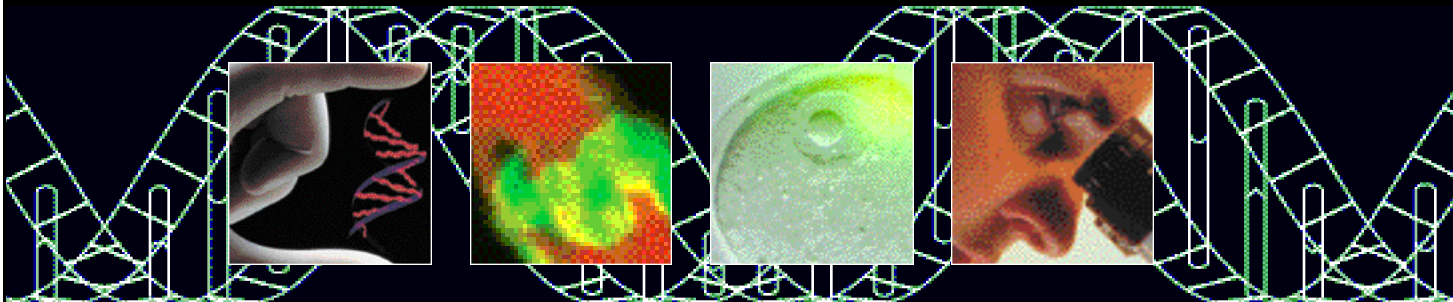
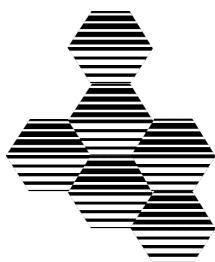


# Report to the Community 2000



Good Science Makes Good Business



CENTER FOR  
**BIOTECHNOLOGY**  
A New York State Center For Advanced Technology

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Strategic initiatives that create infrastructure for broad-based industry development have been a cornerstone of our CAT's success. Our role as founder of the Long Island High Technology Incubator (LIHTI) program and the New York Biotechnology Association (NYBA) has generated significant economic return and continues to contribute on an ongoing basis to the New York State economy. ***Economic impact related to the CAT's activities during the 1999/2000 fiscal year is estimated at \$157.4M with 148 new jobs created***

In keeping with this strategy to invest in activities that will have broad-based economic impact, the CAT has aggressively pursued the implementation of its technology development initiative. New York's \$2B academic research enterprise represents a largely untapped reservoir of basic science that has the potential to become commercially promising technology. It is our vision and intent to create the infrastructure within the academic environment that will capitalize on this research base for the purpose of economic development in New York State.

Considerable progress has been made in this regard during the past year. The CAT's relocation to a state-of-the-art research facility in September 1999 allowed us to establish an Applied Bioscience Laboratory (ABL) for the translation of academic research towards commercial goals. Approximately forty technologies now make up the CAT's technology development pipeline. Several of these technologies have entered the commercial sector during the past year either through new company formation, through raising of capital for new product development, or through collaboration with existing New York companies. Of particular note, an imaging technology supported by the CAT at SUNY Stony Brook in 1998 has led to the formation of Viatronix earlier this year. In addition, the CAT facilitated the early-stage investment in Ceptor, a company based on technology developed by faculty at SUNY Brooklyn. Equally important, a CAT sponsored collaboration between SUNY Buffalo and Bausch & Lomb has led to the development of novel soft contact lens products. We are encouraged by the progress of this collaboration, and look forward to seeing additional technologies developed for the ocular market.

In closing, the 1999/2000 fiscal year has been one of great achievement and opportunity. The recent enactment of the Jobs 2000 (J2K) legislation signals an acknowledgement by our State government of the role academic institutions can play in New York's economic growth. With resources targeted toward strengthening the State's research infrastructure, and toward expansion of the CAT program, J2K represents a significant opportunity for advancing several of our economic development strategies. We intend to pursue this wholeheartedly.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clinton T. Rubin', with a stylized flourish extending to the right.

Clinton T. Rubin, Ph.D.  
Professor & Director

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The year ending March 31,2000 was one of significant accomplishment and expansion for the CAT. By all metrics, the CAT continues to have a positive impact on the New York State economy and on the growth of New York's bioscience industry.

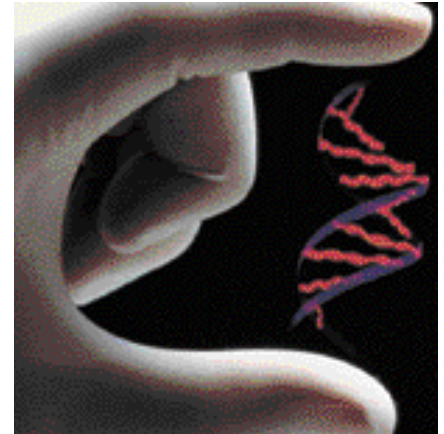
The economic impact related to the CAT's programs has transcended the bioscience industry, having significant impact on high technology industry development in general. The CAT's investment in the creation of programs such as the Long Island High Technology Incubator (LIHTI) and the New York Biotechnology Association (NYBA),coupled with its direct efforts to foster new company formation from within the academic sector, has resulted in the formation of 52 companies and more than 1250 new jobs since its establishment in 1983. Gross corporate revenues generated by these companies in fiscal year 1999/2000 were approximately \$158M. Corporate savings related to research collaborations between the CAT and New York companies is estimated at \$5M.

## 1999/2000 HIGHLIGHTS

- Gross corporate revenues directly related to the CAT's activities for fiscal year 1999/2000 approached \$158M.
- More than 148 new jobs were created during the year.
- Research expenditures by New York companies on CAT-related research projects were \$1.4M,seventy percent of which involved collaborations with small New York companies.
- Corporate savings associated with the CAT's programs were \$5M.

Great strides have been made during the year in the implementation of the CAT's *Technology Development Initiative*. Consistent with the CAT's previous economic development strategies, the *Technology Development Initiative* has the potential to have far-reaching impact on the New York State economy. The specific goals of the Initiative include:

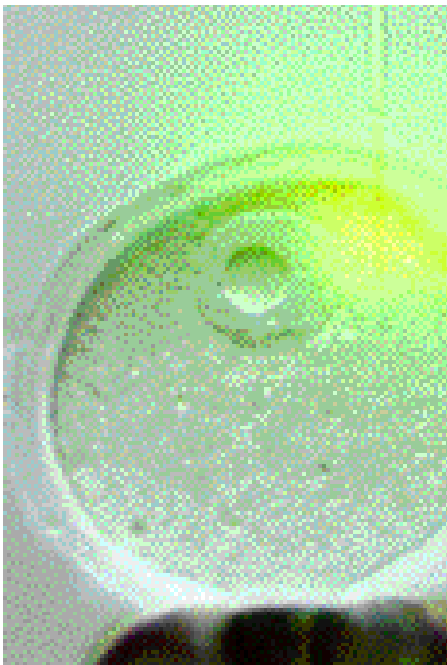
- increasing the number of income-producing technologies resulting from New York's research enterprise.
- enhancing the financial value and return from these technologies by providing guidance and direct support in development toward commercial goals.
- bundling synergistic technologies together to maximize value.
- capturing the economic benefit for New York State through the establishment of new companies and by out-licensing these "value-added" technologies to New York's bioscience industry.



The CAT has invested significant resources in the establishment of the infrastructure necessary to facilitate the discovery, development, translation, and commercialization of basic science. Emphasis is placed on maximizing the value of technologies within the academic environment before they are out-licensed, and on the cultivation of platform technologies that will support new company formation.

## DISCOVERY & DEVELOPMENT

The primary vehicle for investment in the discovery and early-stage development of commercially promising faculty research is the Innovative Technology Grant (ITG) program. This program supports commercially promising faculty research *statewide*, both alone, and in partnership with New York companies. The CAT invested \$455,120 in fifteen projects at three different research institutions during the 1999/2000 fiscal year. Continued efforts to expand the scope of the ITG program to ensure statewide participation have been successful. Fifty-five ITG proposals from thirteen different campuses were received in response to the "Call for Applications" for the upcoming fiscal year. The CAT anticipates supporting nine of these proposals, four of which are in partnership with New York companies. These projects will begin July 1, 2000 and conclude June 30, 2001.

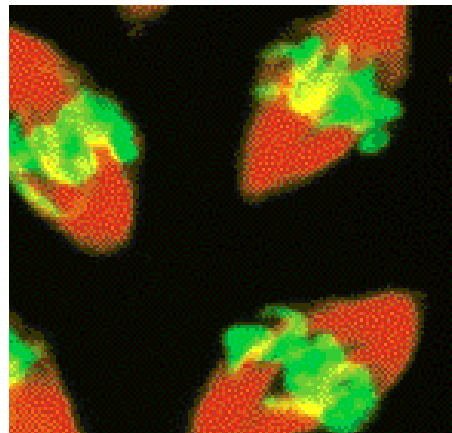


## TRANSLATION

The CAT's relocation to a new 6,000 square foot research and development facility in September 1999 made possible the establishment of an Applied Bioscience Laboratory (ABL). The ABL is responsible for taking commercially promising basic research discoveries and adding value through validation of proof of concept and by broadening commercial applications. Additional value is added downstream as like, or complimentary, technologies are bundled together to create a technology portfolio or product development pipeline. This portfolio can either be out-licensed to established New York companies for further development or serve as the platform for new company formation.

## COMMERCIALIZATION

The CAT's *Technology Development Initiative* has already produced significant results. Three current-year projects (Pincus, Chen, Simon) and two previously funded projects (Bingham, McLeod) are under consideration for company formation. Two additional projects were co-sponsored by New York companies under the ITG program during the 1999/2000 fiscal year, ensuring their transfer to New York's commercial sector. In a collaboration between Roswell Park Cancer Institute and ZeptoMetrix (Buffalo, NY), DNA damage kits have been developed for research markets that have the potential to generate millions of dollars in revenue over the next five years. Vitex (Melville, NY) and SUNY Stony Brook are collaborating on the development of fibrin composites for the treatment of gaping cutaneous wounds.



Projects supported in previous years are beginning to fulfill their commercial potential. 3D Virtual Colonoscopy, a technology supported by the CAT (1996-1998), has led to the formation of Viatronix (Stony Brook, NY), a company that will commercially exploit the medical applications of this 3-D imaging technology. Utilizing MRI and CAT scan data to create an image of a patient's colon, the technology allows doctors to non-invasively search for suspicious lesions. *Functional Genetic Assay for Nuclear Import and Export*, a research project supported by the CAT (1997-2000), has resulted in a technology whose value has been greatly enhanced through the efforts of the CAT's technology development staff. The technology is now available for license on a non-exclusive basis.

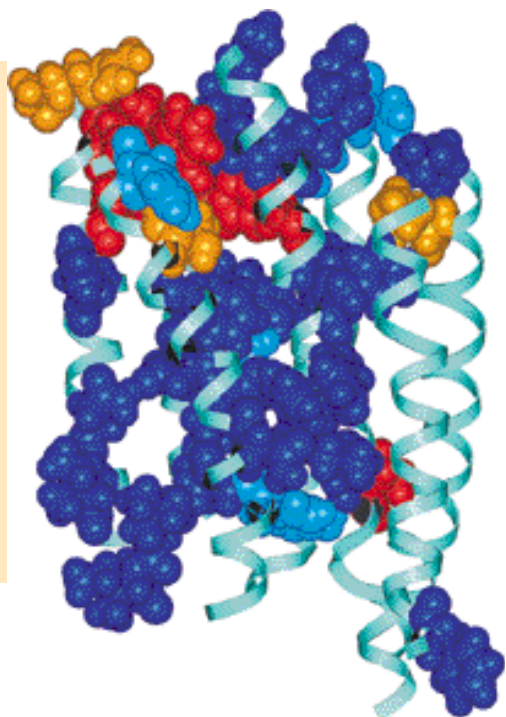
A CAT-funded collaboration between Bausch & Lomb (Rochester, NY) and SUNY Buffalo has resulted in the development of novel soft contact lens products for the ocular environment. This work has enhanced B&L's competitive position and has the potential to generate tens of millions of dollars in corporate revenue. At least three CAT-supported technologies are currently in human clinical trials: a technology for the treatment of Dupuytren's Disease in partnership with Biospecifics Technologies Corp., (Lynbrook, NY); a technology for the early detection of cataracts; and a technology that uses polio recombinants as therapy for brain tumors. A summary of the CAT's technology development pipeline appears on the following page.



The CAT also assists in the commercialization of technologies unrelated to its ITG program. During 1999, the CAT facilitated the seed financing of Ceptor, Inc., a New York company founded by faculty at SUNY Brooklyn. Ceptor, Inc., specializes in targeted drug delivery for improved treatment of chronic and acute diseases. The company currently employs five people.

The CAT's technology development activities have begun to attract the attention of both industry and the financial community. Cornerstone Ventures, a company created to commercialize novel anti-cancer agents, and Embryo Capital, a recently established technology development fund, both cited the opportunities represented by the CAT's technology development initiative as contributing significantly to their decision to locate their companies in New York State.

1997/98	1998/99	1999/2000	2000/2001	Status
Development of Magnetic Contrast Agent				completed
Protein-facilitated Nuclear Targeting of Genes				patents filed
High Surface Area Fluoropolymeric Materials				Integument (Jamestown, NY)
Matrix Engineering for Orthopedic Appl				Matrix Biotechnology (Melville, NY)
New Biomaterials				completed
Novel Genes in Fracture Healing				under development
Molecular Recognition in Biological Systems				Wyeth Ayerst (Pearl River, NY)
Isolation of Thrombin Receptor Mutants in Yeast				completed
3-D Virtual Colonoscopy				Viatronix (Stony Brook, NY)
Assay for Detection of Breast Cancer				completed
Vibromyography for Detection of Osteoporosis				under development
Optimization of Image-Based Radiation Field				Nuclear Assoc (Carle Place, NY)
Treatment of Dupuytren's Disease				Biospecifics (Lynbrook, NY)
OVX-induced Osteoporosis by CMT-8				Collagenex (Stony Brook, NY)
	Novel Cancer Chemotherapeutic Agent			under development
	Vitronectin Expression by Spermatozoa			completed
	D-Matrices to Bind & Screen His-tagged Proteins			completed
	Isozyme-binding Assay for Adenylyl Cyclases			completed
	Auscultatory Expert System			completed
	Novel Inhibitors of Angiogenesis			completed
	Salivary Antibodies in H.pylori Infection			Enteric Products (Stony Brook, NY)
	Transfer of New Genetic Material to Skin			completed
	Polio Recombinants as Therapy for Brain Tumors			under development
	Fiber Optic Probe for Detection of Cataractogenesis			under development
	Rhizome Drynaria: Treatment of Acute Renal			completed
	A Novel Mammalian Cell-based Drug Screen			under development
	Polymer Lifecycle Analysis by Mass Spec			Bausch & Lomb (Rochester, NY)
		Vascular Cinematography for Tumor Detection		NiRex (Brooklyn, NY)
		DNA Damage Kits		Zeptomatrix (Buffalo, NY)
		Fibrin Composites for Gaping Cutaneous Wounds		Vitex (Melville, NY)
		Antibody-induced Platelet Aggregation		patents filed
		New Anti-cancer Agents		under development
		Acoustic Diagnostic for Bone Quality		under development
		Zygotic Gene Targeting		completed
		Intracellular Fluorescent Indicators of Apoptosis		completed
		In Vitro Screening Assays of Inflammation		completed
		Software for Gene Regulatory Analysis		completed
			Microbial Agent Associated With Ulcers	Enteric Products (Stony Brook, NY)
			HAS-2	Collaborative Group (Stony Brook, NY)
			Bioabsorbable Membranes	under development
			Neural Interface to Peripheral Nerves	under development
			Novel Anticancer Agents	under development
			Tissue Procurement & Genomic Service	Galaxy (Stony Brook, NY)
			Optimized Yeast Strains for Wine Product	under development
			Transplantable Human Pancreatic Islets	BioLife (Binghamton, NY)
			3D Analysis of Aortic Aneurysm	Viatronix (Stony Brook, NY)



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## **LONG ISLAND LIFE SCIENCES INITIATIVE**

In addition to its role as founder of the Long Island High Technology Incubator and the New York Biotechnology Association, the CAT played a vital role in the formation of the Long Island Life Sciences Initiative (LILSI). The purpose of LILSI is to focus the energies and resources of Long Island's life sciences community, which includes the biotechnology, pharmaceutical, medical device, nutraceutical, and cosmeceutical industries, on issues of strategic importance to the industry's continued growth in the region. Industry leaders have identified workforce issues and the attraction of financial resources to the region as two primary agenda items. The CAT will continue its efforts to advance this initiative in the upcoming fiscal year.

### **PROGRESS 1999/2000**

- Creation of a LILSI web site ([www.lilsi.org](http://www.lilsi.org)).
- Completion of a comprehensive industry census and workforce needs assessment.
- Establishment of the Helix Award as a prestigious international award presented on behalf of Long Island's bioscience community.
- Coordination of the first industry-wide meeting of Long Island's life science community.

### **MICROARRAY FACILITY**

The CAT and the School of Medicine at SUNY Stony Brook have announced plans to establish a DNA microarray facility that will include an Affymetrix system, as well as custom cDNA spotting microarray capabilities. The ability to perform large-scale gene profiling will enhance the region's competitive position in pursuit of federal funding, and generate intellectual property that holds potential for economic impact in New York State. The Affymetrix system is expected to be operational by Summer 2000, while the custom glass slide fabrication facility will be operational in 2001.

### **EDUCATION & WORKFORCE DEVELOPMENT**

In recognition of the changing dynamics within the bioscience industry nationally, as well as on the State and regional level, the CAT has begun to implement several initiatives relevant to workforce development. SUNY at Stony Brook has a strong and extensive tradition in biomedical engineering, with faculty involved in cutting edge research in the areas of musculoskeletal and cardiac biomechanics, biomaterials, bioinstrumentation, tissue engineering, medical imaging and computational biology. Two \$1M awards from the Whitaker Foundation have contributed to the creation of a PhD/MS in biomedical engineering and an undergraduate major in bioengineering, operated under the auspices of the Program in Biomedical Engineering (PIBE). This diverse program of graduate research and education is comprised of seven core faculty and forty adjunct faculty members. A \$9.7M proposal to establish a research focus in molecular bioengineering will be submitted to the Whitaker Foundation in August 2000 with the goal of establishing the program as an academic department within the University.

### **LEVERAGE**

The CAT entered into formal research agreements with eighteen different New York bioscience companies related to thirty-two different projects during the 1999/2000 fiscal year. Total research expenditures by New York bioscience companies related to the CAT program exceeded \$1.4M with more than \$961,000 coming from small companies. CAT-related projects were also successful in leveraging more than \$50M in federal support during the fiscal year.

# CORPORATE PARTNERSHIPS

Advanced Immuni-T Stony Brook, NY	Eastern Holistic Nutrition Group Stony Brook, NY	Nuclear Associates Carle Place, NY
AGI Dermatics Freeport, NY	EELE Laboratories Stony Brook, NY	Omicorder Technologies Stony Brook, NY
Altaire Pharmaceuticals Holbrook, NY	Embryo Capital Brooklyn, NY	Omnipharm Buffalo, NY
Bausch & Lomb Rochester, NY	Enteric Products Stony Brook, NY	Ortek Therapeutics Garden City, NY
Bioden Jericho, NY	Expitaxial Laboratory Stony Brook, NY	OSI Pharmaceuticals Uniondale, NY
Biospecifics Lynbrook, NY	Ericsson Inc. New York, NY	Perlucid Nesconset, NY
BioPhotonics Stony Brook, NY	Estée Lauder Melville, NY	Prodel New York, NY
Bristol-Myers Squibb Syracuse, NY	EZEM Westbury, NY	PowerCom Technologies Nesconset, NY
Brook Biotechnologies Stony Brook, NY	Galaxy Technology Stony Brook, NY	Redox Pharmaceutical Greenvale, NY
Ceptor, Inc. Roslyn, NY	Garnett McKeen Stony Brook, NY	Selftest Stony Brook, NY
Chembio Diagnostics Medford, NY	GenPak Stony Brook, NY	Stony Brook Surgical Stony Brook, NY
Chem-Master International Stony Brook, NY	Geovation Spring Valley, NY	Trinity Biotech Jamestown, NY
Church & Dwight New York, NY	IFOSYS Stony Brook, NY	Tularik Greenlawn, NY
Clairol Syracuse, NY	Ingenious Targeting Stony Brook, NY	Unilever New York, NY
Clear Solutions Biotech Stony Brook, NY	Institute of Human Genetics New York, NY	Upstate Biotechnologies Lake Placid, NY
The Collaborative Group Stony Brook, NY	Integument Technologies Jamestown, NY	Vasomedical Westbury, NY
Collagenex Pharmaceuticals Stony Brook, NY	Interstate Drug Exchange (IDE) Amityville, NY	Vitex Melville, NY
Cornerstone Ventures Brooklyn, NY	Ion Focus Laboratories Stony Brook, NY	Wastewater Biological Solutions Stony Brook, NY
Cosper Environmental Bohemia, NY	LILCO Hicksville, NY	Wyeth Ayerst Pearl River, NY
Curative Health Services Hauppauge, NY	Matrix Biotechnologies Melville, NY	Zeptomatrix Buffalo, NY
Cyber Chemics Stony Brook, NY	Nanoprobes Stony Brook, NY	
Del Laboratories Stony Brook, NY	Nastech Hauppauge, NY	

The Center for Biotechnology gratefully acknowledges the support of the New York State Office of Science, Technology and Academic Research (NYSTAR), New York State's bioscience industry and the State University of New York at Stony Brook.



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