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# A New Player in Biotech Investing

## Why Health Systems Are Funding the Commercialization of New Therapies

Center for **Connected** Medicine

# Introduction

Pharmaceutical development has been evolving over the past 20 years, with academic medical centers taking on a larger role in both the science and commercialization of new therapies. Academic researchers and their institutions are increasingly key production centers for new targeted therapies. And those institutions are no longer simply licensing intellectual property but also taking the lead in spinning out new companies and providing early venture financing to these young companies.

But which medical centers and health systems are leading the way when it comes to investing in biotech startups? What is driving them to do so? And should we expect to see more systems and academic medical centers adopt this strategy?

This resource from the Center for Connected Medicine (CCM) seeks to quantify the health systems active in commercialization of therapeutics and highlight the common characteristics of those institutions. We also have provided qualitative commentary from health system experts to supplement our findings. Our goal is to contribute to the understanding of this emerging area of life sciences venture activity and provide context to what we view as a growing trend.

# The health systems investing in biotech

High levels of venture funding have been flowing to biotech startups in recent years. Venture capital investors poured $37.8 billion into the biotech and pharmaceutical industries in 2021, up from $28.1 billion in 2020, according to PitchBook-NVCA Venture Monitor. This rise in activity mirrors the broader technology and digital health sectors, where health systems have been taking a more active role in recent years. Dozens of health systems have launched their own venture capital-style organization in the past decade as they seek to innovate and diversify revenue streams.

But while the universe of health system venture organizations focused on digital health and technology numbers more than 40, according to CCM research, the number of organizations that are investing or have a stated goal to invest in biotech and therapeutics is much smaller. The CCM identified 15 such health systems. **(For the full list, see accompanying chart on page 11)**

**Following are four key characteristics the CCM found in its review of the health systems investing in biotech and therapeutics.**

## Health system scale matters

These institutions range in size from Kaiser Permanente, one of the nation's largest health systems with more than $93 billion in 2021 revenue, to Orlando Health, with $3 billion in 2021 revenue. Given the risk involved in early-stage venture investing, organizations need to have sufficient resources to be able to make enough investments to have any chance of realizing gains.

Fund sizes are not always publicly available for these organizations. For those that have made this information public, such as Mass General Brigham Ventures and OSF Ventures, fund sizes are in the hundreds of millions of dollars. UPMC Enterprises, which formed in 2015 to invest in digital health startups, committed $1 billion to life sciences investing starting in 2020.

## Access to university research is essential

Nearly all (12 out of 15) are part of or have an affiliation with a university school of medicine. Many are well known and highly regarded research institutions, including Johns Hopkins University, University of California-San Francisco, Massachusetts General Hospital, and University of Pittsburgh. Most of these universities or their medical centers also are among the top recipients of National Institutes of Health research funding each year. This grant funding for scientific research drives innovation and new discoveries, which could have commercial potential. Health systems can be in position to get an early look at the most promising discoveries and new technology.

## Many have a dedicated venture organization

Many but not all the identified health systems have a dedicated venture capital arm that oversees the health system's investments. Those that don't appear to rely on a university-based office of tech transfer or similar university-based organization. This organizational structure is an important component of the investment strategy because of the talent required to be successful.

A typical health system or academic medical center isn't likely to possess in-house the expertise to evaluate the commercial potential of new discoveries, the financial acumen to make early-stage investments, or the business experience necessary for company formation. A dedicated venture organization within a health system can build a team of experts to focus on these vital responsibilities.

## Internally focused investing most common

Most health systems and medical centers engaged in biotech and therapeutic investing appear to be focused on funding innovation developed within their health system and university. As we heard from the experts we talked to for this report, it can be tough to compete with venture capital firms and the greater resources they have to offer startups. By focusing internally and providing earlier stage financing, health systems can achieve an advantage over their competition. At the same time, many also seek to cultivate relationships with leading venture capitalists to syndicate funding rounds and spread risk.

# Expert Commentary

**To provide additional context to the findings in this report, the CCM talked to two experts in biotech and therapeutics investing from health systems:**

**Roger Kitterman, MBA**

Managing Partner,
Mass General Brigham Ventures

Vice President,
Mass General Brigham Innovation

**Matthias Kleinz, DVM, PhD**

Senior Vice President,
UPMC Enterprises

**The following section includes comments and insights on why some health systems and medical centers are adopting this investment strategy, what advantages they have as investors, and whether we can expect to see more health systems becoming biotech investors.**

## If you don't play, you can't win

There are several reasons that health systems and academic medical centers have decided to dedicate capital to funding biotech startups, Dr. Kleinz and Mr. Kitterman said. To start, the evolution of drug discovery has opened up opportunities for academic researchers because treatments are increasingly seeking to address what's wrong with a patient at a molecular level. This means drug discovery is more research based, which gives academic medical centers a bigger role to play in developing new therapies. "There's a notion across the industry that we're just seeing the tip of the iceberg when it comes to what medicine is capable of achieving to treat disease," Dr. Kleinz said.

Second, there's been a broad push for universities to do a better job of translating research funding into commercial products. Both University of Pittsburgh, which is affiliated with the UPMC health system, and Massachusetts General Hospital

were ranked in the top 10 for National Institutes of Health research funding in 2020. If that academic research has commercial potential in the form of new treatments that can benefit patients, the health systems can fill an important role in providing funding and other support to translate discoveries into new drugs — activity that can return funding to health systems and universities to bolster their missions to care for patients and educate students. "Over time, as you're successful, there's an upside that's created," Mr. Kitterman said.

**"We can draft and follow things for a really long time and help with development early on with a low cost of capital"**

Mr. Kitterman

There is also near-term benefit to health systems beyond the potential return on their investments. By working to ensure more personalized and custom therapies, such as stem cells, CAR-T, and others, are accelerated from laboratory to patient bedside, health systems not only greatly improve patient care but also have the potential to capture commercial upside through new service revenue.

And as some early investments by academic medical centers became successful, the potential for strong returns not only created more capital to be deployed as startup funding but those success stories also spurred other health systems to evaluate their own research, create funds, and build venture organizations to support translation of research into startups.

"If you don't play, you can't win," Dr. Kleinz said.

At Mass General Brigham Ventures, early successes with therapeutic startups have provided the organization an opportunity to continue growing — they are on their third fund, with $250 million to be invested in internal startups, Kitterman said.

Finally, some academic institutions have found that having a venture organization that supports the commercialization interests of researchers is important to talent recruitment and retention.

## Pulling from a large research base

While health systems may not have the same financial resources as venture capitalists, they do have at least one important differentiator: early engagement with a large base of clinicians and researchers who learn about exciting research earlier. Even if a discovery isn't ready for commercialization, Mass General Brigham can work with investigators to continue to develop their work. "We can draft and follow things for a really long time and help with development early on with a low cost of capital," Mr. Kitterman said.

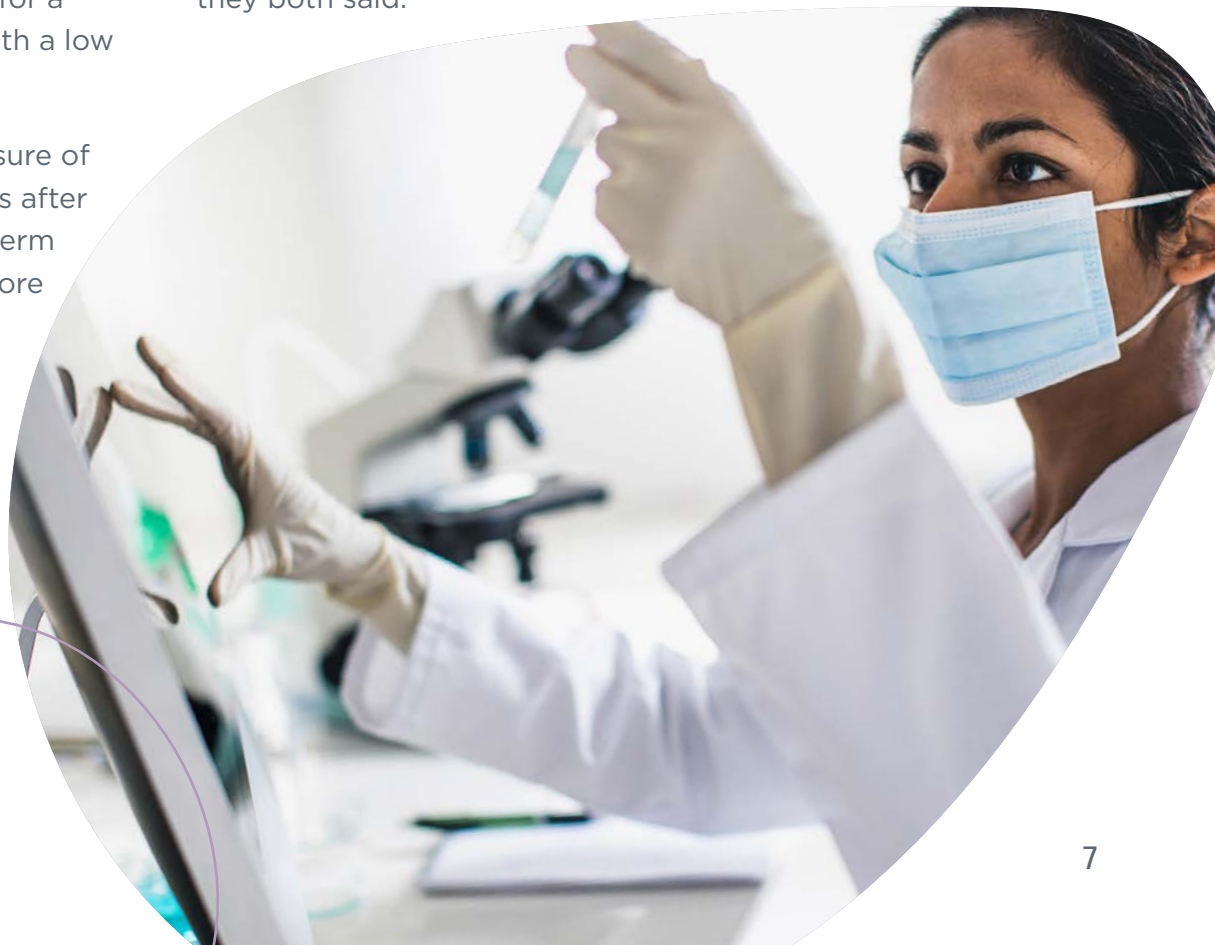
Similarly, UPMC Enterprises doesn't feel the same pressure of venture capitalists to produce returns for their investors after a few years. "We have the advantage of taking a long-term view on our investments, which allows us to support more early-stage research," Dr. Kleinz said.

**"Over time, as you're successful, there's an upside that's created"**

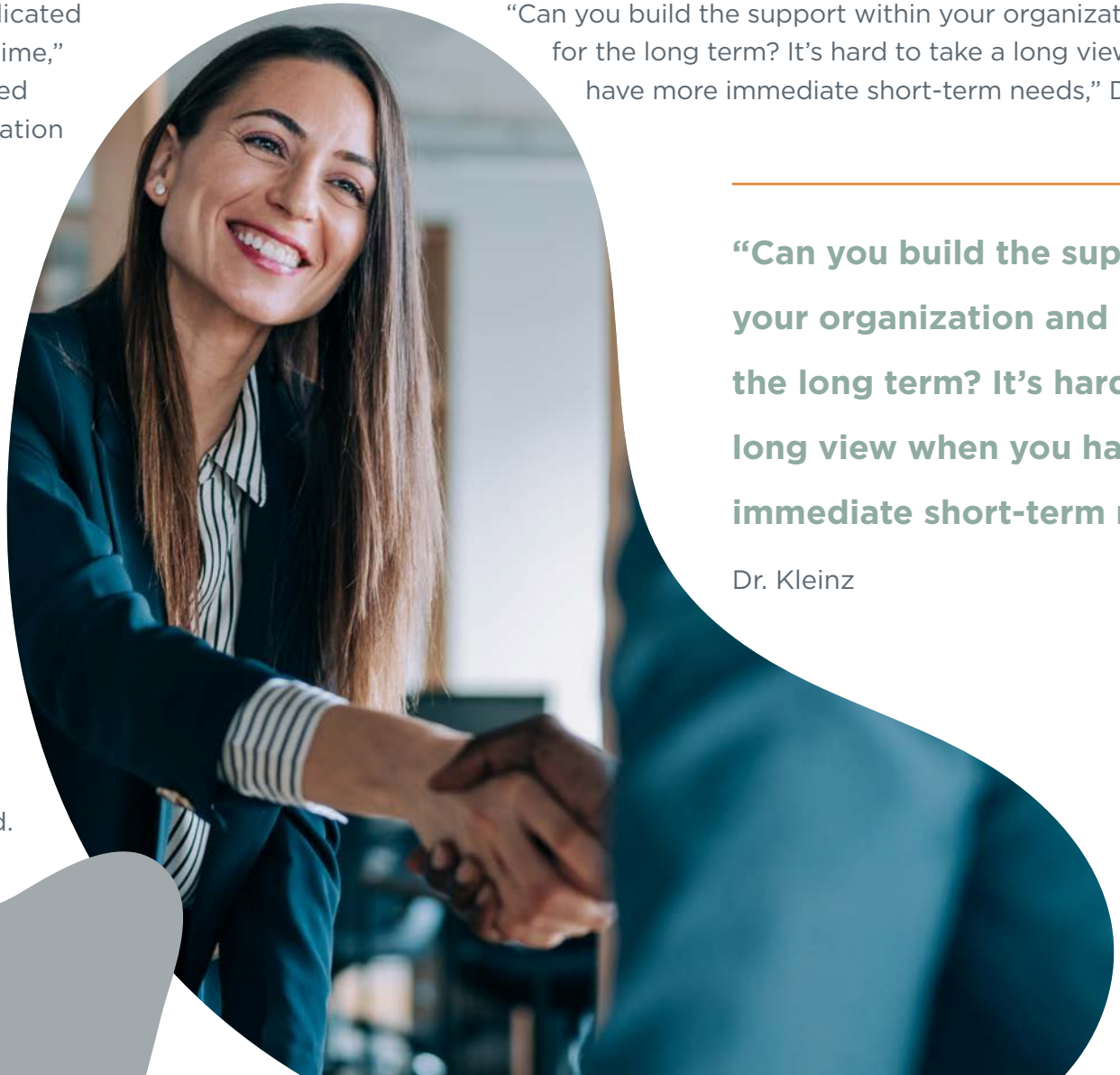
Mr. Kitterman

## Commitment of investment resources

Not every health system or academic medical center is able to adopt a strategy of investing in biotech and therapeutic startups. There can be a high barrier to entry. But for those that have significant amounts of research already taking place within their institutions, there are other criteria they'll need, Dr. Kleinz and Mr. Kitterman said. Scale is important, they both said.



A dedicated team of people experienced in venture capital and company building also is essential. "You need to have a very dedicated team. You can't do this part-time," Mr. Kitterman said. A dedicated investment and commercialization team embedded within a health system also can be an important differentiator, Dr. Kleinz said. Taking an investigator's research and ideas and turning them into a viable product takes significant guidance and coaching from experts with health care backgrounds. "Capital alone often isn't enough. The resources and expertise that health systems like ours have can make a difference for ambitious academic entrepreneurs," Dr. Kleinz said.



Another vital component is a commitment of investment resources from health system leadership and a tolerance for risk. "Can you build the support within your organization and invest for the long term? It's hard to take a long view when you have more immediate short-term needs," Dr. Kleinz said.

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Dr. Kleinz

# Conclusion

At this time, there is a small cohort of health systems and academic medical centers that have a dedicated organization working to commercialize biotech and therapeutic research. This CCM research identified 15 institutions that have venture capital organizations that have at least stated a goal to invest in life sciences. Some are in the early days of this strategy and others have been on the path for years and can point to success. And while health systems may be experiencing significant financial pressures coming out of the Covid-19 pandemic, that pressure can push leaders to explore new opportunities. It is likely more will venture into this area. Consider that the NIH in 2021 granted research funding of more than $30 billion to nearly 2,700 U.S. and international organizations. How much of that research might have commercial potential but never makes it out of the lab?

# Methodology

The authors of this white paper attempted to be as thorough as possible in identifying all health systems and academic medical centers that are making investments in biotech and therapeutics startups. However, it is possible that some have been unintentionally missed. To compile our list, we researched the 100 largest health systems in the United States and health systems with known venture capital organizations. We excluded universities or research institutions that do not have a hospital system.

After identifying organizations with commercial and venture activity, as well as a track record or stated goal of investing in biotech and therapeutics startups, we relied on PitchBook data to list the number of investments and exits in the biotech and therapeutics sectors. Those numbers were taken from PitchBook's listing of the last 25 investments and exits for each organization. Not all organizations had data available on PitchBook.

# Health systems investing in biotech and therapeutics startups

| Venture division | Biotech, therapeutics investments[1] | Biotech, therapeutics exits[1] | Parent health system | Total health system revenue, 2021 | Hospitals | Medical school (Y/N) |
|---|---|---|---|---|---|---|
| Cleveland Clinic Ventures | 5 | 1 | Cleveland Clinic Health System | $12.4 billion | 21 | Y |
| Intermountain Ventures | 2 | 3 | Intermountain Healthcare | $11.0 billion[3] | 33 | N |
| Jefferson Innovation | N/A[4] | N/A[4] | Jefferson Health | $4.6 billion[2] | 18 | Y |
| Johns Hopkins Technology Ventures | 11 | 6 | Johns Hopkins Medicine | $7.8 billion | 8 | Y |
| Kaiser Permanente Ventures | 1 | 0 | Kaiser Permanente | $93.1 billion | 39 | Y |
| Mass General Brigham Ventures | 20 | 16 | Mass General Brigham | $16 billion | 12 | Y |
| Mayo Clinic Ventures | 7 | 3 | Mayo Clinic | $15.7 billion | 21 | Y |
| Michigan Biomedical Venture Fund | 4 | 0 | University of Michigan Health | $5.4 billion | 3 | |
| Mount Sinai Innovation Partners | N/A[4] | N/A[4] | Mount Sinai Health System | $9.3 billion | 8 | Y |
| NYU Langone Health Technology Opportunities and Ventures | 2 | 0 | NYU Langone Health | $8.2 billion[2] | 6 | Y |
| Orlando Health Ventures | 1 | 0 | Orlando Health | $3.0 billion[3] | 10 | N |
| OSF Ventures | 1 | 0 | OSF HealthCare | $3.1 billion | 15 | N |
| Penn Center for Innovation / PCI Ventures | 4 | 0 | University of Pennsylvania (Penn Medicine) | $7.5 billion | 8 | Y |
| UCSF Innovation Ventures | N/A[4] | N/A[4] | UCSF Health | $5.2 billion | 3 | Y |
| UPMC Enterprises | 8 | 2 | UPMC | $24.4 billion | 40 | Y |

**1** Investments and exits figures taken from PitchBook, which lists the last 25 investments and exits for organizations. Only investments or exits categorized as biotechnology, pharmaceuticals, and drug discovery were counted.

**2** Revenue figures for NYU Langone and Jefferson Health are Net Patient Revenue only.

**3** Orlando Health's and Intermountain's revenue figures are for 2020 fiscal year.

**4** PitchBook data not available. Jefferson Innovation, Mt. Sinai Innovation Partners, and UCSF Innovation Ventures were included based on portfolio companies listed on their websites.

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