

## THE LASER

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The Opportunity to Conquer  
Diabetes Is Now

Though the facts of the global diabetes epidemic are dire, the good news is that we have a great opportunity. If the resources and the will to do it converge, unprecedented advances in diabetes prevention and treatment can occur. Here, in general terms, is what needs to be done.

1. A current international research agenda for diabetes needs to be established.
2. Broad new interdisciplinary alliances need to be forged.
3. Sources of sustainable funding need to be found, both public and private, to advance diabetes research and to foster effective methods of prevention.
4. The populations most burdened by diabetes need to be engaged fully in efforts to contain and eliminate this disease.

As daunting a multi-faceted approach as this is, it can succeed. However, we need to commit ourselves to the hard work of making it happen. The opportunity is now.

**Crisis and Commitment**

According to the World Health Organization and the International Diabetes Federation, we are in crisis: "The world is facing a growing diabetes epidemic of potentially devastating proportions."

Diabetes threatens us all—children and the elderly, in developing countries as well as in the industrialized world. The recent appearance of unprecedented numbers of young people with type 2 diabetes is especially troubling. What was once a diagnosis reserved for older adults now promises whole lifetimes in which the complications of diabetes can flourish and ravage. The incidence of type 2 diabetes worldwide is dramatic and rising alarmingly. If epidemi-

ological projections are correct, the number of persons with diabetes will soon be so large that it will overtax the capacity of any country's health care system to manage.

On February 6 of this year, after a dramatic series of stories on the crisis of diabetes, *The New York Times* published an editorial declaring war on diabetes. "Waiting for this epidemic's fuller toll is foolhardy," the editors wrote. "Now is the time to develop a coordinated plan with a long view to take control of diabetes."

**Agenda**

Such a coordinated plan must involve a public diabetes agenda. Guided by the priorities it defines, integrated programs of basic and clinical research, clinical case management, and public health need to be designed.

PNRI labs are already at work on several of what will surely be key areas of research:

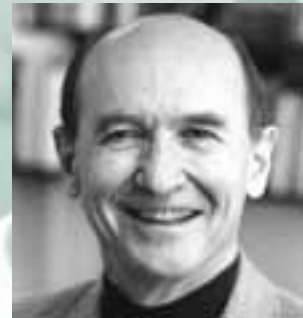
- development and function of the beta cell,
- mechanisms of insulin synthesis and secretion,
- islet transplantation,
- tracking—and blocking—the autoimmune process which creates type 1 diabetes,
- glucose toxicity in type 2 diabetes, and
- potential therapies for reducing the disabling secondary consequences of diabetes.

An effective diabetes agenda will require the cooperation of diverse institutions—commercial and academic scientific organizations, government funding agencies, and health policy leaders. But we can work

*continued on page 7*

## PERSPECTIVES

by R. Paul Robertson, M.D.

Lack of Vision  
and the Perfect Storm  
of Diabetes

The blind men and the elephant, each feeling separate parts of the mammoth and describing it differently. The odd-looking bird with his head in the sand, hiding from reality. You know these ancient analogies. But in this case the analogies are not funny. They are serious cartoon statements about a failure of vision, either by intent or by accident, in the prevention and cure of diabetes.

We are in the middle of a perfect storm that involves lack of vision at many levels just as we are experiencing a world-wide epidemic of diabetes. Incidence rates of diabetes and obesity are climbing to unprecedented heights worldwide with no sign of stopping. The increasing incidence of obesity actually accelerates the independently increasing incidence of diabetes. This medical whirlwind is being made even worse by the lack of vision that led to the current cutbacks in federally-fund-

*continued on page 6*

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prevent and treat it.

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FROM THE EDITOR:

## Feeling the Weight of Diabetes

by Rich Murphy

Mr. Santos Alicea is 57 years old. He lives in East Harlem. He has type 2 diabetes, poor circulation in his legs, one eye (the other was removed last year as a result of diabetes damage), and no job: he had to give up being a security guard after his heart attack. When a reporter got a chance to meet up with him, Mr. Alicea was sitting outside a shop in his neighborhood with friends, every one of whom either had diabetes himself or had it rampant in his family. One of his friends, Juan Concepcion, also suffering from diabetes, put it succinctly: "Everywhere I go here, someone tells me they have diabetes."

Harry Mahaffey, 15, lives in Los Angeles. He is a champion fencer with type 1 diabetes. Like other children with type 1, he has to stick his finger every couple of hours to test his blood sugar and has to inject insulin several times a day. Type 1 is a constant and serious danger because the sudden, uncontrolled swings in blood sugar can lead to hospitalization or death. The daughter of Moira McCarthy, from Plymouth, Massachusetts, for example, has been hospitalized fourteen times. Harry Mahaffey says crisply how it feels: in getting type 1 diabetes "there is absolutely nothing tied to my lifestyle. It's something over which I had absolutely no control."

With these and a host of other stark stories, *The New York Times* has begun to make us see diabetes vividly. To feel its weight.

In a widely praised four-part series of articles in early January of this year, *Times* reporters chronicled some of the terrible facts—the wretched demographic inequity

of this chronic disease, the fatalism of whole communities in which its ravages are thought to be unavoidable, the perverse structural incentives built into the health-care system that discourage it from helping people with diabetes to get or stay well, and the ways diabetes grows as immigrant children absorb the unfamiliar western diet of their new home.

More recently, in May, the *Times* news team did it again. In an illuminating pair of articles, they showed how federal funding for research is shrinking even as deaths from diabetes grow. (Diabetes is the only major disease in America whose death rate continues to rise.) The reports also examined the cultural, political, and economic divide between type 1 and type 2 diabetes, the interest groups who lobby for them, and the communities they impact.

PNRI is committed to preventing and curing both diseases. The investigations in our laboratories are producing important new information about the complex causes and mechanisms of diabetes, as well as new ways to prevent and treat it.

But if we as a society hope to meet the broad public health challenges of diabetes, then we have to see the basic and clinical research of laboratories like PNRI in a wider context. The context of neighborhoods where everywhere you look, the disease is taking its terrible toll. The context of children and families smitten by a condition over whose onset they had no control. We have to feel the human weight of diabetes.

And for helping its broad readership begin to do that, we owe the *The New York Times* our thanks.

### New York Times Diabetes Articles

The following series of articles are available on the internet at [www.nytimes.com](http://www.nytimes.com).

- Diabetes and Its Awful Toll Quietly Emerge as a Crisis*, January 9, 2006.
- Living at an Epicenter of Diabetes, Defiance, and Despair*, January 10, 2006.
- In the Treatment of Diabetes, Success Often Does Not Pay*, January 11, 2006.
- East Meets West, Adding Pounds and Peril*, January 12, 2006.
- Rising Diabetes Threat Meets a Falling Budget*, May 16, 2006.
- Beyond "I'm a Diabetic," Little Common Ground*, May 17, 2006.

[www.nytimes.com](http://www.nytimes.com)

## Dr. Hui Peng: The Story of a Doctor's Dedication



Dr. Hui Peng has been a post-doctoral fellow in the Hagopian laboratory at PNRI since 2001. She conducts genetic screening for type 1 diabetes risk in Washington children. She also analyzes blood for the presence of autoantibodies in those who have been shown to be at increased risk for the development of the disease. Both of these are critical jobs in the Hagopian research program. Even more importantly, she is leading the lab's search for a drug that might effectively intervene to stop the immune system attack that brings on insulin-dependent diabetes.

When asked if *The Laser* can profile her for a story about her life and work, Peng agrees cautiously with a self-deprecating laugh: "But I don't think I have a story." Then she proceeds to tell it. She wants to help people, she says repeatedly, and that explains the itinerary that brought her to PNRI and diabetes research.

Dr. Peng received her M.D. degree in 1994 and her Ph.D. in endocrinology in 1999 at Xiang Ya Medical School, Zhongnan University, in Hunan, China. After completing her Ph.D., she practiced medicine for two years at Shenzhen People's Hospital, treating patients for all kinds of hormone disorders, many of them with diabetes.

As a little girl, Peng's eyesight had been misdiagnosed. She was given the wrong prescription for glasses, a mistake that made it difficult for her to read and learn. "I wanted to do better than that," she says now in telling the story of her decision to study medicine. Her choice of endocrinology was also rooted in personal facts. "I want to help

people," she explains, "but I am sickened by blood or death." So endocrinology seemed like a good way to provide that service while the trauma of injury or death are still at bay.

The help she is providing now is for patients and families dealing with type 1 diabetes. She helps new mothers and fathers find out whether their newborn has a gene associated with increased risk of diabetes. For those who do, she manages the periodic blood tests conducted to disclose whether the immune system has begun its attack on the beta cells of the pancreas.

The scientific value of this testing is clear. It is helping to advance our understanding of the onset of type 1 diabetes. Yet the benefit it provides to patients is never far from Peng's mind.

"In China," she says, "I saw many people with their fingers blackened by the bruises of repeated glucose sticks. The consequences of diabetes are very bad, especially when people are poor. Many times they lose hope. This is the reason to do research, to help them a little, if we can."

The most ambitious program Peng is currently involved in is the search for an intervention that will delay the onset of type 1 diabetes. She and her colleagues in the Hagopian lab are looking for a drug that will work before the onset of the disease.

"This is what I want to do!" she says emphatically. She knows it's a complicated task, but it's her goal: to use what is being learned about genetic risk and the mechanisms of autoimmunity to block them from doing their destructive work.

Peng is candid at the same time that she is optimistic. "When people ask me if we have a cure for diabetes," she explains, "I have to say no." But here the story of her clinical training and research experience converge. "If we find a good intervention—if we're lucky enough to find a drug that can limit the immune response to beta cells—then I can help far more people than I could as a doctor seeing and treating patients."

Which is the story of deep dedication she was at first reluctant to tell.

## THE FACES OF DIABETES Morgan Perkins

66-year-old Morgan Perkins runs the four-chair shoe-shine stand at Nordstrom's in downtown Seattle. He has owned and managed the business for 32 years. When he was diagnosed with diabetes twelve years ago, he weighed 240 pounds. "I used to keep potato chips, Pepsi, Danish pastries, Snickers bars—all sorts of sweet things—in the back room of the shine stand. I didn't realize I was killing myself."

Morgan's mother, uncle, and grandmother all had diabetes. Still, he was surprised to discover that he had it too. On his doctor's advice, he lost sixty pounds and instituted a radical change in his eating habits.

At first, he had the whole family on a no-sugar, low-fat diet. When they finally complained, Morgan realized they were right. Diabetes meant doing what he needed to do to take care of himself without requiring everyone else at the table to sacrifice.

"I love barbecue," he says, "and potato salad. But now I lay off those. When the family's having key lime pie, I just cut a tiny little piece for myself, just a taste, that's fine. When the kids want me to eat more, I just say to them, 'You can do it, but it has a different effect on me.' I just happen to have a disease that means I can't. I tell them, 'If you want me around for awhile, I have to take care of myself.'"

Morgan is a realist. "This is hard work," he says, "swinging these brushes every day." He acknowledges his diabetes with equal directness. "I have a progressive disease. It's going to get worse. But I can slow it down." And that's what he's working every day to do.



hope  
dedication

faces

# PNRI Tribute Gifts

January –March 2006  
(Tribute name is listed in bold)

## **In Memory of Mary Coppa**

Dr. and Mrs. Wilson O. Rigdon

## **In Memory of**

## **Dr. William B. Hutchinson, Sr.**

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Mr. and Mrs. Robert S. McKinstry

## **In Memory of**

## **Paul Michael Langabeer**

Dr. and Mrs. William H. Lucas, Sr.

## **In Memory of Marvin Miller**

Stephen and Pamela Drugge

## **In Honor of Dr. R. Paul Robertson**

Donald C. Kent, M.D.

thank you!

*An Evening  
of Wine*

## Sponsors

PNRI greatly appreciates the generosity of this year's sponsors of *An Evening of Wine*.

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# *An Evening of Wine* flights of red & white

*"PNRI's Wine Guild volunteers have assembled a superb selection of Winery Partners and Live Auction packages! By the end of the evening, there won't be a dry eye or mouth in the house."*

Carol Heimkes, PNRI Trustee and  
*An Evening of Wine* Co-Chair

The third annual *An Evening of Wine* will be held at the Golf Club at Newcastle on Thursday, August 3, 2006. Twenty wine-themed auction packages, a Sip and Sample hour with winemakers from nine Winery Partners, a blind tasting game featuring Christopher Chan, Director of Wine, Events and Programs at The Rainier Club, and a festive atmosphere are the entertainment side of an evening dedicated to raising awareness and funds for a very serious cause—advancing research to prevent, predict, and improve treatments for all forms of diabetes.

## Expanding Opportunities to Volunteer Time and Treasure

Event Co-Chairs PNRI Trustee Carol Heimkes and Ryan Allison, owner of AWineStore.com, have built upon the successes of the first two years of this fabulous summertime event. "More community volunteers joined our Wine Guild, which has dramatically increased in-kind donations and participation from many new Washington wineries," said Allison. Community support for this year's event is also unprecedented. More than \$50,000 in underwriting has been secured—a four-fold increase from 2005 sponsorships. PNRI is proud to partner with the *Puget Sound Business Journal* as media sponsor. *An Evening of Wine* advertisement appeared in the mid-June supplement of the journal's Special Wine Edition.

## Great Food and Wine

Unlike other wine-tasting events, PNRI's *An Evening of Wine* is organized around a key goal: the best of Washington red and white wines join with an ever-widening circle of PNRI family and friends for a great program balancing fun and fundraising to advance ways to conquer diabetes.

Upon arrival and registration, starting at 5:45 pm, guests will have the opportunity to try wines provided by nine wineries. At 6:45 pm, the "Name That Wine" game will be hosted on the Newcastle Terrace by Christopher Chan, Director of Wine at Seattle's Rainier Club. A three-course dinner and live auction will follow, with twenty wine-themed packages, including gift certificates for local restaurants, wine-country excursions, and an exclusive dinner at Dale Chihuly's Boathouse! During the auction, a PNRI family will be featured to share the story of their fight with diabetes in support of the Fund-A-Need. Last year, more than \$58,000 was raised to support the Fund-A-Need focus—innovative diabetes research of a post-doctoral fellow. All of the evening's proceeds advance PNRI's scientific research.

Should you be unable to attend, you can make a donation in absentia. Auction items are valued from \$125 to \$13,560. In 2005, more than \$152,000 was raised at *An Evening of Wine* from 180 guests.

Sign up today for PNRI's third annual summer special event—*An Evening of Wine*—at The Golf Club at Newcastle on Thursday, August 3, 2006, from 5:45 to 9:45 pm. Tickets are \$150 for individuals or \$250 for patrons. Space is limited. For reservations, or to make a donation to the Fund-A-Need program, contact Tia Farrell at 206-726-1200 or [tfarrell@pnri.org](mailto:tfarrell@pnri.org).

# Estate Gifts Continue Legacy of Giving

by Sheryl Stiefel, Director of Development

gifts

Pacific Northwest Research Institute (PNRI) depends on private contributions from friends in the wider community. Every year, more of our friends include PNRI in their wills and estate plans. Those who leave bequests or consider PNRI in their estate planning assist us in the advancement of new detection, prevention, and treatment methodologies. With a little help from everyone, we will conquer diabetes, a life-threatening and economically destabilizing disease.

## Board Designated Endowment Grows with a Purpose

PNRI's Board of Trustees established a Board Designated Endowment in February 2005. The purpose of this fund is to provide funds for innovative diabetes research projects and to help attract new diabetes researchers. In the last 18 months, PNRI has received six estate gifts ranging in value from \$10,000 to \$1.2 million. "Every gift makes a difference at PNRI," says Gene

Williams, PNRI Trustee, who chairs the Development Committee and serves as Secretary of the Estate Planning Council of Seattle. "And PNRI's networking with estate planners will benefit our efforts to connect with donors who are interested in advancing biomedical research. Together, we will conquer diabetes."

"PNRI is on the leading edge of breakthroughs in type 1 and type 2 diabetes," says Dr. Paul Robertson. "Every new estate gift to our Board Designated Endowment brings us closer to launching new discoveries and improving prediction and prevention tools for diabetes."

## Sign Up to Be a Partner in Discovery

Partners in Discovery is a special donor circle honoring benefactors who invest in PNRI's future. Join our growing circle of friends who are making a difference by

helping our scientists take diabetes research to new levels of success. You can become a Partner in Discovery by letting the Development Office know that you have made a bequest in your will to benefit PNRI. Partners are recognized in our annual report, receive invitations to special events, and are listed on a special donor wall in our lobby. If someone does not wish to be publicly recognized, we will honor his or her wish.

To learn how you can become a Partner in Discovery, contact Sheryl Stiefel, Director of Development, or fill out and return the form below. You may also send an email to [sstiefel@pnri.org](mailto:ssstiefel@pnri.org). All inquiries are confidential.

Discovery  
PNRI

## Please Give to PNRI

- YES!** Please send me information about making a bequest or charitable gift annuity to PNRI
- I have already included PNRI in my estate plans.

All replies are confidential.

Mail to: Sheryl Stiefel  
PNRI  
720 Broadway  
Seattle, WA 98122

Phone: 206-726-1203  
Email: [sstiefel@pnri.org](mailto:ssstiefel@pnri.org)

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Predict ■ Prevent ■ Conquer Diabetes

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join us in discovery...

*Partner in Discovery*

## Perspectives

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ed diabetes research. This whole scene is creating havoc among the scientific community. We have just emerged from a well-funded decade during which we trained many young diabetes researchers. They are now finding it almost impossible to win their first independent grant support, which will greatly truncate our scientific future, including the critical goal of conquering diabetes and its complications.

In this issue of *The Laser* you will read repeated calls to action. It is time for global initiatives to conquer diabetes at every level: economic, political, scientific, educational, sociological, and psychological. Recently, the second Pacific Health Summit was held in Seattle. Hundreds of healthcare leaders from the U.S. and other Pacific Rim countries came to hear and discuss diabetes and other global health issues. During the Summit the point was made repeatedly that without healthy nations there can be no world peace. Perhaps the surest way to world health and world peace is for all nations to invest more of their vision and resources into preventing and curing disease and less into fighting wars.

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## TRUSTEE profile

### Sarah Armstrong: Empowering Diabetes Research—Improving Patient Health

Sarah Armstrong brings an enormous range of healthcare skills and experience to PNRI's Board of Trustees. She is a lawyer, a critical care nurse, a hospital administrator, and a healthcare researcher. She knows health care inside and out—from the systems that serve our most critically ill to the laws and regulations that constrain those systems. Armstrong enrolled in law school after twenty years providing clinical care, managing intensive care units, and researching the organizational factors that reduce patient mortality. There she complemented her healthcare knowledge with an understanding of the legal and regulatory constraints our healthcare institutions must navigate in the delivery of patient care.

"Patient outcomes are what I care about most," Armstrong says. "I want patients to have access to care. I want it to be of the highest quality. And I want the system to provide the financial incentives necessary to keep patients well."

This commitment is what led her to PNRI and its unique blend of clinical and basic research on type 1 and type 2 diabetes.

"As a nurse," Armstrong recalls, "I treated patients whose bodies had been ravaged by a lifetime of diabetes. Other diabetics I cared for, however, were spared. The difference between the two groups was careful, sustained diabetes management. PNRI is now combining its basic science agenda with expanded clinical research. This clinical dimension—especially the focus on working with communities who are at high risk for diabetes—will provide us with an opportunity to make a real contribution to the treatment of and eventual cure for diabetes."

She is in a position to know because she has worked both within the healthcare system and outside it. She understands how

dependent quality health care is on the systems of delivery that provide it. In 1976, as a student intern to Congress, Armstrong watched legislation being drafted to finance, manufacture, and administer the Swine Flu vaccine. The process rushed forward a mass inoculation campaign with inadequate trials and informed consent procedures. Later, as a critical care nurse, she cared for many of those who contracted a debilitating paralysis that was a side effect of the vaccine.

As a nurse manager, Armstrong also responded to protect patients in her unit from the indirect effects of a federal restructuring of healthcare payment—radical staff downsizing and accelerated discharges. As a nurse researcher, she participated in the 1989 American Association of Critical-Care Nurses Demonstration Project that documented a link between lower patient mortality and intensive care units organized to ensure low staff turnover and high collaboration with physicians.

Finally as a lawyer, Armstrong specializes in healthcare regulation and reimbursement, where she applies the lessons she learned in these early observations of Congress and in her practice. "My goal," she says, "is to use the law to strengthen the system to improve healthcare quality, not to hobble it. That is the work I am engaged in now."

With the breadth of her system-wide perspective, Armstrong can see how important PNRI's clinical diabetes research with at-risk groups is for the healthcare system as a whole. "By investing in advances in diabetes care and treatment for populations who are most burdened by the disease," she says, "we can get improved diabetes care for everyone more quickly and effectively."

commitment quality  
advances

## Opportunity Is Now

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together to do it. As Julie Gerberding, Director of the Centers for Disease Control puts it, “Together we can and must do more to prevent and control this growing epidemic of diabetes.”

### Collaboration

In addition to establishing a diabetes research agenda, new collaborations will need to be forged in order to effectively contain the disease. The October 2005 special issue of the British medical journal *Lancet* called for such an effort. “New coalitions that extend beyond the confines of the traditional health portfolio will need to be built,” the *Lancet* authors wrote. “Sectors of society such as business, labor, and non-governmental organizations not traditionally included in the development of health policy can be recruited for prevention efforts.”

PNRI already participates in national and international scientific partnerships with other laboratories and individual investigators. But new alliances would expand the effectiveness of its diabetes mission. Remote diabetes research programs; hospitals and clinics with the capacity for clinical investigations of diabetes; interdisciplinary teams linking cell biologists with epidemiologists, medical anthropologists, health information technology specialists, linguists, and specialized clinicians to improve management and prevention programs in multiple cultures; international agencies and global health bodies like the Centers for Disease Control and Prevention and the World Health Organization—cooperation among all these partners would permit new concentrations of resources and talent to contain diabetes.

In order to heed the *Lancet* call, new collaborations need also to apply the discoveries of scientific research to business, policy, economic development, and environmental planning. Infrastructure decisions that affect lifestyle patterns and opportunities within societies need to be made in such a way as to foster diabetes prevention.

### Funding

In the last year, PNRI’s President and Scientific Director, Dr. Paul Robertson, has written three guest editorials advocating increased funding for diabetes research. None of the measures needed to reverse the epi-

dem rise in diabetes will be possible without substantial increases in the levels of funding.

#### Guest editorials on diabetes by Paul Robertson

“The Global Diabetes Threat,”  
*The Seattle Times*, May 19, 2005.

“Diabetes Not Equal Opportunity  
Disease,” *The Seattle Post-Intelligencer*,  
February 7, 2006.

“While Diabetes Spreads, the  
Feds Clip Research,” *Puget Sound  
Business Journal*, February 24, 2006.

In *The Seattle Times*, Robertson argued that the global threat of diabetes will only be averted if we have the political will to fund the effort adequately. In *The Seattle Post-Intelligencer*, he explained that diabetes health disparities will not be reduced and diabetes health equity not achieved without unambiguous federal support for basic and clinical diabetes research. In *The Puget Sound Business Journal*, he argued that the federal cuts proposed for diabetes research this year will cripple our efforts to understand the most basic questions about diabetes—questions essential to its prevention and cure.

Robertson’s call for more robust diabetes funding was echoed by *The New York Times* in a recent article on the woeful state of public diabetes research support (May 16, 2006). *Times* reporters heard the same refrain from many of the experts they interviewed: “Diabetes is a massive tidal wave hitting the country.” Without serious funding, “we’re cutting our best hope at protection.”

### Disparities

If we mean to take diabetes seriously and to take the steps necessary to stem its tide, we must acknowledge that dramatic disparities exist in the distribution and care

of the disease, disparities based on race, class, culture, and poverty. Type 2, the most common form of diabetes, is a disease that disproportionately affects people of color and the poor.

Programs that address these disparities must be supported and expanded. In King County, for example, PNRI is working with Project REACH (Racial and Ethnic Approaches to Community Health) to reduce diabetes disparities in African-American, Latino, and Asian-American/Pacific Islander neighborhoods. Such programs need to be broadened.

Diabetes research also needs to address these disparities. More systematic scientific attention needs to be given to the incidence, etiology, progress, and outcomes of diabetes in the racially diverse populations where it is especially burdensome. Such research will be advanced most effectively in partnership with the affected groups. Only with focused and sustained attention on populations that are disproportionately affected by diabetes—and only with their committed help as full partners—can science hope to retard the rise of this disease, and ultimately prevent and cure it.

### An Urgent Imperative

This four-part program is very ambitious. It will require concerted energy and commitment, and it will only be accomplished by broad cooperation. But it frames the critical scientific research of diabetes centers like PNRI in their proper context. The study of the cellular mechanisms of diabetes is the central activity of a global health vision that is broad and timely. The danger of diabetes is enormous. If we work together to accept the urgent imperative of containing it, we will have seized the very real opportunity to improve the health of the world.

#### PNRI Laboratories and their major areas of research

**William A. Hagopian, M.D., Ph.D.**  
(Type I diabetes mellitus)

**Senitiroh Hakomori, M.D., Ph.D.**  
(Aberrant cell recognition and  
signaling in cancer, based on changes  
in glycosylation)

**Donald Malins, Ph.D., D.Sc.**  
(Breast, ovarian, prostate cancer)

**Christopher Rhodes, Ph.D.**  
(Biochemistry of pancreatic beta cells)

**R. Paul Robertson, M.D.**  
(Pancreas and islet transplantation,  
glucose toxicity of pancreatic beta cells)

**Barton Wicksteed, Ph.D.**  
(Alpha cell regulation)

Research

ADDRESS SERVICE REQUESTED



**THE LASER**  
JULY 2006

*faces*

*Note: The Laser thanks the many individuals with diabetes who have generously permitted us to share their faces and stories. They help us understand what it means to live with diabetes, and their experience makes the urgency of our mission more vivid and compelling.*

## THE FACES OF DIABETES

# diabetes

### Angela Anania

When Angela Anania was nine years old, she learned how to inject saline into an orange. “It was so you could get the feel of it,” she says now of those early days in the Phoenix Hospital, “pinching the skin, pushing the needle in.” She was just using saline to practice, but she remembers that when she gave herself her first insulin injection, in her leg, she was very happy. “I ran down the hall to tell my friend Rose. I felt so accomplished.”

Now 35, a designer at the Gene Juarez Salon & Spa in downtown Seattle, Angela has complex feelings about diabetes. The first day she wore her insulin pump to work, she cried.

“It was the first time in my life that I felt like a diabetic. I was wearing my pancreas on my belt, and a tube was sticking into me, and I was going to be connected to this thing for the rest of my life. As happy as I was to have it, I felt more like a diabetic

than I ever had before.”

She is also frustrated with herself for not managing her diabetes as well as she should. “This is a disease you can control,” she tells herself and others. “I know what I should do if I want to have children, if I want to avoid kidney problems and limb amputation and blindness (knock on wood, I haven’t had any complications yet). I don’t want to scare anyone, but the choices you make now will affect you later.” So her regimen advice is clear: plan your meals, make appropriate choices in food, exercise, don’t become lax, above all check your blood sugar. And still she doesn’t.

“It’s ridiculous,” she says out loud, indicting herself. “You don’t test your glucose? Are you kidding? How do you know how much insulin you need?” But it’s one of the facts of her life with diabetes. “I know what I should do. I can make the choice. I just need to do it.”