



ENABLING INNOVATION:

Unpacking the Urgent Need for Wet Lab Space in the Columbus Region

JANUARY 2024



This report was prepared by Shift Health.



This report was commissioned by Ohio Life Sciences, Rev1 Ventures, The Ohio State University, and One Columbus.

KEY TAKEAWAYS

1. The Columbus Region is an emerging hub for cutting-edge research, with a major focus on life sciences and manufacturing and is at an inflection point that could decide its growth trajectory for years to come.
2. All 25 stakeholders we interviewed clearly indicated that wet lab space supply for private companies in the Columbus Region is effectively non-existent, and expressed serious concerns about the consequences this will have for future growth of the Region's burgeoning life sciences sector and economy.
3. Although many jurisdictions across North America have been grappling with the low supply of wet lab space, several states have made encouraging progress in expanding wet lab investments, most successfully via a cohesive multi-sectoral strategy of direct funding coupled with policy changes to entice private sector investments.
4. The key recommendation of this study is that the Columbus Region needs to develop a coordinated, long-term strategy for wet lab space, which will ultimately require public-private partnerships; however, in the near term, interviewees provided recommendations on how the Region could plug the gap in wet lab supply for early-stage companies (e.g. partnering with groups like BioLabs).
5. By adapting proven approaches that bring together government, industry and academia around collaborative solutions, the Columbus Region can expand its limited supply of wet lab space and unlock the full potential of its life sciences hub and positively impact the Region's economy.

1. THE PROMISE OF THE COLUMBUS REGION'S BURGEONING LIFE SCIENCES HUB

The Columbus Region (or 'the Region') has a strong history of innovation in the life sciences and is emerging as a hub for cutting-edge R&D and manufacturing. One area of notable strength for the Region is cell and gene therapies which have the potential to revolutionize the way we treat many diseases like cancer and rare, debilitating genetic disorders (see Box 1). The Region is home to leading research institutes such as The Ohio State University (Ohio State), which consistently ranks among the top 20 U.S. universities in terms of annual numbers of life science PhD graduates entering the talent

pool^{1,2}. Other key institutions in the Columbus Region include Nationwide Children's Hospital (home of the Abigail Wexner Research Institute, a national leader in pediatric health research), Rev1 Ventures (which supports the growing startup community), Battelle (a non-profit applied science and technology organization), and a host of life sciences companies ranging from homegrown

“We found Columbus, along with Ohio State University, as an area with potential, where we could attract talent to further develop our assets.”

- Gary Charbonneau, SVP, GM and Head of Research and Early Development at Sarepta Therapeutics

startups to global giants³. As a testament to the Region's strengths in the life sciences, the Columbus Region has attracted over \$1.6B in private investment (i.e. venture capital, angel investors) between 2019 and 2021, with over \$900M of that coming in 2021. The Region has also been awarded \$1.6B in National Institutes of Health (NIH) funding over the last five years⁴⁻⁶.

Recognizing the attractiveness of the Columbus Region, several leading life sciences companies have recently expanded their manufacturing and research and development (R&D) footprints in the Region. These investments have created over 1,000 jobs, adding to the talented life sciences workforce of approximately 22,000 across the Columbus Region⁵⁻⁷. For example:

- **Sarepta Therapeutics**—a leading biotechnology company based in Massachusetts and focused on precision genetic medicines—licensed technology from Nationwide Children's Hospital and has invested over \$60M in new lab space totalling over 100K ft² in the Columbus Region^{4,8}.
- Similarly, **Forge Biologics** (founded in Columbus in 2020) recently invested in a 200K ft² cell and gene therapy R&D and contract manufacturing facility^{9,10}.
- **STAQ Pharma** has invested \$50M to build a 250K ft² current Good Manufacturing Practices (cGMP) facility for manufacturing of sterile compounded pharmaceuticals (e.g. pre-filled syringes and intravenous bags) in short supply across the U.S.^{4,11,12,13}.
- **Andelyn Biosciences**—a gene therapy contract development and manufacturing organization (CDMO) spun out of Nationwide Children's Hospital in 2020, establishing a 42K ft² corporate headquarters in Columbus to expand its research, process, and analytical development capabilities^{14,15}.

- The Columbus Region has also attracted large multinational players like **Amgen** (headquartered in California), which in 2021 announced a \$365M investment in an industry-leading biomanufacturing and product assembly facility^{4,5}.

The Columbus Region also boasts a supportive and growing startup community, which is the lifeblood of a vibrant innovation ecosystem.

Nationwide Children's Hospital and Ohio State are key contributors to the startup community, spinning-out multiple companies every year^{5,7,16,17}. Another key driver of the ecosystem has been **Rev1 Ventures**, which supports the growing startup community with services designed to build entrepreneurial capacity, make connections to customers and investors and, critically, supply spin-outs and other life sciences startups with flexible wet lab space rental agreements¹⁸. In the last 10 years, Rev1 startups have contributed a combined \$2.5B to the Columbus Region's economy through revenue generation, capital expenditure, and investor exits .

“I started my company in Columbus, Ohio because of my relationship with some of the professors at Ohio State and Nationwide Children's, along with the extensive research and access to talent from the university.”

– Robert Shalwitz, CEO at Invirsa

Homegrown success stories include Forge Biologics (noted above), which secured the largest series B venture capital (VC) funding round (\$120M; 2022) in state history and recently announced that it will be acquired by Ajinomoto



The Columbus Region has created a critical mass of expertise, infrastructure, and talent, ┌

(a Japanese multinational food and biotechnology conglomerate) for \$620M^{4,19,20}. Other examples include Nanofiber Solutions, a regenerative medicine company spun out of Ohio State in 2010 that was subsequently based out of Rev1 for several years and remains rooted in the Columbus Region today, as well as AmplifyBio, a leading clinical research organization (CRO) spun out of Battelle that raised \$100M in VC funding to begin operations and has invested \$150M and created over 260 jobs in the Region,²¹⁻²³.

Recognizing the importance of innovation in the life sciences, healthcare, and technology, the State of Ohio together with its partners has recently launched one of the nation's most ambitious economic development initiatives, which includes over \$3B to drive the creation of three world-class 'Innovation Districts' designed to support sustainable ecosystems of infrastructure, research, and talent^{24,25}. In the Columbus Region, one such innovation district will be situated on over 270 acres of the west campus of Ohio State in partnership with Nationwide Children's Hospital, JobsOhio, and the City of Columbus. Anchored by the Pelotonia Research Center that opened in May 2023, the innovation district will expand research infrastructure and facilitate collaboration between academic researchers, students, and industry partners across biomedical science, computer science, engineering, and more to advance research and offer unique training opportunities that bolster the Region's already robust pipeline of highly-qualified research talent²⁶⁻²⁹. ***The Columbus Region has created a critical mass of expertise, infrastructure, and talent, priming the Region for extensive growth of its life sciences ecosystem over the coming years.***

⁴ Based on internal data and analysis from Rev1 Ventures.

While this report focuses on wet lab space, it will be important for future work to consider the supply and demand for more general lab space to support the growth of industries adjacent to the life sciences (e.g. advanced materials, semiconductors, information and communications technology).

2. UNPACKING THE URGENT NEED FOR WET LAB SPACE IN THE COLUMBUS REGION

Wet lab space is defined as a facility equipped with experimental and safety features designed to facilitate research involving liquid chemicals and biological hazards and is critical for life sciences research and manufacturing activities.

The significant investments and expansion in the Columbus Region's life sciences sector described above have naturally increased the need for wet lab space; however, concerns are growing that the supply of modern wet lab space is not keeping pace with rising demand⁶. Indeed, a 2023 JLL report ranked Columbus 20th in terms of total supply of lab space, lagging behind markets like Houston, Montreal, Vancouver, and Chicago (see Table 1)⁶. Stakeholders cautioned that this may be hindering both the growth prospects of local life sciences companies and deterring out-of-state and international players.

“We could have done more research in a shorter amount of time if we had the availability of more lab space”

– Gary Charbonneau, SVP, GM and Head of Research and Early Development at Sarepta Therapeutics

In order to better characterize the demand and supply of wet lab space in the Columbus Region and to help spur dialogue on potential solutions, we engaged with 25 leaders across the Region through interviews and focus groups. Stakeholders engaged included presidents and

CEOs of life sciences firms (e.g. Battelle, Sarepta, STAQ, etc.) along with representatives from Ohio State, Nationwide Children's Hospital, JobsOhio, Rev1 Ventures, and real estate firms such as JLL and CBRE (see Table 2). Insights gleaned from the consultations were supported by targeted secondary research, including a high-level review of select life sciences hubs across North America. Below, we provide an overview of stakeholder perspectives on the dynamics of wet lab space in the Columbus Region, discuss the unique challenges hindering increased investment, and outline potential solutions undertaken by peer regions that could be leveraged by the Columbus Region moving forward to enhance supply.

“It is very difficult to find suitable workspaces where you can go in and can start manufacturing gene and cell therapies on your own that is beyond an academic institution”

– Timothy Miller, CEO at Forge Biologics

All interviewees were optimistic about the growth potential for the Columbus Region's life sciences ecosystem. This optimism is driven by the Columbus Region's research leadership in foundational science (e.g. cell and gene therapy), a critical mass of collocated, cross-sectoral key players, a strong talent base of young professionals in the life sciences, low cost of living and relative ease of connectivity to urban biotechnology hubs on both the east and west coasts.

However, interviewees invariably pointed to the lack of supply of modern wet lab space as being the number one issue constraining the growth of the Region's life sciences sector.

Although detailed statistics on demand are limited,

many stakeholders noted that readily available supply for private companies is essentially zero. When asked to rate the balance between supply and demand on a scale of 1 to 5 (where 1 reflected supply greatly exceeds demand and 5 indicated demand greatly exceeds supply), the average response was a sobering 4.7.

“Our company has zero lab space. Most work is done at Nationwide Children’s or contract research organizations. That is done out of necessity because there is very limited availability of wet lab space for an early-stage company that is affordable or accessible.”

– Robert Shalwitz, CEO at Invirsa

While demand for wet lab space can come from different sources—including research institutes such as universities and private sector companies—*when asked where they believe the greatest demand lies, interviewees all pointed to private sector companies.* Representatives from commercial-stage companies that have recently invested in the Region (e.g. Sarepta, Forge) all spoke of challenges in finding suitable lab space that was move-in ready or easily retrofitted. As a result, such companies faced either very costly retrofits of existing buildings or a lengthy process of building new facilities from the ground up³⁰⁻³¹. Importantly, the vast majority of interviewees pointed to pre-revenue, early-stage companies,

such as spinouts and startups coming out of Nationwide Children’s Hospital and Ohio State, as being the key drivers of growing demand for wet lab space. Notably, the absence of wet lab space is creating challenges for these early-stage companies, who typically do not have the financial resources to build their own facilities, and interviewees pointed to several examples of early-stage companies leaving the Columbus Region. A case in point is AveXis Inc., a startup from the Columbus Region that developed gene therapies using research that originated at Nationwide Children’s Hospital and Ohio State³². According to interviewees familiar with the company, the lack of available wet lab space in the Columbus Region was a key reason for its decision to move to Illinois, where it was acquired by Novartis for \$8.7 billion in 2018³³.

Looking to the future, all interviewees expected the demand for wet lab space will continue to grow and outpace supply as more early-stage companies are formed and scale. This sentiment is supported by projections conducted by Rev1 Ventures, which predict that Nationwide Children’s Hospital and Ohio State will continue spinning out up to five life sciences companies each on an annual basis. Clearly, while all private sector companies are facing a crunch in supply for wet lab space, the problem is particularly acute for early-stage companies that are looking to grow in the Columbus Region.



“It would be a valuable addition to the Ohio bioecosystem to build more wet lab space, because it will allow more companies that are in satellite mode to actually jump in and go”

- Timothy Miller, CEO at Forge Biologics

3. WHAT IS SO DIFFICULT ABOUT DEVELOPING WET LAB SPACE?

Many interviewees expressed a palpable frustration at the lack of investment in wet lab space in the Region. The question then naturally arises: why has lab space supply not increased to meet demand? The answer is nuanced, but ultimately comes down to three interrelated factors: complexity, cost, and risk:

1. Wet lab space is more complicated to develop compared to standard commercial office space^{30,31}. For example, spaces designed for life sciences R&D require extensive ‘fit-out’ investments including specialized heating, ventilation, and air conditioning (HVAC), compressed gases, waste handling, electrical equipment loads, process water systems, chemical treatment, and storage requirements³⁴.
2. Wet lab construction costs can be 3-5 times higher than those for office development and take about twice the amount of time to complete³⁴⁻³⁷. While larger companies may be able to cover the costs to retrofit or build wet lab space in the Columbus Region, early-stage companies with limited cash typically seek to rent space in existing facilities with build-out specifications capable of meeting their needs.
3. Wet lab space is a riskier investment compared to other real estate developments because of the unique nature of life sciences tenants, particularly for shared multi-tenant facilities that house early-stage companies. The reason for this is that early-stage life sciences companies typically have limited financial resources and tend to invest most of their resources into risky R&D that may take many years to result in a viable product, platform or service that would yield a consistent source

of revenue. Given the potential for default risk on rent, it is difficult for private sector investors, such as real estate developers, to justify investing in a development project for early-stage companies in the absence of risk mitigation tactics, such as pre-construction lease commitments (e.g. from an anchor tenant) and/or strong financial covenants³⁸.

“Attracting early-stage developers, that’s going to be a big challenge, unless there’s huge incentives for developers to come to Central Ohio.”

– Jaehyung Yoon, CFO at AmplifyBio

The bottom line is that managing the complexity, costs, and risks associated with wet lab space development requires extensive expertise³⁹. Major, national developers and other specialized firms (e.g. Alexandria, BioMed Realty, etc.) do have extensive experience in this area and there has been ongoing dialogue with such companies to invest in the Columbus Region⁴⁰. However, interviewees noted that these groups typically focus on opportunities in major life sciences hubs like Boston and San Francisco, which, in comparison to secondary markets, command lucrative rental rates and enjoy surging demand for space^{41,42}. Given these dynamics, several interviewees expressed the opinion that the onus therefore falls on the local life sciences community to come together and fill the gap in wet lab space supply, at least in the near term. Below we outline potential solutions that could be undertaken.

4. WHERE DO WE GO FROM HERE?

There is a clear and immediate need for wet lab space in the Columbus Region to support, retain, and grow life sciences companies, particularly early-stage startups and spinouts that are contemplating potential relocation away from the Region.

To better understand potential strategies and tactics available to the Columbus Region, interviewees recommended that we look to other states that have successfully expanded wet lab space supply. Based on our findings, it was clear that **successful early strategies to expand the supply of wet lab space are typically multisectoral, bringing together both the public and private sectors.** State governments, in particular, have played an important role in catalyzing investment both through direct funding for infrastructure projects and policy changes to help de-risk and incentivize private sector development (e.g. via tax incentives and changes to zoning laws). In Table 3, we outline case studies from **Pennsylvania, Illinois, New York, and Massachusetts** that illustrate the above points. A notable example is Pennsylvania, which has invested over \$17M in the non-profit Pennsylvania Biotechnology Center (PABC) in Doylestown. The PABC began with 15K ft² wet lab space and later expanded to 30K ft² wet lab space and a second 50K ft² incubator in Philadelphia, in response to rising demand⁴³⁻⁴⁷. The state also offered tax credits worth up to \$100K/year to businesses less than 8 years old^{48,49}. These investments have helped to attract global life sciences companies, create over 2,400 jobs and generate over \$10B in economic impact across the state, including \$164M during PABC's first three years of operation⁵⁰⁻⁵².

“The best thing that could happen would be for one group to launch some wet lab space and then another group across town to launch some wet lab space and let the economies of scale kick in.”

- Matthew McFarland, VP of Commercialization and Industry Relations at The Research Institute at Nationwide Children's Hospital

Considering the above findings from peer regions and input we received from stakeholders, the key recommendation of our study is that the Columbus Region needs to develop a coordinated, long-term strategy for wet lab space. This will ultimately require public-private partnerships, including those with state and municipal governments, regional economic development organizations, research institutions, and the private sector.

Developing this strategy will require time and broad community engagement. Nonetheless, in the near term interviewees suggested that the Region should prioritize plugging the gap in wet lab supply for early-stage companies, which regional stakeholders estimate at 20K to 50K ft². Interviewees suggested that this demand could be met by developing a multi-tenant, ‘incubator’ facility equipped with modern lab space dedicated to the life sciences and offered several ideas on how to achieve this goal, including:

- 1. Partnering with groups like BioLabs or the Cambridge Innovation Center (CIC),** which typically work with traditional real estate developers or landlords to co-develop flexible wet lab space targeting early-stage companies that pay membership or access fees, then manage the resulting facilities and offer innovation-related programming^{53,54}.



The Columbus Region is emerging as a hub for cutting-edge life sciences

- 2. Attracting specialized life science real estate investment firms**, for example, StudioLabs by Breakthrough Properties creates turn-key wet lab space for high-growth life sciences startups in partnership with Bellco Capital and Tishman Speyer, a global real estate developer already affiliated with the innovation district at Ohio State⁵⁵⁻⁵⁷.
- 3. Establishing public-private partnerships to create new facilities**, such as the PABC described above, in which the state government sponsored the creation of an incubator-style facility managed by the Hepatitis B Foundation and its research arm, the Baruch S. Blumberg Institute, both non-profits that function as anchor organizations attracting partners and entrepreneurs^{58,59}. Another prime example is University Lab Partners, a non-profit incubator that provides flexible wet lab space at UCI Research Park as part of a public-private partnership between the Beall Family Foundation and the University of California Irvine^{60,61}.
- 4. Securing sponsorships** from a large healthcare company (e.g. Johnson & Johnson, ThermoFisher) who could provide in-kind support, for example, through donating lab equipment.

The Columbus Region is emerging as a hub for cutting-edge life sciences R&D and manufacturing and is now at an inflection point that could decide its growth trajectory for years to come. By adapting proven approaches that bring together government, industry, and academia around collaborative solutions, the Columbus Region can expand its limited supply of wet lab space and unlock the potential of its burgeoning life sciences hub.



Supporting Figures:

BOX 1: CELL AND GENE THERAPY IN THE COLUMBUS REGION

- Nationwide Children’s Hospital is a national leader in gene therapy with a robust pipeline of over 20 genetic targets in various stage of research⁶².
- Since 2018, nearly \$10 billion has been invested in gene therapy startups from Nationwide Children’s Hospital and Ohio is tied for 4th among states in number of identified gene therapy startups and companies⁶³.
- Since 2017, the FDA has only approved six therapies that use a modified virus to deliver a corrected gene copy in a single treatment. Two of these therapies were invented in the Columbus Region⁶⁴.
- Ohio State holds one of the largest first-in-human clinical trial portfolios in gene therapy and is one of the only institutions with most of its gene therapy trials delivering targeted gene therapy to the midbrain.
- Several private sector companies focused on cell and gene therapy R&D and manufacturing have set up shop in the Columbus Region, including Forge, Sarepta, AmplifyBio, Andelyn Biosciences, and Armatus Bio.
- Private companies developing cell and gene therapies in the Columbus Region can qualify for incentives that support the growth of targeted industries including healthcare and advanced manufacturing, such as JobsOhio’s R&D Center Grant Program⁶⁵.

TABLE 1: OVERVIEW OF TOTAL SUPPLY OF LAB SPACE FOR SELECTED JURISDICTIONS⁶

Rank	Jurisdiction	Existing Lab Space (million square feet) ^a	Lab Space in Development (million square feet) ^{a,b}
1	Boston	33.5	38.2
2	San Francisco Bay Area	30.6	25.6
3	Greater DC and Baltimore	23.7	6.1
4	San Diego	20.5	14.3
5	New Jersey	18.7	0.6
6	Raleigh-Durham	13.7	3.2
7	Philadelphia	12.9	2.6
8	Minneapolis-St. Paul	12.4	0.1
9	Toronto-Golden Horseshoe	9.5	1.4
10	Seattle	7.0	4.4
11	Los Angeles / Orange County	6.9	1.4
12	Salt Lake City	6.8	1.3
13	Houston	5.7	2.1
14	Cleveland	4.3	0.0
15	Montreal	4.2	1.1
16	Denver-Boulder	3.6	2.1
17	New York City	3.2	2.4
18	Vancouver	3.2	2.9
19	Chicago	2.4	2.1
20	Columbus	2.3	1.0

a. Includes wet lab, dry lab and Good Manufacturing Practice space.

b. Includes developments under conversion, and ground-up construction in approved, purchased or in planning stages.

TABLE 2: LIST OF STAKEHOLDERS CONSULTED

Name	Position	Company
Bruce Caldwell	CEO	3Bar Biologics
J. Kelly Ganjei	CEO	AmplifyBio
Jaehyung Yoon	CFO and Executive Vice President Strategy	AmplifyBio
Mike Triplett	CEO	ArmatusBio
Matt Vaughn	President, Applied Science & Technology	Battelle
Michael Capella	Market Leader	CBRE
David Richards	CEO	Clarametyx Biosciences
Tim Miller	Co-Founder and CEO	Forge Biologics
Bob Shalwitz	CEO	Invirsa
Dan Wendorf	Managing Director	JLL
Josh Hoffman	Director of Healthcare	JobsOhio
Tyler Allchin	Managing Director of Healthcare	JobsOhio
Tom Darrah	Founder and Professor	Koloma and The Ohio State University
Jed Johnson	Founder	Nanofiber Solutions
Dennis Durbin	President	Nationwide Children's Hospital
Matt McFarland	Vice President of Commercialization and Industry Relations	Nationwide Children's Hospital
Eddie Pauline	CEO	Ohio Life Sciences
Peter Mohler	Executive Vice President for Research, Innovation and Knowledge	The Ohio State University
Kenny McDonald	CEO	One Columbus
Matt McCollister	Executive Vice President	One Columbus
Tom Walker	CEO	Rev1 Ventures
Kristy Campbell	Executive Vice President & Chief Operations Officer	Rev1 Ventures
Wayne Embree	Senior Advisory Partner	Rev1 Ventures
Gary Charbonneau	Senior Vice President, GM and Head of Research and Early Development	Sarepta
Rocco Rotello	Director of Lab Operations	STAQ Pharma

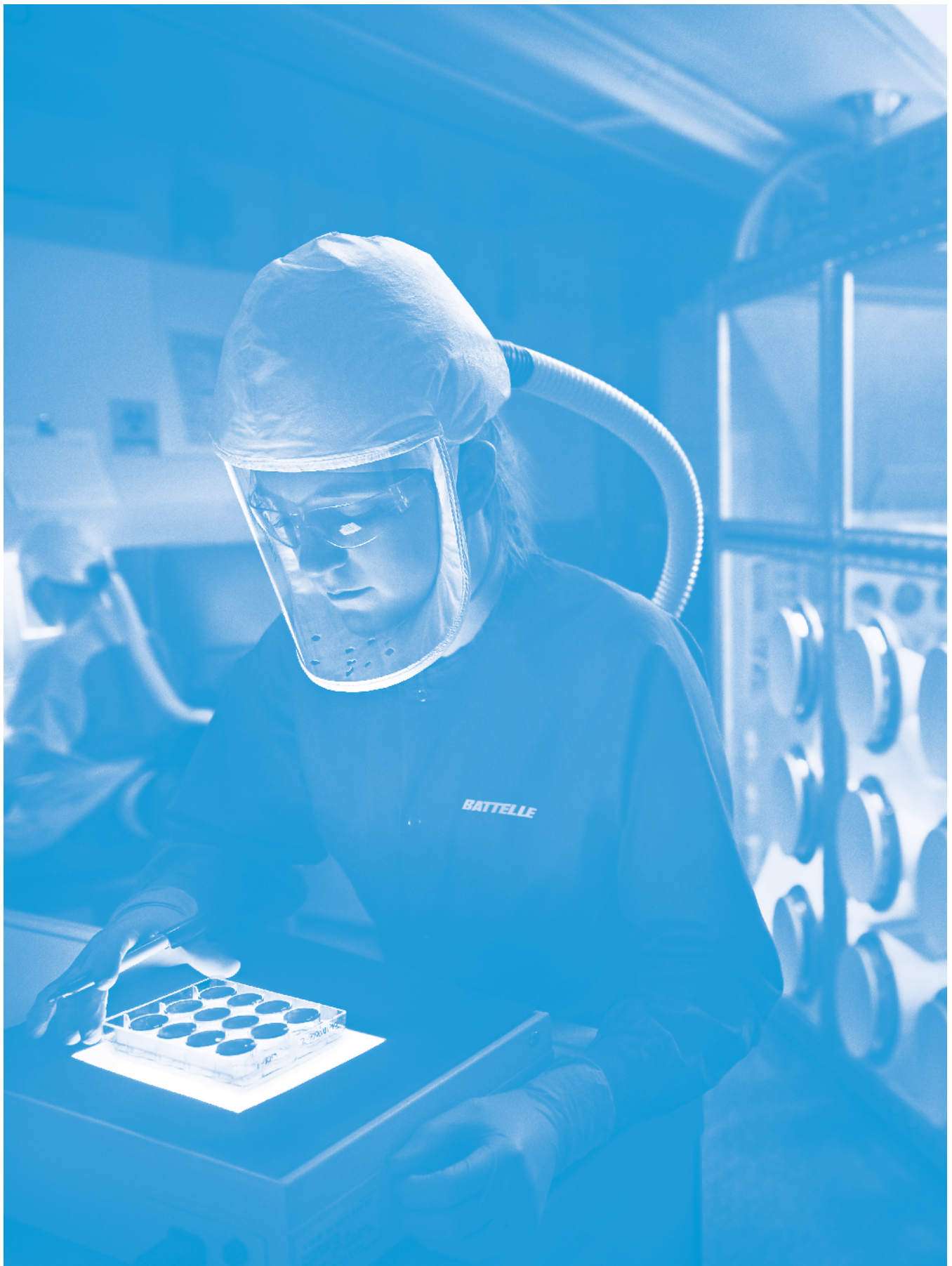
TABLE 3: CASE STUDIES OF WET LAB SPACE DEVELOPMENT IN OTHER REGIONS IN THE U.S.

State	Summary
Pennsylvania	<p>Overview: The non-profit Pennsylvania Biotechnology Center (PABC) in Doylestown has grown from a 60K ft² facility with 15K ft² wet lab space in 2006 to four connected buildings comprising 150K ft² with 30K ft² wet lab space. PABC is managed by the Hepatitis B Foundation and Blumberg Institute and has opened a second facility (B+Labs) in Philadelphia, in partnership with Brandywine Realty Trust.</p> <p>Government Support: The state government invested \$7.9M to establish PABC and contributed an additional \$9.4M toward expansion projects, which further benefitted from \$4.7M in federal funding. Pennsylvania also incentivizes private investment through tax credits of up to \$100K/year for businesses less than 8 years old and located in Keystone Innovation Zones.</p> <p>Outcomes: Third-party analyses have found PABC to be one of the most successful life sciences incubators in the U.S., creating over 2,400 jobs and generating over \$10B in statewide economic impact from 2006 to 2021, including \$164M during its first three years of operation—equivalent to a 20-fold return on the state’s original \$7.9M investment. In addition, PABC has attracted global companies such as Antengene and Proteovant Therapeutics (acquired by SK Biopharmaceuticals in 2023) to the region.</p>
Massachusetts	<p>Overview: In 2008, the Massachusetts Life Science Center (MLSC) opened as an economic development agency offering public-private funding initiatives to support the life sciences ecosystem. MLSC has now invested over \$900M of state funding into life sciences research infrastructure (e.g. wet lab space), tax incentives, research grants, company grants and loans, as well as internships and apprenticeship training programs. In 2013 for example, MLSC contributed \$5M toward the creation of LabCentral (also sponsored by several large pharmaceutical companies), a network of incubators and accelerators comprising over 225K ft² across Boston and Cambridge, with wet lab space for up to 125 early-stage companies.</p> <p>Government Support: The state invested \$1B in the 2008 Massachusetts Life Sciences Initiative, to be administered by MLSC. In 2018, the state committed to providing up to \$623M in bond authorizations and tax credits over 5 years to support R&D education and workforce training.</p> <p>Outcomes: Through MLSC, state funding has generated over \$6B in leveraged investments, created more than 17K jobs, directly supported at least 185 companies (e.g. through grants, loans and tax incentives) and has led to a 117% increase in lab space over the last decade.</p>

State	Summary
New York	<p>Overview: Since 2016, New York State and New York City Economic Development Corporation (EDC) initiatives have collectively added 1.7M ft² of lab space, with another 5.6M ft² planned or under construction in the NY Metropolitan area.</p> <p>Government Support: From 2017 to 2022, the state and New York City invested a combined \$1.5B into the Life Science Initiative, with the goals of supporting early-stage companies, creating incubators and commercial wet lab space, and building a strong talent pipeline. In 2018, the state introduced a \$10M/year Life Sciences R&D Tax Credit program capped at \$500K/year and \$1.5M lifetime per company. In addition, the state-backed START-UP NY program encourages public-private partnerships by allowing new and expanding businesses to operate tax-free for 10 years when located on or near eligible university or college campuses.</p> <p>Outcomes: From 2017 to 2021, New York achieved 19% growth in the number of life sciences companies and 10% growth in life sciences jobs (approx. 9.7K jobs added). The state is also attracting additional VC funding, which tripled between 2015 and 2020.</p>
Illinois	<p>Overview: University of Illinois Research Park includes EnterpriseWorks, an incubator offering early-stage companies 14K ft² wet lab space, two shared equipment labs, discounted access to university core facilities and procurement services, as well as guidance from 14 entrepreneurs in residence. Research Park and its landlord GRE UIRP LLC added to a \$550K state grant provided by the Wet Lab Capital program to build LabWorks, which will lease larger wet lab spaces to companies graduating from the EnterpriseWorks incubator.</p> <p>Government Support: Beginning in 2020, the state invested nearly \$25M in the Wet Lab Capital program to expand access to modern wet lab space for incubators, startups, university researchers and graduated private companies.</p> <p>Outcomes: State funding for the Wet Lab Capital program is being leveraged to generate approximately \$83M in additional matching investments. Since 2003, the University of Illinois Research Park has graduated over 250 startups that have raised \$1.4B in venture capital funding and have been awarded \$220M in Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) funding, with 71% of graduated companies remaining in Illinois.</p>

Sources for Table 3

Jurisdiction	Sources
Pennsylvania	43-50, 52, 58, 59, 66-69
Massachusetts	70-74
New York	75-79
Illinois	80-88



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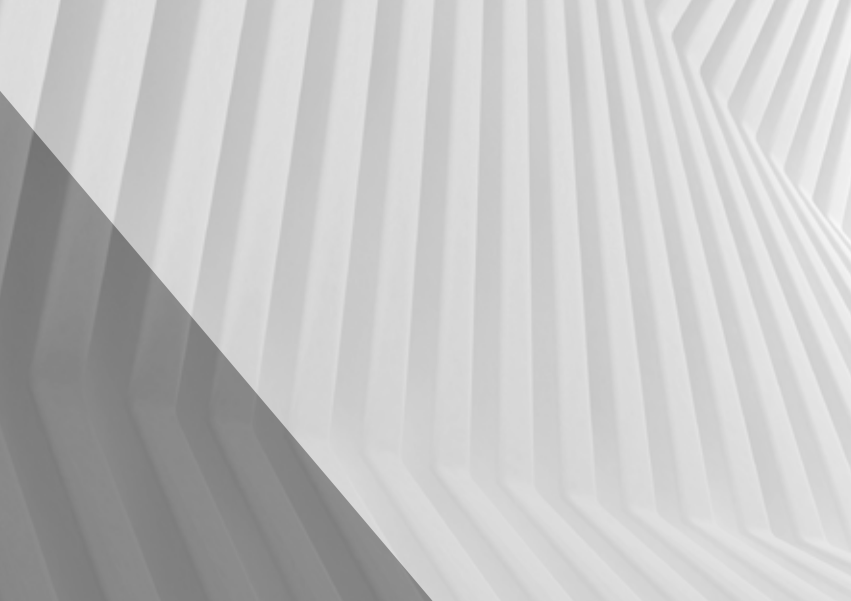
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