

GOT A STARTUP? RENT A BENCH

Biotech incubators such as LabCentral are lowering barriers to entrepreneurship

By **Trisha Gura**, in Cambridge, Massachusetts

With its cookie-cutter windows and boxy brick exterior, the building here on Main Street could be just another former 19th century warehouse or factory. It's no surprise to learn that passenger railroad cars were once built in its spacious interior. Yet the Cambridge landmark has a history not just of production, but also of innovation. In 1876, it housed the office of Thomas Watson, assistant to Alexander Graham Bell, when the pair made the first two-way long-distance phone call, to Boston. In the 20th century, it was home to Polaroid and the lab of Edwin Land when he invented the instant camera.

Today, a nonprofit organization called LabCentral has taken up that entrepreneurial heritage. The renovated, 2600-

square-meter facility, now owned by the Massachusetts Institute of Technology (MIT) and leased to LabCentral, functions as a life science "incubator" that helps budding biotech firms combat the soaring costs of lab space and equipment in the red-hot Boston-Cambridge region. Any scientist with an idea and ambition can rent a bench and an office, sharing space, services, and high-cost tools with others pursuing their own entrepreneurial dreams. "It is very exciting because we are there at the nascent moment of many really, really cool companies," says molecular biologist Johannes Fruehauf, a LabCentral founder.

It's also the nascent moment for facilities like LabCentral. Similar incubators are opening up in Cambridge, San Francisco, and other hotbeds of life science entrepreneurship, and startup companies are lining up to rent space. Incubators lower the entry barrier to the entrepreneurial world, foster networking, and serve as showcases of gleaming ideas for venture capitalists and bigger companies to browse. As startup founder Laura Hales, whose company Extend Biosciences was one of LabCentral's first tenants, puts it: "If you start talking to big pharma, you need to show them that you are established. Anyone who walks into this place is immediately impressed. It just speaks for itself."

THE IDEA BEHIND LABCENTRAL dawned in 2009 when Fruehauf's Ph.D. adviser, gastroenterologist Chiang Li at Beth Israel Deaconess Medical Center, launched Cequent Pharmaceuticals, bent on delivering molecular payloads of artificial RNA via genetically engineered bacteria. Backed by \$22 million in venture capital and with a staff that quickly swelled to 17 people, Fruehauf chose a space at One Kendall Square, a hub of contemporary buildings



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Molecular biologist Johannes Fruehauf and investor Peter Parker, two of LabCentral's founders, with Olivier Boss, a tenant at an earlier incubator (left to right).

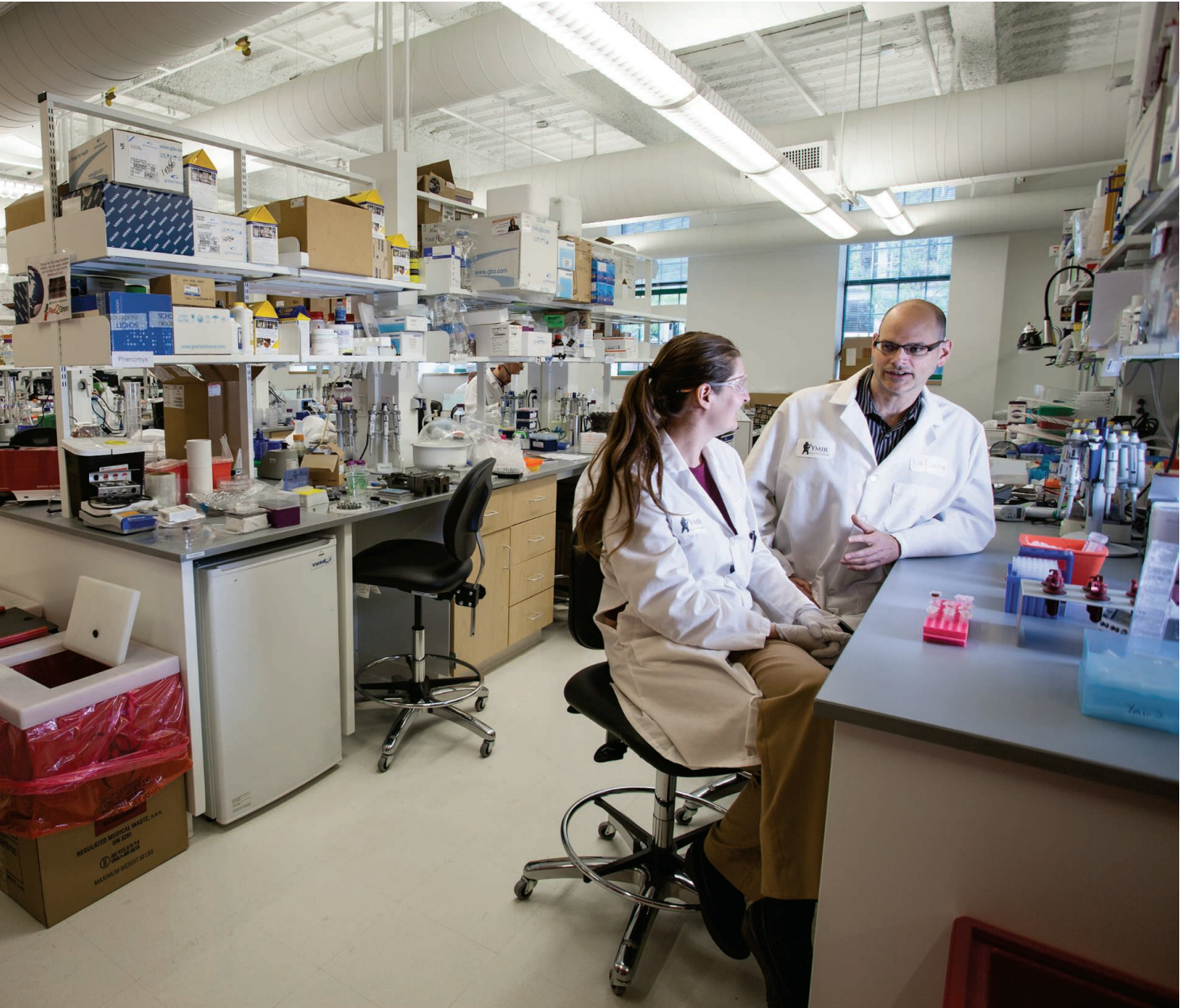
in the so-called Boston Innovation Super-cluster that encompasses MIT and a slew of life science companies.

He successfully negotiated the lease, renovated and equipped the lab, and jumped through the daunting hurdles of permitting and compliance. But Fruehauf also burned through \$1.5 million and 6 months before he or colleagues could even lift a pipette. "In retrospect, it was really a bad use of our capital and time," he says.

Fast-forward a year. Li had sold Cequent to another company for \$46 million, and Fruehauf was launching his own enterprise, called ViThera, based on a probiotic technology licensed from a French group. Bankrolled only by his own money—he wanted to stay away from venture capital funding—Fruehauf had to find a cheaper way.

So, he subleased lab space from a Kendall Square-based company called Pervasis, which was downsizing. Then he brought

PHOTOS: PAULAVIS (2)



in cash by essentially subletting the sublet. Word got out, demand increased, and by January 2011, Fruehauf spun off a new company—eventually called Cambridge Biolabs (CBL)—designed to provide tailor-made, minimal units of lab space for early startup companies.

Olivier Boss was one of his first customers. Coming out of a small biotech company focused on thwarting obesity, Boss and two colleagues launched Energesis Pharmaceuticals to develop a technology based on brown fat, which generates body heat by metabolizing stored fat. Desperately needing access to a lab, Boss initially collaborated with Stephen Farmer, an obesity researcher at the Boston University School of Medicine, but could only work in the laboratories there for academic goals, i.e., to churn out brown fat stem cells for Farmer's studies.

By one standard, the strategy was suc-

cessful; it gleaned a \$90,000 Small Business Technology Transfer (STTR) grant that Boss and Farmer shared. However, Boss still needed to conduct a commercial pilot study. In figuring out where to do that, he found himself in a tricky situation, one encountered by many a potential scientific entrepreneur. "People get in trouble when they start companies around academic technology and continue to use academic resources," Fruehauf says. Many, he adds, end up "fudging things" or conducting "submarine projects" that proceed underneath the university radar.

Boss wanted to do it right. He unearthed "the best option, the only option," he says, when he met Fruehauf in 2010. Then trying to bootstrap ViThera, Fruehauf offered Boss a bench and use of the company's lab facilities for \$3000 a month. Boss accepted and in 6 months obtained results that convinced enough people to score a \$750,000 STTR

Shannon Pendergrast and Anna Markowska of biotech startup Ymir value the networking opportunities at LabCentral.

grant. He transplanted his brown fat cells into mice, and 3 years later—still renting from Fruehauf at CBL—has won another \$1 million in grant money and partnered with pharmaceutical giant Johnson & Johnson on a project that may lead to clinical trials of brown fat therapies in people.

Could he have done it without the incubator? "Absolutely not," Boss says. "That lab space was what we needed. And not just us."

THE SUCCESS OF CBL prompted Fruehauf to gather backers, most notably \$5 million from a Massachusetts state life science initiative, to found a second incubator, LabCentral, in the back half of the Main Street landmark. The space is a scientific entrepreneur's dream,

replete with cell culture facilities, biosafety level 2 labs, and a dizzying array of gadgets for analyzing cells, DNA, and proteins. A new glass-enclosed entrance has a patio for networking and the interior includes immaculate common spaces—lounges with video games, glass-walled conference rooms, and a well-stocked kitchen with an espresso machine. The place buzzes 24/7—different startup companies even share workbenches in shifts throughout the day and night to save money.

The arrangement is analogous to cloud computing in the information technology world, which gives high-tech entrepreneurs a cheap alternative to purchasing costly computer hardware. LabCentral and other incubators essentially proffer a cloud for life science research. “We dedicated ourselves to breaking down the expensive lab resource into such small increments that any entrepreneurial scientist with a credit card can get going,” says Douglas Crawford, associate director of QB3, a University of California (UC) research institute that provides several incubator locations in the San Francisco Bay Area for UC faculty and other scientists.

Incubators offer more than physical facilities. LabCentral, for example, surveys the companies it hosts about other needs—finding the right lawyer, patent attorney, janitorial service—and then farms out the solution. Financial, legal, pharmaceutical, and even waste management companies have lined up at Fruehauf’s doors, offering capital, mentorship, and a host of services, at free or reduced costs. Some sponsors fig-

ure if they offer their services—such as advice on patent filings—cheaply and early on, the relationship will blossom as early-stage companies grow up and move out.

Besides, what fledgling entrepreneur has the time and money to slog through environmental health and safety compliance?

“As a scientist entrepreneur, your time should be exclusively focused on what problem your business can solve and how are you using science to address that,” says John McQuillan, CEO and president of Triumvirate Environmental, a LabCentral founding sponsor that provides advice and waste management/environmental services to life science

companies. “Any other question ought to be handed over to somebody else.”

STARTUPS LIKE the approach. LabCentral reached capacity within 6 months of opening in 2014—and now has a long waiting list. Similarly, within a half-year of opening in 2013, QB3 filled one 2230-square-meter incubator with 46 startup companies, most having fewer than five employees. Venture Development Center at the University of Massachusetts, Boston, last year had 104 applicants for a mere three open laboratory spaces (see table). Due to the high demand, it has become common for incubators to be very selective about the companies they host.

The surge of interest may stem, in part, from a major sea change now coursing through the pharmaceutical and biotech industries. Rather than conduct a lot of initial risky research in-house, larger companies

are increasingly backing and partnering with startups, particularly at incubators. They are realizing that “a few hundred thousand dollars invested in a three-person company gives huge amount of return on investment,” Crawford says.

For big companies searching for new ideas, incubators are a convenient place to look. By attending talks, symposia, and other events at the incubators, the big fish can land the most attractive startups, whether by investing in their technology, funding specific projects, or buying the companies outright. In fact, Pfizer leases part of the Main Street building and sponsors LabCentral for an undisclosed sum—in exchange for picking the recipients of two LabCentral slots.

LabCentral tenants also help each other. Hales and her partner at Extend, virologist Tarik Soliman, for example, partnered up with researchers on the same floor at a company called Advirna. The two startups co-wrote a Small Business Innovation Research grant proposal to tack the vitamin D metabolites developed by Extend onto Advirna’s RNAs and so prevent their degradation in the body. The project was funded by the National Institutes of Health.

One might imagine that startups in such close proximity would be rivals. But the environment is more like a close-knit academic laboratory, LabCentral tenants say. “I thought people would be much more secretive,” says Shannon Pendergrast, co-founder of Ymir Genomics, which focuses on using RNA in urine as diagnostics for diseases such as cancer. “But it has worked incredibly well.”

LabCentral is now building “franchises” in San Diego, California; Chapel Hill, North Carolina; and New York City. Fruehauf is

“We are there at the nascent moment of many really, really cool companies.”

Johannes Fruehauf,
LabCentral

Start me up

Incubators for biotech firms are popping up around the world, with the Boston and Northern California regions home to some of the most popular—and most successful, in terms of firms “graduated” to bigger sites and money raised by tenants.

	CAMBRIDGE BIOLABS	LABCENTRAL	VENTURE DEVELOPMENT CENTER	QB3 (FIVE SITES)	MASS INNOVATION LABS
Location	Cambridge, MA	Cambridge, MA	University of Massachusetts, Boston	San Francisco, Berkeley, Palo Alto	Cambridge, MA
Year launched	2010	2014	2009	2006–2014	2015
Size (square meters)	325	2600	1670	4600	11,520
Companies present	10	27	19	~85	1 so far
Companies graduated	65	4	42	~40	0
Capital raised by tenants	\$360 million (aggregate)	\$200 million (2014)	\$123 million (aggregate)	\$72.7 million (2014)	N/A



Representatives of the companies working at LabCentral's historic building. The newly renovated facility provides space and facilities for startup companies in the biotech industry.

also consulting with groups in Europe and Japan. He dreams of creating an incubator network, housing some 150 startups throughout the country.

On the West Coast, Crawford's QB3 has expanded to five sites and gets up to a half-dozen queries a week for total space that can hold only 62 companies. In the Boston area, chemist Amrit Chaudhuri and two other co-founders just opened the doors to Mass Innovation Labs, a 11,520-square-meter extravaganza of chemistry and biology space that offers a huge array of services, from DNA sequencing to a small animal facility, which is unique among incubators. According to Chaudhuri, the goal is to service startup companies that outgrow places like LabCentral, as well as academics whose large labs spill over from their university space and pharmaceutical subgroups.

Fruehauf is trying to address that expansion need by conjuring up his next venture: "graduation space" for incubator tenants.

That may nest in the Main Street building itself—in 2017, another lease-holder on the second floor is due to move out. Fruehauf wants to emphasize scalable, private labs and offices but still maintain common elements of interaction and events such as lunch workshops with experts.

Kathryn Kosuda is an early LabCentral tenant who now needs a bigger home. A chemist by training, she and three other people she met at Harvard Business School started a firm in 2011 to develop a technology that exploits a silk protein to stabilize vaccines, allowing them to be shipped around the world without refrigeration. But having grown to 10 employees and "incubated" successfully, Vaxess Technologies wants more room soon. "We all joke about how it is going to be very difficult to find a new space," Kosuda says, "because we have set the bar so high with our initial location" at LabCentral.

EARLY ON, some venture capitalists voiced doubts about life science incubators. "They told us we were just creating an intensive care unit for little companies," Crawford says. The idea was that such companies would emerge only to face a dearth of capi-

tal, particularly on the heels of the recession prior to 2011.

"Now, people who said that look pretty bad," Crawford says. "There are lots of companies getting public ranking or attracting more and more investors from a more diverse setting."

Last year alone, LabCentral tenants collectively raised \$200 million—equal to all biotech earnings in the country of Switzerland, Fruehauf says. In its first 2 years, QB3 Garage, the first and smallest of the Bay Area lineage, hosted six companies, four of which closed venture financing rounds, while a fifth was acquired by Affymetrix for \$25 million.

QB3 has been so successful that Crawford was able to tap private backers and found Mission Bay Capital, an \$11.3 million seed-stage venture fund that invests in early-stage bioscience companies, three emerging from the QB3 network. He just closed a second fund of \$25 million. "I agree there is a limit to these incubators," he says. "But nowhere do I feel that we are approaching it." ■

Trisha Gura is a writer based in Brookline, Massachusetts.