

Their passion and tenacity bring about the breakthroughs that change our lives. It's about time we knew their names.

# The Quiet Heroes

By Dianne Hales

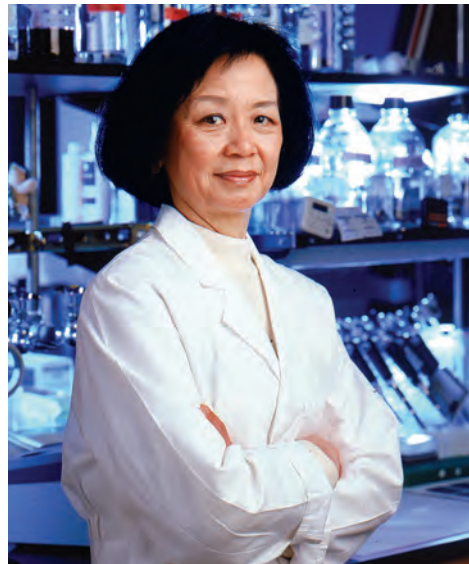
*The superstars of research are the new drugs, techniques and treatments that emerge to save lives or make them more livable. But the people behind these successes tend to remain in the shadows, often by choice. Most of us do not know their names, recognize their faces or ask for their autographs. Yet, without their dogged persistence (often over decades), intellectual brilliance and burning passion to find answers, many new discoveries would never see the light.*

*In this issue, we honor a few of these heroes while suggesting what it takes for a medical breakthrough to occur. These researchers—whose work represents only a small sample of the rich diversity of problems being pursued—stand for all the men and women at labs across the country whose efforts better our lives every day.*

## The Mystery Of Menopause

Long before the subject captured headlines, **Phyllis Wise**, 58, a professor of neurobiology and physiology at the University of California at Davis, began exploring the brain's role in menopause—which, she notes, is a thoroughly recent phenomenon. “A century ago, many women died before or shortly after menopause,” Wise says. “For the first time in history, women are spending 30 years in a physiological state our species has never had to deal with.”

In the 1980s, Wise overturned a common misconception. “The dogma was that women go through menopause because the ovaries run out of eggs and estrogen,” she explains. “By studying mice and rats, we found that changes in the brain in early middle age play a role in the menopausal transition.” The same appears to be true in women. “By age 30 to 35, the brain's signals to the ovaries aren't as precisely coordinated. It's like an orchestra that's not playing well. You'd recognize the



Above: Robert Langer with students at the Langer Research Laboratory at MIT in Cambridge, Mass. Left: Phyllis Wise at her lab at the University of California at Davis.

music, but you wouldn't want to record it.”

Since 1997, Wise has focused on the effects of estrogen on the aging brain. “In mice, estrogen enhances memory and normal functioning and protects the brain from deterioration,” she says. Does it produce the same benefits in women? No one knows—yet.

“It would be a big, big mistake to conclude that all hormone replacement is not good for postmenopausal women,” says Wise. “The female reproductive system is incredibly complex, and the only way we'll get a better understanding is through more and better research.”

**“You have to create possibilities that don't exist yet.”**

—Dr. Robert Langer

## If You Can Imagine It...

If there were a scientific version of *Mission: Impossible*, **Robert Langer**, 55—a professor of chemical and biomedical engineering at Massachusetts Institute of Technology—would be its go-to guy. When neurosurgeons couldn't find a way to target brain tumors, he created a synthetic wafer that carries chemotherapy directly to the brain. When transplant surgeons lamented the lack of donated organs, he engineered three-dimensional frameworks to grow cells for replacement organs. Other Langer firsts include a microchip that serves as a “pharmacy in a pill” to dispense medications through the bloodstream and ways of engineering tissues such as artificial skin and cartilage.

“When the scientific literature says something is impossible, you have to create possibilities that don't exist yet,” says Langer, who holds more than 300 patents and has won dozens of scientific awards. “Big ideas take incredibly hard work and a lot of time. [One drug-delivery system, for example, took 24 years to go from idea to first use.] Fortunately, something in my personality makes me believe I can solve a problem if I just think hard enough and don't give up.”

## Taking Science To The Streets

Research does no good unless you put it into practice," says **Loretta Sweet Jemmott**, 48, a professor of nursing at the University of Pennsylvania and the nation's leading expert on HIV prevention in teens. Her scientifically field-tested, abstinence-based programs—which she developed with her husband, John, a psychologist—are used with thousands of at-risk teens around the country and the world. The couple has received more than \$74 million in research grants.

"I grew up in the 'hood," says Jemmott, the daughter of working-class parents in West Philadelphia. Bussed to an all-white school in the 1960s, she was class president every year through high school. Never wavering from her childhood dream of becoming a nurse, Jemmott wanted to help "girls who did not get a chance to pursue *their* dreams because they got pregnant." After treating pregnant teens as a young nurse, she went back to school to earn her Ph.D., then sought to find a way to reach girls *before* they got pregnant.

Follow-up studies have shown that the Jemmotts' program, "Be Proud! Be Responsible," reduces risky behavior that leads to HIV and pregnancy. In 1994, it was selected by the Centers for Disease Control and Prevention for nationwide use with all teens.

## Looking For Hope

Pancreatic cancer is like no other disease, because you have no hope," says **Dr. Selwyn Vickers**, 43. As a young surgeon at Johns Hopkins Medical Center, Vickers relished the challenge of the complex, six-hour operation required to remove a pancreatic tumor. "It was like being a Special Forces guy on a long, risky mission," he says. "But most of the patients we thought we were saving died within five years. And they were the lucky ones. Nearly 90% of pancreatic cancer patients have inoperable tumors and die in a few months."

continued

**"Research does no good if you don't put it into practice."**



Loretta Sweet Jemmott at the University of Pennsylvania School of Nursing in Philadelphia.

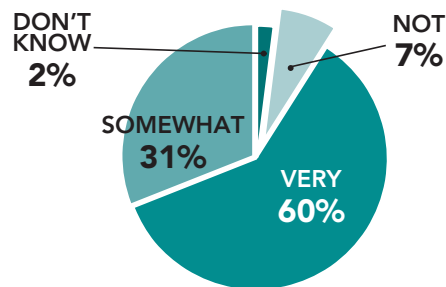
## Taking Our Pulse

The PARADE/Research!America Health Poll

Health care is the single most important domestic issue facing the nation (excluding the economy), say a majority of Americans. The policies, priorities and allocations of those making decisions inside and outside our government will affect each of us and the future of our children.

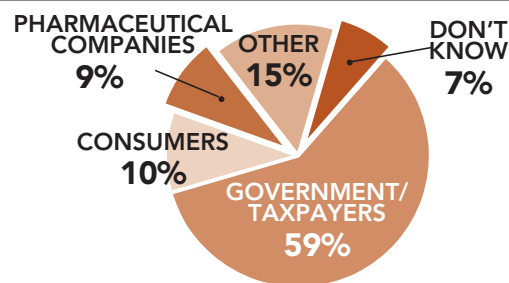
As a result, PARADE has joined with Research!America—a nonprofit public-education and advocacy group for medical research—to conduct a series of wide-ranging polls on what Americans think about various medical concerns. Our first poll, conducted by the Charlton Research Co., deals with attitudes toward medical research itself. In it, we found strong views and many misconceptions. Here are some of the more striking results:

### How important is it that the U.S. be a world leader in health research?



Ninety-one percent of Americans think the U.S. should be a world leader in health research. In addition, 90% asserted that such leadership was important to the nation's economy.

### Who do you think pays for medical research in the U.S.?



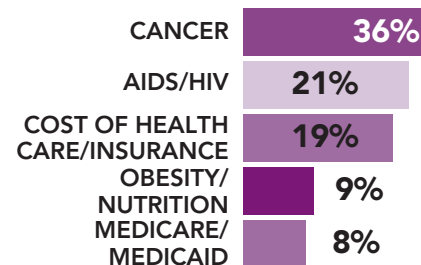
A majority of Americans think the government (i.e., taxpayers) pays for most of the medical research conducted in this country. **FACT:** While the federal government still is—just barely—the largest investor in academic research, biotech and pharmaceutical companies currently finance more than half of the research conducted in the U.S.

## What Americans Think About Medical Research

### How much money should we spend on research?

Currently, out of the \$1.42 trillion spent on health care in the U.S., about \$82 billion—5¢ to 6¢ on the dollar—goes to research. More than 50% of Americans say we should increase spending on research to 7¢ on the dollar or more.

### What is the most important health issue facing the nation?



The largest percentage of those polled consider cancer to be of greatest concern, followed by AIDS/HIV. **FACT:** Cardiovascular illnesses—including heart disease and stroke—are our No. 1 killer, and AIDS/HIV is not in the Top 15. (The latest figures available were for 2001.) Cancers as a group rank No. 2. Interestingly, 19% said the cost of health care was the most important issue. (All other responses added up to 7%.)

### How long does it take to bring a drug to market?

Most Americans seriously underestimate the time required for new therapies to develop. When asked to guess how long it takes to bring a new drug to market, 29% said 1-4 years, 40% said 5-9 years, and 21% said 10-14 years. **FACT:** It takes 15-17 years to get most new medications into a hospital or doctor's office.

### Would you be willing to share your medical information to further research?

Privacy is a major concern these days, but a majority of individuals polled (69%) said they'd be willing to release health information (assuming there was no way anyone would have access to their identity) if this would help doctors and hospitals improve their services or if researchers could learn about disease and prevention from it.



For more results of the PARADE/Research!America Health Poll, visit [www.parade.com](http://www.parade.com) on the Web.

Our poll of 1000 people, representing a cross-section of Americans, has a sampling error of ±3.1%.



**Get a Dell,  
then take it up  
a notch  
with this cool PC gear!**



### Dell™ DJ 15 Digital Music Player

- 15GB\* – stores over 3,700 songs\*
- Up to 16 hours\* of continuous play on a single charge

**\$249**

### Canon® PowerShot SD100 Digital Camera

- 3.2 Megapixel Resolution
- 2X Optical/3.2X Digital Zoom



**\$299**



### Dell™ Axim™ X3 Handheld

- Intel XScale™ 400MHz Processor
- 64MB SDRAM, 64MB Flash ROM
- Microsoft® Windows Mobile™ 2003 Software for Pocket PC

**\$299**

### Dell™ All-In-One Printer A920

- Print, Scan and Copy
- Prints up to 14ppm black, 8ppm color

**\$89**

- 10' USB Printer Cable, add \$25



**To order, click or call Dell today!**  
[www.dell.com/parade](http://www.dell.com/parade)  
**1-800-626-4382**

**Pricing/Availability:** Prices, specifications, availability and terms of offers may change without notice. Taxes and shipping charges are extra, and vary. May be combined with other select offers or discounts. Valid for U.S. Dell Home Systems Co. new purchases only. Dell cannot be responsible for errors in typography or photography. **Dell DJ GB:** One GB = 1 billion bytes; actual formatted capacity will be less. **Dell DJ Battery Life:** Battery life is based on continuous play. **Dell DJ Capacity:** Assumes audio format is 128kbps MP3 encoding with average song length at 4 minutes. **Piracy:** Dell is against piracy. Please respect the copyrights of others by checking and abiding by the use guidelines of your digital content service. **Trademarks/Copyright Notices:** ©2004 Dell Inc. All rights reserved.

## Quiet Heroes | continued

In 1994, Vickers came to the University of Alabama at Birmingham. Today, he heads one of three pancreatic cancer programs funded by the National Cancer Institute, where he focuses on “bench-to-bedside” research. “As a surgeon and



Clockwise from top: Dr. Selwyn Vickers; Dr. Eric Nestler; and Hunein “John” Maassab.

a man of faith, I want to provide the best possible medical and emotional care to patients,” he says. In the lab, his team identifies the growth factors that enable pancreatic tumors to spread and studies new approaches, such as interferon-gamma and gene therapy.

Vickers is optimistic. “For years, pancreatic cancer was underfunded,” he says. “Now we’re getting the support we need to tackle this problem and develop tests and treatments that can improve patient survival. With enough dollars and will, we can have an impact.”

### A New Way To Fight Flu

A jeweler’s son from Damascus, Syria, **Hunein “John” Maassab**, now 77, came to the U.S. in 1947 to study biology. “I was a student in the auditorium on the magnificent day in 1955 when the success of Jonas Salk’s trials of his polio vaccine was announced,” he recalls. “I was so emotionally moved, I decided to pursue vaccine research.”

Maassab studied with the pioneers who developed the influenza vaccine for the U.S. military. But rather

than focus on the inactivated or “killed” virus used in flu shots, he studied the more effective “live” form. He spent decades breeding generations of viruses in cell culture dishes and testing ways to deliver them via a nasal spray. In 1960, in a culture, he grew a live flu virus that could be used for human vaccines. In 1967, he developed a weak form of the virus that grew only in the cooler temperatures of the nasal passages and would not cause flu symptoms.

“I was able to stay focused on the goal for so long because we had many successes along the way,” says Maassab, a professor emeritus of epidemiology at the University of Michigan’s School of Public Health. In 2003, the FDA approved “FluMist” for use in healthy people aged 5 to 49.

### Addiction And The Brain

“As a psychiatrist, I’ve seen how addiction takes over a mind and ruins a life,” says **Dr. Eric Nestler**, 49, of the University of Texas Southwestern Medical Center in Dallas. “As a neuroscientist, I’ve studied addiction at a molecular level. I discovered that different drugs of abuse—alcohol, cocaine, heroin—have the same effect: All corrupt the reward or ‘feel-good’ pathways within the brain, which leads to addiction.”

Nestler’s research provides new insight into the debate over whether addiction is psychological or biological. “It’s both,” he says. “If a person is addicted, family members act as if his brain is responding normally, but it’s not. You’re dealing with a changed person. Imploring him to stop won’t work, because addiction weakens the will. The good news is that your loved one *can* recover.” Nestler’s goal is to find compounds that mimic drug actions and block cravings—a discovery that could lead to therapies to help drug abusers “reclaim their brains and their lives.”

“The greatest satisfaction,” he says, “comes from knowing that,

ultimately, your research will help others.”



For online resources on the latest medical research, visit [www.parade.com](http://www.parade.com) on the Web.

### Will the U.S. Remain No. 1?

Every researcher in this story has funding from the National Institutes of Health (NIH), the primary agency for U.S. health research. In our uniquely decentralized system, NIH funds are disbursed to medical schools, university labs, private industry and independent institutions across the nation. Another major agency, the Centers for Disease Control and Prevention (CDC), focuses on public health, including bioterrorism and infectious diseases such as SARS. Experts believe that funding to the NIH and CDC must be dramatically increased for the U.S. to maintain its status as a world leader in health research. To learn more or to make your voice heard, visit [www.researchamerica.org](http://www.researchamerica.org) on the Web.