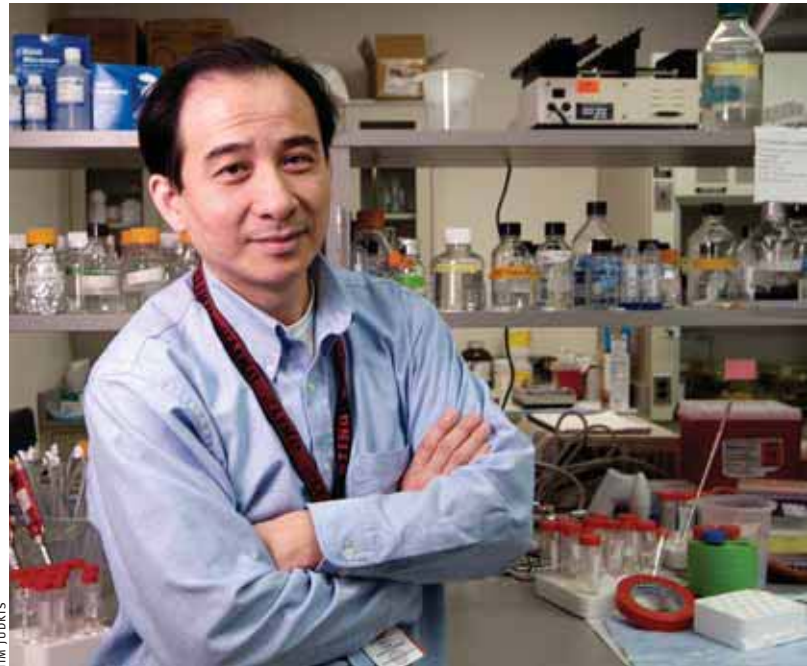


Devoted to noteworthy happenings in the medical school ... To stay abreast of school news day by day, see www.health.pitt.edu.

GAINS IN WEIGHT RESEARCH

In obesity research, a supposed panacea comes down the pike all the time, says Allan Zhao. Lots of people are hoping for a magic pill to control expanding waistlines.

So Zhao, a PhD and assistant professor of cell biology and physiology at the University of Pittsburgh, is cautious when he talks about his work with leptin, a hormone produced by fat cells. Leptin causes us to limit food intake, expend more energy, burn more fuel, and lose weight. It is found in high levels in the blood of the obese. But for some reason, it has trouble in that population getting to the hypothalamus, where it works. Zhao decided to pass human serum through a leptin column, suspecting that whatever bound to leptin could be retarding its progress. Five major protein bands stuck. Thus far, one—C-reactive protein (CRP)—has been fully explored by Zhao's lab. Zhao also found that CRP is more abundant in blood of the obese and can suppress leptin's functions. He wonders whether an agent can be developed that disrupts the CRP/leptin interaction. But he doesn't expect a panacea is around the corner: "Obesity is a complex problem." —Joe Miksch



Zhao

FOOTNOTE

Some complain that the best acts bypass Pittsburgh. But in February, the Carnegie Science Center welcomed Super Colon. Pittsburgh was the first stop on a four-city tour. Super Colon? A punk band? Nope, a 20-foot-long, 8-foot-high replica of, well, a human colon. Super Colon—with warm-up acts by Pitt med experts—helped visitors identify risks, symptoms, and treatment options related to colorectal cancer.

No word yet on Galactic Gallbladder's tour schedule.

Tech Med

Two heads are better than one. How about four?

Recently the University of Pittsburgh, along with UPMC, signed a cooperative research agreement with Santa Clara, Calif.-based Intel, best known for manufacturing computer chips, and Carnegie Mellon University, where Intel Research Pittsburgh is based.

Here's a preview of a couple of the medically related collaborations: An interactive search system called Diamond will help physicians identify, for example, potentially cancerous skin lesions. The system will let users quickly mine terabytes of nonindexed data, such as large collections of medical images. Researchers plan to step up virtual reality by capturing and reproducing 3-D scenes so refined that the human senses would accept them as real. As the original moves, so would the 3-D model. Medical applications could include rendering active human organs to assist with diagnosis and treatment. —JM



A&Q

With the Chief of Pitt's Dirty Bomb Squad

Joel Greenberger (above), an MD professor, chair of the Department of Radiation Oncology in the School of Medicine, and codirector of the lung and esophageal cancer program in the University of Pittsburgh Cancer Institute, also directs Pitt's new Center for Medical Countermeasures Against Radiation. It's one of eight such entities nationwide funded by the National Institute of Allergy and Infectious Diseases and charged with developing ways to deal with radiation terrorism.

The urgency of the task

The government's concern is how you can handle hundreds or thousands of people who have had a moderate or low dose of radiation. We don't have anything in our national stockpile that we can dispense safely to hundreds and thousands of people that would be effective.

Promising development

We've got one home run with an agent called MnSOD, manganese superoxide dismutase, an enzyme the body naturally upregulates when it's exposed to ionizing radiation. We've found that if we give a plasmid, a little circle of DNA, in very high numbers and express it before radiation exposure, we get protection from total body radiation in mice.

What he worries about

Just in the scenarios I think of in my head—which are pretty scary things, [like] a dirty bomb with a plastic explosive or some equivalent surrounded by radioactive material that gets dispersed into the air—you're talking about a large number of people who will inhale this material, will have radioactivity that's detected in their lungs. There will be a lot of people coming to hospitals who want to be treated, and they're not going to want to be told there's nothing available for them.

His question for the world

Why aren't more people studying physics, chemistry, and radiation biology?

—Interview by Hattie Fletcher

Got to <http://pittmed.health.pitt.edu> for more interview excerpts.

Faculty Snapshots

Spend some time with the University of Pittsburgh's Linton Traub to learn about a little-known mechanism behind high cholesterol. And don't be surprised if you end up with the urge to belt out the Marvelettes' "Please Mr. Postman."

The reason? The associate professor of cell biology and physiology's research into how cells internalize what they need from the material in which they are bathed. As Traub would put it, individual "cargo" proteins have unique "zip codes" that tell the "postman" (an adaptor protein that sorts) which "mail truck" (intracellular clathrin-coated buds) to load the protein into.

Traub, a PhD, and his team uncovered the first protein of the clathrin coat machinery tied directly to human disease. That protein, ARH (autosomal recessive hypercholesterolemia), regulates the level of low-density lipoprotein (LDL) in the blood. When the postman is dysfunctional, Traub discovered, the zip code is ignored and LDL cannot be internalized by cells, accounting for high blood cholesterol levels.



Traub

A viral protein under investigation in Preet Chaudhary's lab is known to promote lymphoma. Recent work by the MD/PhD and visiting professor of medicine is changing the way people think about the mechanism that drives this bad actor.



Chaudhary

Scientists believed the protein, which is associated with human herpesvirus 8 (vFLIP K13), promotes lymphoma by preventing cancer cells from dying through apoptosis, programmed cell death. Chaudhary's work indicates that rather than inhibiting an apoptosis-related cellular protein called caspase 8, vFLIP K13 activates a pathway involved in the promotion of lymphoma. If this pathway can be blocked, Chaudhary says, it may be possible to kill the lymphoma cells.



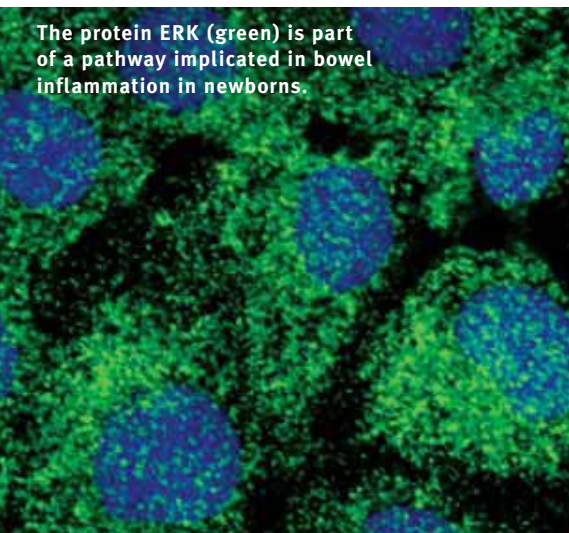
Barnes



Russell

What guarantees that the risks and rewards of the 4,000 or so clinical trials happening at Pitt's medical center are explained adequately to volunteers—that "informed consent" is truly that?

Barbara Barnes, an MD and associate dean for continuing medical education, and Joanne Russell, registered nurse and administrator of research education, were part of a team that developed a program intended to protect research subjects by honing investigators' informed consent skills. The program was so successful that it won the Alliance for Continuing Medical Education's award for Most Outstanding Live CME Activity. —JM



The protein ERK (green) is part of a pathway implicated in bowel inflammation in newborns.



Another view of the same cells lining the intestines.

COURTESY J. CAVALLO

Student's Work May Help Newborns

Jaime Cavallo should be in her fourth year in Pitt's School of Medicine. Instead, she has taken a year off to work. Her decision has nothing to do with earning a few bucks to tamp down student debt or a desire to decompress. Rather, Cavallo is doing basic science research in pediatric surgeon David Hackam's lab.

Cavallo was named the inaugural fellow in Pitt's Surgical Translational Research Training Program, which Hackam, an MD/PhD, directs. In Hackam's lab, Cavallo has delved into necrotizing enterocolitis, an inflammatory disease of the bowel that affects one in 1,000 live births. It's the leading gastrointestinal cause of death among newborns.

She's not just tagging along in the lab. Cavallo determined that bacteria can cause a receptor in cells lining the intestines to switch on a signaling process that leads to the disease.

Hackam is pleased with Cavallo's work—"She's set a pretty high standard." He's not the only one. At an American Medical Association event last fall, Cavallo won the overall prize in the student research contest, besting 70 other students from throughout the country. —JM

PITT FOLKS WIN JEFFERSON AWARDS

As expected of a third-year medical student, Susan Wong is busy. When she's not in class, she's studying. If she's not studying, she's working. If she's not working she's—what? Sleeping? Nope, she's helping.

Since arriving at the University of Pittsburgh, Wong has developed and implemented a program at the Women's Center & Shelter of Greater Pittsburgh that teaches its residents about health, medical, and nutritional needs.

The American Institute for Public Service recognized Wong's efforts with one of eight Jefferson Awards given in the Pittsburgh area.

Another "Jeff" went to Edward J. Donnelly III (Res '78), an MD who has a private practice in Oakland and Aspinwall. Donnelly sees patients at an Uptown shelter for homeless women, Bethlehem Haven. Twenty-three years ago, he began volunteering; now he also raises money for the shelter and serves on its board.

Donnelly takes his hat off to his fellow Pitt med awardee. "[Wong] is really something. When I was in medical school, most students spent their Friday nights in a bar. She's at a shelter," he says. —JM

FLASHBACK

At the end of the 19th century, an unidentified Parisian girl jumped into the Seine and drowned. A death mask was made—perhaps someone could put a name to the face. In 1958, Peter Safar, the late founder of Pitt's anesthesiology department and "father" of CPR, met with Norwegian toymaker Asmund Laerdal, who would create a mannequin to teach CPR. The model for its face was the mystery girl's mask, then owned by Laerdal's father-in-law. She now has a name, "Resusci-Anne."



PAINTING, "GIRL FROM THE RIVER SEINE," BY LEILA MATHÉ. PHOTO BY T.F. TOLHURST.



HUG THIS BUILDING

In the end, the School of Medicine's efforts are about making people healthier. Now they're about making the Earth healthier, too. The U.S. Green Building Council bestowed its Leadership in Energy and Environmental Design Gold Award upon the McGowan Institute for Regenerative Medicine Laboratory Building on the South Side. It is the only academic building in Pennsylvania so honored.

The building stands on reclaimed industrial land; it has a 5,000-gallon holding tank for rain water (used for toilet flushing), has a heat-recovery system that reduces energy use, and is made chiefly of locally produced materials. —JM

T.F. TOLHURST

Appointments

New Department of Medicine Chair **Steven Shapiro** has spent much of his career working with jittery mice. Mice in his lab develop cravings for tobacco—not surprising, since he exposes them to levels of cigarette smoke proportionate to what dedicated human smokers might inhale.

Using gene knockout technology, his lab generates mice that don't get emphysema—even when they “smoke.” The mice are no longer able to employ an enzyme that reacts to foreign invaders such as smoke by destroying lung tissue. Why not develop an emphysema therapy with this knowledge? Well, knocking out the enzyme also meant getting rid of its cancer-inhibiting actions.



Shapiro Having characterized this enzyme's role, Shapiro—who comes to Pitt after serving as the Parker B. Francis Professor of Medicine at Harvard—will study pathogenetic mechanisms of chronic obstructive pulmonary disease and lung cancer.

Shapiro speaks highly of the department's tradition of excellent care. As chair, Shapiro also will focus on career development and mentoring. In addition, he'll emphasize bringing interdisciplinary groups of researchers together to enhance the basic understanding of disease and translate that into new therapies.

An ambulance delivers a patient with multiple traumas to an ER. Doctors must determine which injuries should be treated immediately and which can be operated on later. **Hans-Christoph Pape** teaches doctors how to make those snap decisions. Pitt has recruited the MD to be chief of orthopaedic trauma surgery from Germany's Hannover Medical School, where he was vice chair of trauma surgery.

At Pitt, he hopes to pursue a study similar to one he conducted in Germany that involved tracking and reexamining multi-trauma patients a decade after they incurred injuries.



Pape

Many people have chronic pain that presents without an accompanying pathology. The insult is there but not the observable injury. Finding the mechanisms that cause such pain has been the holy grail of **Gerald Gebhart**'s work. Gebhart, a pharmacologist who specializes in organ-related pain, will head Pitt's new Center for Pain Research. The PhD hopes to elucidate these processes and determine better pain treatments. He arrives here from the University of Iowa, where he was the head of the Department of Pharmacology. At Pitt, he will continue to investigate how signals sent from injured nerves can produce chronic conditions like fibromyalgia and irritable bowel syndrome. —Sydney Bergman



Gebhart