

Written Testimony of:

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The New York State Assembly Committee on Economic Development, Job Creation,
Commerce and Industry, and on Ways and Means

and

The New York State Senate Committee on Commerce, Economic Development and Small
Business, and Finance.

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Good morning, Chairs Pretlow and Krueger, Chairs Baskin and Stirpe and other distinguished members of the New York State Legislature. Thank you for this opportunity to testify on the Executive Budget Proposal for the State Fiscal Year 2026-2027.

My name is Ross Frommer, Vice President for Government Affairs at Columbia University Irving Medical Center (CUIMC). Proudly located in Washington Heights, CUIMC is the health and biomedical sciences campus of Columbia University, consisting of the Vagelos College of Physicians & Surgeons (VP&S), our medical school, the School of Nursing, the Mailman School of Public Health, and the College of Dental Medicine. We are a member of the Associated Medical Schools of New York (AMSNY), on whose behalf I am also speaking. AMSNY represents the interests of New York's seventeen medical schools.

In previous years I have come before you to speak in support of the New York Fund for Innovation in Research and Scientific Talent Program, or NYFIRST, as it is commonly referred. NYFIRST is an economic development initiative run by Empire State Development (ESD) which provides funds to the medical schools across New York State to recruit and retain top scientific talent. Thanks to the support of the Legislature, NYFIRST has received \$25 million over the past eight years. These funds have been used to recruit and retain some amazing scientists who in just a short period of time have already created over 150 new, good paying jobs and generated over \$107 million in economic activity. We ask you once again to include \$10 million in additional funding for the NYFIRST program. An updated version of my testimony from last year follows.

As successful as NYFIRST has been, and it has been a huge success, it has not been enough. Other states continue to invest billions in biomedical research, and they are using these funds to recruit our best and most productive researchers. Other nations, especially China, are doing the same. This comes at a time when sadly, the federal government has become a less reliable partner. Thankfully, with strong bipartisan support and consistent advocacy, we were able to beat back an effort to cut funding to the National Institutes of Health (NIH) by 40%. Despite this victory, I fear we will continue to face challenges in Washington. We must also consider that NIH Director Jay Bhattacharya has publicly stated that he intends to implement policies that achieve greater geographic balance in NIH awards. This policy is likely to disadvantage New York.

So, if New York wants to remain a leader, the leader, in research, innovation and technology transfer, we must do more, a lot more.

As I understand it, there is a legislative push to include \$100 million for biomedical research and scientific workforce development in this year's budget. We strongly support this effort and

implore the Legislature to include it in the FY 2026/2027 State budget. Chairman Stirpe, I cannot stress enough how grateful we are that you and many of your colleagues have stood up for science in New York so strongly over the years.

I also want to commend and thank Governor Kathy Hochul for including \$65 million in her budget for the Bolstering Biotechnology Initiative (BBI). The BBI will help promote research commercialization in New York State.

As wonderful as the BBI is, and as appreciative as we are, it is not enough and it is incomplete. Sixty-five million is a great start, and I truly do mean that, a great start, but it will not be enough to compete with the billions that Texas, California, or the hundreds of millions that Massachusetts and other states and countries are spending on biomedical research. That is why expanding the BBI to include competitive research grants and to support our scientists is so important.

The BBI includes several important components such as a clinical trials consortium, workforce development, and a commercialization fund to name a few, and they are all crucial in supporting the biotechnology sector, creating jobs and spurring economic activity, absolutely crucial.

But there is one key element not specifically included in the BBI – fundamental research, both basic and translational. In New York, we are blessed with seventeen medical schools and more than a dozen other research institutes -- big and small, SUNY, CUNY, and private non-profit, upstate and downstate, all over. We also have a good number of teaching hospitals that participate in biomedical research

These are the institutions, along with pharma and biotech, where scientists are doing the basic work in the lab that will lead to a better understanding of human biology, whose work will lead to better prevention strategies and the development of treatments and cures. They are also the scientists who are bringing in billions of dollars in grants, philanthropy, and venture capital investment.

Simply put, you can't have output unless you have input, and it is faculty at medical schools and other labs across who create the input. The BBI does an excellent job, an excellent job of focusing on the output, but the Legislature now must act to address the input. So, as you examine the BBI proposal and move toward a final budget, please make sure to include language that ensures that the state will support the entire research continuum. While I obviously cannot speak for them, I suspect that if you spoke with people from pharma and bio, they would agree with me.

A major investment such as this will lead to clinical trials, new drug discoveries and medical devices, work that will lead to new patents, licensing agreements, and start-ups which of course mean more good paying jobs and economic activity. The initiatives included are all important and I support them all, but they tend to focus on the latter stages of the research continuum, not the early stages – very good on the output, less so on the input. This is where the BBI could be strengthened and we are counting on the Legislature to do so

Just prior to the end of the year, the Emerging Technology Advisory Board (ETAB) delivered a report to Governor Hochul on “Seizing New York’s Biotech Moment.” Their report contained several recommendations on how to support and bolster the bioscience sector in New York. Many of those recommendations, such as establishing a pre-commercialization fund, creating a clinical trials consortium, and promoting workforce development, are reflected in the BBI, but unfortunately, one key component was omitted. Recommendation number **one** was launching an Empire State Research Excellence Fund to sustain leading academic research and retain top scientific talent with a focus on priority therapeutics. I have attached a copy of the ETAB report and ask that it be included in the record along with my testimony.

In late 2025, a consortium of scientists, medical schools, and other research institutions, led by the Associated Medical Schools of NYCURES, unveiled a proposal for a major investment in biomedical research in New York. The Empire Biomedical Research Institute (EBRI) is a bold plan to turbocharge scientific advancement in our great state. Calling for an initial investment of \$500 million and then another \$6 billion over the next ten years, the EBRI would begin to match the multibillion-dollar investments that Texas, California, and perhaps even more importantly, China are now committing. That is why, more than forty universities, hospitals, research centers, trade associations, business organizations, unions, patient advocacy organizations, and community groups have signed a support letter for the EBRI, and I ask that this letter also be included in the record along with my testimony.

I have been advocating for science for close to twenty-five years and worked in various policy roles at both the federal and state levels before that, so I am aware that the EBRI, is to put it mildly, ambitious. I also understand that the state is facing significant fiscal challenges, so passing the EBRI in its entirety may not be realistic, but doing nothing is not an option.

There is no doubt that New York is a research and innovation powerhouse, but the question is will we remain so. To be perfectly honest, and I understand that a previous Governor is responsible and that the Legislature fought to prevent it, the scientific community in our state is still reeling from the cancellation of the NYSTEM program.

The BBI, especially if the Legislature can increase the funding levels, as has been proposed, and expanding the scope to include basic and translational research, would be an excellent start to achieving or shared goal of making sure that the Empire State continues to be a leader in science, innovation, and discovery.

New York's motto, Excelsior, means "Ever Upward." That is the direction which, metaphorically, we must go. By Passing BBI with the changes and additions I have outlined, and then looking towards with future with the EBRI, we can get there. Thank you

Additional Material on NYFIRST

We request that the budget include \$10 million in new funding for the NYFIRST program and re-appropriate funding from previous fiscal years.

Background

Biomedical research, and the intellectual property it generates, can result in significant licensing deals with the biopharmaceutical sector and the launch of start-up companies, thus making it an important economic driver. The backbone of basic biomedical research is National Institutes of Health (NIH) funding, which supports research into the causes of, and treatments for, a wide range of diseases, including cancer, diabetes, neurodegenerative disorders like Alzheimer's and Parkinson's diseases, cardiovascular disease, and many more that both impair quality of life and cause significant economic burden. According to a 2018 U.S. Chamber of Commerce analysis, disease burden in the U.S. results in an annual 9.4 percent reduction in gross domestic product.

New York State is perennially the second or third-largest recipient of NIH funding, with \$3.6 billion awarded to New York academic institutions and private sector companies in fiscal year 2024. Of that total, 57% was awarded to scientists at New York's medical schools. These funds support research laboratories that effectively function as small businesses, and sometimes not so small businesses, within the medical schools, with a Principal Investigator at its head and typically eight to ten post-doctoral scientists, technicians, and support staff. These small enterprises can grow significantly as the research advances, develop new technologies, intellectual property, launch start-ups, and educating, training, and developing the scientific workforce of all ranks and roles.

However, New York State's investment in its life sciences sector has not kept pace with other states. As a result, those states making significant investments have more advanced start-up ecosystems and competitive advantages in recruiting and retaining world-class scientific talent.

The Cancer Prevention Research Initiative of Texas (CPRIT) launched in 2007 with an initial \$3 billion investment over ten years. Building on the first decade of success, Texas voters authorized a second \$3 billion investment in CPRIT in November 2019. Over the last 14 years, CPRIT has awarded an astounding \$854 million to Texas research institutions specifically to recruit out-of-state scientists, many from New York State research institutions. One of those recruits, the immunotherapy pioneer James Allison, was lured from Memorial Sloan Kettering Cancer Center to MD Anderson Cancer Center in Houston with a \$10 million package. Dr. Allison subsequently went on to win the prestigious Lasker Prize and a Nobel Prize in 2018.

More importantly, Dr. Allison's research in immunotherapy has proven remarkably effective in fighting advanced cancers and has led to the development of an entirely new class of checkpoint inhibitor drugs.

California, recognizing the economic benefits of investing in bioscience, launched its \$3 billion California Institute for Regenerative Medicine (CIRM), which supports stem cell science, in 2004. An additional \$5.5 billion was approved by voters through a referendum in November 2020. At the same time, New York State terminated the Empire State Stem Cell (NYSTEM) program, which funded many early-career scientists, creating the conditions for a brain drain in stem cell research from New York.

CIRM is now focusing its funding on translational research – research that advances basic science from “bench to bedside” and towards the marketplace. California has long supported its life sciences industry, providing seed and other funding to startup companies launched from its academic institutions. As a result, California has the most robust life sciences sector in the U.S., with more than 14,000 life sciences companies employing nearly 335,000 people in 2021 and \$79 billion in venture capital (VC) investment from 2018-21 (compared to 5,314 life sciences companies employing 110,000 people in New York State in 2021 and \$18.4 billion in VC investment from 2018-21).

Many other states have followed similar paths: Massachusetts created its \$1.5 billion Massachusetts Life Sciences Center to drive basic research and grow its bioscience sector; Connecticut invested \$2.5 billion to expand its research ecosystem. Even states with relatively few major academic research institutions have made outsized investments that, on a per capita basis, are competitive with Texas, California, and Massachusetts.

New York Fund for Innovation in Research & Scientific Talent (NYFIRST)

New York State's initial investment of \$20 million in the NYFIRST program was a central part of its Life Sciences Initiative in 2017. It signaled the State's commitment to an increasingly important part of New York State's innovation economy. The NYFIRST program has already improved New York State's competitive position in recruiting and retaining world-class scientific talent, an essential component of the State's growing bioscience sector. But the vital work of strengthening New York's life sciences workforce has just begun; the State must continue to ensure our academic institutions and private sector have the scientific talent to drive discoveries, technological innovation, entrepreneurship, product development, and new company formation. The FY 24/25 budget included an additional \$10 million for NYFIRST

Return on Investment

NYFIRST leverages additional investments from academic institutions through a required two-to-one match. Since 2018, with \$11.7 million invested by the State, NYFIRST has generated \$107.4 million in matching funds through institutional investments. This represents a nearly 10:1 return on every State dollar invested in NYFIRST.

Employment

NYFIRST is a proven driver of life sciences employment. These are high-wage jobs (averaging \$77,802 per year, exceeding the statewide average private sector wage) at institutions with deep historical roots in New York State. Given their complex infrastructures and partnerships with other healthcare entities and local communities, academic medical centers are stable employers over the long term. They will continue to be an important component of the State's economy for the foreseeable future, meaning that, in contrast to other economic development initiatives, there is little risk that State investments in NYFIRST will flow out-of-state and fail to provide in-state jobs. With \$11.7 million invested by the State, NYFIRST awardees have created a total of 156 new jobs since 2018.

Institutional Matching Funds

- Total institutional matching funds in years 1-4: **An estimated \$107.4 million**

Return on Investment

- Every dollar invested by New York State in NYFIRST results in an additional **\$3.72 in economic activity** through institutional capital investments and additional grant funding brought to New York State.

These numbers are no doubt impressive, but NYFIRST is young, and there is admittedly limited data. Fortunately, there is another New York State program that we can look to in order to gauge how effective NYFIRST will be in the long run, and you will see that the answer to that question is that the program will be very effective.

From roughly 2002 to 2014, NYSTAR, now part of ESD, ran the Faculty Development Program (FDP). Although not identical to NYFIRST, the concept behind FDP was the same – using State funds to help academic institutions across the State to recruit and retain top faculty, scientists who will bring in research funding, create new knowledge, obtain patents, foster economic development, and most importantly create jobs.

Over the course of the program, the FDP helped colleges and universities, upstate/downstate, SUNY, and private non-profit, recruit or retain 52 scientists. The total State investment was roughly \$39 million. Those 52 recipients created over a quarter billion dollars in economic activity, over a six-to-one return on investment and thousands of jobs created or saved.

This dramatically underestimates the success of the FDP. The program ended in 2014, and the State stopped collecting data, so the numbers I just mentioned are from twelve years ago. A few years ago, we looked at what happened to those 52 FDP recipients and found that 70 percent of them were still doing research in New York. These were five-year grants, but even ten years after the grants were finished, FDP was still paying off.

NYFIRST will be the next FDP, and the State's relatively small investment will be repaid several times over for years.

NYFIRST at Columbia

I have spoken about what NYFIRST has meant and could mean for New York. Let me provide some examples from Columbia University that will further demonstrate this program's value.

Because of NYFIRST, we have been able to recruit four outstanding faculty members to CUIMC, researchers who are not only producing great science that has the potential to benefit us all but also bringing outside funding, creating jobs, generating economic activity, and attracting other scientists to New York. We also have two additional NYFIRST grants in the works, which have yet to be finalized, but about which we are very hopeful. Like many medical schools across New York, we also plan to submit a round five application. If all goes well, thanks to NYFIRST, Columbia alone will have recruited five new extremely talented, highly productive researchers to New York.

These recruited scientists have extensive research portfolios on various topics with clear potential for therapeutic impact. They also take advantage of cutting-edge methods for their research (super-resolution microscopy, specialized mass spectrometry, development of accurate preclinical models) and bring expertise in the use of the latest instrumentation and technologies.

The impact of these recruits is far beyond what is captured in the reported metrics. These recruits have assisted in the successful submission of large, shared equipment grants that further build out our research infrastructure. They have established and extended the work of collaborative research centers, bringing in millions of dollars from the NIH while attracting

additional talent and enabling our local communities to participate in and benefit from national translational research programs. This new talent and research infrastructure will be further leveraged to bring additional federal and other funding to the State.

Our first NYFIRST recruit was Jordan Orange, MD, PhD, the Reuben S. Carpentier Professor of Pediatrics and Chair of the Department of Pediatrics at Columbia VP&S. Dr. Orange came to us from Texas. Over the last decade and a half, New York has lost so many top-notch researchers to Texas, so getting one back was gratifying. He is an international leader in pediatric primary immunodeficiency and the immunobiology of human natural killer cells. Dr. Orange combines novel disease discovery with basic cell research to translate underlying biological mechanisms of disease into clinical applications. It is anticipated that technology developed in the Orange lab will improve any cell therapy treatment for solid tumors and will attract collaborations with biotech and pharma companies. As a direct result of Dr. Orange's research, Columbia has established a Natural Killer Cell Evaluation Research Clinic and associated research lab to better provide care for patients.

Since his recruitment, Dr. Orange has brought in over \$15 million in research funding and created 35 jobs. He has also submitted six invention reports and filed seven patent applications.¹

Our second NYFIRST recruit was Simon John, PhD, the Robert L. Burch III Professor of Ophthalmic Sciences, who came to us from Maine. Dr. John uses novel tools and models to better understand and develop treatments for glaucoma and other eye diseases. Since coming to Columbia, Dr. John has already generated \$11 million in new funding, which has been used to, among other things, create 15 jobs. Dr. John has been laying a robust foundation for commercial activity, having submitted six invention reports and filing nineteen patent applications.

Our third NYFIRST recruit was Sabrina Diano, PhD, Robert R. Williams Professor of Nutrition, Director of the Institute of Human Nutrition and Professor of Molecular Pharmacology and Therapeutics at Columbia University Irving Medical Center, who came to us from Connecticut. Dr. Diano's research focuses on brain mechanisms regulating energy and glucose homeostasis using interdisciplinary approaches, including molecular biology, anatomy, biochemistry, behavior, electrophysiology, and chemogenetics, in rodent models. Her studies on nutrient sensing by the brain aim to identify inter- and intra-cellular mechanisms that enable brain cells to regulate energy and glucose metabolism and how derangements of these mechanisms induce the development of metabolic disorders. Her research adds critical information to the current understanding of the central regulation of energy and glucose

¹ In 2025, after more than seven years at Columbia, Dr. Orange became Chair of the Department of Pediatrics at the Children's Hospital of Philadelphia. A portion of the research funding and faculty that he recruited remain at Columbia.

homeostasis and how alterations in stored energy are sensed in the brain. The results of her research have important implications for the pathogenesis of metabolic syndrome, obesity, and type 2 diabetes, disorders that are the leading cause of morbidity and mortality in the U.S., and the developed world in general, with the highest financial burden on the national economy. Since coming to Columbia, Dr. Diano has generated \$10 million in funding and has file one invention report. Her lab has created ten new jobs.

Our fourth NYFIRST recruit was Hulya Bayir, MD, chief of the division of critical and palliative care and hospital medicine in the department of pediatrics at Columbia University Vagelos College of Physicians and Surgeons, who came to us from Pennsylvania. Dr. Bayir's work focuses on neuronal injury, oxidative lipidomics, and lipid-based biomarker discovery, which will lead the way to novel redox therapies to protect the brains of critically ill patients. She has linked these pathways in the brain to a form of cell death known as ferroptosis. Since coming to Columbia, Dr. Bayir has generated \$7 million in funding and created six new jobs in a short time

So, combined, with just a \$4 million investment, in a relatively short period, the State has helped generate \$43 million in economic activity and create more than 60 new good paying jobs, a number which will almost certainly go up as these researchers continue to bring in new grant money, philanthropy, and venture capital funding. There is also a current request for proposals for another round of NYFIRST funding to which we intend to respond.

A couple of notes about the jobs created. First, no State money goes to pay the primary investigator. New York State is not paying Dr. Orange's nor Dr. John's salaries. All State funds are directed to lab operations and capital infrastructure. Second, in addition to competitive salaries, jobs at Columbia have very strong benefits as well – health care, retirement, education, etc., the kind of benefits that can allow working families to prosper and build strong communities. I cannot say for sure, but I believe something similar can be said about working for all the medical schools in New York.

As noted, we have two other NYFIRST research proposals in different stages in the application process. While I cannot provide details, should they receive a NYFIRST grant, their numbers will be no less impressive than Drs. Orange and John.

I spoke earlier about the FDP. Allow me to tell you about Rudolph Leibel, MD. Dr. Leibel is the Christopher J. Murphy Memorial Professor of Diabetes Research, Professor of Pediatrics and Medicine, and the former Co-Director of the Naomi Berrie Diabetes Center at CUIMC. He is an internationally recognized leading expert in diabetes and obesity and has devoted his career to finding ways to prevent and treat these debilitating diseases.

Dr. Leibel joined the Columbia faculty in 1997 and was successful in not only moving science forward but also bringing in grant, philanthropic, and private-sector support. In 2002, a well-known, well-respected out-of-state medical school with significant resources tried to recruit Dr. Leibel away from Columbia and New York. This other institution made Dr. Leibel an attractive offer, but ultimately, we convinced him to stay, primarily because we received an FDP grant.

The NYSTAR grant awarded approximately \$150,000 per year for five years, a total State investment of \$750,000. Dr. Leibel has generated \$54 million in research support. The number is higher since it only includes grants since 2007, ten years after he arrived and five years after his state support ended. His work and the work of his colleagues at the Berrie Center are responsible for over 100 good paying jobs, not including general campus support jobs like maintenance, security, and animal care, which his lab indirectly supports.

So, in 2002, New York State invested three-quarters of a million dollars in Dr. Leibel. He used that money to hire additional staff and purchase equipment. A little over 20 years later, the return on that investment is 72 to 1 and counting. Using a back-of-the-envelope calculation, the New York State income tax revenue alone from Dr. Leibel and his employees is north of a quarter million dollars every year.

One of the other goals of programs like NYFIRST is to promote economic growth, and recipients must show a track record of technology transfer. Dr. Leibel has excelled in this area as well. Since receiving the FDP grant, he has filed 21 invention reports and over 60 patent applications worldwide. He has also been involved with six different licensing agreements and helped start two new companies. He is also the co-Primary Investigator on a recently awarded Advance Research Projects Agency for Health \$40 million grant to develop an implantable weight loss device.

Remember that the original grant was a retention grant designed to prevent Dr. Leibel from leaving New York. So, if not for the State investment, all of his work and the jobs and economic activity that come along with the grant would be occurring elsewhere, not in New York.

Dr. Leibel may be the poster child for investing in scientific talent and why the NYFIRST concept is such a good idea, but please note that there are other great examples from across the State. At Columbia, as many as 20 years later, four of the eight FDP awardees are still on faculty doing research in New York. Two others have retired and only two have left the State. I submit that we want more scientists like Rudy Leibel coming to, not leaving New York.

The Future of NYFIRST

In 2017, NYFIRST received \$20 million, but after five rounds of awards, that original funding has been exhausted. As mentioned, last year, the budget included an additional \$10 million for the program. While this funding will allow the program to continue, additional resources will be needed for NYFIRST to continue to sustain itself. While the initial cycles of funding have demonstrated the potential of NYFIRST to attract and retain scientific talent, it is also clear that the competition for scientists has not abated; indeed, this competition has expanded as governments, academic institutions, and companies around the world have recognized the value of the bioscience sector and the importance of the human capital that drives the sector's intellectual property creation and entrepreneurship. The additional funding in last year's budget will help, but the need is still great.

NYFIRST has been particularly impactful in providing funding for medical schools to bring in new recruits from outside the State; New York medical schools cannot use the funds to recruit from one another. In the future, additional NYFIRST funds will help ensure that not only do recruits come to New York, but they are also productive and stay here. These individuals are in high demand and often receive competitive offers to relocate. If we do not support them, they may never come, and some who are here may leave and take all of their funding, and the jobs they support, with them.

With great science comes new discoveries and New York can and should take great pride in the wealth of great research that comes from our State but let me be frank. It may sound crass, but this is an arms race. Other states are equipping their research institutions with the tools they need to recruit and retain the scientific rock stars. With NYFIRST, New York is helping our medical schools do so as well, but other states are doing so much more, and after round four, NYFIRST will most likely be out of money.

Thank you for the opportunity to testify today and for your continued support for biomedical research. I welcome any questions you may have.