Realistic Postdoc Uses Proteomics TO ACHIEVE BASE HITS

by Michelle Bearden

With 221,000 new cases of lung cancer diagnosed every year, Matthew Smith, Ph.D., knows the urgency in finding a cure for the disease. But with his science background, he is also a pragmatic realist.

So he uses an analogy from one of his favorite sports.

"We're swinging for solid base hits," says Dr. Smith, a postdoctoral fellow in the lab of Eric Haura, M.D., who directs the Lung Cancer Research Center of Excellence at Moffitt. "You can't count on a home run. In other words, to think we will find a pill that will magically cure every cancer is unrealistic."

That doesn't stop him from trying. Part of his time is spent in Dr. Haura's laboratory, which uses proteomic technologies to better understand how lung cancer evades treatment and to identify novel treatment therapies. Dr. Smith's current project specifically uses a new technique called "proximity ligation assay" to identify whether specific cell survival pathways are activated or "turned on."

That kind of work may not spark lively conversation at a dinner party, but it's necessary, especially to those who have a family member or friend affected by this disease. So when he's not working on grants to pay for some of his work, Dr. Smith devotes his energies to Moffitt's Government Relations Task Force, a nonprofit group composed of postdoctoral fellows that strives to promote advocacy for biomedical research funding.

Photography: Cliff McBride

The goal: to initiate and maintain liaisons with federal and state representatives to demonstrate the importance of research to the public health, economy and scientific progress of this country. The fellows have given tours of their labs to influential lawmakers and made visits to Tallahassee to call on legislators.

Dr. Smith says he never expected to be taking on a role like that. But "there's a lot of misunderstanding" about how projects are funded, so he and his fellow task force members are focused on bridging the gap to help their cause.

"The reception and support we've gotten was an unexpected surprise," Dr. Smith, 36, acknowledges. "We know the importance of funding research because we see it on a daily basis. Convincing others, especially those who have the power to make funding possible, has to take priority in order for us to accomplish what we need to do."

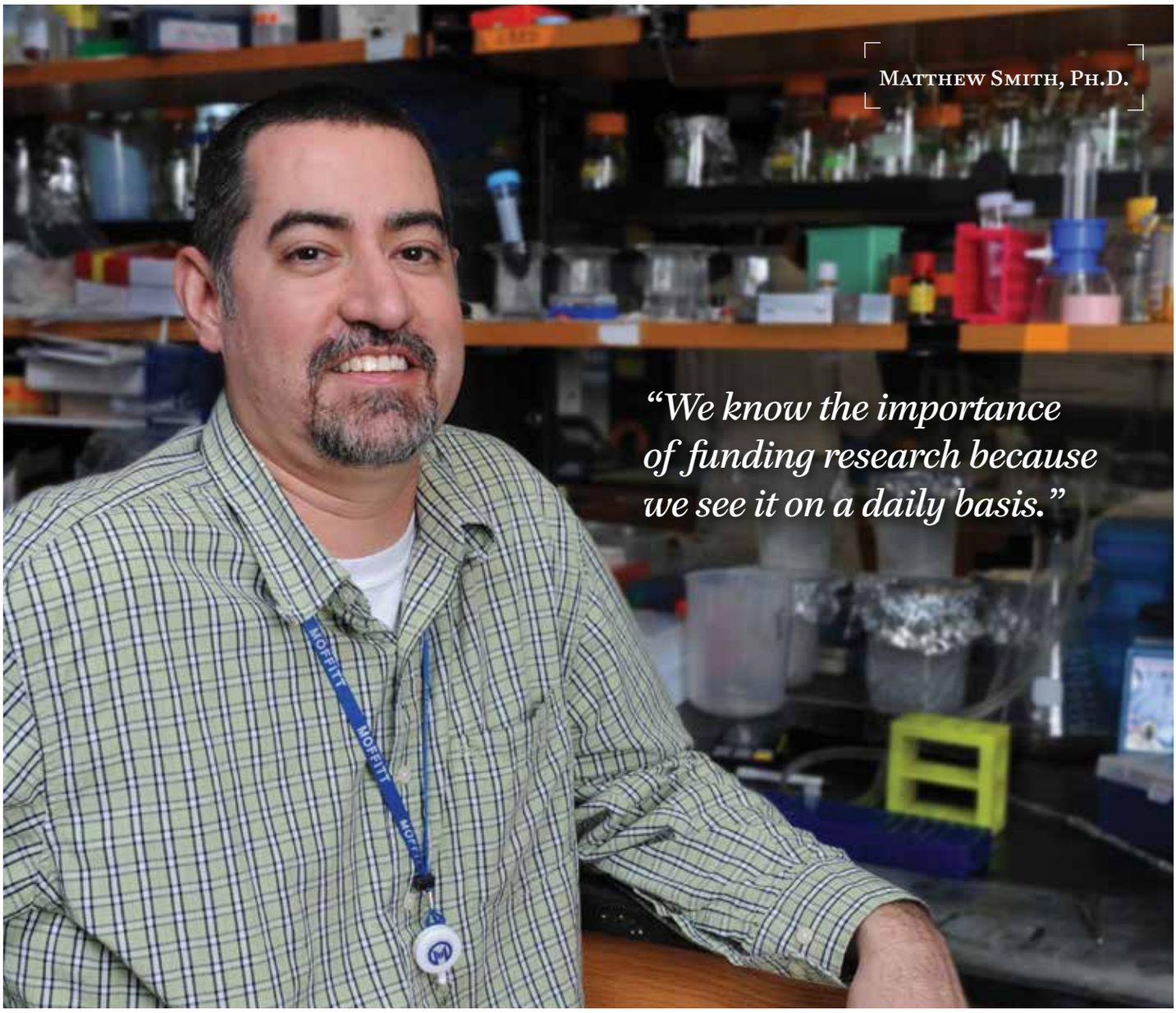
Some of the urgency was triggered by the federal budget sequester cuts in 2013, which came on the heels of a decade of stagnant funding. During that period, the National Institutes of Health claims it lost nearly 25 percent of its purchasing power to inflation. "You can't always predict when a breakthrough will come, "Dr. Smith says.

"If you slow down or stop research, you can pretty much predict there won't be any breakthroughs."

Despite the fiscal challenges in his work as a researcher — Dr. Smith says he spends a "fair amount of time" seeking grant money — he knows he made the right career choice. But it wasn't his first one. When he graduated top of his class at Palmetto High School in 1996, he figured he would go to medical school and become a doctor.

"You never think about becoming a researcher at that age," he says. "There's no one in high school pushing you in that direction."

He got his degree in biological sciences at Florida State University, where he also met his future wife, Susan. Then he veered off the medical career path and got his master's degree in public health at the University of South Florida, specializing in tropical and communicable diseases. After five years working in a public



health lab, he began his doctorate, this time concentrating on gene regulation and immune cells.

"It was an indirect route," Dr. Smith says of landing at Moffitt as a postdoctoral fellow in cancer research. "I've never regretted following this path. It's not the life I thought I would have, but it's where I found my passion."

It's a very busy life. He and Susan, who now works as an administrator for a large Type 1 diabetes research study at the Pediatric Epidemiology Center at the University of South Florida College of Public Health, have two children, ages 3 and 1. When they're not juggling careers and parenthood, they're in the backyard of their Lutz home, where they maintain a worm pit for composting and a seasonal garden of beans and vegetables.

"Anything that's easy to grow," he says. "We'll save the challenging stuff for down the road."

For now, he has another important task at hand: persuading the powers that be to grow research money. If he gets discouraged, he only needs to think of Francis Crick, one of his scientific heroes.

Crick, an English molecular biologist, biophysicist and neuroscientist, was a co-discoverer of the structure of the DNA molecule. Along with two other peers, he also was a joint winner of the 1962 Nobel Prize for Physiology or Medicine for "discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material."

Back when Crick launched his research, Dr. Smith says, "so little was known. There was a vast, immense landscape of discoveries not yet made." Now his work is the foundation of what is being taught in high school science classes.

"What he accomplished in his lifetime shows how much there is to learn and why research was and will continue to be so important," Dr. Smith says.

"We're swinging for solid base hits."