

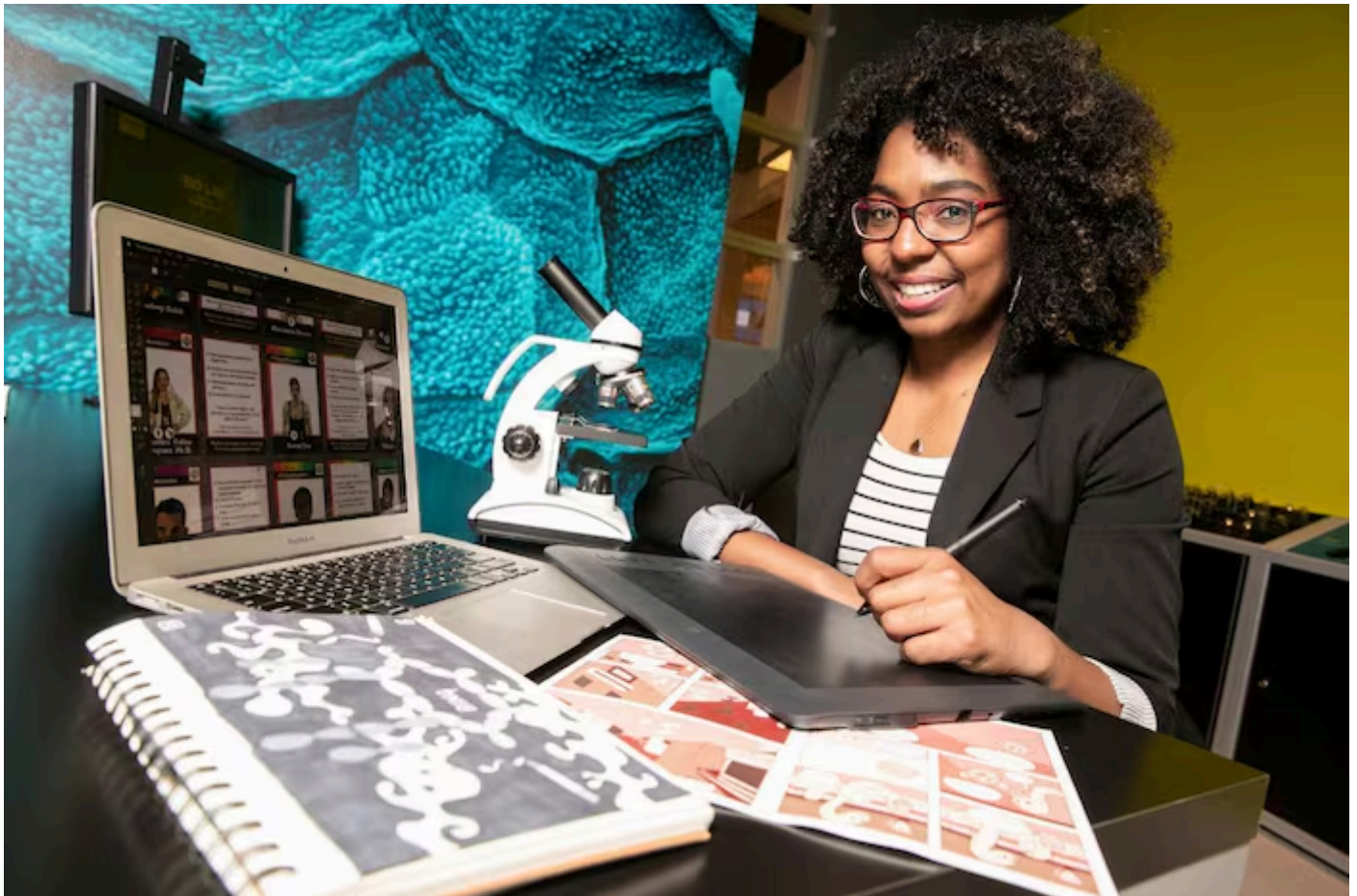


THE UPSIDE



## This Fox Chase cancer researcher creates comics to explain science to nonscientists

“If you were to Google ‘scientists,’ everyone you would get would look more like Albert Einstein, but so many more people do science,” she said. “Literally anyone can be a scientist. You need to apply yourself, and you need to work hard. We’re not all geniuses.”



Jaye Gardiner, a Fox Chase Cancer Center post-doctoral researcher, uses comics to communicate about science. This photo was taken last fall at a AAAS IF/THEN Ambassador Program summit in Dalla ... [Read more](#)

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A stalk of celery got Jaye Gardiner into science.

As a precocious first grader in Chicago, she was invited to take part in a second-grade science class, where the students were conducting an experiment. Gardiner, who'd always been intrigued by science, was “super-excited.”

The experiment was simple: Put stalks of celery into cups of colored water, then watch what happens. Over time, as the stalks absorbed the water, their leaves changed color to match the water. It was like magic to Gardiner.

“That was the first thing that had me go, ‘What is this? How does this work?’” Gardiner said. “I would say that mystery, and that drive to solve puzzles, is probably what attracts me to science.”

Gardiner is now 31 and a postdoctoral researcher at the [Fox Chase Cancer Center](#) in Philadelphia. She's studying pancreatic cancer and the tumor microenvironment. In the past, she's researched HIV and other viruses. She's also using her time at Fox Chase to learn the skills she will need to operate her own laboratory one day — a goal of hers.

But the little girl who got so excited about color-changing celery is still alive and well — and very much wants to share that wonder with a wide range of folks, young and old, future scientists and nonscientists. That's why, these days, she's not just a scientist, but a science *communicator*, whose tools are less conventional than the test tubes and microscopes found in a lab.

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grad student in at the University of California at San Francisco, and Khoa Tran, who is doing postdoctoral work at the University of Pennsylvania.



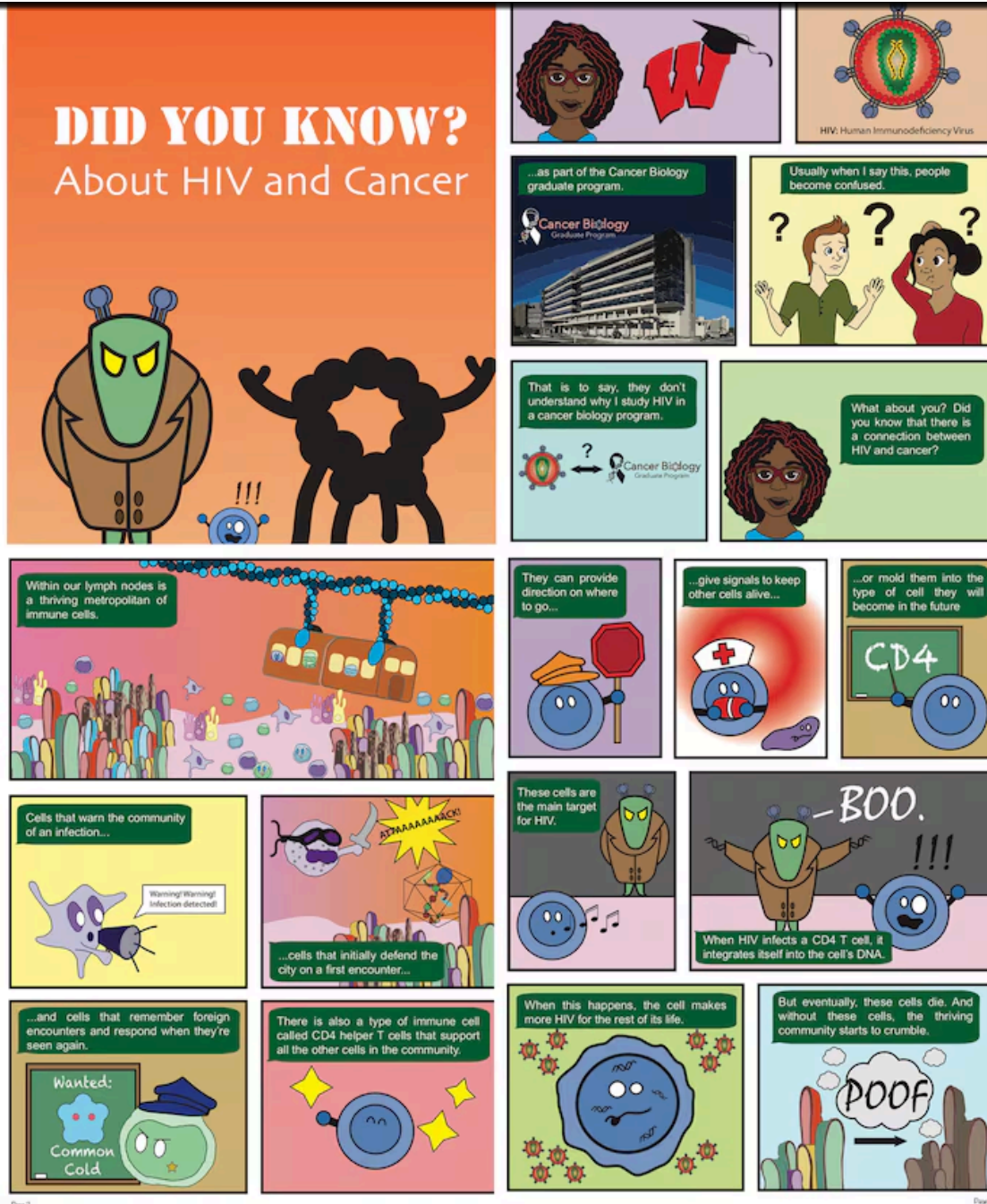
Khoa Tran, Jaye Gardiner, and Kelly Montgomery are the founders of JKX Comics. Photo courtesy of the Gaining STEAM event, Madison, Wis.

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Their goal: “We simplify STEM concepts from multiple disciplines to create engaging comics to increase students’ scientific literacy.”

JKX Comics’ target audience is middle-school age and up. Topics have ranged from cell division and Alzheimer’s disease to a breakdown of the Epstein-Barr virus and political activism by scientists. The text is simple and straightforward, the illustrations colorful and playful.

Currently, the comics are available free on the JKX website, but the partners plan to put them into print and make them available to schools and libraries. Gardiner said the group has been exploring scholastic options with the [Madison Reading Project](#), a Wisconsin nonprofit literacy program.



Jaye Gardiner contributes to comics about science.  
Courtesy Jaye Gardiner

But science communication, like science comics, isn't just kid stuff. Making science accessible is about increasing science literacy at all ages, Gardiner believes.

their health.”

Last year, Gardiner launched a line of [scientist trading cards](#) featuring profiles of scientists of diverse genders, ethnicities, and backgrounds. For now the cards are available online, but she hopes to eventually produce them for home and school use. They’re intended to expand awareness of who scientists actually are.

“If you were to Google *scientists*, everyone you would get would look more like Albert Einstein, but so many more people do science,” she said. “Literally anyone can be a scientist. You need to apply yourself, and you need to work hard. We’re not all geniuses.”

As a youngster, Gardiner was fortunate to have parents who encouraged her interests.

Gardiner is both the child of immigrants from Belize and a first-generation college graduate. Her mother and father stressed effort more than grades.

“So I would always put in more and more effort,” she said.

She was also lucky to have teachers who knew how to fire up students’ enthusiasm and make material accessible. One of her favorites, Mr. Coy, had his students write science-themed lyrics to the tune of Led Zeppelin’s “Stairway to Heaven,” which the class then fashioned into a video. It’s a project she still remembers vividly, 15 years later.

“He made science so much fun that I fell completely in love with it,” she said.

the pandemic shut things down, she was involved with Fox Chase's [Teen Research Internship Program](#).

In addition, last year she was one of 125 women innovators in STEM selected by the [American Association for the Advancement of Science](#) to mentor girls middle-school age and up. She believes diversity in mentors is important for young people, to let them see the possibilities for themselves. But the diversity may also lead to scientific solutions brought about by new approaches to scientific problems.

“Everyone views the world through their own lens that is developed by the experiences they have had,” she said. “In mentorship, diverse voices will breed diverse strategies to overcoming hardship, maneuvering careers, and acquiring success.”

Gardiner still has a way to go in charting her own career, including two more years in her postdoctoral post at Fox Chase.

“What my actual position in the end will be is kind of unknown,” she said. “I definitely think I’m making it up as I go along, and I’m not opposed to that idea.”

What’s certain is that her plans will include sharing the wonder that got a little girl in Chicago so jazzed about science to begin with.

“Science is a part of all our lives, whether we realize it or not. It can give a deeper appreciation for the things that we just take for granted,” she said. “Just to know how things work — having that knowledge is powerful.”