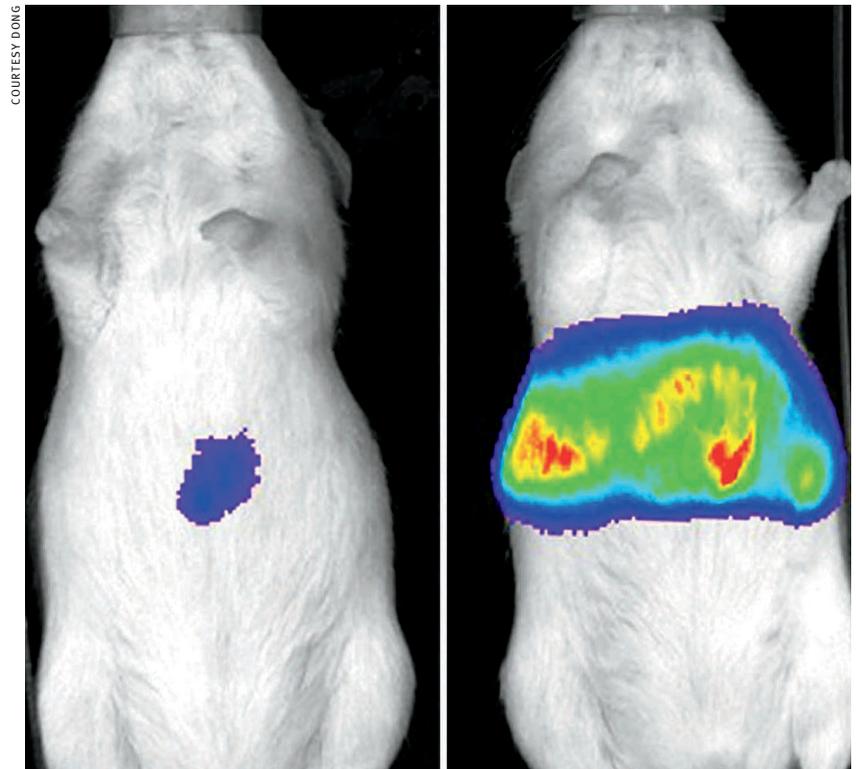


*Devoted to noteworthy happenings
at the medical school*

The mouse on the right, genetically engineered for elevated FOXo6 activity, shows higher glucose production compared to a control rodent.



FOOTNOTE

A medical school seeking reaccreditation from the Liaison Committee on Medical Education is judged by more than 100 criteria every eight years. Pitt med did so well in 2011 that the school's John Mahoney, an MD and associate dean for medical education, and Chenits Pettigrew, PhD assistant dean of student affairs and director of diversity programs, were invited to tell the story of the school's success at the Association of American Medical Colleges' annual meeting in Denver.

DIABETES: TARGET ACQUIRED

When you think type 2 diabetes, you probably think of the insulin-producing pancreas. But the liver, it turns out, offers another target for fighting the common disease. New research at Pitt's School of Medicine shows that a protein called forkhead box o6 (FOXo6) plays a vital role in the management of the liver's production of glucose, which, in excess, causes diabetes.

In a healthy body, the liver stores blood sugar as glucose, releasing it during sleep and other periods of fasting to keep glucose levels within a normal range. In diabetes, though, the liver continues to pump out glucose even when insulin is provided as a treatment to manage high glucose levels.

"In type 2 diabetes, this [FOXo6] pathway is broken," says H. Henry Dong, PhD associate professor of pediatrics and a researcher on the project. "Insulin doesn't check the liver, so it continually pumps out glucose."

Dong and his colleagues discovered that when mice with excessive amounts of FOXo6 had those levels suppressed, glucose production returned to normal.

"There's never been a single target in the liver" to control glucose production, Dong says. "We've said that FOXo6 is the pathway controlling glucose in the liver. And if you can suppress that, you can win the battle against diabetes." At least you can in mice. —Justin Hopper



A&Q

D.A. Henderson: When Not to Publish

Dutch researchers announced last year they had effectively eased the transmission of the H5N1 virus, the cause of what's called bird flu. This winter, news organizations reported that investigators at Erasmus Medical Center had created a strain of the virus that passed through the air from ferret to ferret in a lab. Fear that the mutant virus could escape from a lab or be transformed into a weapon has led to a debate over safety and censorship. The leader of the Dutch team, however, recently said that the altered virus is not as contagious or virulent as first reported. Others contend that the mutant virus may be more easily transmissible and life threatening in humans, as compared to ferrets. As we went to press, federal and international panels were still weighing the merits and risks of publishing the results in whole or modified form. Coming out on the side of suppression and caution is D.A. Henderson, a Distinguished Scholar at UPMC's Center for Biosecurity and professor of public health and medicine at Pitt and Johns Hopkins University, who led the smallpox eradication effort for WHO. Henderson's views and those of others are featured in the Feb. 17 issue of *Science*.

Why an airborne H5N1 could be hard to stop

Based on our considerable experience with new pandemic strains of influenza, the virus spreads so rapidly that no efforts to date have yet succeeded in stopping it. Closing of schools, screening of incoming passengers from infected areas, quarantining of patients have all failed, however rigid the measures.

On the merits of the discussion

The outcome of the controversy is that a great many scientists and administrators now appreciate more fully that a mutant H5N1 virus capable of killing some 50 percent of its victims and with a capability of pandemic spread [if airborne] would be the most dangerous biological agent ever known.

On containing scientific knowledge

We've already undergone the process of confining smallpox to two laboratories, and the scientists there can only perform protocols that have gotten international approval. It has been followed very effectively.

His question for us

How comfortable would you be to work with H5N1 in your laboratory? —Interview by Nick Keppler

Faculty Snapshots

The Institute of Medicine has awarded Ellen Frank the 2011 Rhoda and Bernard Sarnat International Prize in Mental Health. She shares the prize with William Bunney of the University of California, Irvine. Frank is a Pitt Distinguished Professor of Psychiatry. Among her contributions to the field is her discovery that patients prescribed lower doses of antidepressant drugs after their depression subsides are prone to relapse. Full-dose therapy, thanks to her work, is now standard practice even after depression symptoms are alleviated.



Frank

Pitt's Etienne Sibille is helping to unravel the intricacies of the biological basis of major depression. Sibille, Pitt associate professor of psychiatry and principal investigator in Pitt's Center for Neuroscience and a member of Pitt and Carnegie Mellon University's Center for the Neural Basis of Cognition, has demonstrated that when genes responsible for the maintenance of neurons and for spurring the production of a neurotransmitter called GABA don't do the job well, major depression can result. Neuroscientists had suspected this to be the case, but Sibille and his team were the first to pin down the genetic culprits.



Sibille

President Kareem Abu-Elmagd has a nice ring to it. Abu-Elmagd, an MD/PhD professor of surgery in Pitt's School of Medicine, recently assumed the presidency of the Intestinal Transplant Association. Abu-Elmagd helped develop surgical techniques and postsurgical management methods that have increased the success rate of intestinal transplant. He also had a significant role, with Thomas Starzl and others at Pitt, in studying the efficacy of using the drug FK506 (tacrolimus) for immunosuppression.



Abu-Elmagd

Short bowel syndrome, in which the body is unable to absorb food after a significant loss of functioning intestine, can cause death in a variety of ways. David Hackam, an MD/PhD Pitt professor of surgery and of cell biology and physiology, is working to help those with the disorder by developing an artificial intestine. His project, undertaken in collaboration with John March of Cornell University, got a boost, to the tune of \$543,000 over three years, thanks to a Hartwell Biomedical Research Collaboration Award. —Joe Miksch



Hackam



Worms in Space!

N. Armstrong, B. Aldrin, *C. elegans*. Second-year Pitt Medical Scientist Training Program student Elizabeth Oczypok helped send 4,000 *C. elegans* worms—millimeter-long, 959-cell nematodes—to the International Space Station in 2007 in an attempt to understand how the microgravity and radiation that are part of long-term space travel affect organisms.

A 2010 Pitt University Honors College graduate with a Bachelor of Science degree in molecular biology, Oczypok became part of the project when she earned a position working with Nate Szewczyk in the Pitt lab of Lew Jacobson. Szewczyk, who was then a research assistant professor, is now an associate professor of medicine and health sciences in the University of Nottingham School of Graduate Entry Medicine and Health in England; he earned his PhD in molecular, cellular, and developmental biology at Pitt in 2002.

The results of the six-month, 12-generations-of-worms study, published in the UK's *Journal of The Royal Society Interface* showed that the nematodes fared quite well. Being that *C. elegans* shares many of its 20,000 genes with humans, indications are that we might be able to fly to Mars or hang out on the Moon for a while without our bodies falling apart. —JM

COLD COMFORT

The *New England Journal of Medicine* pegs the survival rate of cardiac arrest patients who have been given CPR at 18 percent. Samuel Tisherman says he finds this figure “disheartening.” He and colleagues are planning a clinical trial that uses extreme hypothermia to try to buy more time for cardiac patients. Tisherman, professor of critical care medicine and of surgery and associate director of the Safar Center for Resuscitation Research at the University of Pittsburgh, sees the trial of EPR-CAT (Emergency Prevention and Resuscitation for Cardiac Arrest from Trauma) as a potential lifesaver. At its normal temperature, the body cannot tolerate a lack of blood flow for long periods of time. Earlier studies suggest that a cold body temperature successfully slows bleeding and reduces a body’s dependence on oxygen.

Here’s the tricky part: How do you get consent for a study from someone who has just been rushed to the hospital and is unconscious? The clock is ticking, and no family members have arrived yet to agree to an experimental treatment.

Pitt’s Institutional Review Board, which helps protect rights of study subjects, has given the clinical trial the go-ahead, with the caveat that the doctors “actively participate in community consultation.” So in November 2011, the team kicked off a campaign to educate the public about the hypothermia trial. The trial organizers created bus posters, an informational Web site, and a YouTube video detailing the procedure. In December 2011, Tisherman appeared at two town-hall meetings to address issues and possible complications with the trial. UPMC posted videos from these meetings on its Web site. And most recently, Tisherman visited the Center for Health Equity to discuss details of the study.

Tisherman expects the trial to begin this spring.

—Shermi Sivaji

FOOTNOTE

Doing science is both an end unto itself and a possible starting point for new treatments, new technology, and big business. Since Pitt’s Office of Technology Management was established in 1996, the University’s researchers have launched 80 start-up companies. (And in 2011 alone, Pitt licensed 105 technologies to industry, claimed 37 U.S. patents, and filed 257 new invention disclosures.)



MOVIN' ON UP

The people who might take the guilt out of eating salami (nitrates may actually be good for you in some respects, but sorry, the fat still isn't) are moving up. Such findings are the kind of meaty results we have come to expect from members of the Vascular Medicine Institute, who worked with faculty from the Department of Pharmacology and Chemical Biology on the nitrate studies. And now they can keep mixing things up in their new digs, including the Collaboration Room, shown left. In October 2011, the Institute relocated from its temporary home on the third floor of the Thomas E. Starzl Biomedical Science Tower to the 12th. Fifteen million dollars, in the form of a National Institutes of Health grant, refurbished 44,530 square feet of lab space.

The Institute seeks to find new therapies for pulmonary hypertension, sickle cell vasculopathy, atherosclerosis, hypertension, and heart disease. The highly functional new space, says Institute director Mark Gladwin, an MD, will make achieving these complex goals a bit easier. "The new open layout and glass construction will encourage interaction and collaboration," he says. —SS

JIM JUDKIS

IOM Picks from Pitt

The Institute of Medicine of the National Academies (IOM) has recently grown stronger with the election of four new members with ties to Pitt's School of Medicine: **Nancy Davidson**, **Jeannette South-Paul** (MD '79), **Jonathan Gitlin** (MD '78), and **Paul Offit** (Res '80). One of the highest honors in the field of health, election to the IOM requires contributing to studies that help guide health-related decisions made in government and the private sector.

Renowned for her research on the role of hormones on gene expression and breast cancer cell growth, Davidson, an MD, came to Pitt from Johns Hopkins University in 2009 to serve as professor of medicine, Hillman Professor of Oncology, associate vice chancellor for cancer research, and director of the University of Pittsburgh Cancer Institute and UPMC Cancer Centers.

South-Paul studies maternal and child health while staying actively engaged in her family practice. After receiving her

Pitt MD, she spent more than 20 years as a family physician with the U.S. Army before returning to the School of Medicine, where she is the Andrew W. Mathieson Professor and chair of the Department of Family Medicine.

Gitlin, senior scientist at the Marine Biological Laboratory in Woods Hole, Mass., earned his MD at Pitt and now serves on the medical school's Board of Visitors. His work includes the exploration of Menkes syndrome, a fatal disease caused by a defective gene that regulates copper metabolism.

Offit's residency at Children's Hospital of Pittsburgh of UPMC helped to launch a successful career in virology and immunology that led to his current position as chief of the Division of Infectious Diseases and director of the Vaccine Education Center at Children's Hospital of Philadelphia.

Current IOM members selected the new crop based on professional achievement and ability to assist in future IOM research for the advancement of public health. —Tiffani Emig