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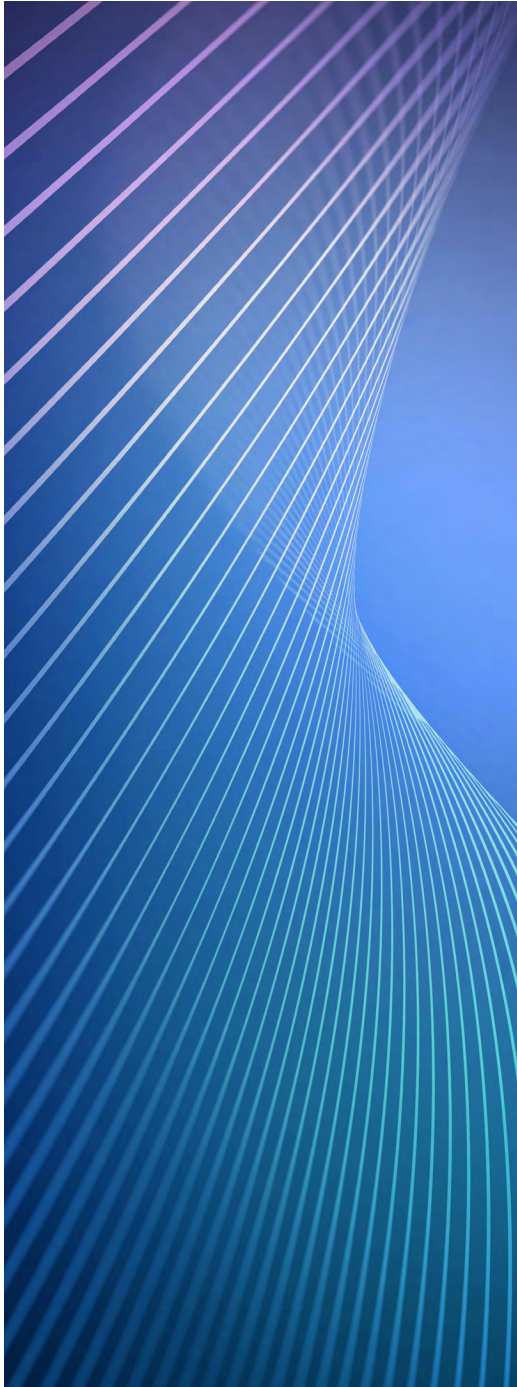
Seizing New York State's Biotech Moment

**The Emerging Technology Advisory
Board Recommendations to
Governor Kathy Hochul**

2025

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Letter From Co-Chairs

New York State (NYS) has always been at the forefront of the world's emerging technologies. Today, we are poised to build on this legacy by positioning NYS as the premier hub for biotechnology and the place where innovation fuels healthier, stronger communities. Already a global leader in biotechnology research, NYS offers world-class academic institutions and top-tier research talent. Combined with a world-class business environment and the diversity of its geography and population, NYS is uniquely positioned to translate its research excellence into commercial leadership that will advance economic growth and deliver tangible public health benefits.

Established by Governor Hochul, the Emerging Technology Advisory Board (ETAB) brings together an independent group of leaders to develop recommendations for how NYS can best support and grow its thriving ecosystem for emerging technologies. Following last year's successful ETAB on Artificial Intelligence (AI), the 2025 Board turns the State's attention to the next frontier: biotechnology.

The focus of this year's ETAB spans the broader biotechnology ecosystem, encompassing closely related sectors such as biopharmaceuticals and medical technology, as well as the key enablers of growth including infrastructure, academia, philanthropy and specialized services. Members of the Board are leaders across this ecosystem, representing industry, investors, as well as globally renowned nonprofits, health care and research institutions (see [here](#) for Governor Hochul's press release from August 29, 2025). These Board members

are dedicating their varied expertise and perspectives to advancing NYS's interests. Through months of analysis, discussion, and collaboration, the Board worked to craft recommendations for Governor Hochul's consideration that we believe will help NYS achieve its vision of becoming the premier hub for biotechnology innovation, commercialization, and workforce development.

NYS has many opportunities ahead in biotechnology; however, the Advisory Board recognizes that biotechnology is also weathering a difficult moment in time. Fierce global competition, changing federal investment, and pricing pressures on pharmaceutical companies have created difficulties for the sector. And while NYS has a strong foundation, there are some gaps that threaten its potential. Being a successful leader in biotechnology will require agility and adaptability. It will also require NYS to connect its research and business power with the people it serves—fostering collaboration among universities, hospitals, and biotech to transform cutting-edge science into the innovations and breakthroughs that improve people's lives. We thank and commend Governor Hochul for assembling this group to assess the context of biotechnology, build on the State's work to date, and provide recommendations for further action, which are included in this report.

Together, we can propel NYS to the forefront of global biotechnology—accelerating scientific discovery and improving quality of life for all New Yorkers.



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Co-Chair, Emerging Technology
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The Emerging Technology Advisory Board

















The Advisory Board represents the breadth of the biotechnology sector in NYS.

Board Members are leaders in various sectors including academia, industry, investors, and associations, each bringing critical expertise to help ensure all parts of the biotechnology value chain are represented, from scientific discovery, commercialization, financing to manufacturing. Thanks to this diversity, the recommendations included here represent cross-sector alignment and a shared commitment to the state. The Board worked to develop a set of recommendations that are designed to be bold yet feasible.

The Advisory Board members supported this effort in several ways—contributing their own perspectives, engaging in cross-industry discussions to develop and prioritize initiatives, and connecting the working team to a wide array of biotechnology experts to further refine recommendations. The recommendations presented here are the product of robust collaboration and independent insight across the Board. While not every proposal may represent the view of each member, the report broadly embodies the Board’s unified belief in NYS’s potential to lead the next generation of biotechnology innovation at scale.

The Advisory Board has diverse representation, representing the breadth of the biotech and life-sciences sector in New York State.

Co-Chairs: Andrew Baum, Pfizer Inc. and Debi Brooks, The Michael J. Fox Foundation

Board member and title	Institution	
Jennifer Hawks Bland, Chief Executive Officer	NewYorkBIO	
Stacie Grossman Bloom, Chief Research Officer	New York University	
Renier Brentjens, Chair, Dept. of Medicine	Roswell Park Comprehensive Cancer Center	
John Connolly, Chief Scientific Officer	Parker Institute for Cancer Immunotherapy	
Ronald Crystal, Chair, Dept. of Genetic Medicine	Weill Cornell Medicine	
Mike Foley, Chief Executive Officer	Excelsior Sciences	
Maria Gotsch, Chief Executive Officer	Partnership Fund for New York City	
Joseph LaRosa, Executive Vice President	Regeneron	
Sean O’Sullivan, Founder and Managing Partner	SOSV	
Shadi Shahedipour-Sandvik, Senior Vice Chancellor	The State University of New York	
Sam Sia, Founder	Harlem Biospace	
William Slattery, Partner	Deerfield Management	
Geoffrey Smith, Founder and Managing Partner	Digitalis Ventures	
Bruce Stillman, Chief Executive Officer	Cold Spring Harbor Laboratory	
Win Thurlow, Executive Director	LifeSciencesNY	
Kevin Tracey, Chief Executive Officer	Feinstein Institutes for Medical Research	

Executive Summary

Biotechnology is entering an unprecedented era of convergence among diverse fields such as AI, engineering, and life-sciences—redefining how medicines are discovered, developed, produced, and delivered.

Global competitors are investing heavily: China has increased biotechnology research and development (R&D) investment more than 400-fold over the past decade.¹ This fierce competition, combined with changes in U.S. federal investment, incentives to reshore manufacturing, growing market uncertainty and pricing pressures, creates an imperative for NYS to strengthen its biotechnology ecosystem and secure long-term global competitiveness.²

Building on its record of leadership in emerging technologies, NYS can invest strategically now and capture the next wave of biotechnology growth. NYS already ranks among the top U.S. biotechnology hubs—#2 in National Institutes of Health (NIH) funding received,³ #3 in biotechnology investment⁴ and patent volume,⁵ and is home to one of the largest biotechnology workforces in the country.⁶ The State’s \$620 million Life-sciences Initiative, launched in 2017, has generated over \$6.4 billion in matching investment, 60 new companies, and hundreds of high-quality jobs, establishing a strong foundation for future growth.⁷ Yet critical gaps remain in early-stage funding, coordinated clinical trial infrastructure, and biomanufacturing capacity—areas where leading peers have advanced through integrated state–industry initiatives.

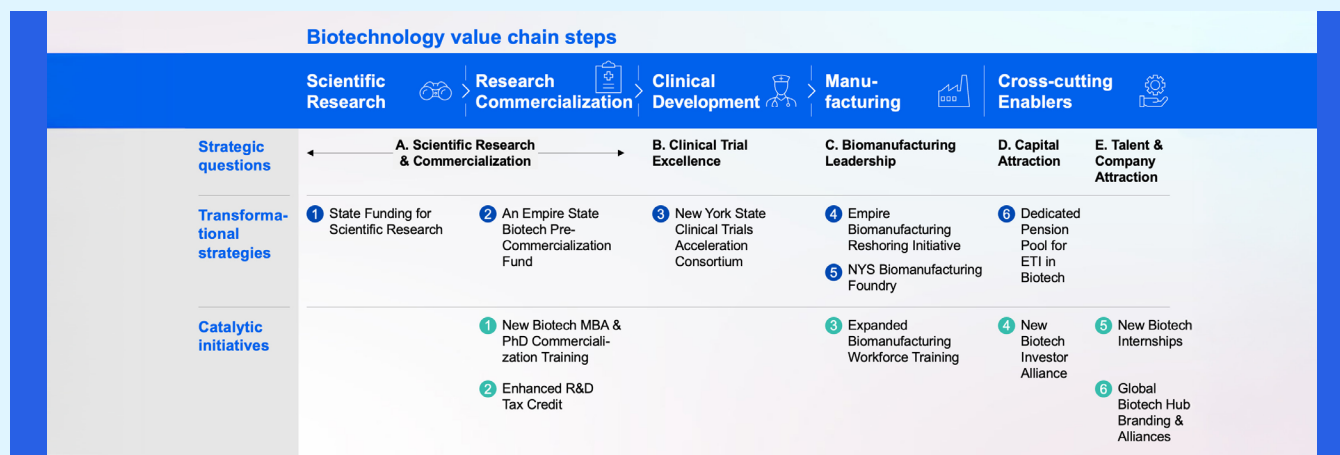
To address these challenges, the Advisory Board focused on its recommendations on five major questions that sit across the biotechnology value chain. Strengthening the full biotechnology value chain—from discovery through manufacturing—is essential to retaining and scaling innovation in NYS. The biotechnology ecosystem is defined here as spanning biopharmaceuticals, medical technology,

and the supporting infrastructure that connects research institutions, hospitals, startups, and investors. Five strategic questions anchored this effort:

- **Scientific Research and Commercialization:** How can NYS sustain its best-in-class biotechnology research and accelerate its translation into commercialized products?
- **Clinical Trial Excellence:** How can NYS enable high-quality, efficient, and robust clinical trials that leverage its infrastructure and diverse clinical bases?
- **Biomanufacturing Leadership:** How can NYS become the premier U.S. destination for advanced biomanufacturing?
- **Capital Attraction:** How can NYS attract greater investment across all stages of the biotechnology value chain?
- **Talent and Company Attraction:** How can NYS incentivize biotechnology companies—and their talent—to build and stay in the State?

Within these major questions, the Advisory Board proposes a portfolio of twelve integrated initiatives to strengthen the entire biotechnology value chain. These initiatives combine six long-term “transformational strategies” to build lasting leadership with high potential for impact and six less resource intensive “catalytic initiatives” to deliver early momentum. Several initiatives place early emphasis on neuroscience and oncology, where NYS already demonstrates scientific research leadership, strong clinical infrastructure, and significant unmet patient need.

Exhibit 1: Recommendations across the biotechnology value chain



Executive Summary

Core transformational strategies to secure NYS's long-term leadership in biotechnology:

1. **Launch an Empire State research excellence fund** to sustain leading academic research and retain top scientific talent with a focus on priority therapeutic areas, including neuroscience and oncology;
2. **Establish the Empire State biotechnology pre-commercialization fund** to bridge the gap between academic discovery and venture investment, helping translate promising research into venture-backable innovations;
3. **Create the NYS clinical trial acceleration consortiums** to expand trial capacity, streamline governance, and position the state as a destination for early-phase studies, starting with two distinct consortiums for neuroscience and oncology;
4. **Position NYS as a destination for BioPharma reshoring** by offering an integrated incentive package that unifies permitting, utilities, workforce support, and tax advantages under a single framework;
5. **Establish an NYS biomanufacturing foundry** to enable next-generation, AI-driven biomanufacturing by integrating research, process development, and small-scale production within one state—industry partnership; and
6. **Engage the NYS Common Retirement Fund** to channel pension capital into local biotechnology venture funds, catalyzing early-stage investment and anchoring company growth in-state.

Proposed catalytic initiatives to deliver early momentum:

1. Develop **MBA biotechnology immersion program** to attract business talent into the sector and **PhD/MS entrepreneurship certificate program** to equip scientists with skills needed to translate research into new ventures.
2. Enhance NYS's existing **R&D Tax Credit Program** to make it more competitive for small and mid-sized biotechnology firms moving from research to commercialization.
3. Expand **SUNY and CUNY biomanufacturing training centers** with employer co-designed curricula to build an industry-ready workforce across NYS.
4. Convene an **NYS biotechnology investor alliance** to attract nontraditional investors—such as family offices and impact funds—into early-stage biotechnology investing.

5. Launch a **statewide biotechnology internship program** connecting students with biotechnology employers to strengthen early-career pathways and regional talent pipelines.
6. Launch a **coordinated global biotechnology hub branding** and alliance campaign to strengthen NYS's visibility as a top destination for biotechnology investment and talent.

Together, these initiatives position NYS to convert its world-class science into scalable industry leadership—strengthening domestic manufacturing, attracting sustained private investment and biotechnology talent, and ensuring that the next generation of biotechnology innovation is discovered, developed, and produced in NYS.

While implementation for these initiatives will take time, the Advisory Board recommends **five immediate next steps** that the State could consider to build momentum and begin implementing first-horizon initiatives.

- a. Announce and begin design of an Empire State research excellence fund to demonstrate the State's long-term commitment to scientific discovery and attract top research talent, with a focus on neuroscience and oncology.
- b. Convene leading research institutions, AMCs, and hospital networks to shape clinical trial acceleration consortiums, starting with separate pilots in neuroscience and oncology.
- c. Engage BioPharma leaders with a unified reshoring and investment offer, directing ESD to finalize a comprehensive incentive package and market shovel-ready manufacturing sites for 2026.
- d. Convene strategic dialogue between NYS Common Retirement Fund (NYSCRF) leadership, ESD private capital, and leading biotechnology VCs to propose a framework for targeted biotechnology allocations within the in-state program.
- e. Launch a global biotechnology branding and alliance campaign to showcase NYS's biotechnology strengths through a unified brand, co-branded efforts with anchor institutions, startups, and new international partnerships.

The 12 proposed initiatives could be sequenced across two implementation horizons—the upcoming year and the subsequent two to three years—with actual timing contingent on funding and stakeholder readiness.

An Unprecedented Time for Biotechnology

This is a pivotal moment for the biotechnology industry. Evolving at unprecedented speed, biotechnology is fueled by breakthroughs in innovative modalities, AI, engineering, and automation.⁸



A confluence of forces—including technology and scientific innovation, global positioning, and macroeconomic factors—creates a unique moment in time for the State to take action in shaping its biotechnology ecosystem. Among the forces shaping the context for our work:

- 1. Technological and scientific innovation:** Advances in innovative therapeutic modalities, eg, cell and gene therapy (CGT) and mRNA-based therapeutics, are transforming the biotechnology landscape alongside rapid progress in AI, data analytics, engineering, and automation. These technologies are streamlining end-to-end biotechnology operations—from research and discovery to manufacturing and supply chain management⁹—while enabling higher probability of success (PoS) decisions by efficiently leveraging vast datasets and deeper insights for drug discovery. Scientific understanding of disease biology has accelerated at a record pace due to tech-enabled research platforms and computational models, such as biomarker identification for Parkinson’s disease.¹⁰ The COVID-19 pandemic demonstrated that development timelines can be compressed from years to months, intensifying the race to enroll patients, clinical trial sites, and investment capital.¹¹ In parallel, AI-driven automation in biomanufacturing is enhancing production efficiency, improving quality control, and reducing costs to help companies scale novel therapies faster. Together, these advancements are redefining the field to help enable faster innovation cycles.
- 2. Global positioning:** This progress comes amid intensifying global competition in biotechnology. China has aggressively increased biotechnology R&D investment more than 400-fold over the past decade, supported by coordinated public-sector initiatives.¹² In 2024, China contributed roughly one-third of the global clinical pipeline of assets.¹³ China’s success is enabled by accelerated R&D, as Chinese firms now rapidly replicate and advance early-stage compounds developed in the U.S. at a lower cost before out-licensing them. China accounted for 32% of global biotechnology out-licensing deal value in Q1 2025, up from 21% in 2023–24.¹⁴ These dynamics underscore the imperative for the U.S. to accelerate commercialization and efficiency of Phase I clinical trials to maintain its innovation edge. Meanwhile, the U.S. federal government appears to be scaling back from its historical role as a critical driver of basic research and early-stage biotechnology R&D given proposed budget cuts to the NIH¹⁵ and Biomedical Advanced Research and Development Authority (BARDA).¹⁶ Regulatory changes and cost pressures are similarly reshaping global supply chains—but these dynamics also present strategic opportunities for reshoring manufacturing to NYS.¹⁷
- 3. Macroeconomic factors:** Other macroeconomic factors are also at play. High interest rates have decreased overall funding in biotechnology, yet they create strategic entry points for investors who can weather short-term risk for potential longer-term gain.¹⁸ As rising healthcare costs continue to strain patients, advances in automation and AI-driven manufacturing could help make high-quality treatments more cost-efficient.¹⁹

Given these forces, the biotechnology industry demands renewed focus and investment. Now more than ever, NYS must build on its foundational strengths and already strong positioning in biotechnology to seize this moment.

New York State's Biotechnology Landscape

NYS stands among the world's most advanced biotechnology ecosystems—ranked #2 in NIH funding (\$3.5 billion in 2024),²⁰ #3 in venture investment²¹ and patent filings,²² and home to the fourth-largest biotechnology workforce in the United States.²³

The biotechnology ecosystem is defined here as spanning biopharmaceuticals, medical technology, and the supporting infrastructure that connects research institutions, hospitals, startups, and investors. The terms biotechnology and life-sciences are used interchangeably to describe the broader innovation ecosystem, with the understanding that not all related metrics (eg, NIH funding) are specific to biotechnology alone.

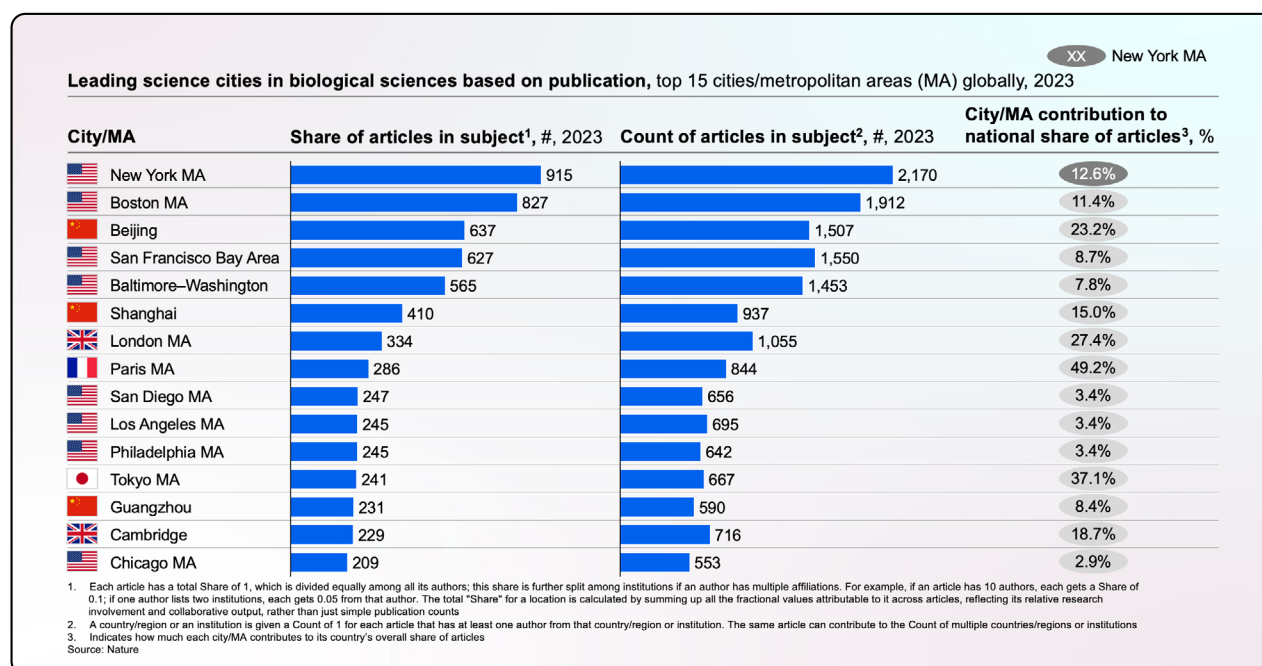
Still, there are opportunities for New York State to continue advancing. While consistently ranked in the top three U.S. states, NYS has significant room to match leading peers' commercialization indicators, eg, NYS would need to 4x patent filings and 6x investments to match the leading U.S. state, California. At the same time, global competition is intensifying. Biotechnology hubs such as Shanghai,²⁴ the UK²⁵ and France²⁶ are integrating research, biomanufacturing, and AI-enabled platforms and often investing heavily to win out.

A scientific research powerhouse with untapped scale

NYS invests more in biological and biomedical R&D than any other state—\$2.4 billion in 2023 alone²⁷—driven by its leading universities and medical research institutions.

NYS's research excellence is anchored by several of the nation's top 20 research institutions and reinforced by New York City's (NYC's) leadership in biological sciences publications, demonstrating the region's intellectual leadership in fundamental basic science research (see Exhibit 2).²⁸

Exhibit 2: NYC's leading role in biological sciences publications



Despite these strengths, the state faces infrastructure and cost challenges that constrain its ability to scale research. NYC's 2.9 million square feet of life-sciences lab and R&D space compares to 56 million square feet in Boston.²⁹ Rents for lab space in NYC remain among the highest globally, at \$106.91 per square foot (psf) as of Q4 2024—20%–150% higher than Boston (\$89.1 psf), the Bay Area (\$77.6 psf), and Raleigh-Durham (\$41.9 psf).

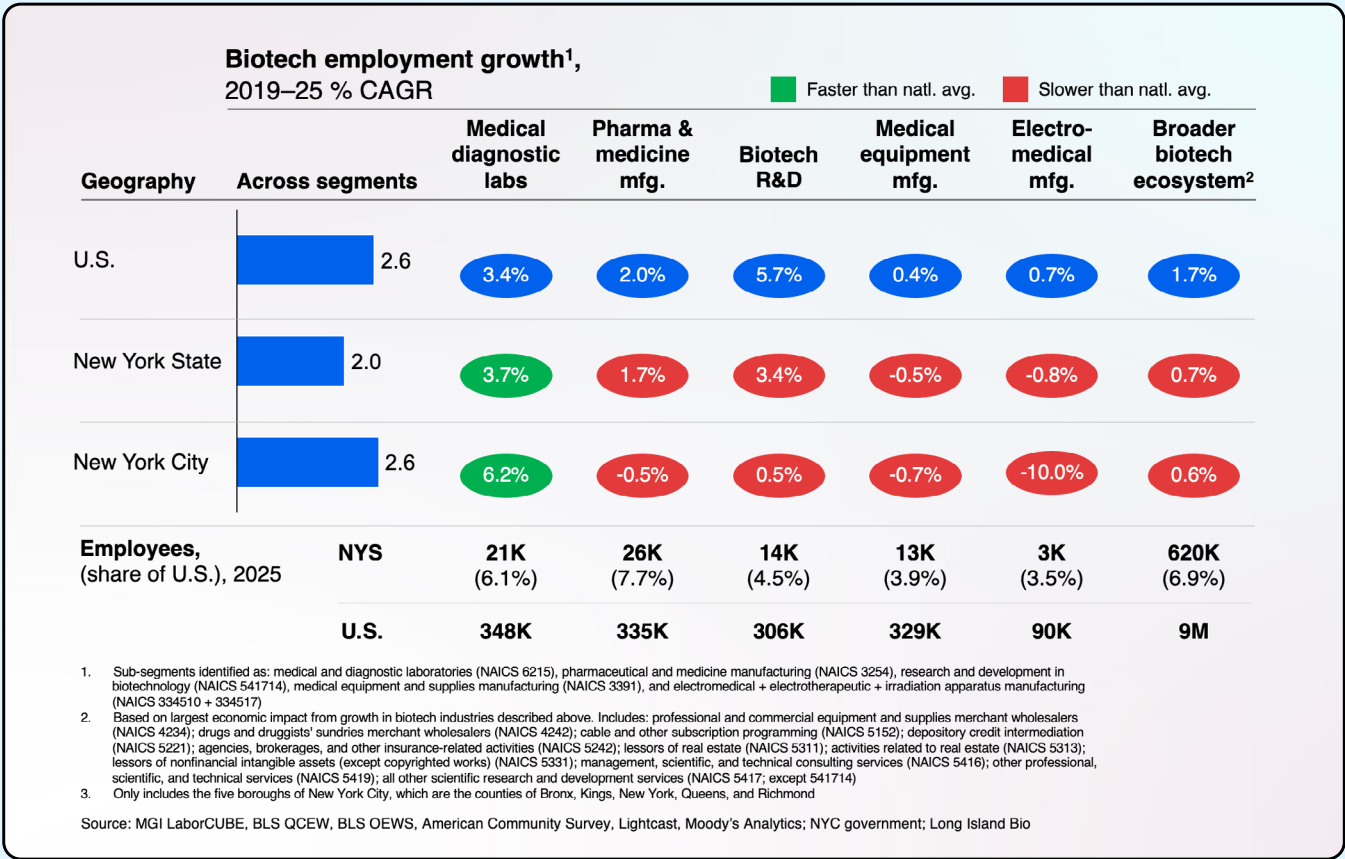
Global peers such as Shanghai,³⁰ the UK,³¹ and France³² have addressed similar challenges through coordinated public–private investment in shared, flexible R&D facilities. Recent large-scale investments in research infrastructure, including the expansion of Roswell Park Comprehensive Cancer Center in Western New York and development of New York BioGenesis Park in Long Island, will add critical capacity for researchers throughout the state.³³ New York is beginning to match its scientific strength with infrastructure that supports sustained growth. However, greater coordination and visibility are needed to ensure that stakeholders—both within New York and globally—recognize the State's impressive leadership in biotechnology research and view it as a destination for world-class scientific collaboration.

A skilled workforce with opportunities to deepen R&D capacity

NYS has the fourth largest biotechnology workforce in the nation*, employing roughly 77,000 people across roles enabling the broader ecosystem in research, manufacturing, and supporting functions.³⁴ The sector has grown at 2% year-over-year, outpacing the state's overall employment growth. This biotechnology workforce is distributed across multiple regional hubs—including New York City, Long Island, Hudson Valley, the Capital District, and Western New York—speaking to the state's diverse and resilient talent base.

However, New York's R&D-specific employment, about 14,000 workers (4.5% of the national total), has expanded at 3.4% annually (2019–2025 compound annual growth rate [CAGR]), below the national average of 5.7% (see Exhibit 3).³⁵ This slower growth reflects the rapid expansion of specialized life-sciences' clusters in peer states such as Massachusetts, Texas, and North Carolina. To compete globally, NYS must continue to deepen and retain its scientific and technical talent pipeline through workforce initiatives.

Exhibit 3: Biotechnology employment growth in the U.S. and NYS



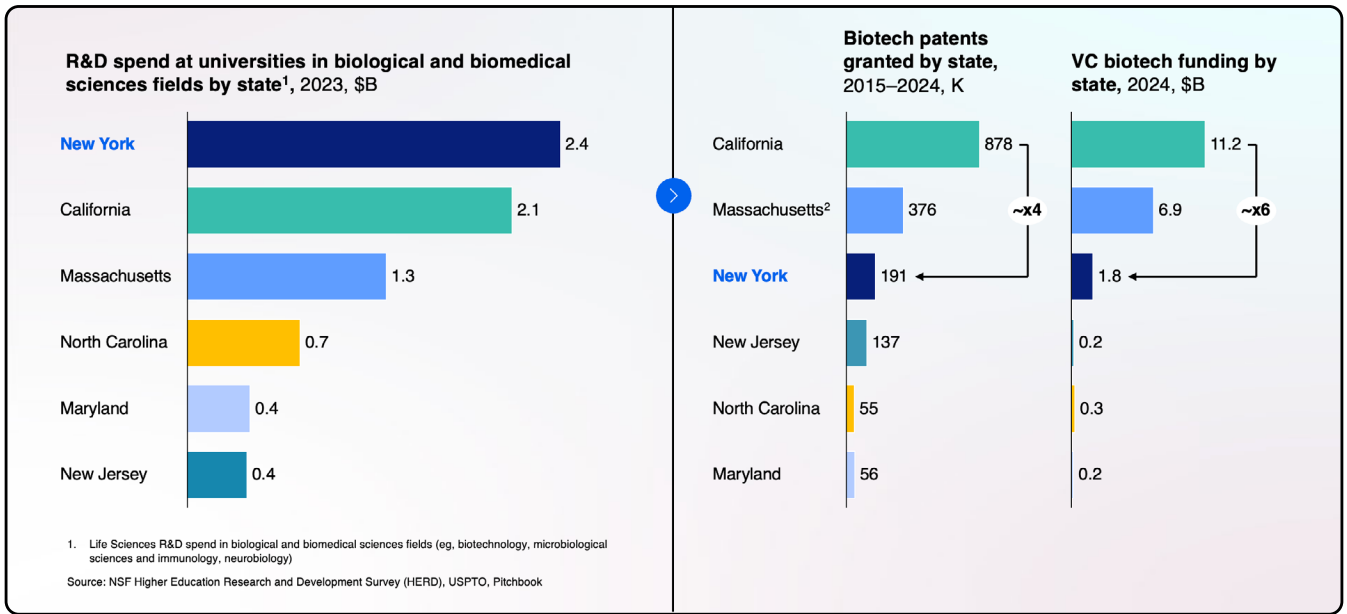
* Figure relates to employment in the following segments: medical and diagnostic laboratories (NAICS 6215), pharmaceutical and medicine manufacturing (NAICS 3254), research and development in biotechnology (NAICS 541714), medical equipment and supplies manufacturing (NAICS 3391), and electromedical + electrotherapeutic + irradiation apparatus manufacturing (NAICS 334510 + 334517).

The world’s deepest capital pool, with untapped early-stage potential

NYS attracted \$2.4 billion in biotechnology venture funding in 2024, ranking third nationwide— an impressive rebound after the 2021 market correction.³⁶ Still, there is considerable opportunity to advance further. NYS biotechnology startups received 7 times less venture capital (VC) funding than California startups and 3.5 times less than Massachusetts startups in 2023 (ie, \$1.8 billion vs. \$11.2 billion and \$6.9 billion, respectively, see Exhibit 4).³⁷ Among global hubs, Shanghai outpaced NYC by 84% in biotechnology VC funding (2020–2024), underscoring the growing global competition†.

NYS’s biotechnology investor profile reflects the state’s broader role as a global financial hub: of the top global biotechnology investors headquartered in NYS, 50% are hedge funds or asset managers that typically favor established, lower-risk companies. In contrast, 60% of leading investors in San Francisco are venture or growth funds, more inclined toward early-stage, higher-risk opportunities.³⁸ NYS can build on its strengths as home to the deepest capital pool in the world while expanding opportunities for earlier-stage biotechnology investments.

Exhibit 4: Research commercialization gap



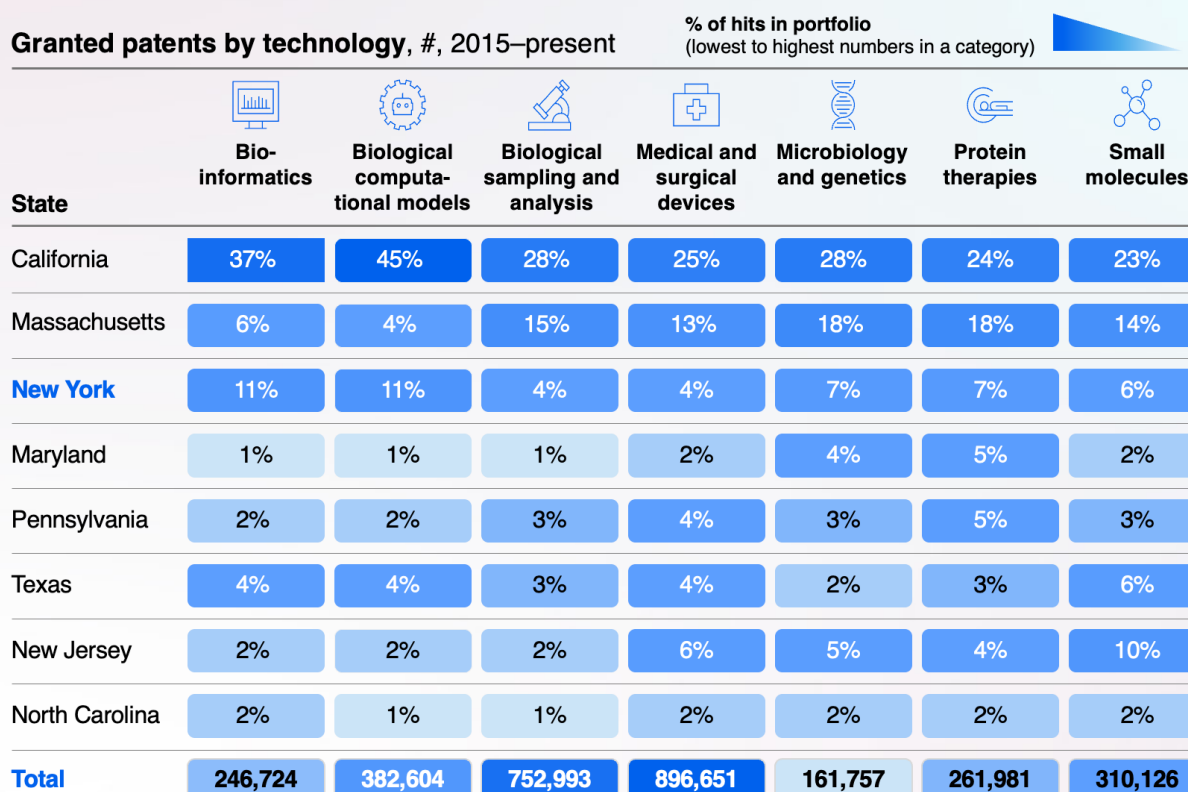
Translating scientific leadership into commercial momentum

NYS is a recognized innovation center, ranking third nationally in biotechnology patents, with roughly 191,000 granted between 2015 and 2024. Yet its share of U.S. patents—about 6%—trails leading peers such as California (29%) and Massachusetts (12%).³⁹ NYS’s strengths in patent generation lie in bioinformatics and computational biology, where it ranks second nationwide—likely due to the intersection of biotechnology with the state’s leadership in data science and AI (see Exhibit 5). The state’s drug development pipeline also lags its peers, with 196 advanced modalities in development in 2024, compared with 449 in Massachusetts and 637 in California.⁴⁰ This underscores a persistent challenge to strengthen the state’s competitiveness: translating top-tier research into market-ready products.

Indicators of company formation suggest this transition is underway. The number of BioPharma companies in the state has grown by approximately 5% annually over the past decade, with NYC accounting for a third of the total.⁴¹ As NYS’s biotechnology companies scale, some are establishing operations in upstate regions to leverage larger manufacturing facilities, lower costs, and specialized workforce—fueling the rise of regional biotechnology hubs that collectively define NYS’s growing biotechnology ecosystem.

† Analysis of investees across top 250 biotechnology deals globally (2020–2024)

Exhibit 5: Biotechnology patent distribution across U.S. states



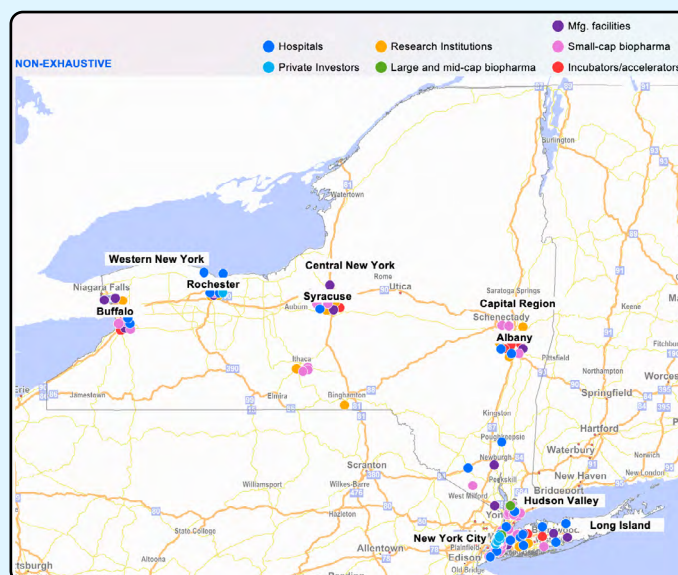
Source: USPTO, MassBio, Genentech, MIT Technology Review

A geographically distributed biotechnology ecosystem with regional strengths

Biotechnology ecosystems thrive when core success factors—including government support, access to capital, specialized talent, advanced infrastructure, and integrated data systems—are concentrated and interconnected within place-based hubs.⁴² Success depends on the co-location of universities, hospitals, and anchor BioPharma companies, supported by favorable incentives and efficient permitting, global financial connectivity, and a high quality of life that attracts and retains top talent.

NYS's biotechnology ecosystem is defined by a network of geographically diverse hubs, each contributing distinct strengths across the industry value chain (see Exhibit 6). NYS offers multiple regional hubs with varying strengths and concentrations of the ecosystem stakeholders from biotechnology investors to research institutions[‡].

Exhibit 6: Map of existing biotechnology assets across NYS[§]



[‡] Biotechnology stakeholders assessed include hospital systems, private investors (ie, VC firms), research institutions, large and mid-cap BioPharma companies, small-cap BioPharma companies, manufacturing facilities, incubators/accelerators

[§] Mapping of existing assets was conducted to identify regional biotechnology hubs in NYS. The following assets were analyzed, including respective thresholds: (1) research institutions (ie, top 30 institutions in NYS by publication count (2015–2025) including additional institutions in select regional areas); (2) clinical sites (ie, hospitals and specialty clinics mentioned in top 50 ranking nationally by therapeutic area or in top 26 statewide); (3) small-cap BioPharmas (ie, companies with valuation \geq \$15M and $<$ \$1B [2020–2025]); (4) large and mid-cap BioPharmas (ie, companies with valuation \geq \$1B [2020–2025]); (5) private investors (ie, VC firms with $>$ \$50M assets under management [AUM]); (6) incubators/accelerators (ie, conducted desk search of relevant stakeholders from statewide databases); (7) manufacturing facilities (ie, conducted desk search of facilities with $>$ 10,000 square foot of good manufacturing practice (GMP) space).



NYC (Manhattan) serves as home of the state's leading biotechnology hubs, densely concentrated near its top research institutions such as Columbia University, New York University, and Rockefeller University, as well as major innovation clusters like JLABS@NYC, the Alexandria Center for Life-sciences, and the upcoming SPARC Kips Bay. NYC also has the largest concentration of private investors and specialized law and consulting firms, making it the engine for company formation and commercialization, and has been home to Pfizer's World Headquarters since 1961.⁴³

Long Island and Hudson Valley complement Manhattan's strengths, offering closely connected hubs with more space and often more affordable space. Long Island houses impressive biomanufacturing and clinical research capacity. The region is anchored by Cold Spring Harbor Laboratory, Stony Brook University, and the forthcoming New York BioGenesis Park—a \$150 million, 700,000-square-foot CGT complex that will significantly expand the state's advanced manufacturing footprint. **Hudson Valley** features a growing concentration of small and mid-cap BioPharma companies, anchored by Regeneron's headquarters and R&D facilities in Tarrytown as well as Pfizer's cutting-edge Vaccine R&D center in Pearl River.

The **Capital Region** (Albany) and **Central New York** (Syracuse) each contribute distinct strengths. The Capital Region combines research infrastructure and manufacturing capacity through institutions such as University at Albany's RNA Institute and Regeneron's manufacturing facility in Rensselaer. It is also home to the NYS-funded Center for Advanced Technology (CAT) in Nanomaterials and Nanoelectronics, which has a specialized focus in nanobiotechnology innovation. Central New York has emerged as a growing hub for manufacturing and academic-industry collaboration. The region is home to Lotte Biologics' large-scale manufacturing facility in Syracuse and is supported by the LifeSciencesNY network, coordinating partnerships among universities, health systems, and industry to drive investment and workforce development.

Western New York, encompassing the Buffalo–Rochester corridor, forms a powerful academic-industry alliance centered around the University at Buffalo, University of Rochester, and the Roswell Park Comprehensive Cancer Center, with the Empire Discovery Institute driving translational research and commercialization. The region has become a cornerstone of the state's CGT ecosystem, supported by the Empire State Development's (ESD's) investment in Roswell Park's CGT expansion. The Empire

State Cellular Therapy Consortium links these efforts statewide, advancing regenerative medicine and clinical trial activity through a network of partner institutions.

Collectively, these diverse hubs create a robust statewide ecosystem encompassing every element of the value chain—from early scientific research to manufacturing—and positioning the state as a multi-hub biotechnology network with regional specialization. With unified branding and infrastructure investment, NYS can turn its diversity into its advantage—a statewide engine of biotechnology innovation and resilience.

NYS's contributions to accelerating biotechnology

Over the past decade, the State has made bold investments in life-sciences, laying the foundation for a thriving ecosystem of innovation. Thanks to visionary leadership and strategic public–private partnerships, NYS has become home to emerging biotechnology companies, cutting-edge research facilities, and a growing talent pipeline.

NYS launched a \$620 million Life-sciences Initiative through ESD in 2017.⁴⁴ Key investments made by NYS under its Life-sciences Initiative include:⁴⁵

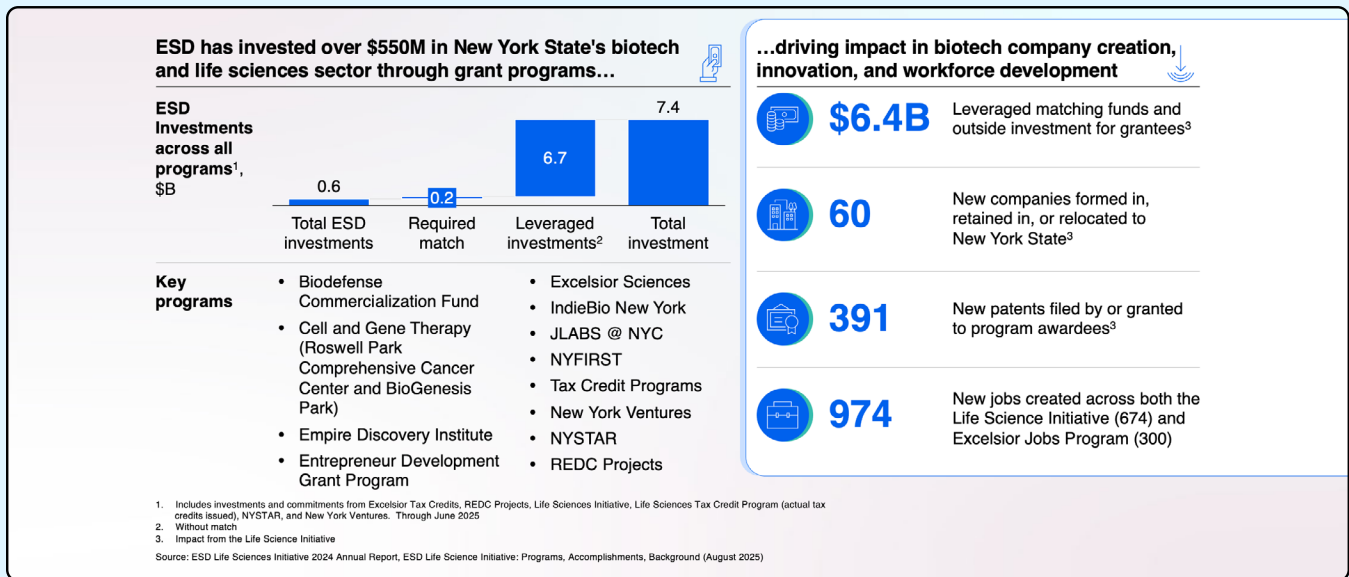
- **Cell and Gene Therapy Hubs:** A combined \$180 million state-led investment is creating a CGT corridor anchored by two major centers for research, development, and manufacturing. Upstate, a \$30 million state grant—part of a \$98 million total investment—to Roswell Park Comprehensive Cancer Center will establish the largest academic CGT facility in the nation. Downstate, \$150 million from ESD (\$15 million from the Life-sciences Initiative and \$135 million from the Long Island Fund) has been committed toward the \$430 million development of New York BioGenesis Park in Long Island, representing the largest State-funded center for CGT innovation nationwide.
- **Biodefense Commercialization Fund:** A \$40 million program supporting infectious disease therapeutics innovation in NYS through individual grants (with matching requirements for large grants exceeding \$2 million).
- **Empire Discovery Institute:** A \$47 million initiative, including \$35 million from the Life-sciences Initiative, to connect the University at Buffalo, University of Rochester, and Roswell Park Comprehensive Cancer Center through a drug discovery and development accelerator to support early scientific innovations.

- **Excelsior Sciences:** A \$25 million grant from the Life-sciences Initiative to establish a \$50 million AI-enabled pre-clinical drug discovery facility in NYC to propel the state’s leadership in AI-driven biotechnology innovation.
- **IndieBio:** A \$35 million project to establish an accelerator in NYS that provides financial backing and expert mentorship to startup companies through a four-month training bootcamp, with \$25 million provided by the Life-sciences Initiative. It facilitated over \$175 million in additional funding to date.
- **New York Fund for Innovation in Research and Scientific Talent (NYFIRST):** A \$75 million fund, including \$25 million from the Life-sciences Initiative, providing up to \$1 million per award to medical schools that recruit and retain world-class translational biomedical researchers from out-of-state to NYS institutions.
- **Entrepreneur Development Grant Program:** An approximately \$8 million program supporting universities in developing MBA and professional training programs focused on biotechnology entrepreneurship and commercialization, with approximately \$3 million from the Life-sciences Initiative.

Since the launch of ESD’s Life-sciences Initiative in 2017, its funded grand programs have delivered impressive results beyond original projections: mobilizing \$6.4 billion in leveraged matching funds and outside investment, helping form or retain 60 new companies in-state, generating 391 new patents, and creating more than 670 high-quality jobs across the state (see Exhibit 7).⁴⁶

Alongside the Life-sciences Initiative, ESD’s Division of Science, Technology and Innovation (NYSTAR) provides substantial support for technology-based growth through a statewide network of CAT and Centers of Excellence (CoE) programs.⁴⁷ These centers deliver specialized laboratory space, equipment, expert faculty, industry collaboration programs, and commercialization assistance to university-led research projects, including 10 Centers dedicated to life-sciences, four of which target life-sciences startups to provide business support services and access to grant funding. Additionally, NY Ventures—ESD’s venture capital arm—has invested \$30 million in equity investments to life-sciences startups, catalyzing \$180 million additional funding from private investors.

Exhibit 7: ESD Life-sciences initiative investments in biotechnology



Across all the above initiatives, ESD has invested \$550 million to date, mobilizing \$192 million in required matches and an additional \$6.7 billion in outside investments.

These initiatives have catalyzed remarkable growth across the biotechnology value chain, nearly doubling NYS’s life-sciences economic output since 2014.⁴⁸ Yet, the highly competitive nature of the biotechnology industry demands that NYS maintains momentum generated and builds on these strong foundations to advance its long-term leadership. As NYS looks to capture the next wave of biotechnology innovation, it can draw on its proven ability to “play big” in

emerging technologies. NYS has repeatedly demonstrated this capacity for strategic adaptation: as market trends evolved from manufacturing to services, NYS diversified and thrived. Recent landmark efforts in AI exemplify this approach. The Emerging Technology Advisory Board on AI,⁴⁹ the Empire AI consortium—a \$500 million public–private computing partnership among ten leading universities⁵⁰—and the \$100 billion Micron semiconductor agreement, which is bringing tens of thousands of jobs to NYS,⁵¹ all underscore the State’s capacity to mobilize large-scale public–private partnerships and attract transformative investments to unlock new industries.

The Emerging Technology Advisory Board's Vision for Biotechnology in New York State

The Advisory Board is guided by one overarching vision: to ensure NYS becomes the premier hub for biotechnology innovation and commercialization, creating high-quality jobs and advancing health outcomes for New Yorkers.

From the outset of the Advisory Board's first gathering, this aspiration was clear and unified. This vision is anchored in positioning NYS as a hub that competes not just locally, but globally. Given its dominant position in research, the State must now focus on commercialization while safeguarding research excellence.

Board members focused efforts to achieve this goal across the biotechnology value chain by answering a series of strategic questions for each element (see Exhibit 8).

An integrated approach—recommendations across the biotechnology value chain

The Advisory Board's recommendations reflect actions in each element of the biotechnology value chain to strengthen NYS's position as the globally leading biotechnology hub. Taking a holistic approach—supporting initiatives from basic scientific research to advanced manufacturing—will improve outcomes across the entire biotechnology lifecycle. The objective is for biotechnology companies to grow, stay, and flourish in NYS. While the Board proposes several distinct initiatives to the Governor, they collectively enable the goal of strengthening NYS's position as a premier biotechnology hub.

In meetings with stakeholders across the biotechnology ecosystem, the Advisory Board consistently heard how interconnected each part of the value chain is. For example, expanding in-state manufacturing capacity, biotechnology talent pipelines, and access to capital is critical to retaining startups that emerge from academic

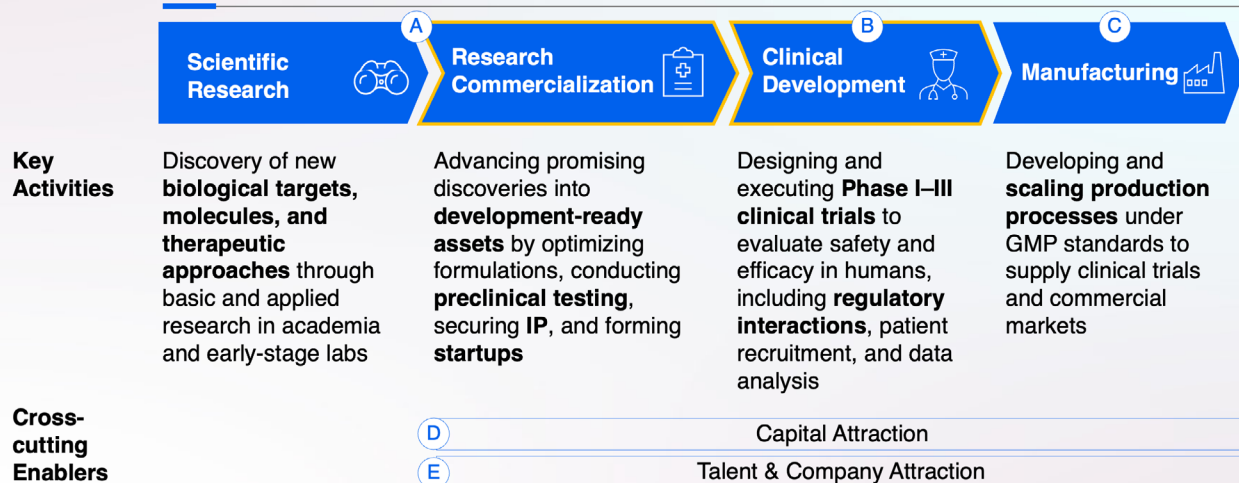
research—companies that might otherwise relocate production elsewhere. Similarly, BioPharma companies emphasize proximity to R&D facilities and access to strong academic talent as decisive factors when selecting sites for new biomanufacturing facilities, since these conditions enable faster technology transfer. Taken together, these perspectives highlighted that progress in one area of the biotechnology value chain depends on strength across others.

The Board focused its recommendations on five strategic questions across the end-to-end biotechnology value chain:

- A. Scientific Research and Commercialization:** How can NYS sustain its best-in-class biotechnology research and accelerate its translation into commercialized products?
- B. Clinical Trial Excellence:** How can NYS enable high-quality, efficient, and robust clinical trials that leverage its infrastructure and diverse clinical base?
- C. Biomanufacturing Leadership:** How can NYS become the premier U.S. destination for advanced biomanufacturing?
- D. Capital Attraction:** How can NYS attract greater investment across all stages of the biotechnology value chain?
- E. Talent and Company Attraction:** How can NYS incentivize companies (and their talent) to build and stay in NYS?

Biotechnology value chain

Steps may overlap



Note: There may be overlaps between steps in the process (eg, clinical trials can begin during the translation phase).

Exhibit 8: Biotechnology value chain

Recommendations for NYS to Command the Biotechnology Future





The Advisory Board puts forward a set of twelve recommendations for consideration by the Governor.

Guiding principles for biotechnology portfolio

The Advisory Board developed a portfolio approach to initiatives to ensure the totality of initiatives is greater than the sum of its parts—the Board believes that implemented together, these initiatives would have outsized impact for the state. The guiding principles work to ensure both impact and feasibility, prioritizing recommendations that address the following goals:

1. Including a balanced mix of bold, long-term “transformational strategies” and near-term, low-cost “catalytic initiatives” and focusing on initiatives that are achievable within existing resources yet capable of delivering outsized results.
2. Ensuring recommendations have broad stakeholder support across academia, industry and investors from the Board, and together strengthen the full biotechnology value chain—from research and commercialization to manufacturing.
3. Promoting opportunities across all regions of the state and ensuring that mechanisms are in place to retain investments and jobs in NYS.
4. Building on existing assets and programs led by ESD, the Department of Health (DOH) and the Governor’s office to amplify what already works and avoid duplication while filling critical gaps.

Exhibit 9: Guiding principles for portfolio approach

			
Include both transformational strategies and catalytic initiatives	Ensure diversified stakeholder support	Focus on enabling impact across the state	Build on and amplify existing state efforts
Include a balanced portfolio of bold, long-term and near-term, lower-cost initiatives that can be implemented within existing resources while delivering outsized impact	Ensure recommendations have broad stakeholder support across academia, industry, and investors from the Board, and together strengthen the full biotechnology value chain	Promote opportunities across all regions of the state and ensuring that mechanisms are in place to retain investments and jobs in New York State	Build on existing assets and programs led by ESD, the Department of Health (DOH) and the Governor’s office to amplify what already works and avoid duplication while filling critical gaps

This work was based on a deep set of robust analyses—drawing on insights from numerous case studies on global and national biotechnology hubs, mapping of 365 institutions across NYS, dozens of calls with recognized experts in each field, and examination of 45 existing state-backed initiatives to understand any potential gaps in NYS’s biotechnology ecosystem.

6 Transformational strategies and 6 catalytic initiatives across strategic areas

NYS has a unique opportunity to capitalize on its research excellence, talent base, and industrial capabilities to become the global leader in biotechnology. The following recommendations outline a set of initiatives designed to accelerate this vision. They are grouped into two categories: “transformational strategies,” which are larger-scale, resource-intensive initiatives requiring broader stakeholder alignment to secure long-term leadership in biotechnology innovation and manufacturing; and “catalytic initiatives,” which are high-impact, lower-cost actions within strong state control and short time to implementation that can build early momentum.

The six core transformational strategies focus on building the foundational infrastructure, capital pathways, and innovation capacity needed to strengthen every stage of the biotechnology value chain:

1. **Launch an Empire State research excellence fund** to sustain leading academic research and retain top scientific talent with a focus on priority therapeutic areas, including neuroscience and oncology;
2. **Establish the Empire State biotechnology pre-commercialization fund** to bridge the gap between academic discovery and venture investment, helping translate promising research into venture-backable innovations;
3. **Create the NYS clinical trial acceleration consortiums** to expand trial capacity, streamline governance, and position the state as a destination for early-phase studies, starting with two distinct consortiums for neuroscience and oncology;
4. **Position NYS as a destination for BioPharma reshoring** by offering an integrated incentive package that unifies permitting, utilities, workforce support, and tax advantages under a single framework;
5. **Establish a NYS biomanufacturing foundry** to enable next-generation, AI-driven biomanufacturing by integrating research, process development, and small-scale production within one state–industry partnership; and
6. **Engage the NYS Common Retirement Fund** to channel pension capital into local biotechnology venture funds, catalysing early-stage investment and anchoring company growth in-state.

Proposed catalytic initiatives to deliver early momentum:

1. **Develop an MBA biotechnology immersion program** to attract business talent into the sector and **PhD/MS entrepreneurship certificate program** to equip scientists with skills needed to translate research into new ventures;
2. **Enhance NYS’s existing R&D Tax Credit Program** to make it more competitive for small and mid-sized biotechnology firms moving from research to commercialization;
3. **Expand SUNY and CUNY biomanufacturing training centers** with employer co-designed curricula to build an industry-ready workforce across NYS;
4. **Convene a NYS biotechnology investor alliance** to attract non-traditional investors—such as family offices and impact funds—into early-stage biotechnology investing;
5. **Launch a statewide biotechnology internship program** connecting students with biotechnology employers to strengthen early-career pathways and regional talent pipelines; and
6. **Launch a coordinated global biotechnology branding** and alliances campaign to strengthen NYS’s visibility as a top destination for biotechnology investment and talent.

Each recommendation is presented with the following details:

- **Context:** describes current challenges, opportunities, and the initiative’s strategic importance
- **Scope:** details the proposed approach and delivery model;
- **Impact metrics:** identifies how success will be measured through quantifiable indicators—capturing both short-term outputs and long-term outcomes that reflect progress and sustained impact;
- **Potential time to impact:** estimates when measurable results could potentially start to be achieved, contingent upon level of investment and stakeholder engagement;
- **Partners:** identifies key public, private, and academic stakeholders required for execution;
- **Suggested next steps:** outlines practical actions to initiate implementation and early momentum; and
- **Example case study:** highlights a real-life example and relevant lessons from peer states or global biotechnology hubs—it is intended to illustrate potential approaches and is not meant to be exhaustive or prescriptive.

A note on therapeutic areas: building off strengths in neuroscience and oncology

While the Advisory Board's recommendations aim to strengthen NYS's overall biotechnology ecosystem, select initiatives may focus resources on high-potential therapeutic areas and unify relevant stakeholders around a singular mission. This is especially true for recommendations during the pilot phase. Through a structured analysis[¶], the Board identified four therapeutic areas that NYS holds the greatest opportunity in: neuroscience, oncology, immunology, and cardiometabolic disease[#] (see Exhibit 10).

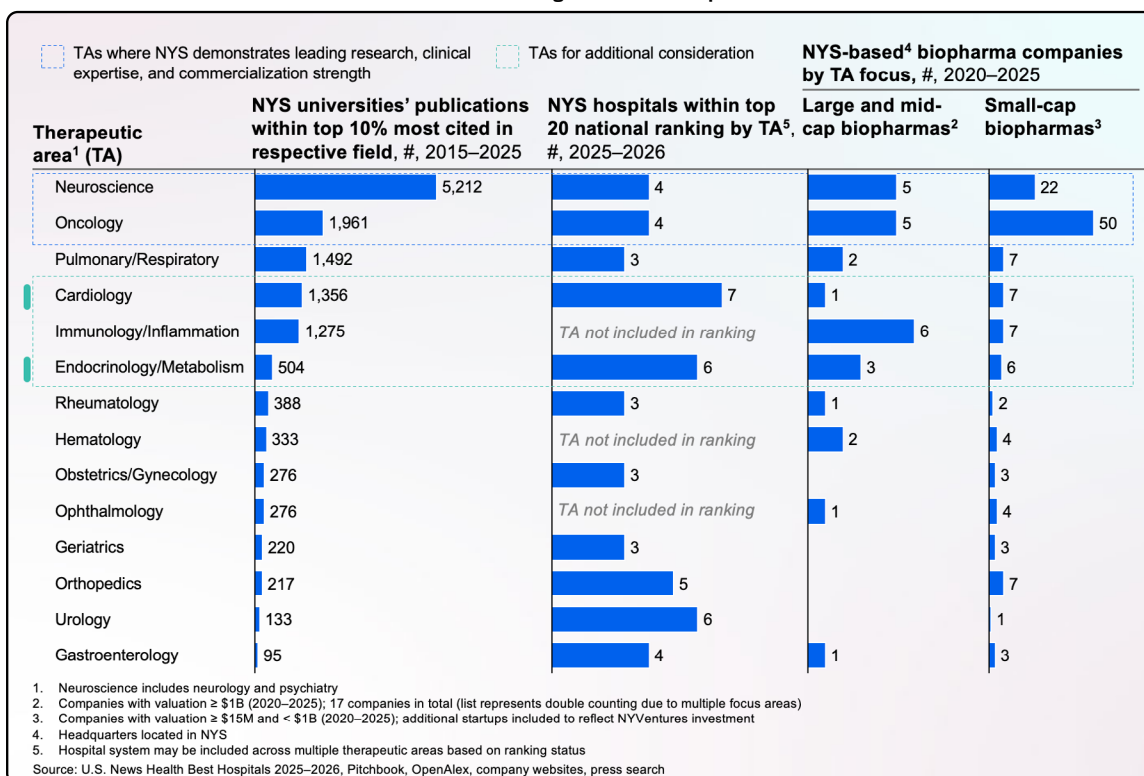
NYS demonstrates exceptional academic strength in neuroscience, with over 5,200 top-cited publications between 2015 and 2025—well ahead of other fields such as oncology (1,961), cardiology (1,356), and immunology (1,275).⁵² In terms of innovation potential, oncology leads the global clinical pipeline (40% of programs), while neuroscience and immunology each account for about 12%, with neuroscience advancing rapidly in small-molecule and blood–brain barrier therapeutics that target high-burden, high-unmet-need diseases.⁵³ Economic indicators show oncology capturing roughly 50% of global biotechnology VC funding, followed by neuroscience (17%), immunology (7%), and cardiometabolic (5%)—together representing more than \$1 trillion in projected global market value by 2030.⁵¹

Neuroscience and oncology emerged as the most compelling focus areas for NYS, combining world-class

research leadership with growing market opportunity. The state is home to five of the top 20 NIH-funded institutions in neuroscience, receiving \$275 million in NIH grants in 2022,⁵⁵ and includes leading investigators such as Dr. Eric Nestler who received approximately \$4 million in funding in 2024 alone.⁵⁶ The State has also made targeted investments in neuroscience, such as \$25 million for Amyotrophic Lateral Sclerosis (ALS) research,⁵⁷ a \$10 million award to establish the Chan Zuckerberg Biohub NY focused on diseases of aging and neurodegeneration,⁵⁸ and most recently a \$10 million investment to launch SUNY Brain Institute, expanding neuroscience research across campuses statewide.⁵⁹

Oncology draws strength from globally recognized institutions such as Memorial Sloan Kettering and Icahn School of Medicine at Mount Sinai, which lead in cancer research, precision medicine, and clinical trials.⁶⁰ Dr. Joseph Sparano from Mount Sinai, a leading oncology researcher, currently directs 12 active NIH-funded projects in 2025, including one receiving approximately \$16 million in funding.⁶¹ These strengths are reinforced by the State's substantial investments in CGT infrastructure, complemented by the newly established Empire State Cellular Therapy Consortium—a collaboration between Roswell Park, University of Rochester, Mount Sinai, NYU Langone, and Weill Cornell Medicine.⁶² Together, these efforts enable NYS's position as a leader in neuroscience and oncology to create a cohesive platform for translational research, clinical development, and advanced biomanufacturing.

Exhibit 10: NYS's strengths across therapeutic areas

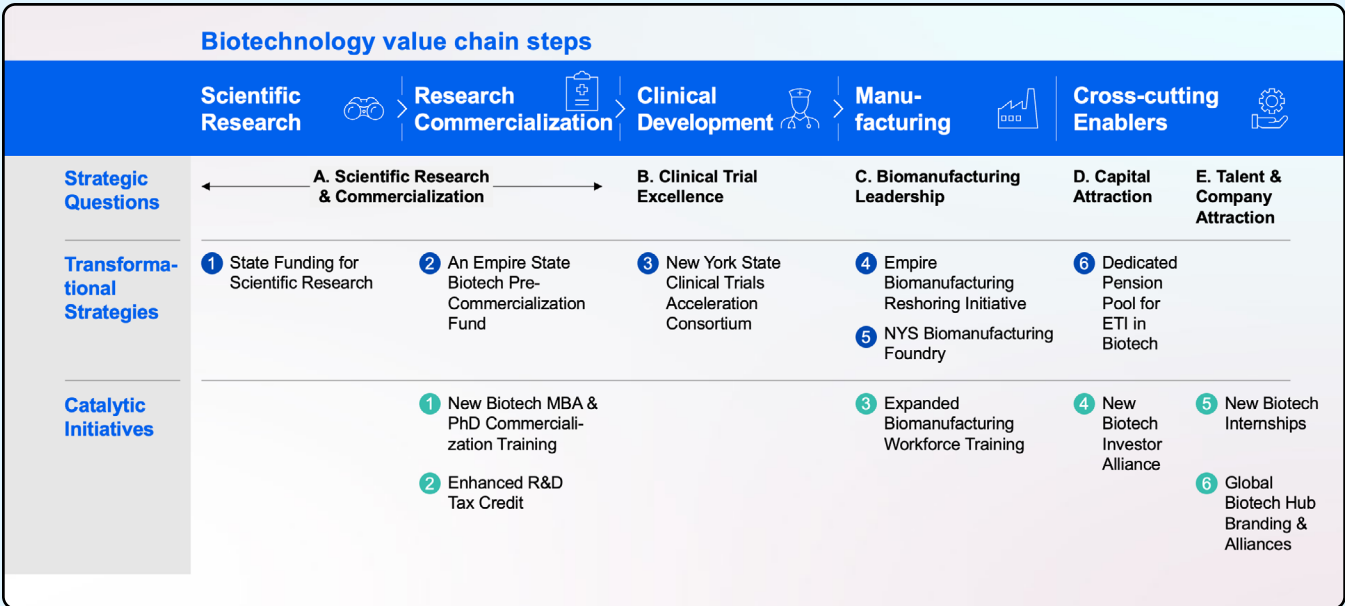


[¶] Analysis was conducted using three filters of assessing potential impact: NYS capabilities, innovation potential, and economic impact.

[#] Cardiology and endocrinology/metabolic were considered collectively under cardiometabolic due to convergence of therapeutic innovations of interest.

Overview of 12 recommendations

Exhibit 11: Portfolio of initiatives across the biotechnology value chain



A. Scientific Research and Commercialization

Launch a new Empire State research excellence fund to invest in basic and translational research (Transformational Strategy 1)

Context: Universities across NYS are global leaders in biomedical and biotechnology research, collectively spending \$2.4 billion on R&D in life-sciences fields in 2023 (57% of which was funded through federal sources).⁶³ Amid apparent changes to the federal funding context, NYS faces potential loss of talent, declining research output, and reduced capacity to translate discoveries into commercial outputs. At the same time, European institutions are actively recruiting U.S. researchers whose federal funding is uncertain through the “Choose Europe for Science” initiative, further intensifying risk of talent loss for NYS.⁶⁴

The growing burden of neurodegenerative diseases and cancer underscores the urgency for focused State investment. In NYS, over 426,000 seniors live with Alzheimer’s disease, with care-related costs estimated at \$18.9 billion in 2024,⁶⁵ while over 65,000 residents live with Parkinson’s disease, which adds another \$3.3 billion annually.⁶⁶ Cancer remains an equally pressing challenge, with an estimated 123,000 diagnoses and 31,000 deaths projected statewide in 2025.⁶⁷ This growing health and economic burden make a strong case for a sustained, state-level investment to preserve NYS’s scientific leadership and accelerate the discovery of new treatments. Several states, including California,⁶⁸ Massachusetts,⁶⁹ and Texas,⁷⁰ are considering or have enacted large-scale initiatives to sustain and expand basic scientific research.

Scope: The initiative would establish a new Empire State Research Excellence Fund to provide merit-based funding to academic institutions and research institutes, building on existing State programs that support basic and translational research. This could be structured as a recurring fund over several years supported by a bond issue or a one-time allocation to:

- Support basic and translational research aligned with flagship therapeutic areas (eg, neuroscience and oncology), given the state’s leadership and capabilities in this area
- Structure the investment to foster greater collaboration between the scientific community across NYS
- Provide targeted funding to build or enhance core institutional infrastructure required to conduct cutting-edge scientific research (eg, advanced imaging equipment)
- Fund PhD and postdoctoral fellowships to strengthen academia—industry partnerships and co-development
- Serve as a retention mechanism during periods of potential reduced grant availability, recruiting and retaining researchers and their labs, companies, and private capital investment in NYS
- Offer matching funds to federal awards, increasing the impact of federally funded research

Impact metrics:

- Level of state, private, and philanthropic co-investment mobilized to sustain academic research in NYS
- Growth in follow-on federal and industry funding linked to State-supported research projects



- Growth in collaborative research projects between academic and industry partners
- Number of highly skilled research and postdoctoral positions retained or created across universities and research institutions
- Number of trained researchers and graduate students recruited into biotechnology industry roles in NYS
- Number of new faculty recruited to NYS institutions
- Number of publications in high impact journals enabled through State-funded research
- Volume of new intellectual property (IP), patents, and licensing deals generated through State-funded research
- Number of biotechnology companies started, expanded, or attracted to NYS

Potential time to impact: 2–3 years for short-term funding (longer timeframe if a bond issue)

Example partners:

- ESD
- State University of New York (SUNY)
- City University of New York (CUNY)
- Leading private universities and research institutions
- Philanthropic foundations
- Industry partners

Suggested next steps:

- Develop proposal outlining scope, eligibility, and governance model in alignment with complementary efforts by partner organizations (eg, Associated Medical Schools of New York (AMSNY) Empire Biomedical Research Institute proposal)

- Launch pilot round of competitive grants and infrastructure funding
- Identify and formalize industry partnership models for hosting PhD and postdoctoral fellows to co-develop research projects

Case study:

- Massachusetts Governor Maura Healey announced the Discovery, Research Innovation for a Vibrant Economy (DRIVE) initiative proposal in July 2025, a state-level program committing \$400 million to strengthen the state’s research and innovation ecosystem in face of federal funding uncertainty.⁷¹ Governor Maura Healey underscored that research funding is foundational to the Massachusetts economy and essential to safeguarding the state’s leadership in innovation, stating: “In the face of uncertainty from the federal government, this is about protecting one of the things that makes Massachusetts so special—our global leadership in health care and helping families across the world.” The initiative splits funding into two main components: \$200 million will seed a one-time multi-year funding pool to support hospitals, universities, and independent research institutions and a one-year fellowship program; \$200 million will be placed into a public higher education “bridge funding reserve” to cover direct and indirect research costs, including industry hiring needs (academic and early-career professionals).
- Texas introduced the establishment of the Dementia Prevention and Research Institute (DPRIT) in May 2025, a \$3 billion fund to accelerate neurological research statewide and improve health outcomes for those suffering with dementia-related disorders.⁷² The initiative, which was approved by voters in November 2025, models Texas’s \$6 billion initiative Cancer Prevention Research Institute of Texas (CPRIT) introduced in 2007.

Launch the Empire State biotechnology pre-commercialization fund to accelerate academic innovations toward market readiness (Transformational Strategy 2)

Context: While NYS universities produce industry-leading research, many promising discoveries stall before reaching commercial viability.⁷³ The early “valley of death” between academic proof-of-concept and private venture investment remains a major barrier to progress as cited by academics. Philanthropic capital can be leveraged to bridge the gap and cover prototype development, enabling researchers to de-risk technologies enough to attract private investors. Establishing a state-led pre-commercialization fund would complement ESD’s existing Life-sciences Initiative programs (eg, Biodefense Commercialization Fund, NY Ventures) by providing targeted support to bridge this gap. The fund would help address regional disparities in access to capital and infrastructure, stimulating research commercialization across the state. It would also ensure innovations are developed, piloted, and scaled within NYS, retaining intellectual property, talent, and future high-growth biotechnology companies.

Scope: The Empire State biotechnology pre-commercialization fund would provide equity-free, competitive grants to university researchers and early-stage spinouts developing high-impact technologies to advance ideas from academic research to a VC-backable stage. The fund would:

- Fund proof-of-concept studies, prototype development, and pre-clinical validation of technologies emerging from translational research (ie, pre-VC funding for academic spinouts), adopting a milestone-based award structure (eg, providing pre-seed awards for early validation and larger seed awards for later-stage pre-commercial readiness) modeled after successful translational funding programs such as the Empire Discovery Institute
- Consider establishing two tracks—a University Researcher Track supporting translational research and pre-commercial R&D within universities, and a Spinout Track targeting very early-stage NYS university-based biotechnology companies
- Require awardees to maintain operations and intellectual property in NYS
- Pair funding with structured mentorship and technical assistance, linking researchers and founders with experienced entrepreneurs, industry experts,

venture investors, and legal or regulatory advisors to support market readiness—modeled after NYSERDA’s ClimateTech Expertise Network⁷⁴

Impact metrics:

- Level of private capital investment and follow-on funding secured by funded projects
- Number of university discoveries advanced to proof-of-concept, licensing, or spinout stage
- Number of high-skilled jobs created through new company formation and expansion

Potential time to impact: 2–3 years

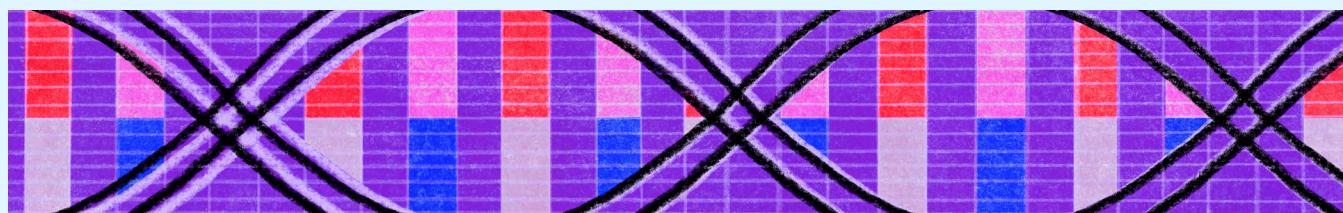
Example partners:

- ESD
- SUNY
- CUNY
- Major leading private universities and technology transfer offices
- Private-sector investors
- Foundation partners
- Regional accelerators

Suggested next steps:

- Define governance and award criteria in collaboration with universities and investors
- Establish funding tiers and milestone-based grant structure for pre-commercial projects
- Create statewide pipeline portal for proposal submission and progress tracking
- Launch pilot funding round targeting projects across multiple institutions

Case study: North Carolina’s NCInnovation program is a state-backed, public–private partnership created to propel commercialization of research from North Carolina’s public universities.⁷⁵ The State allocated \$500 million to an endowment fund applied to research commercialization in 2023. The program provides non-dilutive grant funding typically in the range of \$200,000 to \$1 million per project for proof-of-concept financing and has awarded \$18.8 million towards 25 university projects to date. NCInnovation further connects researchers with industry mentors to bridge the “valley of death” by identifying prioritized research areas and ensuring technologies reach the market.



Launch MBA Biotechnology Immersion and PhD/MS Entrepreneurship Certificate Programs (Catalytic Initiative 1)

Context: NYS’s world-class universities and medical schools generate groundbreaking biotechnology research, with the NYC metropolitan area recognized as the global leader in biological sciences publications according to Nature’s index of leading science cities.⁷⁶ However, researchers face a persistent gap in translating discoveries into commercial ventures across NYS. Many academic researchers and graduate students lack the practical business, management, and regulatory expertise needed to move innovations from the lab to the market.⁷⁷ Meanwhile, biotechnology companies and investors cite a shortage of “dual fluency” talent—individuals who can bridge scientific and commercial disciplines—to fill leadership roles in startups.⁷⁸

Scope: The statewide commercialization training program would partner universities and industry players to build on existing programs and deliver three complementary talent-development initiatives:

- Biotechnology fellowships for MBA students—Create project-based fellowships where business and management students work with startups and large BioPharma companies to gain biotechnology industry exposure
- Entrepreneurship certificate programs for PhD/MS students—Expand short-format, credit-bearing courses in partnership with business schools to equip doctoral researchers with foundational business skills and venture creation
- Faculty-executive mentorship program—Pair academic innovators with experienced biotechnology executives or entrepreneurs who can advise on industry research interests, commercialization strategy and investor engagement, with recognition through a statewide fellow network and potential contractual support for extended commercialization advisory services

Impact metrics:

- Number of MBA, MS, and PhD students completing statewide programs
- Number of university faculty and researchers paired with industry executives for mentorship programs
- Number of technologies advanced toward licensing, partnerships, or startup formation by students in these academic programs

Potential time to impact: 1–2 years

Example partners:

- ESD
- SUNY
- CUNY



- Major leading private undergraduate and graduate programs
- Industry and venture partners

Suggested next steps:

- Issue competitive request for proposal (RFP) inviting universities to propose program curriculum aligned with initiative objectives (ie, fellowship for MBA/MS students, certification for PhD students, fellowship for faculty researchers) that is customized to institution’s student focus (eg, in-person, remote, or hybrid)
- Define core program guidelines and funding criteria to ensure consistency and accountability across participating universities
- Launch initial cohorts in partnership with select universities that demonstrate readiness to implement, followed by broader expansion based on early outcomes and lessons learned

Case study: Stanford University provides a model for integrating entrepreneurial education into science and engineering programs. The Stanford Ignite program offers four- to eight-week “mini MBA” courses for graduate students and postdoctoral scholars in non-business disciplines, teaching finance, intellectual property, leadership, and commercialization fundamentals.⁷⁹ The program reports 38% participation by PhD students and 30% by MD/MS students, with many graduates transitioning into biotechnology startups. Complementing this, the Bio-X program brings together over 1,300 faculty and 5,000 students across disciplines to collaborate on translational research, supported by corporate fellowships that match research projects to company interests.⁸⁰ Industry affiliates include Genentech, Medtronic, and Pfizer Inc.

Enhance NYS's existing R&D tax credit to stimulate innovation and commercialization (Catalytic Initiative 2)

Context: NYS offers one of the nation's most diverse biotechnology ecosystems, yet early- and mid-stage companies face higher operational costs than other major hubs (specifically in NYC and surrounding areas). While the State currently provides an R&D tax credit through the Life-sciences R&D Tax Credit Program, its annual pool (\$10 million) and per-company cap (\$500,000 per year; \$1.5 million lifetime) limit its competitiveness compared with other states and global hubs.⁸¹ Strengthening NYS's R&D tax credit program would help reduce the cost of innovation, attract and retain startups, and drive continued private capital investment.

Scope: The enhanced R&D tax credit would expand NYS's existing program to make it more inclusive to better support mid-sized biotechnology firms and startups moving from research to commercialization. The initiative would:

- Increase the annual state allocation for life-sciences and related R&D from \$10 million to a more competitive level
- Raise the per-company cap and introduce a tiered credit structure offering higher rates for small and mid-sized firms
- Increase the coverage of qualified research expenses (QRE) to compete with those of global hubs

Impact metrics:

- Number of biotechnology firms in NYS claiming R&D credit annually
- Increase in R&D investment across NYS
- NYS and local tax revenue generated from biotechnology company expansion, hiring, and commercialization

Potential time to impact: 1–2 years

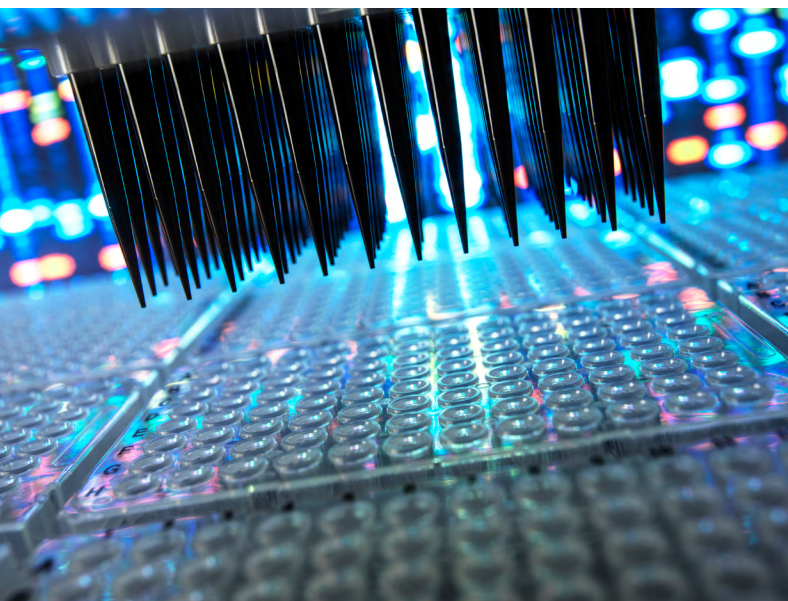
Example partners:

- ESD
- NYS Department of Taxation and Finance
- Biotechnology and advanced biomanufacturing firms
- Industry trade associations and enablers (ie, NewYorkBIO, LifeSciencesNY)

Suggested next steps:

- Draft legislative amendments to expand R&D tax credit pool, adjust eligibility criteria, and increase per company cap
- Raise awareness through cohesive branding strategies to educate small biotechnology startups about credit availability

Case study: Across the world, leading innovation hubs maintain robust and flexible R&D tax incentives to attract private investment and accelerate biotechnology startup growth. NYS currently offers a credit of up to 20% of qualified research expenses (QREs) for small companies—competitive by U.S. standards but limited by a relatively low per-company cap. In contrast, Massachusetts⁸² and California⁸³ provide broader credit bases with no lifetime caps, enabling sustained reinvestment by biotechnology firms. Globally, Australia offers a refundable R&D credit of 43.5% for companies with annual turnover below \$20 million (base corporate tax rate of 25% + 18.5% offset).⁸⁴ France⁸⁵ and Ireland⁸⁶ operate among the most generous regimes, providing refundable credits of 30% (for R&D expenses up to €100 million, then 5% above) and 35%, respectively.



B. Clinical Trial Excellence

Establish NYS Clinical Trial Acceleration Consortiums (Transformational Strategy 3)

Context: NYS currently ranks fourth nationally in total number of unique clinical trials conducted in the state, behind peers in California, Texas, and Florida.⁸⁷ In addition, approximately 80% of all NYS clinical trial activity is conducted by sites in NYC and Long Island, leaving other regions underpenetrated despite strong hospital and research infrastructure. Even where NYS has strong capabilities—ie, in neuroscience and oncology (where NYS is home to four of the top 20 national hospitals in both therapeutic areas^{**})—the state can still improve on clinical trial participation.⁸⁸ NYS conducts 27% less neuroscience clinical trials and 18% less oncology clinical trials than California, which benefits from coordinated statewide initiatives such as the California Institute for Regenerative Medicine (CIRM) that links research institutions, hospitals, and sponsors.⁸⁹ Sponsors and startups report that fragmented contracting, lengthy review processes, and inconsistent site capabilities further slow study initiation across NYS.

Scope: NYS Clinical Trial Acceleration Consortiums would coordinate a network of all NYS accredited hospitals, academic medical centers (AMCs), and clinical research organizations (CROs) under a state-led governance and accreditation model starting with two distinct clinical trial consortiums—one in neuroscience and the other in oncology. Designated “Fast-Lane Clinical Sites” would meet standardized quality, contracting, and data-sharing criteria to participate in multi-site trials occurring within.

^{**} Ranking reflects best hospitals in the U.S. for neurology, neurosurgery, and psychiatry

The consortium would:

- Implement a State-supported Clinical Contracting Office to facilitate the use of a Master Clinical Trial Agreement (MCTA) and single Institutional Review Board (IRB) by leveraging existing services such as Biomedical Research Alliance of New York (BRANY), to consolidate contracting, ethics review processes, and governance across participating institutions. One approach could be to phase implementation of the consortium, beginning with SUNY-affiliated medical centers before expanding to other New York State hospitals, as contracting frameworks and IRB structures vary widely.
- Expand clinical trial site capacity of regional hubs through lead institutions that train and accredit (when applicable) smaller or emerging “satellite” sites in regional, rural, and remote regions to expand access and diversify trial participants
- Develop secure statewide data-sharing infrastructure to enable faster, more equitable multi-site patient recruitment
- Offer targeted incentives (ie, activation grants for Phase I trials, expanded R&D tax credits) to encourage sponsors and startups to initiate early-phase studies in NYS

Impact metrics:

- Number of accredited trial sites in NYS within five years of implementation
- Average site start up timelines for NYS sites
- Share of unique clinical trials conducted in NYS
- Number of clinical research and data management jobs created in NYS
- Diversity of patient participation across geographic locations in NYS
- Amount of industry investment and external research funding attracted to NYS
- Growth in number of sponsor-initiated clinical trials conducted with NYS principal investigators (PIs) and clinical research sites

Potential time to impact: 2–3 years

Example partners:

- ESD
- DOH
- AMCs
- Industry sponsors and CROs
- Association for the Accreditation of Human Research Protection Programs (AAHRPP)
- BRANY
- Foundation partners

Suggested next steps:

- Convene multi-institutional working groups to align value proposition of clinical trial network, encourage shared data infrastructure, and designate regional leads to train satellite sites
- Leverage existing resources from organizations such as BRANY to develop and implement MCTA and centralized IRB process across participating sites
- Identify data sources required for shared data infrastructure and entity responsible for overseeing data governance
- Consult AAHRPP on accreditation framework for consortium sites where applicable, leveraging best practices to ensure quality and participant protection
- Pilot network for neuroscience and oncology trials and identify leading health systems to participate in both consortiums

Case study: OneFlorida+ offers a strong model for statewide clinical trial coordination.⁹⁰ Backed by federal and state support, the network links 22 hospital systems and more than 900 clinics under a single Institutional Review Board (IRB) and a shared “Data Trust” containing information on 26 million patients from electronic health records, insurance claims, registries, and other sources. This centralized data infrastructure enables faster, more efficient trial enrollment while saving participating institutions an estimated \$1.8 million annually compared to maintaining separate systems. To strengthen site capacity, OneFlorida+ also employs a clinical champion model, engaging community physicians and practice facilitators to broaden trial access and increase participation from diverse patient populations. Florida’s strong clinical trial activity demonstrates the effectiveness of its coordinated model. The state had 19,905 cumulative site participations across clinical trials (total number of site instances participating

in clinical trials, summed across all trials) between 2020 and 2025, surpassing that of California (18,933) and Texas (17,161) and is more than double NYS’s (8,450).⁹¹ Considering population density, Florida conducts 23 clinical trials per 100,000 residents, compared to 21 in NYS.

C. Biomanufacturing leadership

Position NYS as a destination for BioPharma to reshore manufacturing through an integrated and expanded incentive program (Transformational Strategy 4)

Context: Global BioPharma companies are increasingly considering reshoring production to strengthen supply chain resilience, ensure quality control in the United States, and potentially respond to new federal requirements.⁹² This trend creates a timely opportunity for NYS to position itself as a leading destination for biomanufacturing investment. Companies evaluating new manufacturing sites prioritize access to talent, cost predictability, site readiness with reliable utilities, and proximity to logistics and R&D hubs.⁹³ NYS offers strong advantages across these fronts—competitive upstate costs,⁹⁴ shovel-ready industrial sites (eg, FAST NY⁹⁵ and POWER UP⁹⁶), and a skilled technical workforce supported by top-tier universities.⁹⁷

Scope: The Advisory Board recommends that the State enhance visibility and transparency of its incentive programs by creating and promoting a unified package that consolidates all existing support mechanisms into a single, streamlined offer for BioPharma companies. ESD would coordinate across agencies, utilities, counties, and universities to present a comprehensive proposition that includes access to pre-certified industrial sites, expedited permitting, discounted power allocations, targeted tax incentives, and workforce training support. It would also highlight NYS’s lesser-known cost advantages—such as hourly wages in biomanufacturing sectors comparable to North Carolina (and approximately 20% lower than California and Massachusetts, \$39/hour vs \$51 and \$50 respectively in 2024)⁹⁸ and manufacturing site sales prices in Western New York below those in North Carolina (\$55/sqm vs \$62 in 2025).⁹⁹ The package would be designed to mirror the integrated structure of the Micron semiconductor deal, aligning multiple levers under a single negotiation framework. By offering one interface for investors, NYS would position itself as a predictable and execution-ready partner, capable of matching or surpassing competing states on total value and speed to market.

Impact metrics:

- Level of private capital investment committed in NYS
- Number of high-skills jobs created in NYS
- NYS and local tax revenue generated

Potential time to impact: 2-5 years



Example partners:

- ESD
- New York Power Authority (NYPA) and regional utilities
- County Industrial Development Agencies (IDAs) Municipal and regional infrastructure agencies
- Colleges and universities

Suggested next steps:

- Develop a consolidated NYS BioPharma investment prospectus including what NYS already offers
- Pre-qualify a portfolio of sites through the FAST NY and POWER UP programs
- Engage utilities early to define indicative energy packages and infrastructure upgrades
- Launch a targeted campaign led by the Governor directed at leading BioPharma companies globally

Case study: In March 2021, Fujifilm Diosynth Biotechnologies announced plans to invest approximately \$2 billion in a large-scale cell-culture biomanufacturing facility in Holly Springs, North Carolina, creating about 725 jobs.¹⁰⁰ In 2024, the company further expanded its commitment with an additional \$1.2 billion investment and 680 new positions.¹⁰¹ Fujifilm selected North Carolina due to the state's fully shovel-ready, pre-permitted site, rapid utility connections, and coordinated support from state and local agencies, including a \$14.9 million Job Development Investment Grant. The availability of a specialized life-sciences workforce and the strong existing biomanufacturing cluster around Raleigh–Durham were also cited as decisive factors.

Develop a statewide GLP/GMP training network through SUNY and CUNY to support biomanufacturing expansion (Catalytic Initiative 3)

Context: As NYS's biomanufacturing industry continues to expand, access to a skilled, industry-ready workforce will be a critical determinant of future investment. BioPharma companies interviewed consistently cite proximity to a skilled workforce and nearby colleges with relevant training programs as the most important factor in manufacturing site selection. While NYS has only 7.5% of biotechnology manufacturing positions unfilled in 2024¹⁰²—among the lowest rates nationally and well below Massachusetts' 20%—it can further strengthen future workforce readiness by expanding training centers as the sector grows, helping to prevent future hiring pressures. To sustain competitiveness and fully capture reshoring and growth opportunities, NYS must build future specialized biomanufacturing workforce capacity tailored to employers' demands.

Scope: The initiative would establish a coordinated network of GLP- and GMP-aligned biomanufacturing training hubs across the SUNY and CUNY systems, developed in partnership with industry to reflect real facility and process

needs. These centers would provide hands-on, employer-designed training that replicates production environments, ensuring graduates are job-ready upon completion.

Impact metrics:

- Number of employer partnerships established across SUNY and CUNY
- Number of students completing GLP/GMP-aligned training programs annually in NYS
- Share of NYS biomanufacturing job postings filled by in-state trained workforce

Potential time to impact: 2–3 years

Example partners:

- ESD
- SUNY
- CUNY
- Major biomanufacturing and pharmaceutical employers

Suggested next steps:

- Conduct a statewide employer needs assessment to identify training and skill alignment gaps
- Launch employer co-design councils to design curriculum framework and continuous program adaptation
- Select and certify initial SUNY and CUNY campuses as pilot GMP/GLP training sites
- Implement scholarship and outreach programs to attract students into biomanufacturing careers

Case study: North Carolina's NC Biotech Center partners with community colleges and industry consortia to deliver hands-on GMP training through five specialized centers.¹⁰³ The organizations designed the curriculums in partnership with the biotechnology industry to provide students with practical, hands-on training in the biological and pharmaceutical manufacturing fields. North Carolina's statewide network of industry-driven workforce programs has been pivotal to the growth of its biomanufacturing sector, which now spans 108 sites and employs more than 34,000 people.¹⁰⁴

Establish an NYS Biomanufacturing Foundry to accelerate adoption of next-generation production processes (Transformational Strategy 5)

Context: BioPharma manufacturing is increasingly shifting overseas, driven by high domestic operating costs.¹⁰⁵ To remain competitive with leading global biomanufacturing centers such as China, the U.S. must focus on high-value, AI-enabled biomanufacturing that integrates R&D and production to lower total costs and accelerate innovation.¹⁰⁶ NYS has a pivotal opportunity to position itself at the forefront of next generation biomanufacturing processes.



Scope: The initiative would establish a state–industry partnership to create a biomanufacturing foundry that integrates research, process development, and small-scale production within a single facility. Co-developed with a leading CRO/CDMO and supported by state infrastructure investment, the foundry would serve as a shared platform for technology transfer and process innovation, helping small and mid-sized biotechnology companies accelerate the translation of novel methods from laboratory discovery to commercial readiness. Located within an existing biotechnology cluster, it would connect industry partners, universities, and startups to strengthen domestic manufacturing capacity and attract sustained biotechnology investment to NYS.

Impact metrics:

- Private capital investment attracted in NYS through co-investment and partnerships
- High-skill jobs created in NYS across engineering, operations, and scientific roles
- Number of innovative therapies or processes piloted within the foundry

Potential time to impact: 3-5 years

Example partners:

- ESD
- Contract research organization (CRO) and Contract Development and Manufacturing Organization (CDMO)
- Biotechnology startups and companies
- Universities and research institutions
- Advanced manufacturing and AI technology providers

Suggested next steps:

- Identify potential anchor CRO/CDMO partner with interest in co-investment and technology transfer
- Evaluate candidate sites within existing biotechnology clusters for infrastructure readiness
- Develop a detailed phased co-investment framework with performance-based incentives

Case study: Announced in 2024, Eli Lilly’s Medicine Foundry in Indiana is a \$4.5 billion, 1.2 million-square-foot facility integrating R&D, process development, and manufacturing under one roof.¹⁰⁷ Supported by significant state incentives and infrastructure upgrades, it is expected to open in 2027 and create approximately 400 high-skill jobs.¹⁰⁸ The foundry’s structure—combining innovation, pilot production, and flexible technology platforms—serves as a benchmark for NYS’s proposed approach to accelerating translational biomanufacturing.

D. Capital Attraction

Engage the NYS Common Retirement Fund (and other NYS funds) to catalyze in-state biotechnology investment (Transformational Strategy 6)

Context: NYS’s biotechnology ecosystem faces a persistent early-stage funding gap that limits the growth of homegrown ventures and constrains the state’s competitiveness relative to leading life-sciences hubs.¹⁰⁹ The NYSCRF, one of the largest public pension funds in the United States with over \$270 billion in assets, currently allocates 15% to private equity—but only 1% of that allocation is directed toward VC investments (2024).¹¹⁰ Allocation of institutional capital can anchor biotechnology companies in NYS. To address similar

challenges in the past, NYSCRF launched its In-State Private Equity Investment Program in 1999 to spur local innovation and job creation—an effort that has since committed over \$2.6 billion to more than 600 New York companies, helping catalyze the state’s tech venture ecosystem.¹¹¹ The proposed biotechnology initiative would build on and be modeled after this in-state program, leveraging its proven framework to channel institutional capital into early-stage life-sciences ventures across New York.

Scope: NYS would engage the NYSCRF to explore increasing its VC allocation through its existing In-State Investment Program, specifically targeting NYS-based venture firms focused on biotechnology and life-sciences. This approach would direct long-term institutional capital into early-stage biotechnology companies while facilitating stronger connections between NYSCRF, local venture funds, and the broader innovation ecosystem. ESD would coordinate engagement with NYSCRF and local VC networks to identify suitable partners. It would also define performance-based participation mechanisms to ensure that investments align with NYSCRF’s objectives, while requiring matching commitments from private limited partners (LPs) to leverage pension capital and maximize total investment impact across NYS’s biotechnology sector.

Impact metrics:

- Amount of pension capital deployed into NYS-based biotechnology venture funds
- Leverage ratio of private capital mobilized alongside state commitments
- Number of biotechnology startups funded or retained in-state by VC firms supported through NYSCRF investments

Potential time to impact: 2–3 years

Example partners:

- NYSCRF
- ESD

- NYS-based biotechnology VC firms
- Biotechnology industry associations and innovation hubs
- Institutional co-investors and family offices

Suggested next steps:

- Convene a strategic dialogue between NYSCRF leadership, ESD, and leading biotechnology VCs to assess opportunity scope
- Develop a proposal framework for targeted biotechnology allocations within NYSCRF’s in-state program
- Identify and vet qualified venture fund partners for early-stage pilot commitments
- Launch a joint visibility campaign highlighting NYS’s long-term commitment to biotechnology innovation and capital formation

Case study: The UK government’s Mansion House Reforms (2023, expanded in 2025) secured commitments from leading pension funds to allocate 10% of assets to unlisted equities such as infrastructure, property and private equity, including in high-growth sectors such as life-sciences.¹¹² At least 5% of these portfolios are ring fenced in the UK—up to £50 billion of investment is available for UK businesses and infrastructure projects.

Establish specialized convening groups of non-traditional biotechnology investors to catalyze new capital flows (Catalytic Initiative 4)

Context: NYS is home to one of the world’s most diverse investor ecosystems, with over 50 family offices and 40 impact investment funds representing a combined \$1.2 trillion in assets under management.¹¹³ Yet, only a small fraction of this capital is currently directed toward biotechnology (eg, 7 of 54 family offices list biotechnology among preferred industries). Investors outside traditional VC often lack exposure to life-sciences opportunities and familiarity with sector-specific investment frameworks. By mobilizing this untapped pool of capital through structured



convenings, NYS can strengthen its position as a global financial center for biotechnology innovation and channel new funding into early-stage companies.¹¹⁴

Scope: The initiative would establish specialized convening groups of non-traditional biotechnology investors, such as family offices, mission-driven funds, and venture philanthropies, each focused on a specific therapeutic or scientific area. Modeled after the BrainMind Summit,¹¹⁵ these groups would connect investors with leading researchers, founders, and experienced biotechnology investors to share sector insights and clarify investment guardrails. Supported by ESD, the convenings would serve as platforms to educate and catalyze co-investment in NYS-based biotechnology ventures, expanding the state's pool of active life-sciences investors.

Impact metrics:

- Number of non-traditional biotechnology investors entering the sector
- Volume of capital deployed from non-traditional sources into NYS biotechnology ventures
- Growth in early-stage biotechnology funding rounds supported by family offices and impact funds

Potential time to impact: 1–2 years

Example partners:

- ESD
- Family offices and impact investors based in NYS
- Biotechnology industry associations (eg, NYBIO)
- Experienced biotechnology VC investors
- Universities and research institutions

Suggested next steps:

- Identify and engage anchor participants among NYS family offices and impact investment funds
- Design thematic convening tracks centered on specific therapeutic areas (eg, neuroscience, oncology)
- Recruit experienced biotechnology investors to mentor and co-lead convening sessions
- Develop educational materials and investment guardrails for new participants
- Launch an inaugural New York Biotechnology Investor Convening Series, positioned as a recurring platform to attract non-traditional capital

Case study:

- MassBio's Funding Catalyst Program, embedded within its Vision 2030 strategic framework, is a new initiative designed to expand and diversify the life-sciences

investor base Massachusetts.¹¹⁶ The program seeks to engage non-traditional investors—including family offices, venture philanthropists, and international capital—to complement tradition venture funding and strengthen support for early-stage biotechnology startups. The program includes a BioReady accreditation program to help new investors understand the biotechnology industry and adopt best practices for responsible investing, and a Venture Philanthropy Navigator that matches mission-driven funders with startups.¹¹⁷

- CREO Syndicate, based in NYC, is a network of family offices, foundations, and private investors focused on sustainability and impact investing.¹¹⁸ It functions as a peer-learning and deal-sourcing platform, connecting investors who see private capital as a driver of large-scale social and environmental change. Supported by a multi-year MacArthur Foundation grant, CREO demonstrates how coordinated convening, and shared education can mobilize private capital toward mission-aligned, high-impact sectors—offering a model adaptable to biotechnology innovation.¹¹⁹

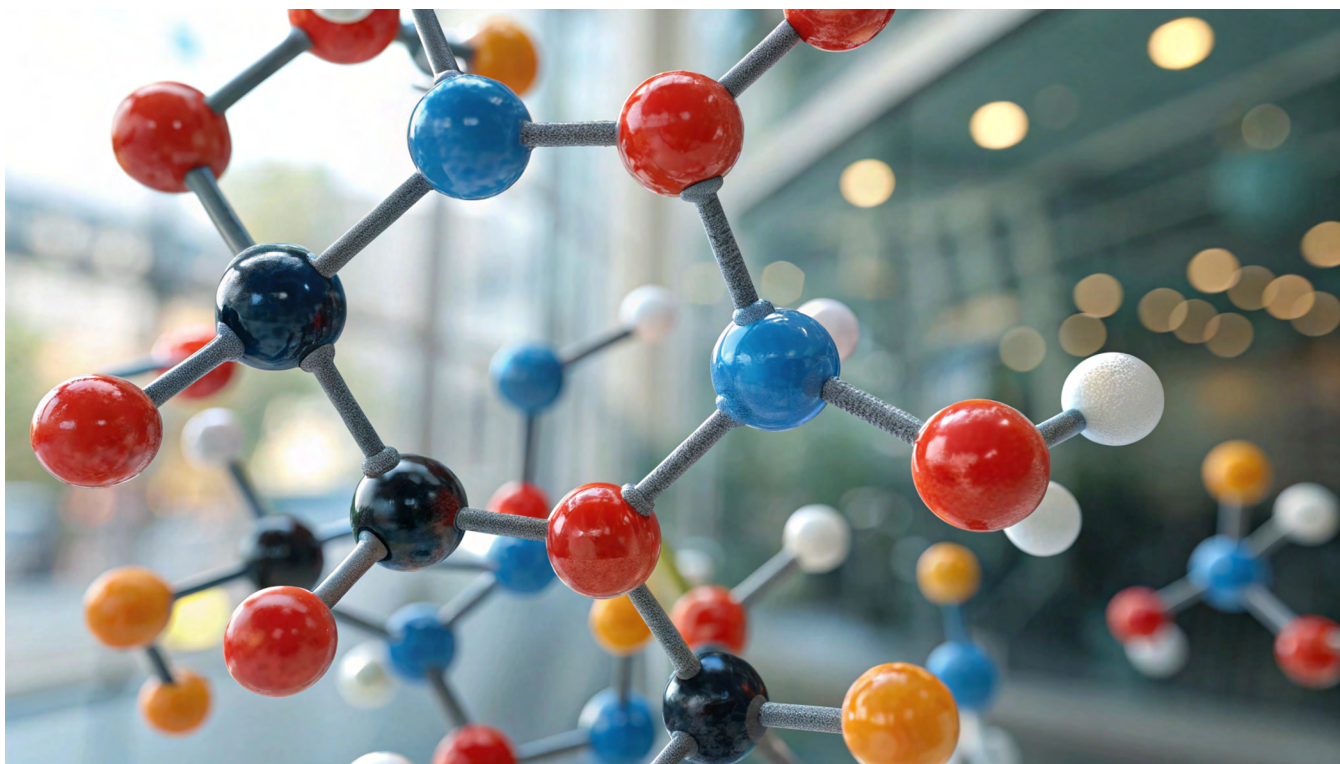


E. Talent & Company Attraction

Develop new Empire State Biotechnology Fellowship Program with new biotechnology internships program to strengthen entry-level career pathways (Catalytic Initiative 5)

Context: NYS produces one of the largest cohorts of graduates in biotechnology fields in the country¹²⁰ yet retained 10% fewer students from 2020–2024 than California (ie, 69% vs. 79% retention, respectively).¹²¹ Building a statewide internship program in collaboration with private-sector companies would bridge the gap between education and employment, ensuring students from all regions of the state can gain the experience needed to enter the biotechnology workforce and that employers have access to a trained talent pipeline.

Scope: The new biotechnology internships program would partner with universities and private-sector companies to connect students with internships in the biotechnology



industry. Internship participation would be integrated with career development and mentorship opportunities from biotechnology professionals. The State could provide stipends to broaden participation across NYS.

Impact metrics:

- Number of academic-industry partnerships established to sustain workforce pipelines
- Number of internships and early-career placements created for NYS students in biotechnology industry
- NYS retention rate of graduates with degree completions in biotechnology fields
- NYS and local tax revenue generated from biotechnology job creation

Potential time to impact: 1–2 years

Example partners:

- ESD
- SUNY
- CUNY
- Leading private universities
- Major BioPharma employers

Suggested next steps:

- Define program criteria—including eligibility, funding structure, and priority regions—in consultation with academic and industry partners

- Establish a grant program enabling schools and employers to apply for State funding to create or expand biotechnology internship opportunities (eg, student stipends)

Launch outreach effort through universities and industry associations to promote participation statewide.

Case study: Massachusetts provides a strong precedent for a state-sponsored internship model through the Massachusetts Life-sciences Center (MSLC) Internship Challenge.¹²² The program connects students and recent graduates with life-sciences employers, subsidizing wages for eligible organizations. Since its launch in 2009, the program has funded more than 6,300 internships, with approximately 40% of participants receiving full-time job offers upon completion. The program is notable for its broad reach—matching both small startups and major employers with early talent—and its deliberate focus on diversity, regional inclusion, and workforce retention.

Promote global biotechnology hub branding and alliances to position NYS as a magnet for talent, startups, and investors (Catalytic Initiative 6)

Context: Anchored by world-class research institutions, a dynamic biotechnology startup ecosystem, the presence of major VC anchors in NYC, and attractive conditions for biomanufacturing in Upstate regions, NYS is well-positioned to lead in biotechnology innovation. Yet greater visibility is needed—both nationally and within the state itself—so that external investors recognize NYS’s strengths, and local innovators understand the resources and support available from the State and private sector to help them grow.

Scope: The initiative would showcase NYS’s biotechnology ecosystem through a unified brand identity and targeted outreach campaigns that highlight its research depth, workforce talent, and supportive infrastructure, while helping founders navigate the state’s resources. Beyond continuing to enhance the central NewYorkBIO online platform, it would include co-branded digital campaigns with universities and industry anchors as well as convenings and matchmaking events to strengthen ecosystem visibility and connectivity. In parallel, the initiative would forge strategic international alliances with leading biotechnology hubs (eg, the UK, France, Singapore) and leverage global convenings and roadshows to connect startups, investors, and partners.

Impact metrics:

- Engagement metrics for global campaigns, including website traffic and participation in events
- Increase in inbound biotechnology investment inquiries
- Growth in biotechnology startup relocations and expansions into NYS

Potential time to impact: 1–2 years

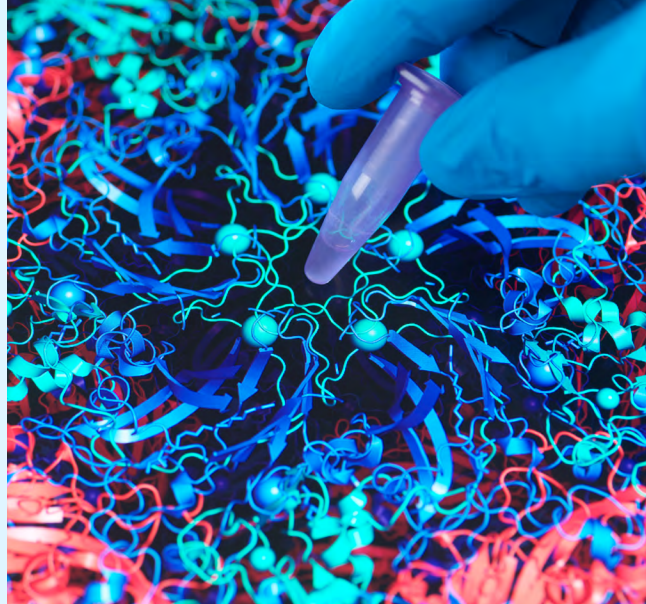
Example partners:

- ESD
- Universities and research institutions (eg, Columbia, Cornell, SUNY, CUNY)
- Industry anchors and VCs (eg, Regeneron)
- Global biotechnology clusters and trade agencies (eg, UK BioIndustry Association, French Healthcare Association)
- Event partners

Suggested next steps:

- Develop a unified branding strategy and narrative framework, led by ESD and academic partners
- Continue to build NewYorkBIO central online portal consolidating startup support resources, funding programs, and site opportunities
- Launch co-branded campaigns with universities and industry highlighting success stories, career opportunities, and regional biotechnology clusters
- Form international partnership agreements to promote cross-border investment and talent exchange
- Host a high-profile biotechnology investing summit in NYS

Case study: Swissnex, a Swiss government-backed “science diplomacy” network, connects Swiss universities, startups, and research institutions to leading innovation ecosystems through six global outposts and 20 Science Counselors.¹²³ In 2024, it hosted 355 events and supported 208 startups through its services. By promoting the visibility of Swiss institutions and fostering knowledge exchange, Swissnex strengthens Switzerland’s global innovation presence and inspires new cross-border collaborations.



Additional initiatives

While the core initiatives represent the highest impact priorities with broad cross-stakeholder support, several complementary opportunities also merit consideration in subsequent phases. Some of these require greater capital investment or long lead times, while others received more targeted stakeholder support or may deliver the strongest returns over a longer horizon as NYS’s biotechnology ecosystem continues to mature. Collectively, they align with the State’s broader ambitions in research excellence, workforce development, and innovation infrastructure, and could further strengthen NYS’s leadership in biotechnology.

- **NYS biobanks:** Develop a statewide, biobank network, compliant with HIPAA and other applicable laws, to collect and integrate biological specimens—such as blood, tissue, and genomic samples—with linked electronic health records and imaging data. The biobank would enable AI-driven biomarker discovery and large-scale translational research in key therapeutic areas like oncology and neuroscience. Building on existing infrastructure at institutions such as Stony Brook University, it would provide researchers and industry partners with best-in-class biospecimen access and tightly linked datasets to accelerate clinical trial readiness and personalized medicine.
- **Future BioAI workforce training:** Launch a university-led AI–biotechnology education and certification initiative to cultivate digitally fluent talent for the life-sciences sector. The program would create new AI-biotechnology degree tracks, professional certificates, and scholarship programs that bridge computer science and biology, preparing students and employees for roles in AI-driven drug discovery, digital clinical trials, and smart manufacturing. With life-sciences employers reporting an 18% year-over-year increase in demand for machine learning and data analytics skills, this program would directly address industry workforce gaps and drive upskilling across the state.

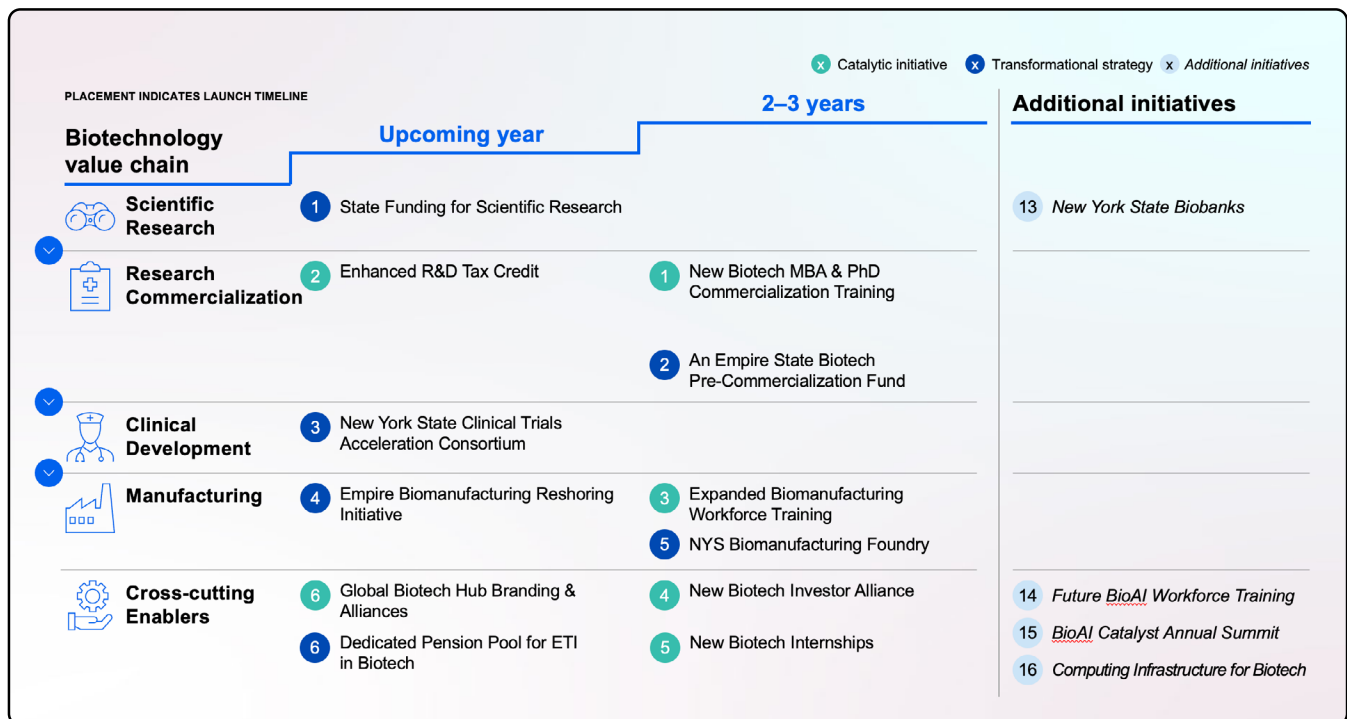
- **NYS BioAI hackathons:** Host an annual AI–biotechnology hackathon and innovation summit that brings together students, researchers, startups, and BioPharma leaders to co-develop solutions for high-impact applications—such as AI-powered clinical trial recruitment, regulatory intelligence, and precision drug discovery. Winning teams could receive mentorship and funding from participating investors and industry sponsors. Modeled on successful global programs like the Shanghai Innovation & Entrepreneurship Competition, the summit would establish New York as a hub for AI-biotechnology collaboration and commercialization.
- **Computing infrastructure for biotechnology:** Building on the momentum of Empire AI’s \$500 million public–private investment, invest in high-performance computing, secure cloud networking, and large-scale

data storage infrastructure to power AI-driven health research and drug development. A statewide platform would connect hospitals, laboratories, and academic research centers, enabling the analysis of complex multi-omic and imaging datasets at scale.

Phasing of initiatives

The 12 proposed initiatives could be sequenced across two implementation horizons—the upcoming year and the subsequent two to three years—with actual timing contingent on funding and stakeholder readiness. These horizons are designed to strengthen and reinforce the full biotechnology value chain, spanning early-stage research through research commercialization, clinical development, manufacturing, and enabling infrastructure. Both horizons include a mix of catalytic initiatives and transformational strategies (see Exhibit 12).

Exhibit 12: Sequenced launch of initiatives across the biotechnology value chain



Next Steps

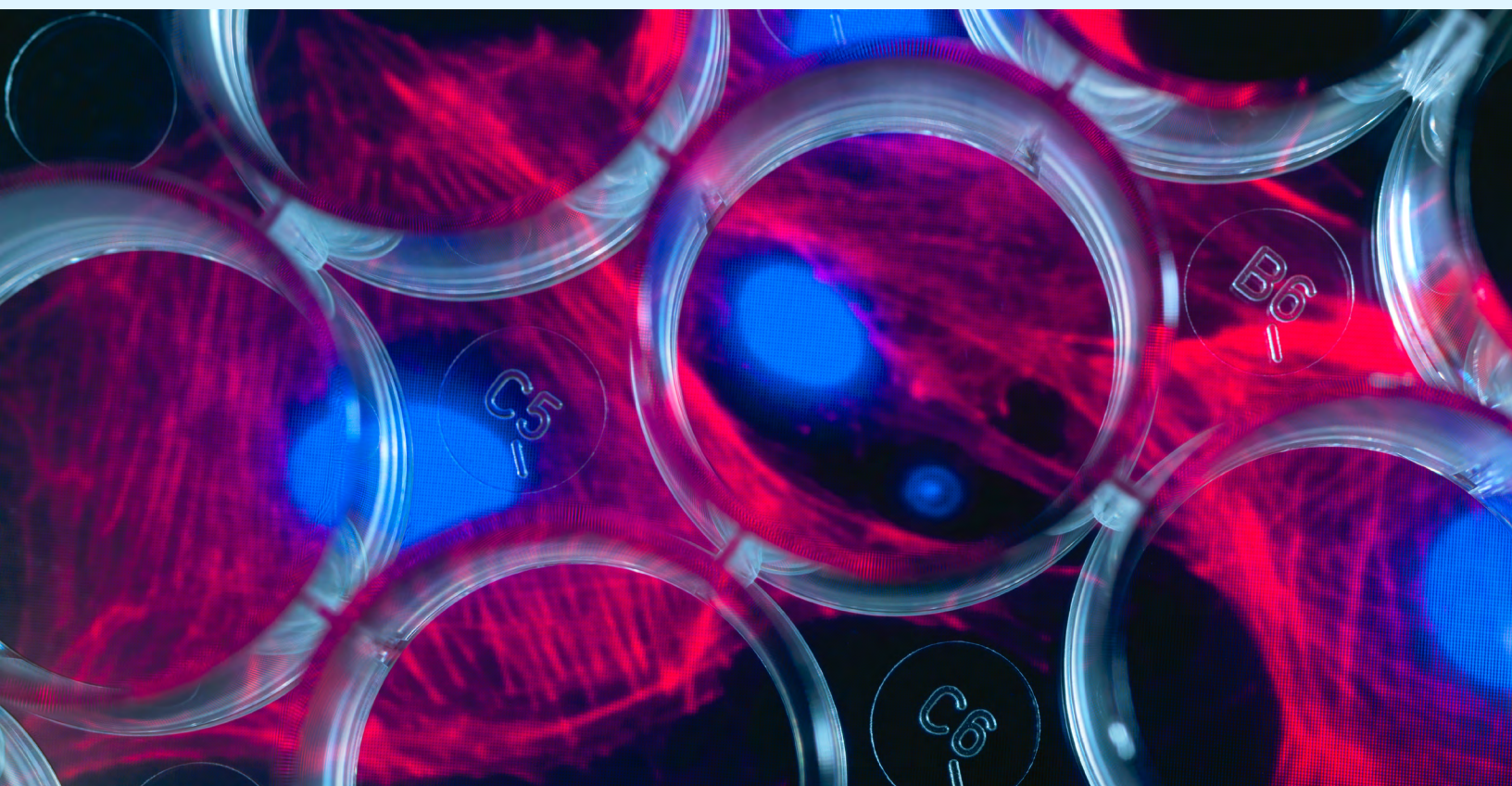
The vision outlined in this report is intended as a framework for NYS to consider, draw from and adapt over time.

Some initiatives may be suitable for early pilots within the first year, while others will require longer-term planning and resource alignment. The Advisory Board encourages sustaining the momentum generated through this process while proceeding with the appropriate sequencing. The Advisory Board recommends that the Executive Chamber and NYS's ESD consider facilitating coordination among relevant state agencies and ecosystem stakeholders, with clear accountability structures established for each proposed initiative.

The Advisory Board has identified five immediate next steps that the State could consider to build momentum and begin implementing first-horizon initiatives:

- a. **Announce and begin design of the NYS scientific research fund** to demonstrate the State's long-term commitment to scientific discovery and attract top research talent, with a focus in neuroscience and oncology.
- b. **Convene leading research institutions, AMCs, and hospital networks to shape clinical trial** acceleration consortiums, starting with separate pilots in neuroscience and oncology.
- c. **Engage BioPharma leaders with a unified reshoring and investment offer**, directing ESD to finalize a comprehensive incentive package and market shovel-ready manufacturing sites for 2026.
- d. **Convene strategic dialogue between NYSCRF leadership, ESD, and leading biotechnology VCs** to propose a framework for targeted biotechnology allocations within the in-state program.
- e. **Launch a global biotechnology branding and alliance campaign** to showcase NYS's biotechnology strengths through a unified brand, co-branded campaign with anchor institutions, and new international partnerships.

The Advisory Board is committed to translating the recommendations in this report into actionable initiatives that drive NYS's leadership in the global biotechnology ecosystem. Successfully implementing these recommendations, in compliance with applicable laws, would require coordinated efforts across multiple stakeholders, including Advisory Board organizations, academic institutions, hospital systems, private capital investors, industry companies, and philanthropic organizations, unified by a shared vision for the state's biotechnology future.



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