Photo Credit: Marco Santos/New York Daily News

Harlem Biospace: paving the way for biotech startups in New York City

In the Manhattanville Factory District in West Harlem, a former confectionary lab on 423 West 127th street is now the home of the biotech incubator Harlem Biospace. The center was founded by Samuel Sia, a professor of biomedical engineering at Columbia University, and his wife Christine Kovich, director and co-founder of a science education program for children, HYPOTHEkids. They opened the Biospace in November 2013 and received $600,000 from the New York City Economic Development Corporation (NYCEDC) to run it.

The concept is simple: provide a lab space for scientists, where equipment is shared and space is provided at a relatively low monthly rent of $995 per desk, with no additional costs and no equity asked. The ground floor lobby and lab space is small at a mere 2,300 square feet, but the lab can accommodate 24 people. Lab equipment, pipettes and chemicals crowd the desks lining the lab space while experimental fume cupboards and centrifuges populate the adjacent equipment room.

Sia believes that his initiative is important for early stage biotech startups, as there's a lack of early-stage angel investors in New York for biotech startups. "The angel community here is mostly tech based," he said. "It also irks me to see how many talented PhD's don't get jobs because there is a dearth of academic positions," says Sia.

Matthew McNatt, Ph.D., joined the Biospace last year after he was unable to obtain a permanent staff position at a research institution. “I didn’t have any lead author publications in Nature or Science,” he said, referring to two well respected scientific journals where research is published. McNatt’s company, Celleritas Bioscience, focuses on using light to power cells, making them more productive for the manufacturing of important biologic drugs such as insulin, which rely on the use of cells to be manufactured. McNatt, who used to work for the Aaron Diamond Aids Research Center, left to join the Biospace because if he had developed his technology while working at the center, it would have owned the intellectual property rights to his work. “At the Biospace, everyone signs a Non Disclosure Agreement, so you can collaborate freely,” says McNatt, who is hoping to raise $125,000 to continue purchasing chemicals for his research, but is struggling because investors tell him that his company is too early stage.

According to a recent article co-authored by Sia in the journal *Nature Biotechnology*, the sharing economy —something that has been a hallmark of the tech industry for the past decade—is becoming increasingly popular for biotech startups as well. In New York City, there are 4 such biotech spaces, and the Biospace is the most recent. So far, 30 ventures, including Celleritas, have rented space and equipment there. According to a journal article authored by Ronald J. Daniels for PNAS, the growing trend of scientists starting their own ventures is as a result of dwindling science funding for younger scientists. The percentage of all grant funding awarded by the National Institutes of Health to scientists under the age of 36 has dropped from 5.6 percent in 1980 to 1.3 percent in 2012.

Another group currently working at the Biospace is developing a removable tattoo using ink that stains the skin without having to permanently dye skin cells in the process. “They’re tattooing some pig skin this afternoon,” said Peter Toshev, Ph.D., the site director of the Biospace.

The member companies of the Biospace engage in a wide range of research, and eventually graduate from the space when they’ve grown. For example, Epibone rented space from 2014 to 2015 to work on growing bones from stem cells, creating personalized grafts for people who have bone defects. “We left the Biospace because we hired new employees and needed more space. We also needed independence so we could control our manufacturing process,” says the organization’s co-founder and CEO, Nina Tandon, who has appeared on a number of TED talks about tissue engineering and personalized medicine. “The Harlem Biospace was affordable and and available to help us launch our company via SBIR grants - we needed a home from which to apply,” she said, referring to the federal Small Business Innovation Research (SBIR) program intended to help small businesses in research.

Symbiotic Health, which graduated from the space last year, worked on developing a treatment for *Clostridium difficile* infections, which can occur after antibiotic treatment. Antibiotics kill the infectious bacteria, but also the healthy ones that populate the gut - bacteria that would normally keep *C. difficile* in check. Symbiotic Health created a therapy that caused quite a stir in the media: a pill made from stools. Gerard Honig, co-founder of Symbiotic Heath, says that healthy human stools can help re-populate the healthy bacteria of the gut, thus curing bouts of *C. difficile*.

“I started looking around for where I could do this, and the Biospace was the most cost effective, and I was attuned to their sharing community,” Honig said. “It was necessary, otherwise we wouldn’t have had a space to work.” Honig believes that the company wouldn’t have developed without the Biospace, which selects startups based on their prospective financial viability.

The NYCEDC continues to support small biotech startups through programs like the Early-Stage Life Sciences Funding Initiative. The fund, which has partnered with Venture Capital firms such as GE Ventures and Eli Lilly and Company, will deploy a minimum of $150 million to help launch 15 to 20 ventures by 2020. “We know space and funding is a challenge, and we want to listen to the community and their needs,” says Kathleen Warner, the executive Vice-President and Managing Director of the NYCEDC. “I’ve got a bet with someone that we will bypass Boston in ten years,” she said, referring to the prominent biotech landscape in Boston, which along with the San Francisco bay area, comprise the world’s largest biotech hubs, according to a 2010 survey conducted by the Bureau of Labor statistics.

On top of NYCEDC funding, New York City receives $1.4 billion in funding every year from the National Institutes of Health for bioscience businesses, academic institutions and other organizations conducting medical research, the second highest of any U.S. city, making for a promising future for the biotech startup scene in the city.

By *Cécile Borkhataria*