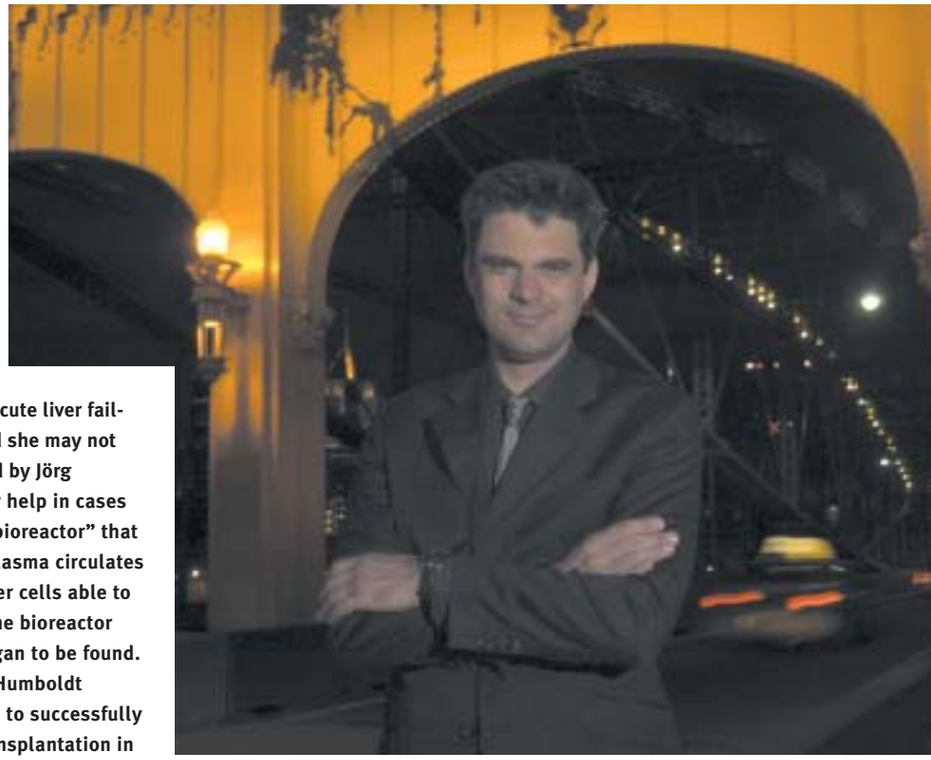


Devoted to noteworthy happenings at the medical school... To stay abreast of school news day by day, see www.health.pitt.edu

Bioreactor Buys Liver Patients Time

A woman has an unexpected side effect to a medication and develops acute liver failure. She is likely to die within days. Her only hope is a transplant—and she may not live until a liver becomes available. An experimental therapy developed by Jörg Gerlach, University of Pittsburgh professor of surgery, may eventually help in cases of acute and chronic liver failure. He has developed and patented a "bioreactor" that can provide temporary liver support outside the body. The patient's plasma circulates through the machine, which contains nearly two pounds of human liver cells able to perform many of the functions of a normal liver. Gerlach hopes that the bioreactor will buy patients time for their own livers to recover or for a donor organ to be found.

An MD/PhD, Gerlach arrived at Pitt in January from Humboldt University in Berlin. He has been able to successfully support liver function until transplantation in eight test patients. *—Dottie Horn*



Jörg Gerlach

TOP AND BOTTOM: C.E. MITCHELL

FOOTNOTE

There are the Pittsburgh Steelers, the Panthers. What would happen if the city received an NBA franchise—long a dream of local hoops fans? *Pittsburgh Post-Gazette* sportswriter Dan Gigler advises naming such a team the "Pittsburgh Physicians," predicting they would perform unnecessary surgery on their opponents. He rejected "Pittsburgh Nurses"—"didn't sound quite fierce enough," he says, but we've met some pretty tough nurses in our time.

LIFE-GIVING CARBON MONOXIDE?

Don't expect to see carbon monoxide bars opening anytime soon, but it appears that minuscule wafts of what is normally considered a dangerous gas may have beneficial effects.

With others at Pitt and Harvard University, Leo Otterbein, an assistant professor of medicine and a PhD, found that very low levels of the gas prevented excessive arterial cell growth in animals (specifically, rodents that had undergone angioplasties and blood vessel transplants). Among other benefits, the therapy altered the immune response after transplant: It appeared to block the activation of white blood cells that normally accumulate at the site of injury.

The animals were exposed to the gas at about 1/20th the level considered toxic and suffered no ill effects. (For you and me, that's roughly the carbon monoxide intake equivalent of smoking two cigarettes in a half hour.) Collaborators in Austria are testing the impact of similar doses in humans. *—Erica Lloyd*



CAMI MESA

A&Q

with Recruitment Team Leaders

Sometimes, students on the school's new Recruitment Team get asked unexpected questions, like, "Why didn't I get into Pitt last time?" Team members—including (from left, above) fourth-year students Neha Trivedi, Melisha Krejci, and Lestina Clay—represent the school at events across the country and organize Second Look weekends for those who have been accepted at Pitt but are still undecided. This year, 100 Pitt med students competed for the 40 team openings. Why is the team so popular? "If you're not from Pittsburgh, you get sucked in once you get here," says Clay. "You want to go out and tell people what you found in this special part of the world."

Stories they tell prospective students again and again:

Clay: "I [was flying back to Pittsburgh] and got stuck [overnight] in St. Louis. I was planning to miss the first day of biochemistry, so I missed the second day as well. I finally made it back, and they had lost my luggage. That was the last straw. I just started crying. The woman was like, 'We'll deliver it to you.' I said, 'When am I going to be home waiting for luggage?' I [called] Student Affairs. As soon as I heard [Suzanne Beardsley's] voice, I totally started crying and said, 'Hello, Suzanne. This is Lestina.' And she goes, 'Okay, honey, are you safe?' 'Yeah, I'm safe.' 'Okay, well just breathe. Now tell me what's going on.' So I told her everything. Suzanne talks to the counter person. Then Suzanne says, 'Now come on to school. It's all taken care of.' And I was like, *Oh, it's like what your mother would do.* That was so awesome!"

Trivedi: "Dr. Jamie Johnston was doing a review session, and I was studying [nearby]. That morning, I had started getting severe abdominal pain. It just got worse, and I started to get really pale. And it dawned on me, Jamie Johnston was right next door. Medical students were asking him questions. I waited in line, and it was my turn, and he looked at me and said, 'What's wrong?' He took me inside a PBL room, sat down with me, took his time, did an entire history. The fact that he took the time to sit with me when he had a thousand other things to do was pretty remarkable. I [thought], *Wow, this school rocks*."

On the most difficult question they are asked:

Trivedi: "Somebody asked me, point-blank, 'How much have you borrowed [for medical school]?' and I was like, 'Oh no, do we have to go there?'"

Krejci: "I always tell people, you have to decide what's going to make you happy, and how you want to invest your money. For me, I decided to invest my money in myself. I just explain my own story."

A question for the world:

Krejci: "When people go out and represent Pitt, what are the important points to sell or talk about?" —*Interview by Dottie Horn*

Faculty Snapshots

Say a woman wants to become pregnant but has already had three miscarriages. Her doctor might order an expensive battery of tests—to look at, for example, her hormone levels and the size and shape of her uterus. There's a smarter approach, says **W. Allen Hogge**, professor of obstetrics, gynecology, and reproductive sciences. The MD recommends first checking for chromosomal abnormalities with a karyotype test on tissue from the miscarried fetus. If the test detects abnormalities, there is an obvious explanation for the pregnancy loss. His study of 517 tissue samples from miscarried fetuses showed that 56 percent had chromosomal abnormalities—that number jumped to 82 percent if the mother was 35 or older. Because one in five pregnancies ends in miscarriage, many couples will have two or more miscarriages simply by chance. Yet, says Hogge—"Commonly, women with recurrent miscarriages are given things like injections of white blood cells from their partner or hormone medications, which have never been shown to be effective." His study found that couples whose miscarried fetus had chromosomal abnormalities had an 85 percent chance of having a successful pregnancy if they tried again.



Abnormal chromosomes detected by an advanced karyotype test

Although general anesthetics have been used for more than a century, scientists still don't understand how they work. "Even now there's no theory everybody can agree upon," says **Pei Tang**, a PhD and an assistant professor of anesthesiology. Researchers like Tang have shown that general anesthetics target ion channels in the cell membrane. Her latest evidence shows that, though the anesthetic molecules bind to a very particular part of the ion channel, they produce global effects on the entire channel. For example, the anesthetic actually changes the way the channel moves. Her findings were the cover story in the Dec. 10, 2002 issue of the *Proceedings of the National Academy of Sciences.* —*DH*



Tang's work was a cover story for PNAS.

PNAS COVER: © 2002 NATIONAL ACADEMY OF SCIENCES USA

MAKE ME A MATCH

"Me first, me first, me first," Helen Kim (MD '03) whispered as the Match Day proceedings got under way. Four deans stood at the front of the auditorium with a stack of white envelopes; the fourth-year students were about to find out where they would do their residencies. Finally, the first name was announced; it was Kim's. Moments later, back in her seat, sealed envelope in hand, she was shaking. In the days leading up to the match, she had been calm, trying to stay positive and relaxed. Now Kim couldn't muster the concentration to notice she'd matched with her top choice. Her friends had to tell her—Children's Hospital of Pittsburgh. Children's gave her balloons and flowers and even held a reception for Kim and their three other soon-to-be residents from Pitt.

Nearby, Rica Bonomo (MD '03) was engrossed in the atmosphere of tearing paper and excited screams. To her, it was "THE MATCH" in big capital letters. Bonomo found the matching process stressful and, at times, frustrating. She couldn't assure friends and family that she would remain in Pittsburgh, she couldn't sign a lease, she just *didn't know.* That's why she felt RELIEF when she matched with her top choice, UPMC's anesthesia program. "I'm glad it's over," Bonomo said after a deep breath. A few days later, Bonomo was asked how she wanted her name to appear on her white coat. She spelled out her name, then added an "MD" at the end. "That was exciting," says Bonomo. *Wow,* she thought to herself. *She was going to be a doctor, it was going to be on her coat!* —*Star Zagofsky*



JIM BURKE



LUTENERO

Pull!

BY KATE DUNFEE

The "patient," Mike McLaughlin (Class of '05), strips off his T-shirt and lies down on the conference table. Physician Keith Conover removes his shoe to demonstrate one of the dozen ways he knows to correct a dislocated shoulder. He jams his right foot snugly into McLaughlin's armpit, uses his leg for leverage, and steadily pulls the student's arm. Five students cluster around at this evening meeting of Pitt's Wilderness Medicine Society (WMS).

Soon, it's Elisa Nigrini's turn to try a hands-on exercise. Like others here, Nigrini (Class of '05) started attending WMS meetings to meet others interested in combining their love of medicine and the outdoors. Through the group, students learn about topics such as cold and warm weather emergencies and high-altitude mountaineering. WMS members have hiked together in Pennsylvania's Laurel Highlands and at West Virginia's Seneca Rocks. Some WMS topics are not taught in the med school's curriculum; tonight, Nigrini is learning how to treat sprains and shoulder dislocations in situations where standard medical resources aren't available.

Nigrini mimics another of Conover's methods. She buries McLaughlin's elbow in her belly button and clenches his forearm to her chest. After establishing a firm stance, she lifts McLaughlin's arm upward, grunting. "Good," says Conover at the end of the drill. "That's about half the strength you'll need in a real emergency." A mountainous groan rises from the group; someone suggests a truck would do the job.

"One of the nice things about humans is that we're bilaterally symmetrical," says Conover, medical director of the regional Wilderness Emergency Medical Services Institute. "If something doesn't look right, just make it look like it's supposed to."

VERDILE AND EBERLEIN RECOGNIZED

In the '80s, Vincent Verdile was an emergency medicine resident at Pitt. One night, he overheard a nurse giving medical advice over the phone. "What did you just do?" he asked her afterward. "I just told that [caller] how to manage a headache," she said. "We do it all the time." That conversation led Verdile to do a study that changed the way emergency departments around the country respond to calls for medical advice. (Now, most either refuse to give phone advice or follow a specified protocol.) Verdile is now dean of the Albany Medical College. In May, the Medical Alumni Association (MAA) recognized him with the 2003 McEllroy Award, given annually to a distinguished physician who did residency training at Pitt. At the same ceremony, Timothy Eberlein (MD '77), chair of surgery at Washington University in St. Louis, received the Hench Award, the School of Medicine's highest alumni honor. Addressing the graduating class, Eberlein, director of the Siteman Cancer Center, counseled students to remember "the vulnerability and fear patients experience in front of their doctors." —*DH*



C.E. MITCHELL

Catherine Zeta-Jones, Move Over

At the 49th Scope and Scalpel production, *The Sopranolols,* seniors caricatured and sang about memorable profs (one such *Chicago*-inspired number is shown left) and looked back to the early days of med school: *Pronounce these words you've never heard/It's all a freakin' crock/But you'll look and sound and act and feel/Just like you are a doc.* Interspersed among the stage performances were student-made videos, like *Joe Med Student*, modeled after *Joe Millionaire.*

Appointments

She has begun to explain addiction at the molecular level, has 20 patents to her name, and her studies of neurotransmitter transporters continue to turn heads. Howard Hughes investigator Susan Amara comes from the Vollum Institute for Advanced Biomedical Research at Oregon Health & Science University to chair Pitt's Department of Neurobiology. (See profile, p. 12.)



Schuman

A new imaging technology may allow ophthalmologists to diagnose eye diseases earlier. Researchers can now see cross sections of the eye, just by holding light up to it. With the new technology—called ultra high-resolution optical coherence tomography—scientists can see nearly as much detail as if they were observing tissue samples under a microscope. (The device offers a resolution of two to three microns.) Joel Schuman, the new chair of the Department of Ophthalmology, helped to develop the experimental technology, which is now in a prototype stage. Before coming to Pitt, Schuman was at the New England Eye Center at Tufts University, where he and others invented the now widely used optical coherence tomography (the precursor to the ultra high-resolution version). At Pitt, Schuman will develop a new imaging center within the ophthalmology department. The MD will continue to study, at the molecular level, how fluid made in the eyeball normally drains and how glaucoma alters this process.



Kolls

Because of their damaged immune systems, HIV-infected children often cannot be successfully vaccinated against disease. "Those who would benefit the most from a vaccine don't have an immune system that will respond to vaccine technology," says Jay Kolls, who will become a professor of pediatrics at Pitt in September. Kolls has developed a novel vaccination strategy that doesn't rely on T cells, which are destroyed by HIV. He is creating a vaccine against *pneumocystis carinii*, a microorganism that is harmless in healthy people but often causes pneumonia in the immunocompromised. He is currently testing the vaccine in mice. A pediatric pulmonologist, Kolls comes to Pitt from Louisiana State University. The MD's research also examines how a strain of mice that is susceptible to lung infection differs genetically from normal mice. And he is elucidating, at the molecular level, how alcohol suppresses the immune system. *—DH & EL*

PERFECT PARTNERS, PERFECT CARE

Imagine a physician writes a prescription for insulin; a pharmacist prepares it; a nurse administers it. Then the patient goes into convulsions or worse, a coma. What went wrong? That's the kind of question asked by Carl Sirio, associate professor of critical care medicine, in conjunction with RAND, a national nonprofit institution conducting research in health and other areas. Sirio's study is one of 20 RAND–University of Pittsburgh Health Institute collaborations.

As part of the partnership, experts from RAND work with Sirio's research team. His study is housed in the School of Pharmacy and pursued in conjunction with the Pittsburgh Regional Healthcare Initiative. Thirty-eight hospitals in the Pittsburgh region participate in Sirio's study. Each shares data about medical errors and nosocomial infections at its facility. "We're working together as a region to understand what's causing these problems," says Donna Keyser, associate director of the RAND–University of Pittsburgh Health Institute. "We're the only region in the country that's doing this." As one part of the many-faceted study, Sirio's team will interview hospital administrators and observe healthcare delivery. They want to find out: How do hospital leaders make patient safety a priority at their institutions? What barriers do they encounter?

They have some high ambitions: "Perfect patient care," says Sirio, is the ultimate goal of his $5 million study. *–SZ*

A LITTLE PUSH THEY NEEDN'T GO IT ALONE

BY MEGAN E. SOFILKA



CAMI MESA

FROM LEFT: Mously Almoza, Leon McCrea, and Maurice Chaplin

Even though she'd made the Dean's List every semester, Mously (pronounced moos-lee) Almoza, then a senior psychology major at the University of Pittsburgh, was worried about an impending biochemistry exam. She was studying at Hillman Library and ran into med student Lelai Ricks (Class of '05), whom she'd met through Pitt's Premedical Organization for Minority Students (POMS). Ricks reassured the panicking undergrad; joined her and a few of her classmates; and, over the next three hours, helped them grasp some difficult scientific concepts. Later, Ricks offered the younger student a ride home, saying, "You ready to roll, Mous?"

Ricks and other Pitt med students lend a hand to POMS undergrads as they explore medicine as a career, take premed courses, and apply to medical school. The med students attend POMS meetings every Friday night and make themselves available as mentors and friends.

"We realize that you can't get into medical school alone. There always has to be that one constant person there to encourage you. It's easy to get discouraged, and we are there to give that little push," says Leon McCrea (Class of '04).

Ricks and McCrea are members of the Pitt chapter of the Student National Medical Association (SNMA), a group dedicated to, among other community initiatives, helping minorities and people from disadvantaged groups become doctors and other health professionals. Paula Davis, assistant dean of student affairs and director of minority programs at the medical school, applauds the association's efforts.

"Studies have shown that underrepresented individuals are more likely to seek out healthcare providers [of the same ethnicity] and that minority physicians are more likely to serve in minority communities," says Davis. Fourteen percent of students in last year's entering class at the School of Medicine were from underrepresented minority groups such as African Americans, Native Americans, and Mexican Americans.

About 10 of the med school's 50 or so SNMA members help out with the POMS group, though Ricks, McCrea, and Maurice Chaplin (Class of '05) are the most involved. The med students offer guidance at all stages of the undergrads' careers. In October 2002, after Almoza had sent off her med school applications, she was invited to interview at the University of Connecticut. Nervous, she called on McCrea and Ricks for help.

A few days later, at 8 a.m. on a Saturday, Almoza, wearing a brown suit and carrying a briefcase, went into a small classroom where McCrea sat at a conference table, waiting to grill her. "What are your major weaknesses?" he asked. "What's the most important issue in medicine today?"

When McCrea had finished questioning her, he sent her off to Ricks for a second round. Then she had two more mock interviews with other SNMA members. Afterward, the med students critiqued Almoza.

She'd never get into med school, they told her, if she continued to say that tardiness and time management were her major weaknesses. Instead, she needed to describe weaknesses that were really strengths.

The advice was extensive and thorough—the med students even commented on her bronze lipstick, which they thought was "too bright" to be professional.

In the end, Almoza was accepted into *eight* med schools. After talking with Chaplin about her options, she decided on the University of Pennsylvania. She is one of three former POMS members who will start med school this fall (POMS alumnus Alvin Jones will join Pitt's Class of '07).

To McCrea, the POMS grads are like "little brothers or sisters." "We take pride in them doing well," he says.

FOOTNOTE

For a meal under $7, it's hard to beat the Dr. Fu Special at Lu Lu's Noodles, a "pan-Asian diner" and student hangout on Craig Street. Named for the new Medical Alumni Association president and orthopod Freddie Fu (MD '77), the dish has two kinds of noodles, with chunks of chicken and green vegetables, served with a sweet plum sauce. Mighty tasty and filling—just the fuel needed to tackle rounds. One question: If it's the Dr. Fu Special, why aren't there any *bones* in the chicken?