

SCI-TECH

“Today is where your book begins, the rest is still unwritten.”
UNWRITTEN BY NATASHA BEDINGFIELD

Researchers discover genes to test treatments for rare cancer

BY EDIS MESIC
STAFF REPORTER

Yale researchers recently discovered new genes that could be used to test potential treatment options for a rare form of aggressive lung cancer.

Each year, about 6,000 Americans — roughly 3 percent of all people with lung cancer in the United States — are diagnosed with large cell neuroendocrine carcinoma, an uncommon but severe strain of lung cancer. Patients diagnosed with advanced stages of the aggressive cancer are typically told they have approximately 12 months to live, which has prompted researchers to look for ways to test possible therapies.

“So far, the treatments that we use are really extrapolated from other cancers, mainly from non-small cell lung cancer, which is the more common type of lung cancer, and from small cell lung cancer, which accounts for about 20 percent of lung cancers in the U.S.,” Amin Nassar, a medical oncology-hematology fellow at Yale Cancer Center who led the research study, said in a phone interview.

Because large cell neuroendocrine carcinoma is so rare, current treatment options were developed by comparing its tumors to those of two common types of lung cancer instead of targeting features unique to the more uncommon type of lung cancer.

A typical treatment for large cell neuroendocrine carcinoma is chemoimmunotherapy, Nassar said, which combines two chemotherapy drugs with an immunotherapy drug. The chemotherapy drugs, which have been conventional cancer treatments for decades, use potent chemicals to

target rapidly dividing cancer cells, while the immunotherapy drugs activate the immune system against the cancer.

Nassar was inspired to conduct the recent study after discussing the limitations of current treatment options for patients with large cell neuroendocrine carcinoma with Anne Chiang, an associate professor at the School of Medicine who works on clinical initiatives at the cancer center.

“We actually had a patient come in as a new diagnosis with large cell and I asked Dr. Chiang, what do we do with these patients? How come we have a critical gap here?” Nassar recalled.

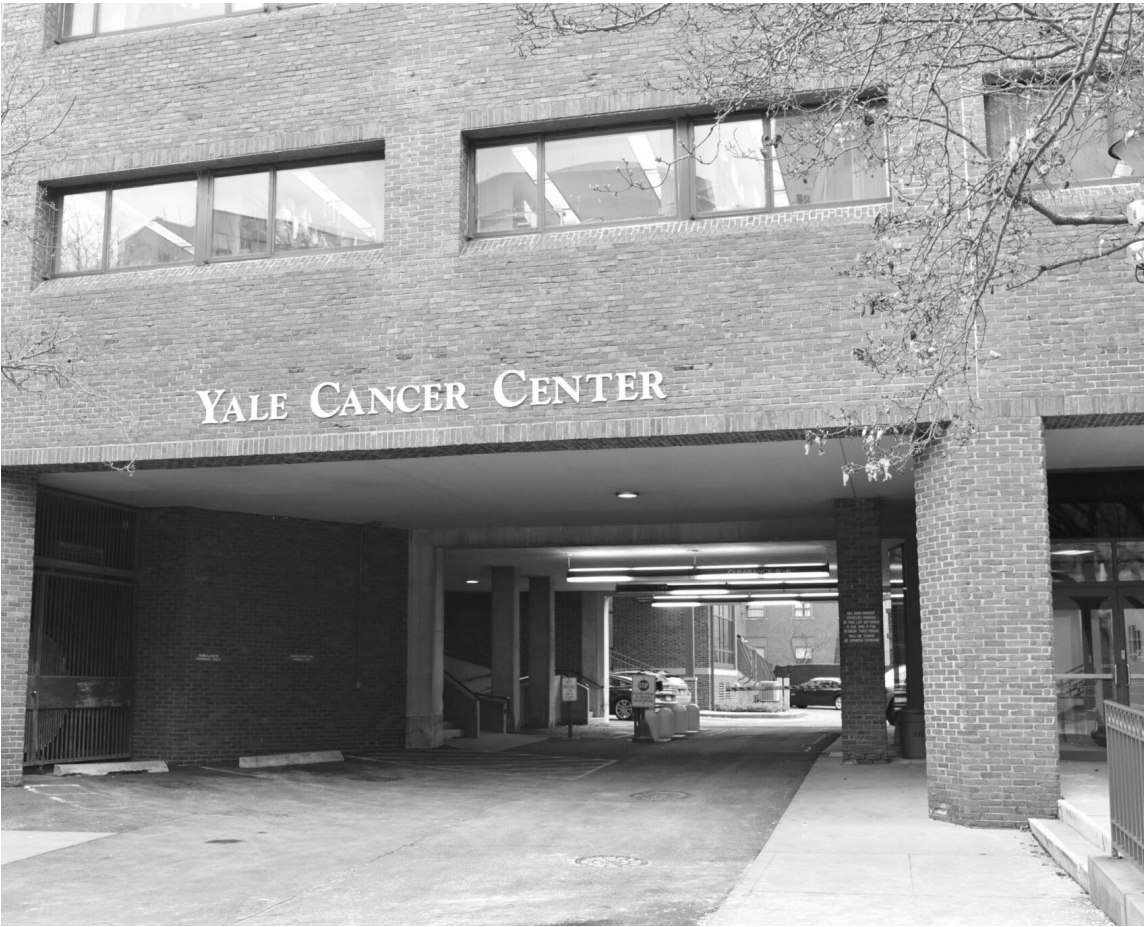
“So I told her — why don’t we do a study around this?”

After Nassar’s conversation with Chiang, the team reached out to 26 medical centers in the United States and Europe to gather data on patients with the disease, ultimately compiling the data of more than 600 patients — a difficult feat due to the rarity of this cancer.

In collaboration with Caris Life Sciences, a company that sequences tumors all over the United States, the research team discovered common genetic patterns across patients to design better clinical trials in the future — specifically, two genes commonly associated with large cell neuroendocrine carcinoma patients that could be studied and manipulated in future trials for new treatments.

The first gene, FGL-1, is known to shut down the immune system when it binds to a protein, making it a promising target for the testing of new immunotherapies.

The second gene, DLL-3, could be used to test drugs’ effectiveness



Researchers discovered common genetic markers that could be used to test new therapies for a rare strain of cancer.

in activating immune systems against large cell neuroendocrine carcinoma tumors.

“Rare cancers in general have been excluded from biomarker guided research and therapeutic interventions,” Abdul Rafef Naqash, a co-senior author on the study,

wrote to the News. “In our project we were able to leverage genomics and clinic data to obtain insights into this rare tumor.”

The research team hopes its study will encourage other research groups to examine rare or understudied diseases and pursue

large-scale collaborative efforts to do so.

The Yale Cancer Center was founded in 1974.

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Fair draws students to learn about entrepreneurship groups

BY ANYA GEIST & MICHELLE SO
STAFF REPORTERS

Organizations from Yale and beyond set up tables on Cross Campus on Tuesday for an entrepreneurship fair.

The Yale Entrepreneurship and Innovation Expo serves to help students learn about classes, workshops, hackathons and startups at Yale. The groups present ranged from Design for America, a club that encourages students to work on community-oriented design projects, to Tsai CITY — the Center for Innovative Thinking at Yale.

Though many attendees were first years, older students — and some from graduate schools — came as well.

Max Troppmann ’29 said he visited the fair hoping to learn more about engineering-focused extracurricular opportunities at Yale.

Though he was familiar with Tsai CITY before coming to Yale, he said he hadn’t heard of some of the other organizations at the fair.

“There are many helpful resources, newsletters to sign up for, and other general information that each of these clubs or organizations are making accessible for students,” Troppmann told the News.

Justin Baldassarre ’28, the director of science for the student-run startup Simplex Sciences, said he was looking to meet students who would “gel” with the students in Simplex and contribute to the club’s culture as a “playground to innovate.”

“One of the good things is that this company is really designed to be managed by students and passed from older students down to younger students,” Baldassarre said. Xinzhi Qiu ’27, the chief executive officer of Simplex Sci-

ences, contacted the News after the initial publication of this article online to clarify that it is a nonprofit organization.

But not all organizations at the expo were based at Yale or run by students.

Candy Hwang — the associate director of the Blavatnik Fund for Innovation at Yale, part of Yale Ventures — represented the separate organization Women in Bio at the fair.

Women in Bio aims to address the gender disparity in leadership positions, Hwang said. She stressed the importance of early intervention and mentorship for women.

Trinell Ball came to the fair to promote FORGE, a nonprofit unaffiliated with Yale that helps entrepreneurs manufacture physical products.

“We’ve worked a lot with Yale students,” Ball, the organization’s program director for Connecticut, said. “And we have a ton of success stories.”

FORGE helps its clients through many stages of product development, from designing a prototype to determining a scale for manufacturing, Ball said. He added that it also provides product development grants to boost some of its entrepreneurs.

Duurenzaya Bukhbat SOM ’26, who came to Yale from Mongolia, said he wanted to explore entrepreneurship on campus.

“The main reason why I came to this event today is to, of course, explore Tsai CITY, learn more about them, meet the people and just get a vibe check,” Bukhbat told the News.

Tsai CITY is located at 17 Prospect St.

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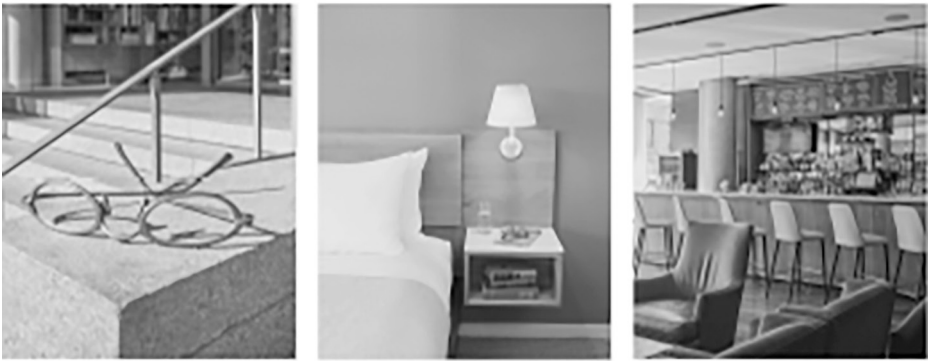
The Yale Entrepreneurship and Innovation Expo featured organizations such as Tsai CITY and Design for America.



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