
GEN*NY*SIS

Generating Employment Through New York Science

Recent discoveries such as the mapping of human DNA, advances in computer technologies and the construction of super small machines that work at the cellular and molecular level (nanotechnologies) have been combined together to fashion a new generation of vaccines, drugs and diagnostic tools. This revolution in research and development in health care will allow the creation of more effective treatments and cures for illness through less invasive and more accurate diagnostic and surgical procedures. In addition, new medicines will be produced with reduced side effects, impacting every person at every age and at every stage of life. The economic impact of this technological revolution will be immense as many different areas of science and industry collaborate on the development of these new technologies to improve human health.

Some examples of the result of research and development in the life sciences in New York State include Prevenar, a vaccine developed at Wyeth Vaccines by researchers from the University of Rochester to prevent pneumonia and ear infections in infants and children. Researchers at the Albert Einstein School of Medicine have used these recent technological advances in research to identify a key missing protein in the brain of Alzheimer's patients.

Viatronix, a small start up company located at the State University of New York at Stony Brook, has developed a virtual examination of a person's internal organs for diagnosis, including the heart, aorta, lungs, brain and colon, allowing the patient to undergo examination without having to endure the current invasive procedures. Also, the drugs Celebrex and Vioxx developed through the University of Rochester are anti-inflammatory "super aspirin" medications that can be taken without the side effects of stomach irritation, bleeding or ulcers.

In recognition of the significant impact of life science research and biotechnology development, the federal government has been steadily increasing available funding for federal research grants, primarily through the National Institutes for Health (NIH). President Bush included a \$2.8 billion or 14 percent increase in funding for the next federal fiscal year in his budget. The President has also committed to **double** the 1998 pledge to the NIH budget by 2003 to \$27 billion.

While New York State is home to many of the world's premier research institutions and has been the home of many discoveries, New York has been lagging other states in life science research and development and is therefore not well poised to take

full advantage of either this increase in federal NIH funding or in this economic revolution in the life sciences. Over the past ten years, New York State has lost many researchers and entrepreneurs in the biotechnology industry to other states such as California, Massachusetts and Michigan. This loss of New York's talent is not surprising; other states foresaw the economic opportunities in biotechnology research and development and began building their own programs in the early 1990's, drawing talent from the strongest talent pool in the country: New York State. This talent has moved to better research facilities, better salaries, a strong entrepreneurial environment and easier accessibility to venture capital funding for biotechnology.

GEN*NY*SIS

To aid New York's research institutions and emerging biotechnology companies to take full advantage of this technological revolution in the life sciences, the Senate is introducing the **Gen*NY*sis (Generating Employment through New York Science)** Program as contained in the bill S. 1. This program focuses \$500 million in State resources over a five year period to transform New York State into the premier location for life sciences research and technology development. In addition, the Senate creates eight new Gen*NY*sis Zones; empire zones for emerging biotechnology companies, and also provides tax relief to biotechnology businesses located outside of Gen*NY*sis Zones. This investment by the State is expected to leverage almost \$3.0 billion in private investment.

The Gen*NY*sis program is focused on biotechnology development at all stages of the research and development process; from basic research to applied research to the clinical testing of new products to the creation of new businesses. The Gen*NY*sis program encourages collaboration between research institutions and emerging as well as established companies. The sharing of knowledge along with facilities and equipment has been shown to accelerate research discoveries and therefore the development of new techniques and products.

The Senate's Gen*NY*sis program allocates **\$320 million for Gen*NY*sis Centers of Excellence**. These Gen*NY*sis Centers of Excellence are located across the State in current biotechnology clusters to maximize the research undertaken at these clusters and the development of new products and technology from this research. Funding for Gen*NY*sis Centers of Excellence include monies for the construction of facilities for research and incubator space along with bioscience parks.

The Gen*NY*sis program also allocates **\$90 million for research** facilities, researchers and equipment and **\$90 million for business development** loans and grants to focus not only on building new biotechnology companies but on maintaining these companies and these jobs in New York State.

Gen*NY*sis Centers of Excellence include:

Gen*NY*sis Centers of Excellence

- ♦ A cluster in research and development in the life sciences on Long Island to include SUNY Stony Brook and the Stony Brook Biotech Convergent Technology University Industry Research Park (\$25 million), Cold Spring Harbor (\$10 million), SUNY Farmingdale and other academic institutions (\$21.5 million) and the North Shore Long Island Jewish Hospital System (\$3.5 million);
- ♦ The East River Science Park involving New York University, the City of New York and other research institutions (\$30 million). In addition, Sloan Kettering Memorial Cancer Center for the expansion of applied research facilities (\$7.5 million) and the College of Staten Island for the Willowbrook Incubator (\$2.5 million);
- ♦ A cluster to include but not limited to the Westchester County Health Care Corporation (\$15 million), the Albert Einstein School of Medicine (\$15 million), the Mt. Sinai School of Medicine (\$7.5 million) and Columbia University/Columbia Presbyterian Medical Center (\$7.5 million);
- ♦ A specific project at the SUNY Albany East Campus in Rensselaer County involving the Albany Medical Center and SUNY Albany (\$30 million), and a project in biotechnology at the Rensselaer Polytechnic Institute (\$22.5 million);
- ♦ A consortium to include Cornell University and other research institutions for Genomics Technology Center (\$30 million);
- ♦ A cluster to include the University of Rochester Medical School, and the Rochester Technology Park (\$30 million) and with Alfred University (\$2.5 million);
- ♦ A cluster to include but not limited to the Roswell Park Cancer Institute, Hauptmann Woodward Medical Research Institute, SUNY Buffalo, and other research institutions in the life sciences for a biomedical research and development facility in cancer genetics (\$30 million); and
- ♦ University at Binghamton for the Advanced Biotechnologies Complex (\$15 million) and a consortium of institutions including Syracuse University for the Environmental Health System project (\$15 million).

These projects reflect the comprehensive nature of the Gen*NY*sis proposal by including a mix of research facilities along with incubators and bioscience parks located in emerging biotechnology clusters around the State. Funding for these Gen*NY*sis Centers of Excellence would be released as matching grants upon final approval of a business plan by the Office of Science, Technology and Academic Research. Funds allocated to these projects would be available for capital construction and equipment.

Gen*NY*sis - Research Program (\$90 Million)

The research program is aimed at maintaining and increasing the number of researchers in New York State, thereby increasing federal research grants and discoveries. A prime component of the research program is the improvement or construction of research facilities. Other uses of this fund include faculty and support staff salaries not to exceed four years, the purchase of equipment, matching grants for federal or industrial research grants, and the creation of a James D. Watson Young Investigator's Program to attract bright, young talent to New York's research institutions.

Eligible applicants include public, not for profit private and academic research institutions. Along with research in the life sciences, the Senate's Gen*NY*sis program provides identical funding for research and development in those science disciplines which support biotechnology development. Examples include computer science, electronics, nanotechnologies, chemistry and engineering.

Gen*NY*sis - Biotechnology Business Development Program (\$90 Million)

The third piece of the Senate's Gen*NY*sis program fills in the current gap in the State's economic development programs. At present, criteria surrounding New York's business development programs do not recognize the unique nature of a biotechnology firm and therefore any emerging firm in biotechnology cannot receive the same assistance from the State as is available to small manufacturing firms. The Gen*NY*sis programs builds upon the State's successful economic development programs for manufacturers and creates a new program for emerging biotechnology businesses. These programs would provide funding for bioscience parks, equipment, working capital and worker training.

Gen*NY*sis Zones (\$45 Million) and Tax Reductions (\$20 Million)

To accompany the Gen*NY*sis program, the Senate also creates eight new "Gen*NY*sis Zones", empire zones focused on biotechnology. These zones would be located near or within the biotechnology research and development clusters already existing in New York. These zones, constituting an area of four miles for each zone although not necessarily contiguous, would be located in the following counties:

Gen*NY*sis Zones

- ♦ Bronx, Westchester and Rockland Counties
- ♦ Broome and Onondaga Counties
- ♦ Erie County
- ♦ Monroe County
- ♦ Nassau and Suffolk Counties
- ♦ Queens County and the Borough of Manhattan
- ♦ Rensselaer County
- ♦ Tompkins/Ontario/Allegany Counties

Finally, the Senate provides \$20 million in additional tax cuts for biotechnology businesses located outside the Gen*NY*sis Zones. These tax cuts include an increase in the research and development tax credit to 20 percent, a doubling of the current qualified emerging technology wage and capital credits of biotechnology companies and removal of the alternative minimum tax limitation on emerging biotechnology companies.