YEAR FIVE

2 O IMPACT REPORT

Lab Central



### J(OUR)NEY

Five years of innovation, five years of growth, five years of community building; we've come a long way in half a decade. What began as an idea has grown into a powerhouse innovation space, a thriving network of entrepreneurs, and a driver of the biotech industry in Massachusetts,

Providing high potential startups with the infrastructure and support they need to develop their ideas and tackle the toughest challenges in the life sciences has always been and remains our core mission. It is exciting to see how well our model works in fostering the growth of early-stage companies. We have established the biotech community's central hub for new funding in 2018 alone. They created

networking and collaboration for biotech entrepreneurship in the Boston area.

Please take a look through the incredible stats celebrated in this report. The technological advances in the biotech industry provide unique opportunities to develop cures and therapies for conditions that were deemed "untreatable" not long ago. Our companies are at the very forefront of these developments and help push the boundaries of science every day, developing new gene therapies, vaccines, and other novel therapeutic modalities.

One number that summarizes our economic impact well is that LabCentral companies raised a total of \$2 billion of over 725 new jobs to advance science and 13 of our companies have initiated clinical trials. Their creativity and drive give me great hope for the future.

We are proud of how far we have come and I am grateful to all who help make this possible, our generous sponsors, our community of resident and alumni companies, and of course, our rock star team at LabCentral.

Johannes Fruehauf, M.D., Ph.D. President and Executive Director

# THE BIG **PICTURE**

#### **SEE HOW FAR WE'VE COME**

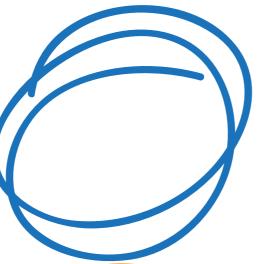
square mile on the planet," Kendall Square (KSQ), and LabCentral, are uniquely situated within walking distance of thirteen of the top twenty biopharmaceutical companies in the world.<sup>1</sup> LabCentral is at the heart of the biotech epicenter. We are confident in saying the scientists, entrepreneurs, executives, and innovators of LabCentral have left their mark, shaping the innovation landscape in KSQ, driving community, and creating a hub for collaboration. LabCentral has become central to these companies reside within two and the place where true innovations and scientific insights are born.

In partnership with the 53 industry sponsors we have had over the years, we have developed a robust events program engaging members of both our internal and external communities. From 2013 through 2018, LabCentral hosted 710 programs for over 25,000 guests. Topics ranged from biotech to business development along with sponsor events, social and networking opportunities, and local community engagement.

"the most innovative Just as LabCentral has grown in the past five years, our companies have come a long way as well. At the time of our opening, seven companies existed in our space. Those early adopters of our model were an integral part of our team, and helped to shape our offerings, design the space, and build the community we now know as a trademark of LabCentral.

> Since 2013 we have been able to support 109 companies, 43 of which are now alumni; who have moved out of our space and into their own. 77% of a half miles of LabCentral, highlighting Kendall's prominence as the place to be for biopharma. Resident and alumni company growth has spurred the addition of 1,922 new jobs and billions invested into the Massachusetts economy.



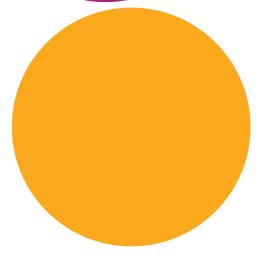












25,000





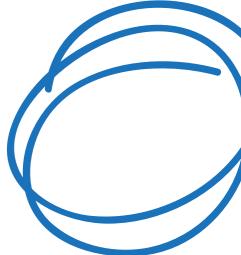














## LABCENTRAL BY THE NUMBERS

#### The A, B, Cs, and 1, 2, 3s

LabCentral resident and alumni companies continue to grow their businesses through local, national, and international funding. In 2018, they raised an additional \$2 billion in total funding (comprising angel, grant, VC, partnership, etc.), bringing the total raised since our opening in late 2013 to \$4.1 billion.

LabCentral resident and alumni company funding trends reflect the greater industry,<sup>2</sup> seeing an increase in venture funding of nearly 100% over 2017. This resulted in \$1.1 billion in venture capital funding alone closed for LabCentral companies in 2018, up from \$536 million in 2017.

For a second year in a row, LabCentral resident and alumni companies closed 10% of all national Series A funding (\$430 million). Locally, LabCentral companies are responsible for the equivalent of 40% of the total Series A funding raised in the Commonwealth of Massachusetts. With LabCentral alumni companies maturing, our companies now claim rougly 27% of the total venture capital (VC) investment in Massachusetts, pre-seed through Series C. We are excited to see this

percentage grow as more companies move through the pipeline towards

#### **EXITS & IPOs**

This year, LabCentral had four more companies go public (bringing the total company count to five). These companies raised \$540 million in their initial public offerings in 2018. That is 6% of US life sciences IPO dollars in 2018.3

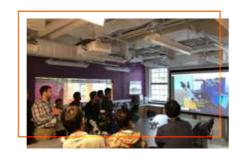
Over the last five years, LabCentral resident companies have entered the facility with an average of \$2.1 million in pre-seed, seed and Series A funding. This funding comes from many sources with the top contributors being venture capital investment (57%), angel funding (20%) and corporate partnership monies (12%). Grants, other funding, revenue and founder investment make up the rest (11%).

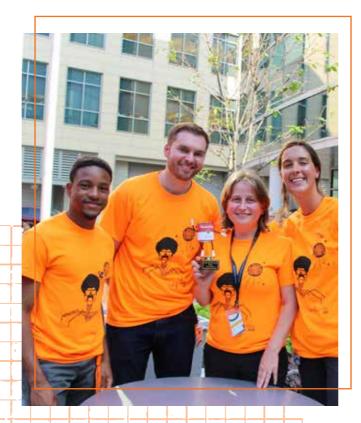
While most companies in our network maintain venture capital as a portion of their financing portfolio, our teams have diverse business models that utilize many strategies to build their businesses.

	2016	2017	2018
TOTAL OF NATIONAL SERIES A (\$M) IN BIOPHARMA	\$2,334	\$2,787	\$4,166
LABCENTRAL RESIDENT AND ALUMNI TOTAL SERIES A FUNDING (\$M)	\$107.8	\$267.0	\$430.0
% of U.S. SERIES A BIOPHARMA INVESTMENT IN LABCENTRAL RESIDENT AND ALUMNI COMPANIES	5%	10%	10%

# **PUBLICLY** TRADED **COMPANIES**

In addition to five companies going public, we've seen three successful exits through mergers or acquisitions on the part of our alumni companies.











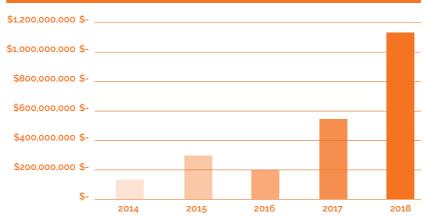


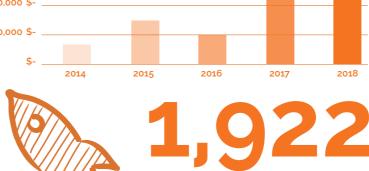


\$360,000,000

\$339,000,000

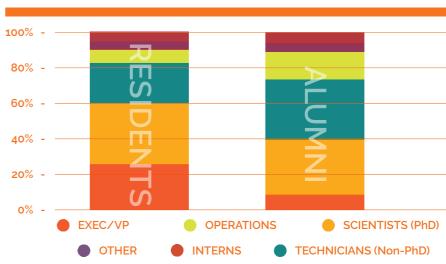
### VC INVESTMENT IN LABCENTRAL COMPANIES OVER TIME







#### RESIDENT VERSUS ALUMNI TEAM MAKEUP





LabCentral companies grow in number as they build their businesses and research. Our alumni and resident companies now employ more than 1,922 people, having added more than 725 just in 2018.

With our increasingly large sample set of companies to consider, we are now able to see the impact LabCentral has for staffing the teams that are within our space. Once they leave our facility, the most notable changes are in their need for a larger operations team and a shift to more non-PhD lab staff as the demands on the lab increase.

Qualitatively, we have heard support of these metrics from various recent alumni who they did not realize how much time their team would need for lab support, purchasing, facilities, and general business operations upon leaving LabCentral. In preparing current residents for their move out, we are now spending more time in conversations to proactively ease their transitions.

## A GROWING LEGACY

#### A DEEPER IMPACT

LabCentral has been home to multiple companies that have carried their technology from early stage research and development, through proof of concept, and on to clinical trials. Some have pushed their research through these steps within LabCentral's walls. Others have moved out and expanded dramatically as alumni of LabCentral, working into and through their clinical work. As companies build and grow, LabCentral's legacy is real and our impact on scientific progress is tangible. LabCentral companies have taken big steps towards commercialization through clinical activities. Of reporting companies (83% of current residents and 58% of alumni), 13 companies are active in the clinic!

"WE ACCOMPLISHED
A LOT IN BETWEEN THOSE
BRIGHT ORANGE WALLS IN ONLY
12 MONTHS – WHAT WE DID
DIRECTLY TRANSLATED INTO
THIS PHASE I"

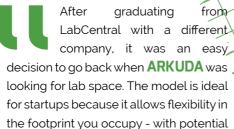
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### -AMY SHAW SENIOR SCIENTIST; TORQUE

Torque is applying breakthrough science to develop a new class of T cell therapeutics that direct immune power deep within the tumor micro-environment.

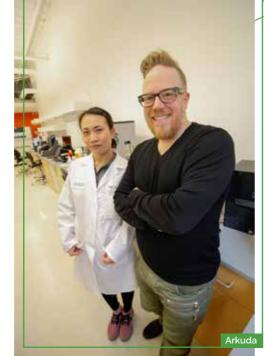
•••••

Pictured right: LabCentral alumni company, Platelet Biogenesis continues to grow at a steady pace, doubling their team size in the last year and anticipating more growth next year as they prepare for the clinic. Their designer cell therapy 'platelet platform' unlocks a new class of therapeutics.



to grow, as well as access to infrastructure allowing you to focus on the science. Another huge benefit - maybe less obvious at first glance - is the community you get to be part of. Through it you get access to sponsors and, maybe more importantly, other residents who are willing to share their time and expertise to help each other, something you can't really put a price on."

> -JF BLAIN, SENIOR DIRECTOR, BIOLOGY; ARKUDA

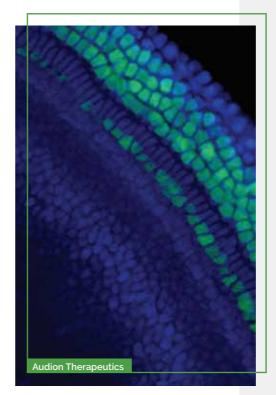








Picture above: William Houser of Affinivax works with stirred tank bioreactors rented from LabCentral. This equipment enabled Affinivax to transition from research scale to process development production in preparation of tech transfer to a contract manufacturing organization.



Audion Therapeutics, a pharmaceutical company sponsoring the REGAIN Project, is conducting a clinical trial targeting sensorineural hearing loss caused by the loss of inner ear hair cells. Clinical testing continues to advance as positive phase 1 results were achieved in 2018. This photo was taken on an imaging system at LabCentral to allow analysis of the cellular organization of the inner ear.

"LabCentral and its innovative model of taking care of all front office and administrative requirements, facilities and operations, and necessary permitting for its tenants has been indispensable in how fast Affinivax was able to achieve success. From initial setup based on a license from Boston Children's Hospital and seed funding from the Bill and Melinda Gates Foundation in June 2014, Affinivax devoted almost all

its resources to hiring direct handson laboratory associates, relying on LabCentral for the rest: We entered Phase 1 clinical trials in January 2019."

#### - KAMRAN TAVANGAR, VP OF STRATEGIC PRODUCT DEVELOPMENT; AFFINIVAX

Affinivax is developing novel preventive and therapeutic vaccines based on its proprietary Multiple Antigen Presenting System (MPAS) technology platform.

#### **OUT OF THIS WORLD**

LabCentral's footprint has moved to outer space! In 2018, four LabCentral companies engaged in partnerships with the Center for Advancement of Science in Space (CASIS), sending their science to micro-gravity at the International Space Station (ISS) for unique understandings of how their science works and furthering the understanding of the problems facing research teams today.

Angiex completed experiments on the ISS, testing the hypothesis that cultured endothelial cells in space might mimic the resting endothelium of normal blood vessels, and thus provide the first useful cell culture system for evaluating the toxicity to normal vessels of vasculartargeted drugs. Angiex proved that human endothelial cells cultured in micro-gravity are resistant to Angiex's vascular-targeted cancer therapy, much as are normal blood vessels in preclinical animal models. The divergent biology of endothelial cells on Earth compared to those in space brought about fascinating scientific findings.

**Kernal Biologics**, in collaboration with CASIS and its partners, plans to screen and validate their onco-selective mRNAs on the ISS under micro-gravity.

This study will further de-risk their platform for clinical development.

**Microquin** plans to use the microgravity environment on the ISS to crystallize a membrane protein found to play a key role in tumor development and survival of cancer cells. Crystallization of the protein on Earth has proven difficult, hindering structural determination. Crystals grown in micro-gravity are often larger and more well-ordered than Earth-grown crystals, which can lead to improved datasets for structural determination.

the proliferation of gene-edited induced pluripotent stem cells (iPSCs) in the micro-gravity environment on the ISS to determine if the cells remain pluripotent through multiple cell divisions. Data resulting from this investigation could unlock the potential to generate the millions of stem cells needed for cell-based therapies, which is not possible with currently available stem cell technologies on Earth.

#### **BEYOND LABCENTRAL**

"We aren't breaking up!" is a common refrain as alumni pack things to move out. The LabCentral team celebrates this transition of resident companies to alumni.

Alumni have stayed local, adding to the community and Massachusetts economy. In fact, LabCentral alumni are now driving demand in the Cambridge lab market, having absorbed 23% of the new square footage of lab real estate created since our first alumni graduated in 2014.4 (That is approximately 4% of the Cambridge commercial lab real estate market.) Our furthest alumni is approximately 11 miles away, but the average distance to LabCentral is just over two miles. In fact, 77% of our alumni are less than two and a half miles from 700 Main Street.

In addition to our impact on the local lab occupancy market as we accelerate companies into larger spaces (the average stay at LabCentral is 15 months), our alumni are actively working on Phase I, II and III clinical trials. This year we saw an increase in funding with five Series

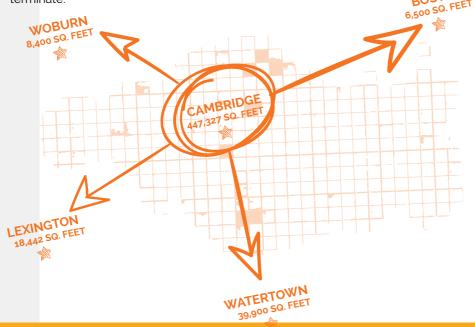
**MONTHS AVERAGE** STAY AT LABCENTRAL

B and two Series C rounds. Alumni are also increasing their ranks, having employed around 1200 people. In 2018, we saw alumni complete three public offerings and one additional acquisition, bringing the total count for our five years of operating to three merger/ acquisitions and five IPOs.

In our line of work, failure is simply another data point and indicator on how and when to pivot. Since our opening five years ago, just seven companies of the 109 companies we have served have closed down due to either lack of funding or challenges with their science. Six of the seven companies that are no longer active elected to shut-down while still in residence at LabCentral, saving millions of dollars in building out their own laboratories and hiring operational staff. Instead, they elected to 'fail safely' and affordably. In some cases, these companies have wound down and licensed their technology out, while in others they have elected to terminate.



The net promoter score (NPS) is a proven business metric that reflects the likelihood of customers to recommend a brand to colleagues and friends. The NPS scale operates on a -100 to +100 scale. LabCentral's NPS continues to improve, rising 15 points in just one year. Our NPS score of 78 places LabCentral among top performing brands such as Warby Parker and Apple.



#### LABCENTRAL ALUMNI























































































































**ALUMNI IPOs** IN 2018

"WE GOT TO KNOW THE ALDATU TEAM WHILE AT LABCENTRAL AND BUILT OUR RELATIONSHIP WITH THEM IN OUR TIME AT THE PAGLIUCA HARVARD LIFE LAB (OPERATED BY LABCENTRAL). WHEN BOTH RIPARIAN AND ALDATU BEGAN LOOKING FOR INDEPENDENT SPACE TO GROW INTO, TIMING WAS RIGHT FOR US TO WORK TOGETHER AND CO-LOCATE FOR OPERATIONAL AND INFRASTRUCTURE EFFICIENCIES. THIS RELATIONSHIP HAS TURNED INTO AN OPERATIONAL PARTNERSHIP THAT HAS INCREASED THE FLEXIBILITY AND STRENGTH OF OUR COMPANY. WE WOULDN'T HAVE BUILT THIS RELATIONSHIP WITHOUT THE COMMUNITY LABCENTRAL FOSTERS"

#### -WILL ADAMS

#### **CEO AND PRESIDENT: RIPARIAN PHARMACEUTICALS**

Riparian Pharmaceuticals is discovering therapeutics to reverse endothelial dysfunction and provide a new approach to vascular health. Aldatu is committed to commercializing products that address diagnostic challenges in global health, primarily in HIV and other infectious diseases

### LIFE AT LABCENTRAL

#### A THRIVING HUB FOR INNOVATION

LabCentral continues to maintain its role as model and leader locally, domestically, and internationally for building early stage life science startups. We strive to continuously improve the model and to build new ways of serving our resident companies and the industry.

In 2018, our purchasing team successfully processed orders for over 90,000 items for LabCentral residents and achieved an organizational record of over 9,700 orders in a single month.

LabCentral 610 has been operational for over a year, engaging with both alumni and companies that have outgrown the infrastructure offerings at LabCentral's original facility. These teams have found great efficiency in continuing the co-working model for select resources in a format that allows them to maintain more independence for their growing team.

LabCentral continues to draw attention from around the world, hosting 180 groups to tour our facility, coming from 18 different countries spanning the globe. Our facility and resident companies played host to 12,651 visitors family recipes at our Thanksgiving in 2018.

The LabCentral Learning Lab, powered by New England BioLabs (NEB), and home to The BioBuilder Foundation saw its first full year of operation. In 2018 NEB and BioBuilder hosted over 1000 people in the space for education, professional development, and technical training. Users have included local school science clubs participating in the

BioBuilder Club, workshops for local and international students and teachers, Kids Who Clone workshops, and professional trainings for scientists.

The events and programming at LabCentral are designed to enrich and enhance the experience of entrepreneurs and scientists working in our space, to foster collaboration, and to engage the surrounding Kendall Square community.

In 2018, LabCentral hosted a total of 218 programs (a 33% increase over 2017) for 7,078 attendees. 64 of those events focused on business development featuring a range of topics from "Building Biotech Innovation" to "Going Lean: Outsourcing Operations to Stretch Early-Stage Capital," examining industry forecasts with Silicon Valley Bank, and more. Forty percent of our programming in 2018 was purely technical--focusing on equipment trainings, knowledge building, and sharing new technologies and discoveries. The remainder of our 2018 programming fostered community. We enjoyed the World Cup, shared potluck, cheered on our colleagues in the table-tennis tournament, enjoyed the food and sounds of our state-fair year-end celebration, and so much more. Fifty percent of our events in 2018 were driven by sponsors.

1,256 **YEARS OF COLLECTIVE** 



**POST-DOC WORK** 



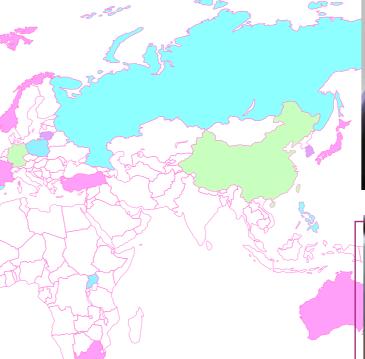
32,298 HOURS SPENT

IN CONFERENCE ROOMS

#### **EVENT BREAKDOWN**

- LEGAL ADVISING

RESEARCH



Map: countries highlighted sent delegations to LabCentral in 2018. International countries included: Argentina, Australia, China (9 groups), France, Germany (3), Ireland, Japan (6), Lithuania, Mexico (4), Norway, Poland, Russia, Rwanda, Slovakia, South Africa, South Korea (2), Spain (2), Taiwan, Turkey, and the UK.

One of the smartest choices my co-founders and I made was to apply for space at LabCentral! My initial excitement over being employee #1 for Pandion was very soon dwarfed by overwhelming fear - What size lab space did I need? What equipment should I buy first? The ready-to-go labs accelerated our discoveries, and the easy access to such a wide selection of equipment meant we could run a variety of sophisticated experiments very, very guickly, and without having to invest in purchasing our own equipment - saving time and money!"

#### - JO VINEY **CO-FOUNDER AND CSO: PANDION THERAPEUTICS**

Pandion Therapeutics is shifting the paradigm from systematic immunosuppression to modulation with the next generation of targeted therapeutics







### **EXPANDING OUR OFFERINGS**

#### **BUILDING TOOLS THROUGH FEEDBACK**

LabCentral works hard to be responsive to the changing needs of resident companies. Our goal is to provide access to cutting edge technology so that they can focus on science and innovation, and we do this through the continuous feedback loop from our resident and alumni companies. In 2018 alone, LabCentral added over 500 pieces of equipment. These additions have furthered our resident's ability to perform metabolic characterizations, complex cellular imaging, and robust quantitative analyses.

These expanded offerings have allowed are continuing our goal of maintaining a finger on the pulse of research innovation and bringing new and exciting tools for drug discovery, analytical chemistry, cellular mechanisms, and genetic screening.

We increased our technical offerings in microscopy, bioanalytics, cell and molecular analysis, cell processing, and analytical chemistry in 2018.

During this past year, LabCentral more than doubled the lab space and equipment used for cell and molecular biology. This includes the latest equipment for use in fluorescence, chemiluminescence, live, and fixed cell imaging. Our facility now supports viral, bacterial, and mammalian cell culture, along with tissue processing hoods and cryostat for dissection and primary cell dissociation. The addition residents to save time and expense. We of high-resolution mass spectrometry instrumentation has increased the capabilities of our residents pursuing peptide and monoclonal antibody research. As we move forward, we'll continue to bring more tools and technology to meet the needs of our ever growing community.



**FRIDGES AND FREEZERS MONITORED REMOTELY** 





#### HARVARD LIFE LAB

LabCentral is now in its third year operating the Pagliuca Harvard Life Lab in partnership with the Harvard Innovation Labs. The facility has served 22 teams since opening on the Harvard Business School campus, which have collectively raised over \$110 million dollars in funding for their research. Ventures using this facility must have a founder with a Harvard affiliation. Since opening, these ventures have founders representing 9 Harvard schools. Fifty percent of ventures using the Pagliuca Harvard Life Lab have a female founder or co-founder



### NEW BIOLOGICAL

PROJECT REGISTRATIONS SUBMITTED AND APPROVED IN 2018



" WE HAD THE IDEA TO TRY AN ASSAY USING A DIFFERENT PROTOCOL THAT REQUIRED A DIFFERENT INSTRUMENT THAN WHAT WE HAD BEEN USING. THE EQUIPMENT WAS ALREADY AT LABCENTRAL SO WE COULD TRY IT IMMEDIATELY. THE ALTERNATIVE WOULD HAVE BEEN CONTACTING A SALES REP, WAITING FOR A DEMO INSTRUMENT, AND THEN TRYING THE EXPERIMENT. INSTEAD, WE JUST WENT INTO THE LAB AND DID IT—IT SAVED US TIME, EXPENSE, AND TROUBLE "

-DAN ELBAUM CSO; OURALIS

QurAlis is digging deeper into the cause of and developing precision medications that can effectively treat ALS



### 90,000 LAB ITEMS **ORDERED** FOR RESIDENT SCIENTISTS

10,606 (16 HOODS, 107 USERS

In addition to increasing our support of resident company research through technical infrastructure, team growth to operate a larger facility has allowed for specialization. We have added lab team members with specialties in Biology and Analytical Chemistry for better workflows and increased support of resident research. Growth within the Operations team has allowed for team member specialization in People Operations, Communications and Community Development. Our Facilities team has added members with lab operations, HVAC, and maintenance expertise. Our IT team has doubled to support back-of-house data and resident facing resources. Our **Accounting and Purchasing team** has built significant efficiencies with team members focused on systems improvement and in support of our resident facing purchasing platform.

## **ENGAGING THE** COMMUNITY

#### **BUILDING MEANINGFUL CONNECTIONS**

With the biotech and tech industry transforming the look and feel of neighborhoods at breakneck speeds, LabCentral continues to feel responsibility to develop and maintain relationships between our startups, industry partners and alumni, and the community we are working in.

**LabCentral Community Day** is

emblematic of ways we are doing that. Our community day drive engaged resident companies, contributing over 1,823 pounds (that is literally a ton) of donated materials to local organizations like the Community Art Center (CAC), and CASPAR of Cambridge and Somerville. In addition, 143 volunteer hours by 51 participants (totaling 17.9 workdays) were given to the CAC, CASPAR, Cradles to Crayons, the Greater Boston Food

Building a shared sense of community creates the interactions that bring people together and make teams successful. Community is a core part of building a distinctive culture which fosters growth of the biotech ecosystem, helping to plant scientific seeds and facilitate innovation.

-Margaret O'Toole COO/EVP: LabCentral



Kendall Square and Cambridgeport Our Gallery 1832 arts initiative continues to exceed our expectations. The gallery featured 19 local artists and brought community members into the building while integrating the arts and

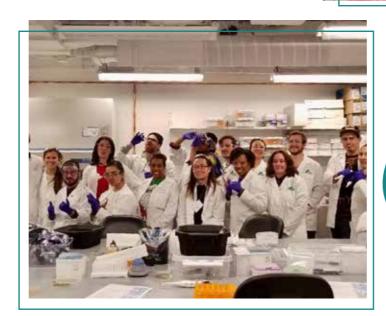
> LabCentral hosted Popup Music in 2018, bringing a live jazz band in to educate residents and their families about audience-ship and what it is to listen to and support live jazz music in greater Boston. The Sheffield Chamber Players also brought us the sounds of Beethoven and Shastokovich while educating and bringing context to world history.

> LabCentral worked with Community Art Center to host and pilot a new Creative Careers program for local youth. This program gave a glimpse into possible careers that exist (in or outside of R&D) in Kendall Square.

> On top of all of that, our team and residents plugged into events and volunteering opportunities with the Kendall Square Association, Kendall Community Group and Harvard Homeless Shelter.

















1,823 POUNDS OF M **DONATED** 



Picture above: Kryssi Benson and Andrew Warren of Glympse Bio. Glympse shocked the entire LabCentral community with a donation of a brand new refrigerator to the Community Art Center. The team researched the needs of the Center before securing the gift. Glympse Bio is developing a powerful new paradigm in diagnostics designed to enable earlier, non-invasive detection and monitoring of disease

### **BOOKS** DISCUSSED BY THE LITERATI BOOK CLUB

In 2018, LabCentral launched a new Community Development initiative. This function aims to bring together alumni, residents, and sponsors conscientiously, responding to their needs. By curating suggestions, ideas, and interests from residents, alumni, and sponsors, we expect increased engagement. While we have always seen community as part of our mission, moving two dedicated team members to this specific purpose helps us focus our entire team on how and why we build community.

#### **2018 FOUNDING SPONSORS**











#### **2018 PLATINUM SPONSORS**



















#### **2018 GOLD SPONSORS**



























#### **2018 GENERAL SPONSORS**























### THANK YOU TO OUR SPONSORS

#### A NETWORK OF SUPPORT

Labcentral opened in late 2013 with a \$5 Million grant from the Massachusetts Life Sciences Center. With support from MITIMCO, Triumvirate Environmental, and Johnson & Johnson Innovation | JLABS, our doors opened to startup companies on November 15, 2013, and we have never looked back

As a 501(c)3 non-profit, our services would not be possible without the support of our sponsors. Our residents and alumni companies maintained over 200 strategic relationships with our sponsors in 2018. (And those are only the ones we know about.) These relationships are beneficial to both the companies and our sponsors who are successfully building active pipelines for themselves.

Some sponsors subsidize the stay or allow a fast-track into the facility, supporting specific science because of its strength in concept or for strategic corporate reasons. These relationships create increased access to partnership opportunities, funding, and potential exits for companies as they grow.

Sponsors are critical to carrying out our core mission, creating the next generation of powerhouse biotech companies here in Massachusetts. Over the past five years we've engaged with 53 sponsors to provide an array of partnership opportunities, programming, trainings, technical talks, free support and equipment offerings.

Thank you.

