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Testimony of:

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At a Joint Hearing of the New York State Assembly Committee on Economic Development, Job Creation
and Industry

& the New York State Senate Committee on Commerce, Economic Development and Small Business

On the Executive Economic Development Budget

February 10, 2014

1:00 pm

Legislative Office Building

Albany, New York

Good afternoon, Chairman Valesky, Chairman Schimminger, Chairman DeFrancisco, Chairman Farrell and other distinguished members of the State Legislature. Thank you for this opportunity to testify on the proposed Executive budget for fiscal year 2014-2015.

My name is Jo Wiederhorn, President & CEO of the Associated Medical Schools of New York (AMSNY), the consortium of the sixteen public and private medical schools in New York State. AMSNY works in partnership with its members to promote high quality and cost-efficient health care by ensuring that New York State's medical schools provide outstanding medical education, patient care and biomedical research.

In a 1989 article in the Journal of the American Medical Association, Stephen Schroeder and colleagues referred to academic medicine as a *public trust*, because it "is entrusted by society with the responsibility to undertake several important social missions toward improving the health of the public, including education, patient care and research." New York State's medical schools take this trust very seriously by: 1) producing the future physician workforce; 2) promoting biomedical research and strengthening local economies; and 3) improving the physical and economic health of the communities we serve.

We are grateful for the programs that were included in the Executive Budget, including continued funding for stem cell research and the Spinal Cord Injury Research Program. We support the State's strategy to expand economic development, and believe that growing the State's research infrastructure is an important piece of this strategy.

Research: As a Public Health and Economic Driver

Today, I will focus on biomedical research, which strengthens local economies. New York's 16 medical schools and their related academic medical center campuses are a unique resource in our state. Even as our national and global economies continue to slowly rebound from recession, and with lingering uncertainty over future economic growth, biomedical research – from basic science through late-stage clinical and translational research – has proven an area of stability and growth. In its 2012 *National Bioeconomy Blueprint*, the White House noted that bioscience represents a "large and rapidly growing segment of the world economy that provides substantial public benefit."¹ Moreover, this segment has proven more resistant to, and more resilient in recovering from, downturns than the economy as a whole; in New York State, for example, the bioscience segment has grown jobs over the past decade at a pace above the State's average.²

¹ Obama Administration. *National Bioeconomy Blueprint*. April 2012.

² Battelle and Biotechnology Industry Organization. *2012 State Reports*.

The medical schools drive the more than \$2 billion in research awards to New York made by the National Institutes of Health (NIH), and support tens of thousands of high-paying jobs in our state. This investment by NIH helps to fuel discoveries that result in new drugs and therapies, and save lives. But we cannot leave investing in biomedical science up to the federal government. We must also invest at the state level to ensure that New York can sustain this important resource and maintain its competitive advantage in the bioscience sector.

Research is a critical component of medical education. New York's medical schools play a crucial role in the training of physicians to practice. However, medical education is also the means by which new biomedical researchers are born. These physician scientists spend much of their professional lives in laboratories uncovering how genes function, how they influence disease, and how to best translate these discoveries into new technologies to diagnose and treat disease. It is difficult to quantify how support for biomedical science ultimately provides health or economic returns; however in 2011 the National Academies published a review of the impact of publicly funded biomedical and health research³. The report cites a number of studies, dating as far back as 1976 when Comroe and Dripps noted that, "basic research...pays off in terms of key discoveries almost twice as handsomely as other types of research and development combined."⁴ In order to quantify this impact, mortality rates of diseases are examined. Estimating that every additional life-year gained is approximately equal to \$100,000, a 2010 study found that the social value from improvements in life expectancy from cancer research totaled \$2 trillion between 1988 and 2000.⁵

The National Academies report also cites studies on the relationship between public support and private research and development. One of its most notable findings is that there is a strongly positive association between public and private sector funding. Specifically:

- A 1 percent increase in public sector support, within a specific disease area, is associated with a 0.76 percent increase in private sector research and development within that same disease area over the next seven years;
- Within the pharmaceutical industry, public research was the most important source of new project ideas; and

³ National Academies (US) Committee on Measuring Economic and other Returns on Federal Research Investments. *Measuring the Impacts of Federal Investments in Research: A workshop Summary*, Washington (DC); National Academies Press (US); 2011

⁴ Comroe J, Dripps Rd. *Scientific Basis for the Support of Biomedical Science*. *Science* 1976; 192(4235); 105-111. (PubMed 769161)

⁵ Lakdawalla, DN et al, *An Economic Evaluation of the War on Cancer*, *Journal of Health Economics* 29.3 (2010): 333-346

- A positive and statistically significant association [was found] when studying the number of important patents developed when private sector research and development [teams] collaborate with public sector scientists.⁶

Given the impact of these public/private sector collaborations, it is vital that New York State continue to support all aspects of biomedical research. I would like to draw your attention to the key findings in two of the attachments to this testimony:

Biomedical Research in NYS Fact Sheet

- On the front—the top third of the page outlines the key economic benefits NYS’ academic medical centers provide to the State;
- Looking at the middle section there are three items of particular importance:
 - NYS ranks **third** in NIH funding;
 - NIH funding accounts for approximately 30,000 jobs in the state; and
 - Due to budget and sequestration cuts, NYS **lost \$100 million** in NIH funding in 2013—this funding will more than likely **not** be restored in the near future.
- On the bottom of the front page is a very important chart: it compares the amount of funds that individual states have allocated toward biomedical research and the resultant job growth within the industry. As you see—**New York State lags far behind.**
- On the back are statistics related to the bioscience industry in the state:
 - There are approximately **75,000 bioscience jobs** located across the state—which pay **twice as much** as the average private sector salary;
- On the left you will note some very interesting statistics:
 - Of the \$30 billion invested by venture capitalists in the US most have gone to states that have invested in biomedical research:
 - 47 percent to California
 - 12 percent to Massachusetts
 - **4 percent to NYS.**
- **Only 9 percent of bioscience VC funds managed by NY firms remain in NY**

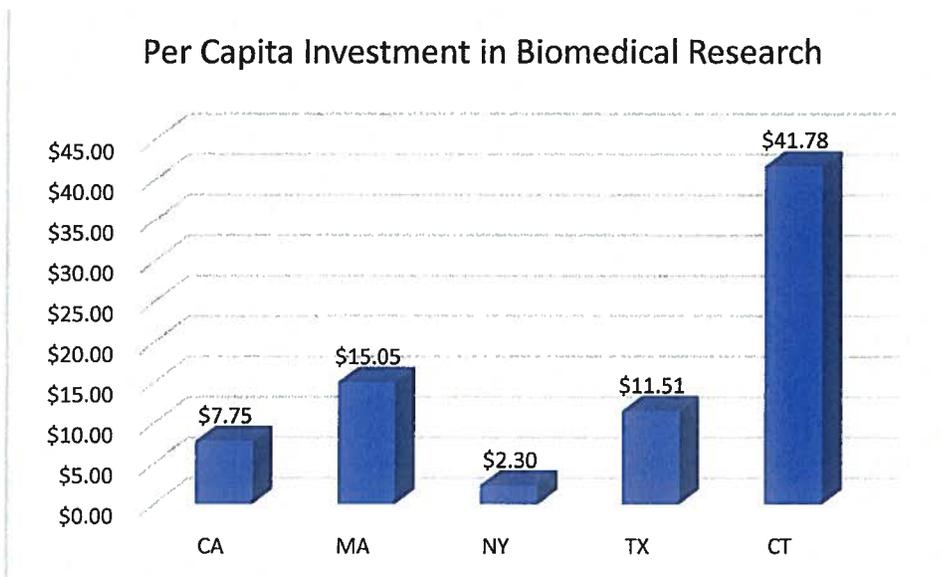
Biomedical Research in NYS: Review of Other State Initiatives

Other states have better understood the importance of investment in biomedical research.

⁶ National Academies (US) Committee on Measuring Economic and other Returns on Federal Research Investments. Measuring the Impacts of Federal Investments in Research: A workshop Summary, Washington (DC); National Academies Press (US); 2011

The five states in this review are making significant investments in research as NIH funding decreases. They are funding new labs, top scientific talent and entrepreneurship because they recognize that making such investments results in new discoveries and intellectual property that drive private sector growth and support economic stability. Of particular note are Massachusetts and Connecticut. These neighbor states have many fewer medical schools than New York (Massachusetts has only four; Connecticut three – one of which opened just this year), but have made investments in biomedicine that significantly eclipse ours.

Connecticut far exceeds all of the states when it comes to per capita investment in biomedical research. As you can see in the chart below, Connecticut's per capita investment is nearly 20 times greater than New York's investment of just over two dollars per person. Moreover, per capita spending on research in California, Massachusetts and Texas is likewise many multiples of New York's. In short, those states are making much greater investments, measured both real dollar and per capita terms.



Funding in New York State

AMSNY therefore respectfully requests the Legislature to renew and increase its support for biomedical science and the recruitment and retention of top scientific talent in the state. There is precedent for this funding, through the NYSTEM and NYSTAR programs:

NYSTEM

NYSTEM has proven extremely successful and continues to drive medical innovation and job creation. Funding for this program positions the State as a national and global leader in stem cell research, and brings hope to millions of people suffering from a range of debilitating diseases. The infusion of state

funds for stem cell research has been the mechanism by which institutions have been able to leverage the State's investment to obtain significant amounts of external funding through federal grants and philanthropic sources.

The State's investment in stem cell research, which has created new jobs and has attracted top researchers from around the world needs to be sustained. Leading scientists and medical professionals have relocated to New York because it has provided them opportunity to conduct cutting-edge research. In doing so, these scientists brought with them sizeable NIH grants and post-doctoral students. Furthermore, medical schools and research laboratories hired additional researchers to complement the stem cell programs.

The Foundation for Science, Technology and Innovation (NYSTAR)

NYSTAR, through its *Faculty Development Program*, has been instrumental in recruiting and retaining scientific talent from outside NYS. The program, which unfortunately lost funding in recent years, enabled institutions to attract up-and-coming researchers, foster university-industry collaborations, and harness technologies that emerged from basic research into real world application. AMSNY estimates that for every dollar in NYSTAR funding for the *Faculty Development Program*, there was a return of \$7 to the State. Since the program's inception in 2003, faculty recruited as a result of this program have leveraged more than \$245 million in federal funding from agencies such as the NIH, the National Science Foundation (NSF), and from private and philanthropic sources. This research funding has directly and indirectly supported more than 1,700 jobs in New York State.

These outcomes are prime examples of why the State must continue its support and increase funding for biomedical research and the recruitment and retention of star scientists. We will once again lose our competitive advantage to other states if we fail to act. New York has an established and rich resource in academic medicine. AMSNY encourages the State to look at academic medicine as a means for future economic development.

Closing

Thank you for the opportunity to testify today and for your continued support of medical education. I welcome any questions you may have.

Respectively Submitted:

Jo Wiederhorn

The Associated Medical Schools of New York (AMSNY) is the consortium of the sixteen public and private medical schools in the state. The organization's mission is to promote high quality and cost-efficient health care by ensuring that the NYS medical schools can provide outstanding medical education, care and research.

AMSNY Member Institutions

- Albany Medical College
 - Albert Einstein College of Medicine of Yeshiva University
 - Columbia University College of Physicians & Surgeons
 - Hofstra North Shore-LIJ School of Medicine of Hofstra University
 - Icahn School of Medicine at Mt. Sinai Medical Center
 - New York College of Osteopathic Medicine
 - New York Medical College
 - New York University School of Medicine
 - Sophie Davis School of Biomedical Education at City College of New York
 - State University of New York Downstate Medical Center
 - State University of New York Upstate Medical University
 - Stony Brook University Medical Center
 - Touro College of Osteopathic Medicine
 - University at Buffalo State University of New York School of Medicine & Biomedical Sciences
 - University of Rochester School of Medicine & Dentistry
 - Weill Cornell Medical College
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November 2013

Biomedical Research in New York State:
Review of Other State Initiatives

California Institute for Regenerative Medicine

Funding Amount: \$3 billion

Time Period: 10 years

Status: Signed into law in 2005



Purpose:

- Support and advance stem cell research and regenerative medicine
- Fund at least ten therapies in early clinical trials that impact five disease areas
- Attract the best scientists in the world
- Create partnerships with industry and leverage dollars to accelerate development
- Create dedicated clinics to perform clinical trials
- Work closely with state and local governments to attract new research enterprises to California

Funding Summary:

- Authorizes an average of \$295 million per year
- 586 awards since 2006
- More than \$1 billion disbursed to date
- Awards intended for: 69 percent research, 20 percent facilities, 11 percent training

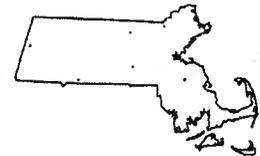
State Rank in 2012 NIH Funding: 1 (\$3.5 billion)

Massachusetts Life Sciences Initiative

Funding Amount: \$1 billion

Time Period: 10 years

Status: Signed into law in 2008



Purpose:

- Provide working capital to early stage life science companies
 - Focus on high potential for technology commercialization, rapid growth and private equity financing
- Provide grants for capital projects that enable and support life sciences workforce development and training, research and development, commercialization and/or manufacturing
- Promote industry-academic research collaborations, support translational research and accelerate the commercialization of promising products and services
- Fund pre-clinical neuroscience research at academic and research institutions
- Incentivize life sciences companies to create new long-term jobs in the state

Funding Summary:

- Leveraged more than \$1.2 billion in matching investment capital
- \$17.2 million in loans to 26 companies
- \$372 million awarded or committed to support capital projects across state
- Through tax incentive program, 73 active awards totaling \$75 million made to companies that have created, or are promising to create, 2400 jobs

State Rank in 2012 NIH Funding: 2 (\$2.6 billion)

- Create 16,400 jobs
- Double federal and industry-sponsored research grants to drive discovery, innovation and commercialization
- Improve access to high quality health care
- Graduate and retain more physicians and dentists to meet forecasted workforce shortages, and meet increased demand for services resulting from health care reform
- Strengthen and stabilize University of Connecticut Health Care Center's finances

Funding Summary:

- \$155 million to renovate existing research facilities
- \$318 million to construct new patient tower and garage
- \$163 million to renovate existing tower facility
- \$203 million to construct new ambulatory care center
- \$25 million to implement University of Connecticut Health Network initiatives

State Rank in 2012 NIH Funding: 16 (\$476 million)

Next Generation Connecticut

Funding Amount: \$1.5 billion

Time Period: 10 years

Status: Newly enacted

Purpose:

- Hire 259 new University of Connecticut faculty (of whom, 200 in Science, Technology, Engineering and Mathematics (STEM) disciplines)
- Enroll an additional 6,850 undergraduate students
- Build STEM facilities to house materials science, physics, biology, engineering, cognitive sciences, genomics and related disciplines
- Construct new STEM teaching laboratories
- Create a premiere STEM honors program
- Upgrade aging infrastructure to accommodate new faculty and students
- Expand digital media and risk management degree programs
- Relocate University of Connecticut's Greater Hartford campus to downtown Hartford

Funding Summary:

- \$869 million for academic and research facilities
- \$542.5 million for deferred maintenance
- \$133.5 million for equipment
- \$70 million for Hartford relocation
- \$40 million for residential life facilities
- \$206 million in operating funds

State Rank in 2012 NIH Funding: 16 (\$476 million)