Gen*NY*Sis Center for Excellence in Cancer Genomics

OPERATING PLAN

Title and Leadership:

The Gen*NY*Sis Center for Excellence in Cancer Genomics, East Campus, University at Albany, SUNY

Dr. Paulette McCormick, Director
University at Albany, East Campus
One University Place A202
Rensselaer, N.Y. 12144
518-591-8300
pmc@albany.edu

Abstract:

Last year, the Gen*NY*Sis Cancer Center for Excellence in Cancer Genomics (hereafter the "Gen*NY*Sis Cancer Center") received provisional approval from the Vice President for Research as a University 'Center'. We now apply to receive formal, permanent 'Center' status, and submit the following document in accordance with the University's policies and procedures for establishing, operating and reviewing organized research units. We trust that all the answers to all questions and considerations regarding permanent 'Center' status are adequately addressed within the body of this document.

Background:

Mission & Strategic Goals of the Gen*NY*Sis Cancer Center

The mission of the Gen*NY*Sis Center for Excellence in Cancer Genomics is to conduct cutting-edge high-throughput cancer research. We are especially focused on translational research – i.e., that which can be "translated" into clinical benefits sooner rather than later. Such research is already being performed by the Center's own scientists, all of whom have faculty appointments with the University's School of Public Health or College of Arts and Sciences.

The Cancer Genomics Center has short-term, medium-term and long-term goals corresponding to various types of research programs and centers recognized by the National Cancer Institute (NCI). Our ultimate long-term goal is to become a NCI Comprehensive Cancer Center, integrating excellence in basic, clinical, and population sciences research.

Our short-term-term is to first conduct a series of early-stage interventions to establish the feasibility or proof of principle of specific approaches in cancer. Modeled after the NCI's Specialized Programs of Research Excellence (SPOREs), such programs promote

interdisciplinary research and speed the exchange between basic and clinical science to move basic research finding from the laboratory to applied settings involving patients and populations. We have already agreed with NY Oncology and Hematology, the region's leading oncologist network, to jointly develop two pilot SPORE-like programs and will soon submit the proposals to private foundations for funding. If these are successful, we will then look at ways to establish formal NCI SPORE projects as a step toward obtaining our medium-term goal of becoming an NCI generic research center that has a somewhat narrower research agenda that may focus, for example, on certain basic sciences. Our long-term goal to ensure that the basic research done at the Cancer Center is eventually developed into clinically relevant technologies and therapies is to obtain designation as a Comprehensive Cancer Center in conjunction with other institutions in the area (e.g., Albany Medical College, Ordway, RPI, Wadsworth), a status granted to certain high-caliber institutions by the NCI.[1]

Rationale and Need for the Center
1 of 2 men and 1 of 3 women in America will develop cancer. Due to advances in medicine, the incidence rate of the #1 killer of Americans, heart disease, is rapidly declining, and cancer is quickly replacing it as the country's leading cause of death.

Despite these sobering facts, cancer-related death rates have not significantly declined even after 20 years of intense research, reflecting a gap between basic research and clinical efficacy. Therefore, new approaches are needed to ensure that the discoveries of cancer researchers are applied and used to treat patients. That is the reason that entities such as the Gen*NY*Sis Cancer Center, which focuses on translating science into medicine, are so desperately needed. This is particularly the case in the Capital Region where the gap is so wide and where the activities at the Gen*NY*Sis Cancer Center can certainly help speed the adoption of science into local clinical practice.

Benefits to the University; how the Cancer Center will Advance the University's Mission
The establishment of the Center also meets an important educational need, as biomedical research is currently one of the most active fields of study and funding in science, and as there are limited opportunities for students to work in this field locally. In fact, the Gen*NY*Sis Cancer Center will be housed in the only building dedicated solely to cancer research in the Capital Region. Featuring world-class, pioneering research (which is attracting other high-caliber faculty members to the University), the Gen*NY*Sis Cancer Center already has several post-docs (6), undergraduate (3) and graduate students (5) working in its labs, and Gen*NY*Sis Cancer Center faculty members are now offering UAlbany students several new, much needed courses in cancer biology and bioinformatics – classes of great interest to our students. As the centerpiece of the University's East Campus, the new building housing the Gen*NY*Sis Cancer Center is also attracting biopharmaceutical companies to the region (such as Acceptys, Inc.,

[1] There are three components to a Comprehensive Cancer Center that must be in place before the NCI grants that designation: 1) vibrant basic research, such as that presently taking place at the Gen*NY*Sis Cancer Center 2) population studies, including epidemiological assessments of the prevalence and incidence of cancer in the local area, as well as preventative intervention and prevention education, which is being done or will be done by the University's School of Public Health. This School is housed on the East Campus next door to the cancer center; and 3) clinical treatment of cancer patients. Two of these three components of a comprehensive cancer center are already in place, but are certainly in need of expansion. As for the third component, we are exploring opportunities to work with area cancer clinicians at Albany Medical Center, St. Peter's, Samaritan Hospital, and NY Oncology and Hematology associates.

Malvern , PA) that are specifically focusing on cancer and that are intending to establish R&D facilities on the East Campus, thereby increasing the University's local economic impact. Thus, the establishment of this Center will be of great benefit to the University in its efforts to recruit and retain the highest caliber faculty and students and will advance the University at Albany's stated mission of creating a "university that is not only a leader, but relevant to a new century and cause for pride among its students, alumni, faculty, friends and fellow citizens."

*Differences Between Gen*NY*Sis Cancer Center and Other University Units*
While other cancer research facilities exist in the SUNY system (at Buffalo and Stony Brook), the State of New York, and around the country, the individual laboratories in these centers often focus on a single form of cancer (such as breast or prostate cancer); a single molecule or pathway linked to cancer; or use mainstream or traditional technologies and approaches. The Gen*NY*Sis Cancer Center, the only one affiliated with U Albany, takes a unique multimodal approach based on the use of genomic and proteomic technologies. The aim of all our cancer research is the identification and functional validation of therapeutic targets for the development of small molecule inhibitors or other therapeutics to be tested in the clinic. Thus, our approach is advantageous compared to other research models in that it combines the expertise of all our labs to look in a high-throughput fashion at all type of molecule (DNA, RNA, protein) that when aberrantly regulated can drive cancer progression. The access to high-throughput tools empowers us to rapidly generate this information across various types of cancer and with the use of bioinformatics and powerful computer analysis integrate it into a working model to identify common targets for all types of cancer. This approach means that the results of our research programs may be broadly applicable to several forms of cancer, and if needed we will be able to identify targets that will allow us to tailor therapies for a specific cancer. We believe that this approach will lead to the accelerated compilation of knowledge critical to understanding and defeating cancer through the discovery of new drugs and treatments.

The Gen*NY*Sis Center for Excellence in Cancer Genomics differs from all other University at Albany Centers because of its unique biomedical and translational focus on cancer with the goal of transferring this information to the clinical setting. It is our intention that it one day will be one of New York's leading centers for studies leading to improved prevention, prognostic and diagnostic analyses and treatment of cancer. It is the foundation for the eventual establishment of a NCI (National Cancer Institute) Comprehensive Cancer Center, filling a critical need for a high standard and comprehensiveness of care and research that is currently only available in New York City and Buffalo, New York. The buildup of a critical mass of top senior faculty and young scientists will allow us to obtain NCI designation and along with Albany's unique demographic composition (which accurately reflects the demographic make-up of the entire U.S.), will enable the Center to further recruit top senior faculty members, attract students, and offer faculty members unique opportunities to apply their research in a relevant clinical setting.

The cancer center is also supported by the U Albany faculty members and staff who operate the state-of-the-art research facilities of the University at Albany's Center for

Functional Genomics (CFG) – another University Center. The unique set of core laboratories maintained by the faculty/Core Directors focus on: 1) molecular genetics 2) proteomics 3) transgenesis, 4) cell culture and analyses 5) microscopy and histology, and 6) bioinformatics. These laboratories are staffed by approximately 15 well-trained scientists including six PhDs and two MS degree holders with over 175 years combined experience in molecular and cell biology.

Relationship with Other Entities
The center is designed to accommodate the basic and translational cancer research groups of both the University at Albany and the 15 different cancer scientists at Albany Medical College, making it the largest and most experienced cancer research group in the Capital District. Members of the Gen*NY*Sis Cancer Center research team are faculty at the University at Albany's Department of Biology or the School of Public Health (SPH)'s Departments of Biomedical Sciences or Biometry and Statistics and collaborate extensively with other SPH faculty members who have dual appointments at U Albany and the State's Wadsworth Research Center. Relationships and Memorandums of Understanding (MOUs) are under development with the Ordway Institute (in Albany) and other Institutions both within the U.S. and in other countries. A Gen*NY*Sis grant was awarded to RPI recently for a Center of Bioengineering and Medicine, which specializes in drug discovery, biosensors, and tissue repair, categories that are not the focus of UAlbany's Gen*NY*Sis Cancer Center. The Ordway Institute is also largely focused on drug discovery, thus making the programs at these two institutions complementary to ours, rather than directly competitive.

Activities:

The cancer center faculty and leadership have already started working on a number of activities and research programs, a portion of which are listed below:

I. Current Research Programs

Following is a summary the research taking place at the Gen*NY*Sis Center by each of our eight core faculty members:

A. Mechanistic and Systems Biology Based Studies of Cellular Response to Chemotherapy – Dr. Thomas Begley (Assistant Professor, Department of Biomedical Sciences, School of Public Health)

- High throughput systems biology techniques and computer modeling to gain insight into genetic requirements and cellular strategies used to process macromolecular damage caused by chemotherapy
- Molecular interaction technologies, along with kinetic and thermodynamic analysis, to construct and evaluate input and output modulators of DNA repair activities, known modulators of chemotherapeutic efficacy
- Modern genetic and biochemical methods to study stress induced methylation and demethylation signaling pathways within the cell.

B. *Functional Genomics Using RNA Interference Technology – Dr. Douglas Conklin (Assistant Professor, Department of Biomedical Sciences, School of Public Health)*

- Using short hairpin RNAs (shRNAs) to silence suspect genes, we are systematically assessing the importance of each of the human tyrosine kinase genes to the tumor cell phenotype in a variety of cancers.
- By systematically removing or reducing the expression of each, we expect to gain insights into which ones in particular contribute to various steps in carcinogenesis.
- A second, related project is designed to test, in depth, the significance of genetic lesions that have been identified in tumor cells by expression profiling or mapping studies.

C. *Cell-Specific Gene Expression Profiling – Dr. Scott Tenenbaum (Assistant Professor, Department of Biomedical Sciences, School of Public Health)*

- RNA-binding proteins are essential in regulating posttranscriptional gene-expression and are thought to be responsible for generating much of the diversity of the proteome.
- Unlike traditional genomic methods, the use of tumor specific RNA binding proteins excludes expression profiling of normal stroma such as fibroblasts and endothelial cells commonly associated with complex solid tumors.
- As additional cell type specific RNA binding proteins are discovered, further specific profiling of these associated normal tissues may be possible. In this manner, intercellular communication pathways affecting gene expression within the microenvironment of tumors and other complex tissues may be identifiable.

D. *Inducing Tumor Cell Dormancy – Dr. Julio Aguirre-Ghiso(Assistant Professor, Department of Biomedical Sciences, School of Public Health)*

- More than half of cancer patients will die from metastatic disease that develops months, years or even decades after primary tumor removal. It appears that during these periods disseminated cells are in a dormant, non-proliferative state.
- We are exploring the mechanisms that force proliferating cells into dormancy to design strategies to induce dormancy or to maintain cells dormant. This strategy would be highly beneficial for patients.
- Our lab is also committed to uncovering the programs that govern metastatic growth and survival of metastatic dormant cells. We have found that these dormant cells display a remarkable chemotherapy resistance and we have identified ways to overcome it.
- Overall, our research efforts are designed to identify which protein signaling pathways are advantageous for metastatic growth and dormant cell survival. Targeting these mechanisms will enable the eradication of metastatic disease.

E. DNA Repair – Dr. Richard P. Cunningham (Professor, Department of Biological Sciences, College of Arts and Sciences)

- Biochemistry of DNA Repair Enzymes
- DNA Repair in Bacteria
- Structure and Function of DNA Lyases
- Structure and function of DNA Nucleases
- Structure and Function of DNA Glycosylases
- Genetic Analysis of DNA Repair Pathways

F. Bioinformatics – Dr. Igor Kuznetsov (Assistant Professor, Department of Epidemiology and Biostatistics, School of Public Health)

- Due to the recent technological advances in genomic data acquisition, bioinformatics has become a crucial element of genomics.

- Our laboratory is focused on developing bioinformatics tools (methods and software) for the analysis of genomic data and applying these tools to genome research.
- Our lab is particularly interested in understanding the languages in which genetic texts are written so that we can read and use the information encoded in DNA, RNA and protein sequences, with a focus on the identification of patterns in biosequences of:
    - Patterns associated with structural and functional properties in proteins.
    - Patterns involved in transcriptional and post-transcriptional gene regulation.

G. Cancer Biology – Dr. Paulette McCormick (Professor, Department of Biological Sciences, College of Arts and Sciences)

Our laboratory's research has been continuously funded by the NIH and focuses on cancer, metastases and developmental genetics.
Laboratory projects include:

- Analysis of retinoids and histone deacetylase inhibitors in cytodifferentiation therapy with a focus on microarray studies;
- Identification of a novel tumor promoting gene in the mouse;
- Examination of the role of myoR in development;
- Analysis of the role of cell surface LAMP in promoting metastasis; and
- Determination of the extent of differential global gene expression between different mouse strains, mice of different ages, different tissues, etc.

H. Bioinformatics – Dr. Chittibabu Guda (Assistant Professor, Department of Epidemiology and Biostatistics, School of Public Health)

- Primary research focus of our laboratory is to develop computational algorithms, databases and web servers for DNA and protein data analysis.
- Current research projects include:
    - Reconstruction of metabolic pathways associated with human mitochondria
    - Developing new methods in structure alignment, automated target selection protocols for proteins likely to be used as potential drug targets in several disease conditions including cancer.
    - Developing novel computational algorithms for functional annotation of proteins, phylogenetic analysis, protein structure data analysis etc.

- Comparative proteome analysis to understand the functional modules (domains) of protein structure and function.

II. Collaborations

Gen*NY*Sis Cancer Center researchers have already established collaborations with respected scientists at a number of institutions locally and around the world, such as General Electric Life Sciences, the Wadsworth Center, Albany Medical College, McGill University, RPI, Duke, and Mt. Sinai. Working relationships exist between Gen*NY*Sis Cancer center faculty and U Albany faculty in the School of Public Health, the Chemistry department, the Nanotechnology College, and the Biological Sciences Department, ranging in nature from collaborative research projects to graduate-level course development.

The Center benefits from such collaborations and intends to continue fostering collaborative relationships that are strategically aligned with our mission.

As a specific example, the Center's Directors recognize that its cancer researchers bring with them knowledge of both the latest technological advances and the underlying genetics and mechanisms of tumor initiation and progression. Clinical oncologists, on the other hand, bring a depth of understanding of both the course of disease in the context of the patient and of the limitations in our efforts at detection and treatment (they also provide the crucial clinical specimens). It is only through the combination of these two skill sets in basic and clinical research that true progress in the "War on Cancer" will be made.

Based on the novelty and importance of their research and the resources of the Center for Functional Genomics, Gen*NY*Sis Center faculty members are highly desirable collaborators, and in fact, have already established a wide network of relationships in the local area and around the world. For example, in one venture with the Capital Region's largest hematology and oncology physician group, we are initiating a series of pilot projects that will test and validate the clinical relevance of certain genetic and proteomic markers we identify here at the Center. We have identified and anticipate funding this endeavor with Foundation, federal and/or state grants.

Collaborations already in existence include work with:

- Ben Szaro (UAlbany)
- James Castracane (UAlbany)
- Imed Gallouzi (McGill University)
- Sandy Wollen (Yale University)
- Georg Stroaklin (Harvard University)
- Ken Alexander (Duke University)
- Roland Green (NimbleGen)
- Tom Gingeras (Affymetrix)
- Mike DiPersio (AMC)
- David Housler (UCSC)
- Rich Maria (NIH)

- Mike Zuker (RPI)
- Mark Embrechts (RPI)
- Liliana Ossowski, (Mount Sinai School of Medicine)
- Conly Rieder, (UAlbany)
- Andres Melendez (AMC, Albany)
- Thomas Hollis (Wake Forest Medical Center)
- Robert Sobol (University of Pittsburgh Cancer Center)
- Trey Ideker (University of California, San Diego)
- Shalom Rackovsky (Mount Sinai School of Medicine)
- San Diego Supercomputer Center (University of California, San Diego)

and others.

III. National Cancer Symposium

Given the University's location 2.5 hours from Boston and New York City, we believe the Gen*NY*Sis Cancer Center is ideally suited to host a national, annual symposium that will bridge the geographic separation between two of the top research hubs in the U.S. and help establish the University in a pivotal role among the country's top echelon of cancer researchers.

Starting with a small symposium, the kick-off event will include presentations by nationally-recognized leaders in cancer research with whom the Center has existing relationships. Additional scientific seminars and sessions will be held by U Albany faculty and invited speakers. The focus of the meeting will be on translational research. The rationale for this is that it supplements the two most significant cancer meetings that take place annually: the American Association for Cancer Research (AACR), which primarily focuses on basic research and early clinical studies, and the American Society for Clinical Oncology, which primarily focuses on the clinical treatment of patients. We are currently working with the Albany County Convention and Visitor's Bureau to plan the logistics, theme, and look and feel of this event.

III. Journal Club

Every Friday, Cancer Genomics Center faculty members host a "journal club" that features invited presenters or a discussion about an important new research study. All Cancer Genomics Center faculty, technicians, and lab personnel are invited as are members of the local research community.

IV. Meetings with Genomics Institute

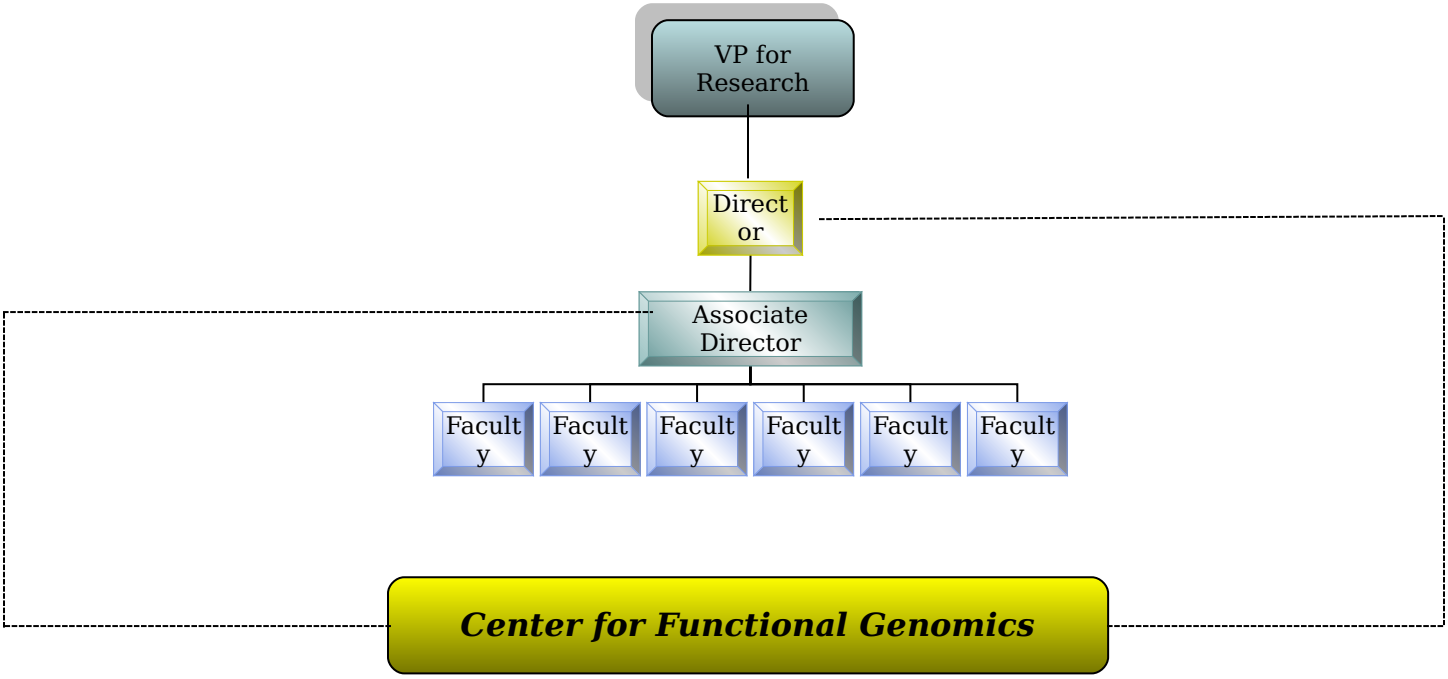
Gen*NY*Sis Cancer center faculty meet regularly with members of the nearby Genomics Institute, a part of the Wadsworth Center of NY State's Department of Health, to share ideas, research, and identify areas to collaborate.

V. Healthcare Professionals Lecture Series

The Gen*NY*Sis Cancer Center is working with medical provider NorthEast Health and Troy's Samaritan Hospital on a lecture series to educate healthcare professional across the Capital Region about the latest biomedical research and biotechnologies that might be applied to their practice and improve the care of their cancer patients. The series is planned to take place in Spring '05.

Organization/Staffing:

The Gen*NY*Sis Cancer Center is directed by U Albany Professor Dr. Paulette McCormick, a Professor who reports to the Vice President of Research and other U Albany executives. Professor Richard Cunningham, Biological Sciences, U Albany, is the Center's Associate Director. Junior faculty (currently six in number) are all affiliated with U Albany's School of Public Health and report to the Associate Director, who in turn reports to the Director.



Current CVs for all personnel are included in the attached appendix. Faculty are responsible for conducting research; mentoring post-docs, University graduate and undergraduate students; formal teaching; service; and upholding the University's other expectations of faculty members. The Director and Associate Director are responsible for oversight of the Center, particularly strategic focus and operations.

All are responsible for coordinating efforts among faculty on joint projects and grants, fundraising, relationship-building between the center and other entities, and recruitment of additional faculty. The Center for Functional Genomics is also directed by Dr. McCormick, and provides the scientific infrastructure (e.g., equipment, expertise) that supports the cancer center's research faculty.

An Advisory Committee has been proposed consisting of seven members:

- Dr. Paula McKeown-Longo, co-director of the Center for Cell Biology and Cancer Research, Albany Medical Center.
- Dr. Paul Higgins, co-director of the Center for Cell Biology and Cancer Research, Albany Medical Center
- Dr. Walter Robb, former head, GE Imaging Systems; Principal, Vantage Management, Inc.
- Dr. Gary Lyman, M.D., M.P.H., Professor of Medicine, Associate Center Director for Health Services and Outcomes Research and Director of Biostatistics, James P. Wilmot Cancer Center, University of Rochester Medical Center, Rochester, NY
- Dr. Richard Cunningham, Associate Director of the Center for Functional Genomics and Professor, U Albany, Department of Biological Sciences
- Dr. Chittibabu Guda, Assistant Professor, School of Public Health, Department of Epidemiology and Biostatistics
- Dr. Thomas Begley, Assistant Professor, School of Public Health, Department of Biomedical Sciences

The roster of Advisory Committee members drawn from Gen*NY*sis Center faculty will be rotated bi-annually to allow each faculty member an opportunity to serve on the Committee.

Past Collaborations:

Every Cancer Genomics Center faculty member, other than the Director and Associate Director, are new recruits to the University at Albany and none knew each other personally until arriving at the University in 2003 or 2004. However, the Cancer Genomic Center's strategy and approach to cancer is to leverage the methodologies and expertise of every faculty member in a common effort to arrive at new treatments and understandings of the disease. Accordingly, every faculty member is now working with other members of the faculty on a variety of projects, including a recent grant proposal written jointly by every one of the faculty, and it is typical to see at least three of our faculty member's names on grants going out from the Center, showing just how closely they are working together.

The viability of this approach can already be measured by the success of grants funded by federal and state agencies and private foundations: Every new faculty member who joined a year ago is funded, 75 percent with two grants, and the total amount of grants awarded so far, in just one year, is in excess of $3 million.

Financial Plan

Inputs

The Gen*NY*Sis Center for Excellence in Cancer Genomics program will be the first and possibly the largest tenant to occupy the new Cancer Center building under construction on the East Campus (private property owned by the University at Albany

Foundation). The Foundation has obtained the primary funding for the Cancer Center Building from a $22.5 million seed grant from the New York Gen*NY*Sis program, and expects to recover the difference in building costs from state and University sources.

As part of the conditions for the award of the Gen*NY*Sis grant, the University agreed to match the $22.5 million through fundraising, grants, and any other sources of revenue, which will be used to support the cancer research program itself.

Towards that end, U Albany launched a 5-year fundraising effort in October 2004 that, if existing faculty grants are included, has raised $7,638,890 as of November 10, 2004 (reflects grant totals, not annual amounts). Further, if all grants submitted by our existing faculty are awarded in the next 12 months, this amount will rise to $11.1 million, not counting any grants from our new bioinformatics faculty members, who arrived in 10/04. In addition, we are anticipating additional contributions to the fund from at least four other sources that could add between $400k and $2 million to the total. Finally, in discussions with representatives from the State Legislature, it was indicated that U Albany may receive an additional $2 million in fiscal '04-'05 and $1 million in '05-'06 to support the Center during its initial years of operation. Based on the above, following is the projected annual income we anticipate:

Total Estimates, by Fiscal Year:

'04-'05 Externally Generated Income

- Grants total $1,322,413.10 and will remain at least that much for the subsequent fiscal year
- Direct state support, separate from support through UAlbany, is anticipated to be $2 million
- Fundraising support, as of December 3, 2004, is $795,000.
- TOTAL: $4,117,443.10, with 6 months left in fiscal year for other grants, donations

'05-'06 Externally Generated Income

- Assumes annual grants income totals $1,322,413.10 and we anticipate approximately $1,500,000 additional grant money (over 5 years) based on current submissions and discussions. This yields a total for '05-'06 of $1,622,413.10
- Direct state support, separate from support via UAlbany, anticipated at $1million
- Fundraising support is anticipated to exceed prior year as building is completed and outreach to corporate, private foundation donors intensifies: $1,000,000
- Estimated Total: $3,622,413.10

'06-'07 Externally Generated Income

- Assumes annual grants income totals $2,500,000 based on additional grants from faculty hired in '04-05
- Direct state support, separate from support through UAlbany, is TBD
- Assumes fundraising support to be the same level as outreach to corporate, private foundation donors intensifies: $1,000,000

- Estimated Total: $3,500,000 + State TBD

Outputs
Following is a breakdown of the foreseen expenses:

<u>One-Time Expenses</u>
- Faculty Recruitment (2 proteomics @ $750k, 2 cancer biology@$500k): $2.5 million
- Faculty search funds (4 x $10,000) = $40,000
    - Subtotal: $2,540,000

<u>Operations</u>
- Animal facilities, husbandry and housing: $150,000
- Two administrative staff, one for cancer center operations, one for faculty support. Current salary & benefit estimates for both are $117,000.
- Faculty retention / enhancement: discretionary, as needed
- Travel for Director and co-Director to NCI, necessary specialty meetings, meetings to establish collaborative grants with other institutions, etc.: $20,000
- Graduate student stipends: 4 x $18,000 + tuition waivers: $100,000
- Seed money for pilot projects (particularly clinical) for IP development 2x$25,000/year=$50,000
- New equipment & service contracts = $500,000/year
- Online journal subscriptions (specialized journals on informatics and cancer): $5,000
    - Subtotal: $942,000

<u>Journal Club</u>
- Food, beverages for small weekly seminars: $2,000

<u>Distinguished Speaker Seminar Series</u>
- 2 times/month (7 months per year) = 14 speakers
    - Honorarium $500 x 14 = $7,000
    - Travel= 14@$1,000 = $14,000
    - Room=$150x2 nights x 14 = $4,200
    - Dinner=$50x 4 people at dinner x 14 speakers=$2,800
    - Breakfast, lunch=3 attendeesx14x$20=$840
    - Subtotal: $28,840.00

<u>Annual Meeting</u>
- Specifications:
    - Venue: Gen*NY*Sis Cancer Center auditorium or similar facility
    - Attendees: 150 researchers and health care professionals with an interest in bridging cancer research and clinical practice
    - Three meeting rooms—one for general session (meeting room); one for reception and plated lunch; one for rotating poster session
    - AV requirements: rear screen projection, LCD projector (provided by facility); audiotaping/microphones/sound board provided by outside vendor

- Tentative timing : 9:30 a.m.–10 a.m. coffee/reception; 10 a.m.– 12 p.m. morning session; 12 p.m.-1 p.m. lunch; 1 p.m.-3 p.m. afternoon session; assumes five to six 30-minute presentations followed by Q&As for each session; consider inviting guest speaker for lunch

- Detailed Budget:
  - Food and Beverage
    - Coffee/reception (150 @ $20; could vary based on menu selections) $3,000
    - Lunch (150 @ $20; could vary based on menu selections $3,000
  - Parking N/A (assumes no cost)
  - Room rental N/A (assumes no cost)
  - Audiovisual
    - Rear screen projection/LCD projector N/A (assumes no cost)
    - Audiotaping/microphones/sound board $8,000
  - Material Development and Production $3,500
  - Abstract booklet (assumes Cancer Center to lead content develop't) $3,500

  - Invitations $3,000
  - Posters, tent cards, name badges, and pens $1,300
  - Speaker honorarium @ $1500 each x 6=$9,000 $9,000
  - Speaker travel, housing ($1300) x 6 speakers $7800
  - Speaker/host dinner ($75x12=$900); breakfasts ($25x9)=($225) $1125

  - Miscellaneous administrative expenses (phone, fax, conf.calls, overnight mail) $1,500

Subtotal for Annual Meeting $44,725

TOTAL EXPENSES: $3,557,565.00

TOTAL YEARLY (- $2,500,000 for one-time faculty start-up expenses): $1,017,565.00

How will the University's Investment be Leveraged?

- Income from grants
  One of the major benefits the University is already enjoying from the Cancer Center is income in the form of indirect grant allowances (i.e., monies going directly to the University to cover administrative costs). Totaling millions of dollars already, the grants awarded to Cancer Center researchers have an average rate of return of 36.7% if all grants are awarded; an extremely high rate that matches or exceeds even the best-performing academic institutions in the nation.

- Drawing Biopharmaceutical Companies to the Area
  At the time of this writing, thirteen companies have expressed their interest in taking space in the building housing the Gen*NY*Sis Cancer Center or the East Campus' biotechnology incubator in order to be near the Center for Function Genomics and the researchers with the Gen*NY*Sis program. This boon to economic development in the Capital Region helps ensure that the University will enjoy ongoing investments and support from the state and local governments, and

by increasing the number of well-paying jobs, be an economic catalyst for the entire community. In addition, the co-location of these companies in University-affiliated buildings furthers the likelihood that joint ventures, spin-offs and collaborations will increase, thus yielding valuable Intellectual Property that will benefit the University.

- Increasing the University's National Visibility
  By specifically selecting faculty members who are pioneers in high-throughput technologies, the Gen*NY*Sis Cancer Center has established a team of scientists who are sought after as collaborations and resources for the local and international scientific communities. Their activities are making invaluable contributions to the University's reputation and prominence with the NIH, NSF and other funding entities, and other institutions globally. Finally, by sponsoring an annual conference, the Gen*NY*Sis Cancer Center will attract the attention of thought-leaders and their attendance, furthering the University's status among the SUNY system.

Grant Application Protocol
All junior faculty members have been asked to list the Gen*NY*Sis Cancer Center in their grants when appropriate and we coordinate directly with grant coordinator Beth Quackenbush to ensure that proper attribution is given to the Cancer Center on the campus impact statement.

Other Resources Required by the Unit

Gen*NY*Sis Cancer Center personnel will initially require ~21,100 square feet of space in the new building funded by New York State's Gen*NY*Sis program. Additional space may be needed as other faculty and staff members are added.

Educational Mission

The Gen*NY*Sis Cancer Center covers a gap in the educational mission within the University because it focuses on the multidisciplinary field of cancer cell biology and genomics. This is an underrepresented field in the UAlbany research community. Therefore, the educational input of the Gen*NY*Sis Cancer Center will have a significant impact on current students and postdocs as well as on the recruitment of new ones wanting to specialize in cancer biology/genomics studies. Further this will expand the educational interactions with departments such as Biology, Chemistry, Biomedical Sciences and with bioengineering efforts in the Nanosciences School.

The Gen*NY*Sis Cancer Center educational duties involve:

- Training of specialized human resources as evidenced by the active training of three graduate students, six postdoctoral fellows and two rotating graduate students. We also had a visiting graduate student from the University of Buenos Aires, Argentina as part of a training program offered by the Bunge y Born Foundation from the aforementioned country. Two more postdoctoral fellows are being recruited.
- The Gen*NY*Sis Cancer Center faculty is currently developing, with the faculty in the BMS department of the SPH a specialized second year graduate course in

cancer biology to be offered in Spring 2006. It will consist of a whole semester with 26 lectures and, in synchrony with the mission of the SPH, it will cover basic mechanisms of cancer biology as well as clinical and epidemiological aspects of the disease.

- A Cancer Biology Journal Club Course for the BMS graduate program will be offered in spring 2005. This will be the first time graduate courses specialized in cancer biology are offered.
- Faculty in the Gen*NY*Sis Cancer Center currently teach in various courses in the BMS graduate program, expanding the scope and depth of the topics offered to students. These include:

  BMS500B Introduction to Biomedical Sciences
  BMS601B Cancer Biology
  BMS632 Molecular & Cell Biology of Prokaryotes

- Faculty also will teach a six week class in Genetics via the Biology Department
- The Gen*NY*Sis Cancer Center offers a seminar series with local and national invited speakers, which is open to all member of the local scientific community. Since April 2004, when these series were inaugurated, we have had twelve invited speakers.
- The Gen*NY*Sis Cancer Center will develop, in the near future, a symposium that will bring world renowned experts in the field to present and discuss recent advances in cancer research.
- The unit offers weekly the Gen*NY*Sis Cancer Center journal club where students and postdocs discuss recent top publications in life sciences research or present and discuss their ongoing research. This is an instrumental educational exercise.
- Faculty also have coordinated or are co-coordinating the following courses:

  BMS 601A Bioinformatics in Public Health
  BMS551 Introduction to Public Health Genetics and Genomics

- Our bioinformatics faculty members are planning:
  - A Bioinformatics Seminar series course (4-5 lectures) in Spring, 2005 offered through Epidemiology and Biostatistics
  - A series of half-day 'Bioinformatics Workshops' in Summer 2005 for the University and Industry
  - Initiation of Bioinformatics degree programs (MS, Ph.D) at UAlbany.

Service Mission

The implicit mission of the Gen*NY*Sis Center for Excellence in Cancer Genomics is to further the understanding of cancer with the long term goal of contributing to improved methods of treatment. Success will require continuously advancing research and educational programs in a manner that can be communicated to and approved by other professionals within the field. Similarly, public support of the center will be key. As a prominent cancer research institution in the region, it is incumbent upon the center to promote public awareness of its work and mission through community outreach.

In the last year, GCECG faculty have given invited professional presentations at a number of universities, companies and scientific meetings. These include: Roswell Park Cancer Institute, McGill University, Mount Sinai School of Medicine, General Electric,

Taconic Laboratories, the American Association for Cancer Research, Cold Spring Harbor Laboratories, IBC Life Sciences, the International Conference on Protein Expression in Animal Cells, the 2004 Second Chianti Meeting on Proteases, the Gordon Conference on DNA Repair, and others. Several collaborative projects have been undertaken as the result of these presentations. More importantly, these presentations communicate to our peers the quality of the research that is being carried out and the importance of the institution as a whole. It is expected that this level of interaction with the professional community will continue.

The Gen*NY*Sis Center for Excellence in Cancer Genomics also firmly believes in an informed public. We plan to develop an outreach program to inform citizens of all ages about cancer. Presentations will be provided locally to inform the public about the research taking place at the Gen*NY*Sis Cancer Center as well as general questions about cancer and its treatment and prevention. Although we plan to host public seminars at our facility, we can also make visits to classrooms, philanthropies, support groups, church groups, and other community groups. Several such visits have occurred already.

Faculty in the Gen*NY*Sis Cancer Center also:

- Participate in joint seminar series with faculty in other institutions in the community such as Albany Medical College.
- Serve as advisors on PhD committees in Albany Medical College, Rensselaer Polytechnic Institute, U Albany's School of Public Health and College of Arts and Sciences.
- Serve in the Graduate Academic Committee, the Master in Public Health Program Committee and Recruitment Committee of the Department of Biomedical Sciences. School of Public Health, University at Albany-SUNY, Albany, NY.
- Serve in the training of high school students from the area that allows them to engage in research with faculty in the Gen*NY*Sis Cancer Center. This is evidenced by the active participation of at least four high school students and it involves active mentoring by the faculty as well as communication with teachers and advisors in the corresponding schools and participating in high school scientific fairs and related activities.

Furthermore, representatives from the Gen*NY*Sis Cancer Center have been in discussions with cancer patient support organizations, such as Gilda's Club (named after the late Gilda Radner) to work with them and be a resource to their constituents. The Director of the Cancer Center has also agreed to serve on this organization's Board of Directors.

Evaluation and Review

Individuals and the Center itself will be evaluated on a yearly basis by the Director and co-Director (for individuals) and the Scientific Advisory Board (for the Center). Evaluation criteria will include but will not be limited to: number and amounts of grants submitted and received; number of publications (both peer-reviewed and invited); number of seminars held and presented, number of individuals trained (including high school, undergraduate and graduate students as well as postdoctoral fellows); number of courses taught and/or new courses developed; and the extent of service activities.

###

APPENDIX A – LIST OF CORE FACULTY & AFFILATIONS

Dr. Julio Aguirre-Ghiso, Assistant Professor, Department of Biomedical Sciences, School of Public Health

Dr. Thomas Begley, Assistant Professor, Department of Biomedical Sciences, School of Public Health

Dr. Douglas Conklin, Assistant Professor, Department of Biomedical Sciences, School of Public Health

Dr. Richard P. Cunningham, Professor, Department of Biological Sciences, College of Arts and Sciences

Dr. Chittibabu Guda, Assistant Professor, Department of Epidemiology and Biostatistics, School of Public Health

Dr. Igor Kuznetsov, Assistant Professor, Department of Epidemiology and Biostatistics, School of Public Health

Dr. Paulette McCormick, Professor, Department of Biological Sciences, College of Arts and Sciences

Dr. Scott Tenenbaum, Assistant Professor, Department of Biomedical Sciences, School of Public Health

APPENDIX B – GRANTS AND GRANT APPLICATIONS
Source: Research Foundation Grants Administration, PIs

Grant Analysis as of 09/22/04

PI	RF Sponsor	Prime Sponsor	Direct Cost (Approximate)	F & A Cost (Approximate)
McCormick				
	NCI (NIH)	NCI (NIH)	$830,000	$414,170
	Taconic Farms	NCRR(NIH)	$727,123	$362,834
	Taconic Farms	NCRR(NIH)*†	$933,445	$470,456
	NYSTAR	NYSTAR*	$500,000	$75,000
		sub-total	**$2,990,568**	**$1,322,460**
Aguirre-Ghiso				
	Samuel Waxman Fdn	Samuel Waxman Fdn	$100,000	$15,000
	NCI (NIH)	NCI (NIH)#	$1,250,000	$599,357
	NCI (NIH)	NCI (NIH)*	$1,250,000	$598,516
		sub-total	**$2,600,000**	**$1,212,873**
Begley				
	NIEHS(NIH)	NIEHS(NIH)	$300,000	$17,660
	NYSTAR	NYSTAR	$200,000	$30,000
		sub-total	**$500,000**	**$47,660**
Conklin				
	US ARMY	US ARMY	$298,493	$149,949
	US ARMY	US ARMY	$250,296	$126,149
	Damon Runyon	Damon Runyon*	$300,000	$0
	NCI (NIH)	NCI (NIH)*	$1,250,000	$613,132
		sub-total	**$2,098,789**	**$889,230**
Cunningham				
	NSF	NSF	$245,253	$114,747
	Trevigen, Inc	NIH	$50,034	$24,966
	MIT	NIH*	$849,435	$402,915
	Trainer	NIH	$540,000	$260,000
	NIH	NIH	$463,000	$0
		sub-total	**$1,607,722**	**$542,628**
Tenenbaum				
	NHGRI(NIH)	NHGRI(NIH)	$275,000	$138,600
	NHGRI(NIH)	NHGRI(NIH)*	$200,000	$100,800
	NIMH(NIH)	NIMH(NIH)*	$275,000	$138,600
		sub-total	**$750,000**	**$378,000**
Aguirre-Ghiso, Begley, Conklin, Guda, Kuznetsov, Tenenbaum	Prostate Cancer Foundation	Same	$150,000	$0

*** Pending (submitted)**
 # Score within funding range but not yet awarded

† **Renewal of existing grant**