As he gets ready to graduate from Einstein in May, Kim has good reason to be optimistic, as he has already chalked up a long list of accomplishments. The M.D./Ph.D. student has co-authored 11 published studies on oncology and was the lead author on a 2015 review of cancer immunology that was cited more than 250 times by other researchers. “That’s quite unusual for a student,” says Xingxing Zang, M.D., Ph.D., professor of microbiology & immunology and the Louis Goldstein Swan Chair in Cancer Research at Einstein, who was Kim’s thesis adviser and helped guide his research. Kim also earned a four-year fellowship from the National Cancer Institute, which supported that research and paid for his tuition. “Those are highly competitive and only go to the best students,” Dr. Zang says.

An Ideas Man

Scientific pursuit is only part of the picture for Kim, who was drawn to Einstein by the “close-knit community” he found both within the school and the surrounding Bronx. In 2016 Einstein recognized him with a student service award for mentoring high school students from the area and helping start Hoops4Health, a program that uses basketball and other team-based sports to engage with elementary school-age students and appeal to their interest in science and health.

What’s behind that success? “Kim reads a lot and thinks a lot. He has a lot of ideas,” Dr. Zang says. Sometimes they work out; sometimes they don't, he says. “But he’s persistent.”
To illustrate just how persistent, Dr. Zang tells how he came to work with Kim. During their first two years of classes, M.D./Ph.D students typically do at least three rotations in different research labs. Kim reached out to Dr. Zang for his first rotation. “He was very smart and nice as well as keenly interested in cancer immunology, one of the focuses of my lab. I was happy to take him,” Dr. Zang says. Then Kim wanted to come back for rotation two. “That’s rare because students like to try out other areas,” Dr. Zang says. “But he made a convincing case for continuing his work. So I said OK.”

For rotation three, Dr. Zang insisted that Kim contact other labs for his own sake. “He’s a bright, creative student. I told him it’s good for him to explore other opportunities.” Dutifully, Kim talked to several other researchers, only to say there was no place else he’d rather be. “Kim’s unique,” Dr. Zang says. “He knows he’s doing something important and keeps coming back at a problem long after others would have given up.”

**Called to Immunology—and the Bronx**

Growing up, Kim never imagined a career in medical science. “I'm a first-generation Nigerian American; no one in my family had a doctoral degree,” he says. “I had no idea whatsoever that those possibilities could be open to me.”

The door to opportunity opened while he was looking for ways to support himself as an undergraduate at the University of South Florida. “I had been working odd jobs at places like Sears and Chick-fil-A when I saw an advertisement for an internship for underrepresented minorities at the university’s Moffitt Cancer Center. I thought, ‘Wow, a two-year paid position,’ ” he says. He applied, was accepted, and in short order realized that he had stumbled into his calling. “I fell in love with immunology,” he says.

“...and yet still residential—a real community where you can get to know people and walk everywhere.”

– Kim Ohaegbulam, M.D./Ph.D. candidate

His search for M.D/Ph.D programs took him to New York City—an experience he recalls as intimidating for someone who grew up in Alabama and Florida and hadn’t had much opportunity to travel. He felt more at ease once he got to the Bronx, which he describes as “urban and yet still residential—a real community where you can get to know people and walk everywhere.”

He also found the sense of community he was looking for at Einstein. “Everyone was genuine and sincere,” he says. “There were no false hopes. You knew you were going to have to work hard. But you also knew you were going to be a part of this community, a part of this family, and they were going to make sure you succeeded.”

After that first visit he didn’t seriously consider going anywhere else. The worst part may have been breaking the news to his mom. “She cried when I told her I was moving to New York, but I knew it was right,” he says.
Back in 2010, at his orientation, “Kim did seem a little like a fish out of water, coming up from Florida to New York,” says Myles Akabas, M.D., Ph.D., professor of physiology & biophysics and director of the Medical Science Training Program at Einstein. But his “enthusiastic, hardworking personality” quickly made him a presence in the program says Dr. Akabas, who lunches on Fridays with the first-year students. “You get to know the students over the year,” he says. “Kim was a standout.”

**Basketball and Science**

Kim says he felt more at home when he found kindred spirits on an intramural basketball team: “It was this court full of nerds who probably all had hoop dreams at some point, but were now just having fun and getting some exercise,” he says.

It dawned on him that he had a lot in common with the children he saw in the Bronx. “I was that kid back in Huntsville, Alabama, shooting hoops at the Boys & Girls Club because my parents didn’t have money to put me in expensive after-school programs,” he says. His big idea: Why not use a fun activity like basketball as a way to get school-age kids interested in health and science?

Einstein encourages medical and graduate students to develop and lead service projects at places such as schools, prisons, and homeless shelters as part of the Community Based Service Learning Program (CBSL), says Heather Archer-Dyer, M.P.H., director of community outreach at Einstein. For example, a student with experience tutoring may want to continue that at a school in the Bronx, she says. “We help them come up with a site, work on objectives and a proposal, and request budget funding to make it happen.”

Kim and three of his teammates roughed out a plan and brought it to Mrs. Archer-Dyer. They would meet with fourth- and fifth-grade students after school to burn off some energy playing basketball, kickball, or another game and afterward engage them in hands-on science activities.

“It was very out of the box,” Mrs. Archer-Dyer laughed. “I told them, ‘You are really tricking these kids into doing science projects.’” It was also ambitious. It would eventually take a collaboration of three organizations—Doctors for a Healthier Bronx, the Police Athletic League, and elementary school PS 89—to make Hoops4Health happen.

The kids loved it. “We had them building circuits, making a lava lamp, doing DNA detective work, and making slime. Sometimes it was nutrition and health based, like how to read a food label or what a proper dinner plate looks like,” Kim says. “They were all about it. I was surprised at how excited they were to see us every month.”

As it happened, the four young men who founded Hoops4Health were all of different ethnic backgrounds. The following year they recruited women volunteers. “It’s important for kids to see role models that look like themselves,” Kim says. “In the beginning, the kids said, ‘You guys are geniuses—we could never be like you.’ But we would tell them, ‘We are a product of that same type of system and environment; we’re no different than you are.’”

Hoops4Health also recruited volunteers from the Einstein Enrichment Program, where high school students from the Bronx shadow medical students and learn what it’s like to do research and be a physician. “We taught the high school students the experiments the week before so that they could lead them. Now the kids were getting to see someone closer to their age and from their community doing science,” Kim says.
Although Kim and the original group of volunteers moved on from Hoops4Health as they advanced through their medical and research careers, the program continues to thrive. Last year, a group of Einstein students won an award for their presentation on the program at a conference sponsored by the Association for Prevention Teaching and Research. And students have submitted two papers on the program for publication by the U.S. Centers for Disease Control and Prevention (CDC).

“It speaks to the creativity and dedication of the original group that Hoops4Health lives on,” Mrs. Archer-Dyer says. “For students to have that lens on a science job, to have someone they look up to say, ‘Here are the steps I took to get here’—that’s powerful.”

**A Novel Approach to Treating Cancer**

When Kim wasn’t in class, on the basketball court, or elbows-deep in edible slime, he was working in Dr. Zang’s lab trying to figure out how to harness the body’s immune system to fight cancer.

Dr. Zang discovered a key protein found in cancer cells while working as a postdoctoral fellow with Jim Allison, Ph.D., a researcher at the University of Texas MD Anderson Cancer Center known as the “godfather” of cancer immunotherapy. Last year Dr. Allison and Dr. Tasuku Honjo of Kyoto University in Japan were awarded the Nobel Prize in Medicine for their discoveries in cancer immunology research.

The protein, called B7x, effectively acts to disguise cancer, signaling to the immune system that the cells are healthy and function normally. Cancer patients whose tumors express B7x fare much worse than patients whose tumors don’t express the protein; their cancer is more likely to spread and they have a reduced chance of survival.

To research how to effectively block B7x, researchers needed to be able to reproduce the phenomenon in laboratory animals. That’s where Kim came in. “He helped establish a mouse tumor model that mimics the effects we saw in the clinic,” Dr. Zang says. “That’s important, because once we understand how the mechanism is working, we can start figuring out how to shut it down.” Currently Dr. Zang is working with a drug company that has licensed the underlying intellectual property to develop medications to target B7x and potentially help cancer patients live longer.

**A Collegial Atmosphere**

When asked about the high points of his education and research, Kim talks about work rather than the accolades. “For me, it’s just going to work every day and sitting across the bench from my best friend, bouncing ideas back and forth,” he says. The lab was comprised of “people from all corners of the world,” he says, but the camaraderie made it feel like home.

He credits Dr. Zang for creating a collegial, if work-intensive, atmosphere. “He was always the first one in and typically the last one out. I loved that his door was always open to me,” Kim says. He fondly remembers lab get-togethers where Dr. Zang would set out “a phenomenal spread of food” and birthday celebrations that almost always involved a lunch outing.
One thing that Kim is excellent at is eating, Dr. Zang says. “Kim likes good food—Chinese food, Italian food, all kinds of food.”

“Throughout the entire five years I was in Xingxing’s lab, I worked day and night to find that receptor.”

– Kim Ohaegbulam, M.D./Ph.D. candidate

Kim also says he met his greatest challenge in Dr. Zang’s laboratory, working to find the immune system receptor that binds to B7x. With that crucial bit of knowledge, researchers would be able to block that pathway from many different angles.

“Throughout the entire five years I was in Xingxing’s lab, I worked day and night to find that receptor,” he says, even spending an extra year on his thesis dedicated to the hunt. Still, it remained elusive. Even now, as he moves on to the next phase, he hasn’t totally given up.

“I would love to take another shot at it,” he says.

One Foot in the Clinic, the Other in the Lab

He may yet get that chance. He was accepted as a Diversity Mentorship Awardee from The American Academy of Dermatology, a highly competitive program that provides students with mentorship and research opportunities with dermatologists of color. But he has instead opted to pursue a career in radiation oncology and continue his research in cancer immunology.

That’s where his heart lies, he says. It goes back to when he was an undergraduate, shadowing his mentor on patient rounds. “I got to see how work in the lab directly affects patient health and outcomes,” he says. “It was the first time I got to see this phenomenon referred to as bench-to-bedside, or translational research. I was hooked.”

He points out that the fields of radiation oncology and immunology complement each other. Research has shown that treating a cancerous tumor with radiation actually stimulates the immune system to attack cancerous cells that spread elsewhere in the body. “Together those independent modalities have a synergistic effect” both revving up the immune system to attack cancer cells and blocking compounds such as the protein B7x that hold the immune system in check.

The field of immunology is still young, Dr. Zang says, with tremendous potential for growth. “I firmly believe, based on what he’s learned in my lab and the qualities that he has shown so far, that Kim will make important contributions, particularly in developing new cancer immunotherapies,” Dr. Zang adds.

A Young Man Heads West

When we checked in with Kim again in March he had just returned from a two-month Spanish-language immersion program in Colombia, South America. He knows some Spanish, but it has always bothered him that he wasn’t fluent enough to converse with patients who speak the language.

Dr. Akabas says that “it’s just like Kim” to continue to work on a skill he hasn’t mastered and to find a way to deepen his connections to his patients. “I’m impressed that he has taken advantage of what Einstein has to offer and used it to excel in the sciences and to give back to the community,” he says. “He’s going to be a terrific physician, mentor, and scientist.”

On Match Day, Kim says he got “fantastic news.” He will be joining the Department of Radiation Oncology at the Oregon Health and Science University Hospital—his No. 1 choice—as a resident at the Knight Cancer Institute in July 2020 after finishing a preliminary year at Long Island Jewish Forest Hills Hospital. “I can’t wait to start the next chapter of my life as a physician-scientist in another very supportive community,” he says. “I have never lived west of Alabama, so living in Portland, Oregon, is going to be exciting.”