Senate Bill No.: 0405-29

UNIVERSITY SENATE

UNIVERSITY AT ALBANY
STATE UNIVERSITY OF NEW YORK

Introduced by: University Planning and Policy Council

Date: May 9, 2005

PROPOSED GEN*NY*SIS CENTER FOR EXCELLENCE IN CANCER GENOMICS

IT IS HEREBY PROPSED THAT THE FOLLOWING BE ADOPTED:

The Senate finds the proposed Gen*NY*Sis Center for Excellence in Cancer Genomics to be consistent with the University's educational and research mission. The Senate endorses its establishment at the University at Albany.

That this be forwarded to the President for approval.

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

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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., 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

[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.

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

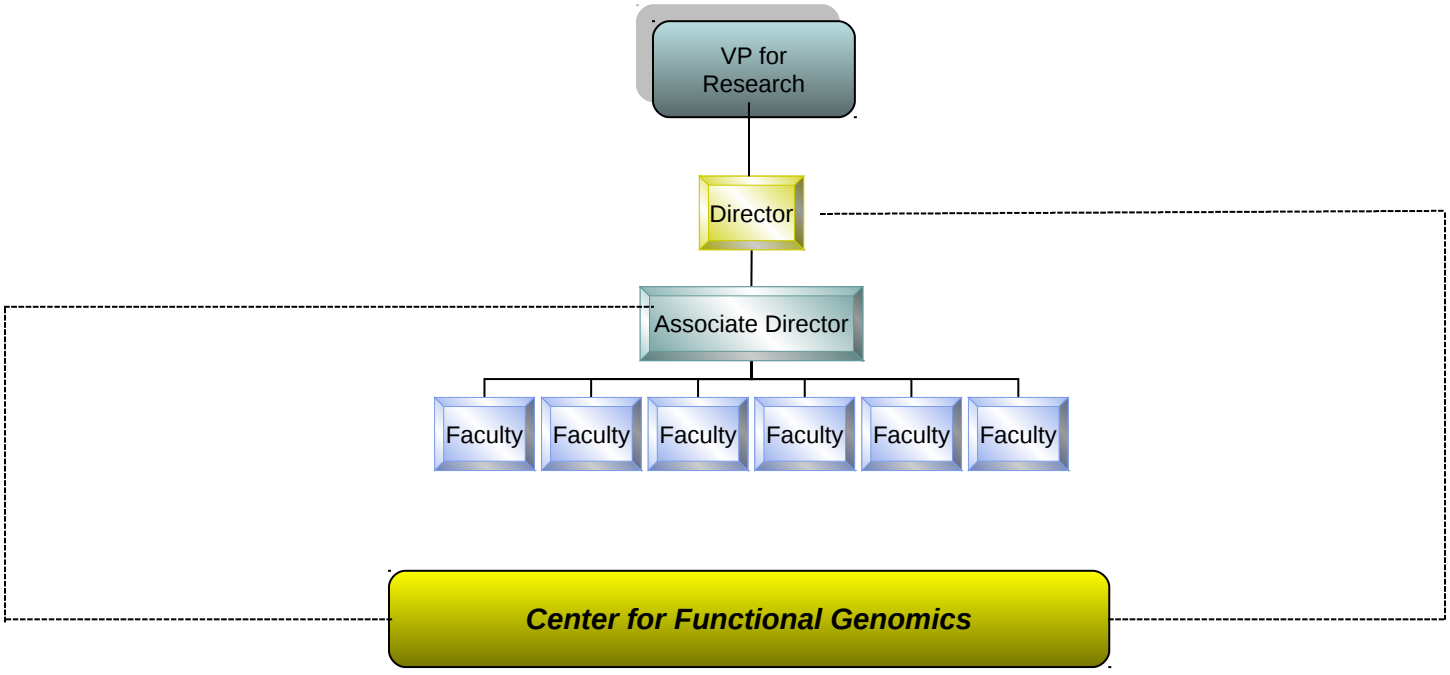
Gen*NY*Sis Cancer center faculty meet regularly with members of the nearby Genomics Institute, a part of the Wadsworth Center of NY State's Department of Health, to share ideas, research, and identify areas to collaborate.

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:

One-Time Expenses

- 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

Operations

- 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

Journal Club

- Food, beverages for small weekly seminars: $2,000

Distinguished Speaker Seminar Series

- 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

Annual Meeting

- 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.

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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

Gen*NY*Sis Center for Excellence in Cancer Genomics
Income & Budget Projections
April 25, 2005

Financial Plan

I. 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. A major goal for the program is the establishment of a $10 million endowment that would generate ~$400,000 per year to cover the programs operational expenses.

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 time 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

II. Outputs

Following is a breakdown of foreseen one-time and ongoing operational expenses:

Following is a breakdown of foreseen expenses:

<u>One-Time Expenses (Associated with Moving to New Building)</u>

- One Shared Tissue Culture Facility:
  - Biological Safety Renovation $20,000
  - Shared tissues culture incubators and safety hoods $35,000
  - Tissue culture centrifuges, microscopes, pipettes, liquid nitrogen storage $45,000
- Other Shared Equipment:
  - Incubator Shaker $ 8,000
  - Ice Machine $ 2,000
  - Water Purification System $40,000
- Shared Bioinformatic Resource Center (Students, Postdocs):
  - Eight Computers $20,000
- Administrative Assistant Initial Office Setup:
  - Supplies <u>$10,000</u>
- Subtotal: $180,000

Operations

- Animal facilities, husbandry and housing: $100,000
- Two staff, one administrative for faculty support, one lab assistant for cancer center operations. Current salary & benefit estimates for both are: $90,000.
- 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/year: $12,000
- Online journal subscriptions (specialized journals on informatics and cancer) $15,000
- Subtotal: $387,000

Distinguished Speaker Seminar Series

- 7 speaker per year
  - Honorarium, travel, housing (2 nights), breakfast (2); lunch, dinner, and general reception for seminar attendees
- Subtotal: ($2,154 x 7) $14,664

Biennial Meeting

- 6 Internationally renowned scientists as major participants
- Honoraria, travel, housing (2 nights), breakfasts (2), lunch, dinners
- ~100-125 attendees
  - Coffee breaks, lunch, and reception
- Media, marketing and administration
- Miscellaneous items (posters, badges, etc.)

- Subtotal: $39,150 ($19,575/yr)

YEARLY OPERATING COSTS **$421,653**

ONE TIME SET-UP COSTS: **$180,000**

TOTAL **$601,653**

APPENDIX C – Gen*NY*Sis Cancer Center Researcher CVs

Gen*NY*Sis Center for Excellence in Cancer Genomics - CVs

Director	**Dr. Paulette McCormick**
Associate Director	**Dr. Richard Cunningham**

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Paulette J. McCormick	***Professor***

EDUCATION *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Barnard College, New York, NY	**B.A.**	**1972**	**Biology**
University at Albany, SUNY, Albany, NY	**Ph.D.**	**1979**	**Cell Biology & Developmental**

A. Positions and Honors

Positions and Employment:

1972-74: Senior Research Assistant in Tumor Virology, Department of Pathology, Harvard Medical School.

1975-79: Graduate Student in laboratory of Dr. Albert Millis, University of New York at Albany.

1976-79: Predoctoral Fellow of the National Science Foundation.

1979-82: Postdoctoral Fellow in the Laboratory of Developmental Genetics, Sloan-Kettering Institute for Cancer Research.

1982-85: Senior Research Associate in the Laboratory of Developmental Genetics and Instructor, Developmental Genetics Training Program, Sloan-Kettering Institute for Cancer Research.

1985-91: Assistant Professor, University at Albany, SUNY, Center for Cellular Differentiation, Department of Biological Sciences.

1991-98: Associate Professor, University at Albany, SUNY, Center for Cellular Differentiation, Department of Biological Sciences.

1997-date: Professor, University at Albany, SUNY, Department of Biological Sciences

1998-date: Director, University at Albany Center for Functional Genomics

2000-date: Co-Director of UA/Taconic Farms NIH Mutant Mouse Regional Resource Center.

2003-date: Director, New York State Gen*NY*Sis Center for Excellence in Cancer Genomics

2003-date: Founding Member and Steering Committee: Bioconnex

2004-date: Member, Board of Directors, Gilda's Club, Capital Region, New York

2004-date: Member, Scientific Advisory Committee, Barnard College, Columbia University

Other Professional Experience, Honors and Awards:

1968: National Merit Scholarship Semi-Finalist; 1968: New York State Regents Scholarship; 1968-72: Barnard College of Columbia University Scholarship 1976-79: National Science Foundation Predoctoral Fellowship; 1980-82: National Institutes of Health Postdoctoral Fellowship; 1985-present: Reviewer for numerous journals including Cancer Research, JNCI, JCI, etc.; 1990: Dr. Nuala McGann Drescher Fellowship for Meritorious Service in Affirmative Action; 1994: National Association of Science/National Research Council Howard Hughes Medical Institute, Genetics and Molecular Biology Fellowship Panel, (Co-chair,1993 and Chair, 1994); 1992-96 and 1999-2003: Member of National Institutes of Health, National Cancer Institute Pathology B Study Section (on molecular genetics of cancer and metastasis); 1995: Distinguished Lecturer in Cancer and Metastasis, Wayne State University & Michigan Cancer Center; 1996-present: member of numerous NIH Special Emphasis Panels; 1997: NIH Special Panel on Germ Line Tumors; 1997: Distinguished Lecturer, Imperial College, London, UK; 1998 Organizer 50 years of Methylation (a symposium to honor Rollin Hotchkiss), Albany, NY; 2001-present: Editorial Board, Technology in Cancer Research and Treatment; 2004: New York State Roundtable on Prostate Cancer; 2004 Scientific Advisory Board, Barnard College of Columbia University.

B. Selected peer-reviewed publications (in chronological order).

McCormick, P.J., Keys, B.J., Pucci, C. and Millis, A.J.T. (1979) Human fibroblast conditioned medium contains a 100K dalton glucose-related cell surface protein. Cell 18:173-182.

McCormick, P.J., Babiarz, B. and Millis, A.J.T. (1982) Distribution of a 100K dalton glucose-regulated cell surface protein in mammalian cell cultures and sectioned tissues. Exp. Cell Res. 138:63-72.

Artzt, K., McCormick, P.J. and Bennett, D. (1982) Gene mapping with the T/t-complex of the mouse. 1. t-lethal genes are non-allelic. Cell 28:463-470.

McCormick, P.J., DiMeo, A., Neuner, E. and Artzt, K. (1982) Characterization of the F9 antigen isolated from teratocarcinoma cell culture medium. Cell Diff. 11:135-140.

Shin, H.-S., McCormick, P.J., Artzt, K. and Bennett, D. (1983) Cis-trans test shows a functional relationship between non-lethal allelic lethal mutations in the T/t complex. Cell 33:925-929.

McCormick, P.J. and Babiarz, B. (1984) Expression of a glucose-regulated cell surface protein in early mouse embryos. Dev. Biol. 105:530-534.

Gummere, G.R., McCormick, P.J. and Bennett, D. (1986) Effects of overall genetic background and the homologous chromosome on transmission ratio distortion in t-haplotypes. Genetics 114:235-245.

McCormick, P.J. and Alton, A.K. (1988) The mouse T/t complex: T mutations and t-haplotypes. In Developmental Genetics of Higher Organisms (G. Malacinski, ed.) Macmillan, N.Y. p. 459-475.

McCormick, P.J. and Shin, H.-S. (1990) Analysis of a nontumorigenic embryonal carcinoma cell line. Exp. Cell Res. 189:183-188.

McCormick, P.J. (1991) Characterization of a developmentally regulated mouse embryonic antigen. In Vitro Cell. Dev. Biol. 27A:260-266.

Dietrich, J., Shin, H.-S. and McCormick, P.J. (1992) Retinoic acid induced differentiation of a nontumorigenic embryonal carcinoma cell mutant created through retroviral insertion. Exp. Cell Res. 199:305-313.

Deckert, J., Dietrich, J. and McCormick, P.J. (1993) A comparative analysis of the activity of retinoic acid and cyclic AMP in the induction of differentiation of embryonal cells. International J. of Oncology 2:403-412.

Aziz, N., Dietrich, J., Shin, H.-S., and McCormick, P.J. (1993) Analysis by somatic cell fusion of the phenotypic properties of a mutant embryonal carcinoma cell line. International J. of Oncology. 3:313-318.

Dietrich, J., and McCormick, P.J. (1994) Analysis of the factors involved in the retinoic acid induced differentiation of a retinoid-hypersensitive embryonal carcinoma cell mutant. Exp. Cell. Res. 210:210-208.

Gama, R.E., Du, Y.L., Bauman, J., Chan, T., and McCormick, P.J. (1996) Novel Mouse Repetitive Element Structures in an Embryonal Carcinoma Mutant Cell Line. Oncology Reports 3:171-174.

Gama, R.E., Du, Y.L., Bauman, J., and McCormick, P.J. (1996) Identification of Exons in a Novel Embryonal Locus Using the GRAIL Program. Oncology Reports, 3:371-374.

Gray-Bablin, J., Acevedo-Schemerhorn, C., Gama, R.E., and McCormick, P.J. (1997) t-complex associated embryonic cell surface antigen homologous to mLAMP-1: I Biochemical and Molecular comparisons. Exp. Cell Res. 236:501-509.

Acevedo-Schermerhorn, C., Gray-Bablin, J., Gama, R.E., and McCormick, P.J. (1997) t-complex associated embryonic surface antigen homologous to mLAMP-1: II Expression and Distribution and Analyses. Exp. Cell Res. 236:510-518.

McCormick, P.J., Finneran, A., and Bonventre, E. (1998) LAMP-1/ESGP appears on the cell surface of fertilized mouse eggs subsequent to fertilization. In vitro Dev. Biol.–Animal 34:353-355.

Yu, L-M, Zhang, F., and McCormick, PJ. (2000) An embryonal carcinoma multiple phenotype locus maps to the proximal portion of the mouse X chromosome. Oncology Reports, 7: 509-513.

Yu, L-M, Mikloucich, J., Sangster, N., Perez, A. and McCormick, PJ. (2003) Myo R is expressed in nonmyogenic cells and can inhibit their differentiation. Exp. Cell Res., 289: 162-173.

Yu, L-M, Eifert, C., Sangster, N., Chittur, S., Tine, J. and McCormick, PJ. Retinoic acid induced alterations of global gene expression in embryonal carcinoma cells. (Submitted to Molecular Biology of Reproduction and Development)

Sangster, N., Yu, L-M, and McCormick, P.J. Molecular Profiling of Embryonal Carcinoma Cells Following Retinoic Acid or Histone Deacetylase Inhibitor Treatment (Submitted to Molecular Cancer Research)

Yu, L-M., Perez, A.V. and McCormick, P.J. The bHLH protein MyoR inhibits endodermal differentiation. (Submitted to Differentiation)

C. Research Support

Ongoing Research Support

"Mutant Mouse Regional Resource Center" (Preserve, distribute and characterize mutant mice)
Co-Principal Investigator: PJ McCormick, PhD
Agency: National Center for Research Resources
Type: RFA (1.U42 RR 14820) Period: February 1, 2000 to January 31, 2005
$4.5 million (total)
Our long term overall objective is to assist in the characterization and delivery of mutant mice to the research community so that such mutants may become even more valuable tools in the elucidation of the mechanisms governing mammalian homeostasis and disease.

"Analyses of a Non-Tumorigenic Embryonal Carcinoma Cell Line" (determine the molecular causation of a retroviral insertion mutation regulating multiple phenotypes)
Principal Investigator: PJ McCormick, PhD
Agency: National Cancer Institute
Type: R01 (CA49466, years 11-15) Period: April 1, 2001 to March 31, 2005
$1,200,000 (total)
The long term objectives of this project are to identify and characterize the gene disrupted by the retroviral insertion as well as any downstream genes whose activity is affected by loss of the insertion site encoded transcript.

"New York State Gen*NY*Sis Grant for Center for Excellence in Cancer Genomics"
Principal Investigator: PJ McCormick, PhD
Agency: New York State
Period: September 2002 to August 2005
Award: $22.5 million
The objective of this project is to establish a state-of-the-art cancer research center.

Technology Transfer Award
PI: PJ McCormick, PhD
Agency: New York Science, Technology and Academic Research
Period: 2/1/04 – 1/31/05
Award: $500,000
The major goal of this project is to begin a feasibility study for the creation of a National VA Molecular Medicine Resource

Health Care Reform Act Award
Principal Investigator: PJ McCormick, PhD
Agency: New York State
Period: 2/1/04 – 7/31/05
Award: $1,420,000
Faculty Recruitment to UAlbany School of Public Health
The major goal of this project is to recruit new faculty

Completed Research Support

"Analyses of a Non-Tumorigenic Embryonal Carcinoma Cell Line" (determine the molecular causation of a retroviral insertion mutation regulating multiple phenotypes)
Principal Investigator: PJ McCormick, PhD
Agency: National Cancer Institute
Type: R01 (CA49466, years 11-15) Period: April 1997 to March 31, 2001
The long term objectives of this project are to identify and characterize the gene disrupted by the retroviral insertion as well as any downstream genes whose activity is affected by loss of the insertion site encoded transcript.

"Transgenic Facility Grant"
Principal Investigator: PJ McCormick, PhD
Agency: Research Foundation of the University at Albany and the Albany Medical College
Period: February 1, 1999 to Jan 31, 2001
The objective of this project is to establish a staffed, state-of-the-art core facility for the generation of transgenic mice and the maintenance of ES cells for targeted homologous recombination.

"Center for Comparative Functional Genomics Core Facilities"
Principal Investigator: PJ McCormick, PhD
Agency: State of New York
Period: June 1, 1999 to March 31, 2000
The objective of this project is to establish staffed, state-of-the-art core facilities in biochemistry and molecular biology, cell biology and imaging, and bioinformatics to support studies in comparative functional genomics.

Principal Investigator/Program Director *(Last, first, middle):* Cunningham, Richard P.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Richard Cunningham	Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Brown Univ., Providence RI	BA-BS	1966-1971	Biology
Johns Hopkins Univ., Baltimore MD	PhD	1971-1977	Biology
Yale Univ. School of Medicine, New Haven CT	Post-doc	1977-1980	Biochemistry
Johns Hopkins School of Medicine, Baltimore MD	Post-doc	1980-1982	Genetics

A. Positions and Honors:
Assistant Professor of Biological Sciences, SUNY at Albany, 1982-1988

Associate Professor of Biological Sciences, SUNY at Albany, 1988-1993
Professor of Biological Sciences, SUNY at Albany, 1993-present
Associate Director of the Center for Functional Genomics, SUNY at Albany, 2001-present
Research Scientist, Stratton VA Medical Center, Albany, NY, 2003-present
Associate Director, Gen*NY*Sis Center for Excellence in Cancer Genomics, 2003-present

B. Selected peer-reviewed publications:

Mol, C.D., Kuo, C-F., Thayer, MM, Cunningham, R.P. and Tainer, J.A. (1995) Structure and function of the multifunctional DNA repair enzyme exonuclease III. Nature 374, 381-386.

Barzilay, G., Mol, C.D. Robson, C.N. Walker, L.J. Cunningham, R.P., Tainer, J.A., and Hickson, I.D. (1995) Identification of critical active-site residues in the multifunctional human DNA repair enzyme HAP1. Nature Structural Biology 2, 561-568.

Thayer, M.M., Ahern, H., Xing, D., Cunningham, R.P., and Tainer, J.A. (1995) Novel DNA binding motifs in the DNA-repair enzyme endonuclease III structure. EMBO J. 4, 4108-4120.

Zuo, S., Boorstein, R.J., Cunningham, R.P. and Teebor, G.W. (1995) Comparison of the effects of UV irradiation on 5-methylsubstituted and unsubstituted pyrimidines in alternating Py-Pu sequences in DNA. Biochemistry 34, 11582-11590.

Hilbert, T.P., Boorstein, R.J., Xing, D., Kung, P.H., Bolton, P.H., Cunningham, R.P. and Teebor, G.W. (1996) Purificatiion of a mammalian analog of *E. coli* endonuclease III: Identification of a calf thymus pyrimidine hydrate/thymine glycol/AP lyase by crosslinking the enzyme to a thymine glycol-containing DNA-oligonucleotide. Biochemistry 35, 2505-2511.

Purmal, A.A., Rabow, L..E, Lampman, G.W., Cunningham, R.P.and Kow Y.W. (1996) A common mechanism of action for the N-glycosylase activity of DNA N-glycosylase/AP lyases from E. coli and T4. Mutat. Res. 364, 193-207.

Milligan J.R., Ng J.Y., Wu C.C., Aguilera J.A., Ward J.F., Kow Y.W., Wallace S.S. and Cunningham R.P. (1996) Methylperoxyl radicals as intermediates in the damage to DNA irradiated in aqueous dimethyl sulfoxide with gamma rays. Radiat. Res. 146, 436-443.

Hilbert, T.P., Chaung, W., Boorstein, R.J., Cunningham, R.P., and Teebor, G.W. (1997) Cloning and expression of the cDNA encoding the human homologue of the DNA repair enzyme, *Escherichia coli* endonuclease III. J. Biol. Chem. 272, 6733-6740.

Jen, J., Mitchell, D.L., Cunningham, R.P., Smith, C.A., Taylor, J-S., and Cleaver, J.E. (1997) Ultraviolet irradiation produces novel endonuclease III-sensitive cytosine photoproducts at dipyrimidine sites. Photobiol. Photochem. 65, 323-329.

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Begley, T. J. and Cunningham R.P. (1999) *Methanobacterium thermoformicicum* Thymine DNA mismatch glycosylase: conversion of an *N*-glycosylase to an AP lyase. Protein Engineering, 12, 333-340.

Haas B.J., Sandigursky, M., Tainer, J.A., Franklin, W.A. and Cunningham, R.P. (1999) Purification and characterization of *Thermotoga maritima* endonuclease IV; a thermostable apurinic/apyrimidinic endonuclease and 3-repair diesterase. J. Bacteriol. 181, 2834-2839.

Begley, T.J., Haas B.J., Noel, J., Shekhtman, A., Williams, W.A., and Cunningham, R.P. (1999) A new member of the endonuclease III family of DNA repair enzymes which removes methylated purines from DNA. Current Biology 9, 653-656.

Bazar, L.S., Collier, G.B., Vanek, P.G., Siles, B.A., Kow, Y.W., Doetsch, P.W., Cunningham, R.P., and
Chirikjian, J.G. (1999) Mutation identification DNA analysis system (MIDAS) for detection of known mutations. Electrophoresis 6, 1141-1148.

Shekhtman, A., McNaughton, L., Cunningham, R.P., and Baxter, S.M. (1999) Identification of the *Archaeoglobus fulgidus* endonuclease III-DNA interaction surface using heteronuclear NMR methods. Structure 7, 919-930.

Hosfield, D.J., Guan, Y., Haas, B.J., Cunningham, R.P., and Tainer J.A. (1999) Structure of the DNA repair enzyme endonuclease IV and its complex with DNA: double-nucleotide flipping at abasic sites and three-metal-ion catalysis. Cell 98, 397-408.

Chheda, A.D., Teebor, G.W. and Cunningham, R.P. (2000) Identification, characterization, and purification of DNA glycosylase/AP lyases by reductive cross-linking to 2-deoxyribooligonucleotides containing specific base lesions. Methods, 22, 80-187.

Hashimoto, H., Greenberg, M. M., Kow, Y. W., Hwang, J.-T. and Cunningham R.P. (2001) The 2-deoxyribonolactone lesion produced in DNA by neocarzinostatin and other damaging agents Forms cross-links with the base-excision repair enzyme endonuclease III. J. American Chem. Soc. 123, 3161-3162.

Marenstein, D.R., Ocampo, M.T., Chan, M.K., Altamirano, A., Basu, A.K., Boorstein, R,J., Cunningham, R.P. and Teebor G.W. (2001) Stimulation of hNth1 by YB-1 (DbpB): Interaction between a base excision repair enzyme
and a transcription factor. J. Biol. Chem. 276, 21242-21249.

Mol, C.D., Arvai A. S., Begley, T. J., Cunningham, R. P., and Tainer, J. A. (2002) Structure and Activity of
a Thermostable Thymine-DNA Glycosylase: Evidence for Base Twisting to Remove Mismatched Normal DNA Bases. J. Mol. Biol. 315:373-384

Ocampo, M.T.A., Chaung, W., Marenstein, D.R., Chan, M.K., Altamirano, A., Basu, A.K., Boorstein, R.J., Cunningham, R.P., and Teebor, G.W. (2002) Targeted deletion of mNth1 reveals a novel DNA repair enzyme activity. Mol. Cell. Biol. 22, 6111-6121.

Begley, T.J., Haas, B.J., Morales, J.C., Kool, E.T., and Cunningham, R.P. (2003) Kinetics and binding of the thymine-DNA mismatch glycosylase, Mig-*Mth*, with mismatch-containing DNA substrates. DNA Repair 2, 107-120.

Marenstein, D.R., Chan, M.K., Altamirano, A., Basu, A.K., Boorstein, R.J., Cunningham, R. P., and Teebor, G.W. (2003) Substrate specificity of human endonuclease III (hNth1): Effect of human AP endonuclease 1 (APE1) on hNTh1 Activity. J. Biol. Chem. 278, 9005-9012.

Burgis, N.E., Brucker, J, J. and Cunningham, R.P. (2003) A repair system for non-canonical purines in *Escherichia coli*. J. Bacteriol. 185, 3101-3110.

Aramini, J.M., Cleaver, S.H., Pon, R.T., Cunningham, R.P., Germann, M.W. (2004) Solution structure of a DNA duplex containing an alpha-anomeric adenosine: insights into substrate recognition by endonuclease IV. J. Mol. Biol. 338, 77-91.

Laboratory of Dr. Julio Aguirre-Ghiso

Julio A. Aguirre-Ghiso	**Principal Investigator**
Sharon J Sequeira	**Graduate Research Assistant**
Aparna C Ranganathan	**Postdoctoral Fellow**
Lin Zhang	**Research Assistant**

Curriculum Vitae

Name: **Julio A. Aguirre-Ghiso** Position title: **Assistant Professor**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Buenos Aires, Buenos Aires, Argentina	MSc.	1989-1994	Biological Sciences. Track: Molecular Genetics and Biotechnology
University of Buenos Aires, Buenos Aires, Argentina	Ph.D.	1994-1997	Molecular Cell Biology
Mount Sinai School of Medicine, New York, USA	Postdoctoral Training	1998-2003	Molecular and Cell Biology

Date of Birth: October 25th, 1969.
Place of Birth: Buenos Aires, Argentina
Citizenship: Argentine (US Permanent Resident)

PROFESSIONAL POSITIONS:

1992-1995: Student Research Assistant, **University of Buenos Aires, Argentina.**

1994-1995: Teaching Assistant, **University of Buenos Aires**, **Argentina**.

1996-1998: Graduate Research Associate, **University of Buenos Aires, Argentina.**

1998-2003: Postdoctoral Fellow, **Mount Sinai School of Medicine-NYU, New York USA**.

2003-date: Assistant Professor, **The University at Albany, State University of New York, USA.**

AWARDS:

1996 -Best Basic Research Paper. XII Multidisciplinary Sessions of Oncology of the Institute of Oncology " Angel H. Roffo" of the University of Buenos Aires, Argentina.

1998-“Florencio Fiorini Foundation Award” from the Argentine League for the Fight Against Cancer (LALCEC), Argentina.

1999- Best Basic Research Paper. XV Multidisciplinary Sessions of Oncology of the Institute of Oncology " Angel H. Roffo" of the University of Buenos Aires, Argentina.

2002:"Jorge Oster Fellowship", Bunge y Born Foundation, **Argentina.** (Trainee in the USA. Hernan Farina, PhD).

2003:"Jorge Oster Fellowship", Bunge y Born Foundation, **Argentina**. (Trainee in the USA, Alejandro Adam, MSc.)

2003:"Florencio Fiorini Foundation"**, Argentine League for the Fight Against Cancer** (LALCEC), **Argentina**.

FELLOWSHIPS:

1993- Student Research Fellowship of the **University of Buenos Aires, Argentina**

1996- Graduate Research Fellowship of the **University of Buenos Aires, Argentina**.

1996- Graduate Research fellowship of the **National Council for Science and Technology Research** (CONICET). Declined

1997- Senior Research fellowship of the **National Council for Science and Technology Research** (CONICET). Declined

2001- Charles H. Revson Postdoctoral Fellowship in Biomedical Research, **Charles H. Revson Foundation, New York, USA.**

GRANT SUPPORT:

TRAVEL GRANTS:

1995- THE "ANGEL H. ROFFO" FOUNDATION, to develop collaborative research at Dr. Carlos Arregui's laboratory at the Biochemistry Department of the School of Chemistry, of the National University of Cordoba, Argentina .

1996- THE FOUNDATION FOR CANCER RESEARCH AND PREVENTION (FUCA*)* to attend the 87th Congress of the American Association for Cancer Research (AACR) in Washington DC, USA.

1996- *BAGÓ LABORATORIES INC*. to attend the 4th Brazilian Symposium on Extracellular Matrix. 8-11 of September Angra dos Reis, Rio de Janeiro, BRAZIL.

1997- THE "ANGEL H. ROFFO" FOUNDATION, to attend the 88th Congress of the American Association for Cancer Research (AACR) in San Diego CA, USA.

RESEARCH GRANTS:

ONGOING:

-2003-2006. PI: Julio A. Aguirre-Ghiso

Type: Startup Funds from THE STATE UNIVERSITY OF NEW YORK AT ALBANY

-2004-2006 . PI :Julio Aguirre-Ghiso, Co-PI: Douglas Conklin

Title: Functional genomics approach to discover cancer dormancy regulating genes.

Agency: SAMUEL WAXMAN CANCER RESEARCH FOUNDATION. New York.

PENDING

PI: Julio A. Aguirre-Ghiso

Title :Functional determinants of metastatic dormancy.

Type: 1 R01 CA109182-01, Agency: NCI/NIH. 04/01/05-03/30/10

Score 130, percentile 0.9.

PUBLICATIONS:

Julio A. Aguirre-Ghiso, Liliana Ossowski and Sarah K. Rosenbaum. GFP tagging of ERK and p38 pathways reveals novel dynamics of pathway activation during primary and metastatic growth. ***Cancer Res*** **(2004);** 64(20):7336-45.

Esteban Mazzoni, Alejandro Adam, Elisa Bal de Kier Joffe and Julio A. Aguirre-Ghiso. Immortalized mammary epithelial cells overexpressing PKC acquire a malignant phenotype and become tumorigenic in vivo. ***Molecular Cancer Res***. **(2003);** 1:776-787

Julio A. Aguirre-Ghiso, Yeriel Estrada, David Liu and Liliana Ossowski. ERK(MAPK) activity as a determinant of tumor growth and dormancy; regulation by p38(SAPK). ***Cancer Res.*** (**2003); 63(7):1684-95.**

Puricelli L, Proiettii CJ, Labriola L, Salatino M, Balana ME, Aguirre Ghiso J, Lupu R, Pignataro OP, Charreau EH, Bal de Kier Joffe E, Elizalde PV. Heregulin inhibits proliferation via ERKs and phosphatidyl-inositol 3-kinase activation but regulates urokinase plasminogen activator independently of these pathways in metastatic mammary tumor cells. ***Int. J. Cancer*****. (2002); 100(6):642-53.**

David Liu, Julio A. Aguirre-Ghiso, Yeriel Estrada and Liliana Ossowski. EGFR is a transducer of the urokinase receptor initiated signal that is required for in vivo growth of a human carcinoma. ***Cancer Cell*** **(2002);** 1: 445-457 **(Cover).**

Julio Aguirre-Ghiso. Inhibition of FAK signaling activated by urokinase receptor induces human carcinoma dormancy in vivo. ***Oncogene*** **(2002); 21(16):2513-24.**

Virginia Ladeda , Paul Frankel , Larry A. Feig, David A. Foster, Elisa Bal de Kier Joffe, Julio A. Aguirre-Ghiso. RalA mediates v-Src, v-Ras, and v-Raf regulation of CD44 and fibronectin expression in NIH3T3 fibroblasts. ***Biochem Biophys Res Commun.*** **(2001); 283(4):854-61**.

Julio A. Aguirre Ghiso, David Liu, Andrea Mignatti, Katherine Kovalski and Liliana Ossowski. Urokinase receptor and fibronectin regulate the ERK^{MAPK} to $p38^{MAPK}$ activity ratios that determine carcinoma cell proliferation or dormancy in vivo. ***Mol. Biol. Cell*** **(2001)**; **12, 4, 863-879.**

Liliana Ossowski and Julio A. Aguirre Ghiso. Urokinase receptor and integrin partnership: coordination of signaling for cell adhesion, migration and growth. **Review Article.** ***Current Opinion in Cell Biology*** **(2000); 12(5):613-20.**

Elisa Bal de Kier Joffe, Esteban O. Mazzoni, Julio A. Aguirre Ghiso. Signaling pathways regulating the expression of proteases during tumor progression**. (in Spanish)** ***Medicina (B Aires)*** **(2000); 60:34-40**

Julio A. Aguirre Ghiso, Katherine Kovalski and Liliana Ossowski. Tumor dormancy due to urokinase receptor down-regulation in human carcinoma involves integrin and MAPK signaling. ***J. Cell Biol. (*****1999); 147, 89-103.**

Liliana Ossowski, Julio A. Aguirre Ghiso, David Liu, Wen Yu and Katherine Kovalski. The role of plasminogen activator receptor in cancer invasion and dormancy. **Review Article.** ***Medicina (Buenos Aires)*** **(1999) vol. 59, 547-552.**

Julio A. Aguirre Ghiso, Paul Frankel, Eduardo Farías, Zhimin Lu, Hong Jiang, Amanda Olsen, Larry Feig, Elisa Bal de Kier Joffé and David Foster. Ral-A requirement for v-Src- and v-Ras-induced tumorigenicity and overproduction of urokinase-type plasminogen activator. Involvement of metalloproteinases. ***Oncogene* (1999*),* 18, 4718-4725**.

Julio A. Aguirre Ghiso, Daniel F. Alonso, Eduardo Farías, Daniel E. Gomez and Elisa Bal de Kier Joffé. Deregulation of the signaling pathways controlling urokinase production. Its relationship with the invasive phenotype. **Review Article**. ***Eur. J. Biochem.* (1999) vol. 263, 2, 295-304. (Cover)**

Alejandro J. Urtreger, Julio A. Aguirre Ghiso, Santiago Werbahj, Lydia Puricelli, Andrés Muro, Elisa Bal de Kier Joffé. Involvement of fibronectin in the regulation of urokinase production and binding in murine mammary tumor cells. ***Int. J. Cancer,* (1999), vol. 82, 748-753.**

Virginia Ladeda, Julio A. Aguirre Ghiso, Elisa Bal de Kier Joffé. Function and Expression of CD44 During Spreading and Migration of Murine Carcinoma cells. ***Exp. Cell Res*. (1998); 242:515-527.**

Julio A. Aguirre Ghiso, Eduardo F. Farías, Daniel F. Alonso, and Elisa Bal de Kier Joffé. Secretion of urokinase and metalloproteinase-9 induced by staurosporine is dependent on a tyrosine-kinase pathway in mammary tumor cells. ***Int. J. Cancer* (1998); 76: 362-367.**

Eduardo F. Farías, Julio A. Aguirre Ghiso, Virginia Ladeda and Elisa Bal de Kier Joffé. Verapamil Inhibits Proteases Production, Local Invasion and Metastasis Development of Murine Carcinoma Cells. ***Int. J. Cancer*. (1998); 78 (6): 727-734.**

Julio A. Aguirre Ghiso, Eduardo F. Farías, Daniel F. Alonso, Carlos Arregui and Elisa Bal de Kier Joffé *A* Phospholipase D and Protein Kinase C Inhibitor Blocks the Spreading of Murine Mammary Adenocarcinoma Cells Altering F-Actin and Integrin Point Contact Distribution. ***Int. J. Cancer*. (1997);71: 881-890.**

Julio A. Aguirre Ghiso, Daniel F. Alonso, Eduardo Farías and Elisa Bal de Kier Joffé. Overproduction of urokinase-type plasminogen activator is regulated by phospholipase D and protein kinase C pathways in murine mammary adenocarcinoma cells. ***Biochim. Biophys. Acta* (1997); 1356: 171-184.**

Julio. A. Aguirre Ghiso, Miriam Diament, Isabel D'elia, Elisa Bal de Kier Joffé and Slobodanka Klein. Effect of in vivo culture of murine mammary adenocarcinoma cells on tumor and metastatic growth. ***Tumor Biol*. (1997); 18: 41-52.**

Julio A. Aguirre Ghiso, Eduardo Farías, Diego M. Fernandez, Daniel F. Alonso and Elisa Bal de Kier Joffé. Down modulation of tumor cells-associated proteolytic activity by n-butanol treatment in cultured murine mammary adenocarcinoma cells. ***Int. J Oncol*. (1996); 8: 35-39.**

S. Klein, María Adela Jasnis, Miriam Diament, Lilia Davel, Julio Aguirre Ghiso, Yolanda P. de Bonaparte. Immunomodulation by soluble factors from tumor cells cultured in vivo in diffusion chambers. ***Tumor Biol*. (1994); 15: 160-165.**

BOOK CHAPTER.

2004- Julio Aguirre-Ghiso. Opposing roles for mitogenic and stress signaling pathways in the regulation of cancer dormancy: a balancing act. ***Contemporary Cancer Research,*** 2004, Humana Press.

ORIGINAL REPORTS SUBMITTED OR IN PREPARATION

2004- Aparna C Ranganathan, Alejandro P Adam, Lin Zhang, Sharon J. Sequeira and Julio A. Aguirre Ghiso. Functional coupling of endoplasmic reticulum signaling to drug resistance of dormant carcinoma cells. ***Submitted.***

2004- Aparna C. Ranganathan, Timothy Baroni, Michele Lastro, Scott Tenenbaum, Douglas Conklin and Julio Aguirre-Ghiso. Investigating functional gene programs using ribonomic profiling and genomic scale shRNA targeting: application to cancer dormancy. ***Cancer Genomics and Proteomics. Methods Protocols. Methods in Molecular Biology***, Humana Press. ***In preparation***

REVIEWER FOR SCIENTIFIC JOURNALS AND ORGANIZATIONS:

1998-date:	**Reviewer for the following journals:** The Journal of Cell Science, Clinical Experimental Metastasis, Cancer Letters, International Journal of Cancer, Microscopy Research and Technique, Oncogene, Current Cancer Drug Targets, Cancer Research, Biochemical Pharmacology, Expert Opinion in Pharmacology, Biomed Central-Gastroenterology.
2001-02	**Reviewer:** Samuel Waxman Cancer Research Foundation.
2002	**Reviewer:** John Simon Guggenheim Memorial Foundation
2003	**Reviewer:** AIRC. Italian Association for Cancer Research
2004	**Reviewer:** Science and Technology Sponsored Programs, University of Buenos Aires, Argentina
2004	**Reviewer:** Area Medicina del FONCYT- Agencia Nacional de Promocion Cientifica y Tecnologica -Argentina. (Argentine National Agency for the Funding of Science and Technology).

LECTURES:

- **1997** *Anti-invasive and Anti-signaling strategies to fight cancer.* Session of Biological Therapies for Cancer. XIII Multidisciplinary Sessions of Oncology of the Institute of Oncology "Angel H. Roffo", **University of Buenos Aires, Buenos Aires, Argentina**. Reviewed and published in *Oncología Clínica (Clinical Oncology, in spanish) Vol.2-N°4 pp-52-55-1997.*

- **1999** *Tumor dormancy due to urokinase receptor (uPAR) downregulation ids dependent on α5β1 signaling and activation of p42/p44 ERK in vitro and in vivo.* Institute of Oncology "Angel H. Roffo" **University of Buenos Aires**, **Argentina**.

- **1999** Same title as previous. **National University of Quilmes** (UNQ), **Argentina**.

- **1999**- *Tumor dormancy due to urokinase receptor (uPAR) downregulation ids dependent on α5β1 signaling and activation of p42/p44 ERK in vitro and in vivo* at the Minisymposium: Cell signaling in Tumor Invasion and Metastasis of the **American Association for Cancer Research (AACR) Annual Meeting, Philadelphia, USA.**

- **2000** *Regulation by urokinase receptor and fibronectin of ERK and p38 signaling regulates human carcinoma tumorigenicity or dormancy in vivo***.** Institute of Oncology "Angel H. Roffo" **University of Buenos Aires**, **Argentina**.

- **2000** *MAPK pathways regulated by urokinase receptor for the onset of tumorigenicity or dormancy of a human carcinoma.* Department of Hematology Research Seminars, Department of Medicine, **Mount Sinai School of Medicine, USA.**

- **2001** *FAK signaling and cancer dormancy*. Department of Hematology Research Seminars, Department of Medicine, **Mount Sinai School of Medicine, USA.**

- **2001** *Urokinase receptor and integrin interaction: a novel mechanism of mitogenic signaling for tumor growth.* Department of Biological Sciences, **Hunter College of the City Univeristy of New York, USA.**

- **2001** Lecture: *Urokinase receptor and integrin interaction: a novel mechanism of mitogenic signaling for tumor growth.* Co-chair of the Session: Defining new staging markers, Meeting on Molecular Staging of Cancer, Section Clinical Research, Molecular Oncology, Dept. Surgery, Klinikum Grosshadern, **Ludwig Maximilians University, Munich, Germany.**

- **2002** Balance between ERK and p38-SAPK activities as a determinant of tumor growth and dormancy. Department of Hematology/Oncology Research Seminars, Department of Medicine, **Mount Sinai School of Medicine, USA.**

- **2002** Urokinase Receptor and Integrin Partnership: a Novel Mechanism of Mitogenic Signaling in Tumor Growth. Department of Pathology, **Albert Einstein College of Medicine, Yeshiva University, Bronx, New York, USA.**

- **2002** Urokinase Receptor and Integrin Partnership: a Novel Mechanism of Mitogenic Signaling in Tumor Growth. Center for Cell Biology & Cancer Research Department. **Albany Medical College, Albany, New York, USA.**

- **2002.** Regulation of tumor growth and dormancy by urokinase receptor (uPAR): role of focal adhesion kinase (FAK), Rac and Cdc42 activation. **Julio A. Aguirre-Ghiso**, Luciana Giono and Liliana Ossowski. **Gordon Research Conference**: Signaling by Adhesion Receptors. **Connecticut College, CT, USA** July 14-19, 2002. (**Poster**)

- **2003** ERK^{MAPK} and $p38^{SAPK}$ signaling balance as a determinant of cancer dormancy. Department of Oncology, **Montefiore Medical Center/ Albert Einstein College of Medicine, Yeshiva**

University, Bronx, New York, USA.

- **2003** ERK^{MAPK} and p38^{SAPK} signaling balance as a determinant of cancer dormancy. Department of Biomedical Sciences, School of Public Health and Center for Functional Genomics, **State University of New York (SUNY) at Albany/ University at Albany, Albany, New York, USA.**

- **2003** Functional determinants of metastatic dormancy. Roswell Park Cancer Insitute- Albany Symposium, **Albany, New York, USA.**

- **2004** Functional Genomics Approach to Discover Cancer Dormancy Regulating Genes, Institute of Biology and Experimental Medicine, **University of Buenos Aires, Argentina.**

- **2004** Functional Genomics Approach to Discover Cancer Dormancy Regulating Genes, The Genomics Institute, Wadsworth Center and Department of Biomedical Sciences, School pf Public Health, **University at Albany-SUNY, Albany, New York, USA.**

- **2004** uPAR signaling through MAPK modules: clues to the mechanisms regulating the induction and escape from tumor dormancy. **David Axelrod Institute, Wadsworth Center** and Department of Biomedical Sciences, School pf Public Health, **University at Albany-SUNY, Albany, New York, USA.**

- **2004** Involvement of ER-stress and hnRNP shuttling in p38SAPK-dependent carcinoma cell dormancy. Minisymposium on Genetic Regulation of Metastasis **American Association for Cancer Research Meeting, Orange County Convention Center, Orlando, FL. USA**

- **2004** Spatial-temporal imaging of growth regulatory pathways-controlled GFP expression in primary and metastatic tumors. Minisymposium on Signaling and Tumor Invasion, **American Association for Cancer Research Meeting, Orange County Convention Center, Orlando, FL. USA**

- **2004** uPAR signaling through MAPK modules: clues to the mechanisms regulating the induction and escape from tumor dormancy. Second Chianti Meeting on Proteases, *"CROSS-TALK BETWEEN PROTEINASES AND THE EXTRACELLULAR ENVIRONMENT*" **Certosa di Pontignano, Siena-Italy,** May 16-20,2004

- **2004** Functional Genomics Approach to Discover Cancer Dormancy Regulating Genes, **Samuel Waxman Cancer Research Foundation, Mount Sinai School of Medicine-NYU, New York, USA**.

- **2004** uPAR signaling through MAPK modules: clues to the mechanisms that regulate tumor dormancy. **GE Global Research Center, Niskayuna, NY.**

- **2004** Stress signaling and the induction of cancer dormancy. **Department of Biology, School of Arts and Sciences, University at Albany-SUNY, Albany, New York, USA.**

TEACHING EXPERIENCE (LECTURES AND COURSES):

- **1994-1995.** Teaching assistant position at the Division of Molecular Genetics and Biotechnology, Department of Biological Sciences, School of Exact and Natural Sciences, **University of Buenos Aires,** Argentina.

- **1995-** Tumor-Associated Antigens and the Immune Response to Tumor Antigens, Allergy and Immunology Course, **School of Medicine, University of Buenos Aires**, Argentina.

- **1995-** Regulation of cellular Immune response. Cytokines, Mechanisms of cytotoxicity. Master in Animal Health, Cell Biology Course. **School of Veterinary Sciences. University of Buenos Aires**, Argentina.

- **1995-1998-**Laboratory training of permanent and rotating undergraduate and graduate students at the Institute of Oncology "A.H. Roffo", **University of Buenos Aires,** Argentina

- **1996-** Molecular and cellular mechanisms of the metastatic cascade. Course on "Tumor Markers". Clinical Chemistry Course, **School of Pharmacy and Biochemistry, University of Buenos Aires.** Argentina.

- **1996-** Function and structure of the Cellular Membranes. Updates in Oncology, Molecular Biology course. Radiotherapy Oncology Service, **Italian Hospital of Buenos Aires**, Argentina.

- **1996-** Function and structure of the Cellular Membranes. Oncology Fellows Course, Institute of Oncology "Angel H. Roffo", **School of Medicine, University of Buenos Aires**, Argentina.

- **1996-** Cell Cycle and cellular synchronization. Course: Animal Tissue Culture. Applications for Biotechnology. Institute of Oncology "Angel H. Roffo". **University of Buenos Aires**. Argentina.

- **1997-** Cell Cycle and cellular synchronization. Course: Animal Tissue Culture. Applications to Biotechnology. Institute of Oncology "Angel H. Roffo". **University of Buenos Aires**, Argentina.

- **1998-2003** Laboratory training of M.D./PhD. and Ph.D. permanent and rotating graduate students from **Mount Sinai School of Medicine-NYU**

- **2004-** Cancer Genetics Lectures in the BMS500b and BMS601 courses, PhD and MPH programs, Department of Biomedical Sciences, School pf Public Health, **State University of New York (SUNY) at Albany/ University at Albany, Albany, New York, USA.**

SERVICE and MENTORING

2004-2007: Member of the Graduate Academic Committee. Department of Biomedical Sciences. School of Public Health, University at Albany-SUNY, Albany, NY

2004-2007: Member of the Master in Public Health Program Committee. Department of Biomedical Sciences. School of Public Health, University at Albany-SUNY, Albany, NY

2003-present: Member of the PhD Thesis Committee for Elisabeth Monagh. Center for Cell Biology and Cancer Research, Albany Medical College, Albany NY.

2003-present: **Member of the PhD Thesis Committee** for Mio Shinohara. Department of Biomedical Sciences. School of Public Health, University at Albany-SUNY and Wadsworth Institute, Albany, NY.

2003-present: PhD Mentor for Sharon Sequeira. Department of Biomedical Sciences. School of Public Health and Center for Excellence in Cancer Genomics, University at Albany-SUNY Albany, NY

2003-2004 Member of the Faculty Search Committee for Bioinformatics. Department of Epidemiology and Biostatistics, School of Public Health and Center for Excellence in Cancer Genomics, University at Albany-SUNY Albany, NY

Associations: Associate Member of the American Association for Cancer Research

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BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Sharon J Sequeira	Graduate Research Assistant

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Mumbai, Mumbai, India	B.S	1998	Zoology, Biochemistry
University of Mumbai, Mumbai, India	M.S	2001	Biochemistry

A. Positions and Honors

Positions

2001-Present Graduate Research Assistant, Department of Biomedical Sciences, Wadsworth Center & University at Albany, Albany, NY.

2002-2003 Committee Member, Indian Student Organization, University at Albany, Albany, NY.

2004-2006 Student Representative, Student Affairs Committee, Department of Biomedical Sciences, University at Albany, Albany, NY.

Honors

1998 Achieved Distinction & Awarded Scholarship for Highest Rank in Zoology, University of Mumbai, Mumbai, India.

1999 Awarded 4th Highest Rank Certificate in Biochemistry, University of Mumbai, Mumbai, India.

B. ORIGINAL REPORTS SUBMITTED OR IN PREPARATION

2004- Aparna C Ranganathan, Alejandro P Adam, Lin Zhang, Sharon J. Sequeira and Julio A. Aguirre Ghiso. Functional coupling of endoplasmic reticulum signaling to drug resistance of dormant carcinoma cells. *Submitted.*

BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Aparna C Ranganathan	Postdoctoral Fellow

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Madras, Madras, India	B.S	1994	Chemistry
University of Hyderabad, Hyderabad, India	M.S	1996	Chemistry
Albany Medical College, Albany, NY	Ph.D	2002	Biochemistry &Mol Biology
University of Rochester	Postdoctoral Research Associate	2002-2004	Biochemistry & Biophysics

B. Positions and Honors

Positions

2002-2004- Postdoctoral Research Associate, Department of Biochemistry and Biophysics,University of Rochester, Rochester, NY.
2004-present- Postdoctoral Fellow, Department of Biomedical Sciences, University at Albany, Albany, NY.

Honors

2002- Dean's Prize for Excellence in Research- Albany Medical College
2000- Dean's Prize for Excellence in Extramural Research- Albany Medical College
2000- Outstanding Scientific Presentation Award- 7th Annual Meeting of the Oxygen Society
1999- Outstanding Scientific Presentation Award- 6th Annual Meeting of the Oxygen Society
1997-2002- Trustee Scholarship- Albany Medical College

C. Publications

1. Fabrice Lejeune, **Aparna C Ranganathan**, Lynne E Maquat. eIF4G is required for the pioneer round of translation in mammalian cells. Nat Struct Mol Biol. 2004 Oct;11(10):992-1000.

2. Shang-Yi Chiu , Fabrice Lejeune , **Aparna C Ranganathan**, Lynne E Maquat. The pioneer translation initiation complex is functionally distinct from but structurally overlaps with the steady-state translation initiation complex. Genes Dev. 2004 Apr 1;18(7):745-54.

3. Kristin K. Nelson, **Aparna C. Ranganathan**, Jelriza Mansouri, Ana M. Rodriguez, Kerwin M. Providence, Joni L. Rutter, Kevin Pumiglia, James A. Bennett and J. Andres Melendez. Elevated *Sod2* Activity Augments Matrix Metalloproteinase Expression: Evidence for the Involvement of Endogenous Hydrogen Peroxide in Regulating Metastasis. *Clinical Cancer Research*, Vol. 9, No. 1, pp. 424-432, 2003.

4. **Aparna C. Ranganathan**, Kristin K. Nelson, Ana M. Rodriguez, Kwi-Hye Kim, Grant B. Tower, Joni L. Rutter, Constance E. Brickerhoff, Ting-Ting Huang, Charles J. Epstein, John J. Jeffrey and J. Andres Melendez. Manganese Superoxide Dismutase Signals Matrix Metalloproteinase Expression via Hydrogen Peroxide- dependent ERK1/2 Activation. *Journal of Biological Chemistry*, Vol. 276, No. 17, pp. 14264-14270, 2001.

ORIGINAL REPORTS SUBMITTED OR IN PREPARATION

2004- Aparna C Ranganathan, Alejandro P Adam, Lin Zhang, Sharon J. Sequeira and Julio A. Aguirre Ghiso. Functional coupling of endoplasmic reticulum signaling to drug resistance of dormant carcinoma cells. ***Submitted.***

2004- **Aparna C. Ranganathan,** Timothy Baroni, Michele Lastro, Scott Tenenbaum, Douglas Conklin and Julio Aguirre-Ghiso. Investigating functional gene programs using ribonomic profiling and genomic scale shRNA targeting: application to cancer dormancy. *Cancer Genomics and Proteomics. Methods Protocols. Methods in Molecular Biology*, Humana Press. ***In preparation***

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Zhang, Lin	Research Assistant

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Jining Medical College, China	M.D.	1981	Medicine

NOTE: The Biographical Sketch may not exceed four pages. Items A and B (together) may not exceed two of the four-page limit. Follow the formats and instructions on the attached sample.

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

1981-1988 Internal Medical Residency, Zaozhuang Hospital, China
1988-1996 Physician-in-Charge, Hospital Infection Section, Zaozhuang Hospital, China
1998 Assistant Manager, Panda Express (fast-food Restaurant), Chicago
2003- present Research Assistant, Department of Biomedical Sciences, School of Publin Health and GCECG, State University of New York at Albany

B. ORIGINAL REPORTS SUBMITTED OR IN PREPARATION

2004- Aparna C Ranganathan, Alejandro P Adam, Lin Zhang, Sharon J. Sequeira and Julio A. Aguirre Ghiso. Functional coupling of endoplasmic reticulum signaling to drug resistance of dormant carcinoma cells. ***Submitted***.

Laboratory of Dr. Thomas Begley

Thomas Begley	**Primary Investigator**
Ulrike Begley	**Research Scientist**
Christine Lussier	**Research Associate**
John Rooney	**Research Associate**

Thomas J. Begley, Ph.D.

Curriculum vita

Assistant Professor

Department of Biomedical Sciences

Center for Functional Genomics

School of Public Health

University at Albany

One University Place
Rensselaer, NY 12144-2345
(518) 591-8300
tbegley@albany.edu

Education

University at Albany, State University of New York
B.S., Biochemistry and Molecular Biology
December 1993, Magna Cum Laude

University at Albany, State University of New York
Ph.D., Biological Sciences: *concentration*; Molecular Biology
May 2000
Thesis title: Mechanism of action of Mig.*Mth*: Substrate recognition by base flipping and chemical editing

PROFESSIONAL EMPLOYMENT

Harvard School of Public Health

Post Doctoral Associate, Department of Cancer Cell Biology
September 1999 – May 2001

Massachusetts Institute of Technology, Post Doctoral Fellow, Division of Biological

Engineering, Center for Environmental Health

May 2001- December 2003

University at Albany, State University of New York

Assistant Professor, Department of Biomedical Sciences and Center for Functional Genomics, School of Public Health

JANUARY 2004 - PRESENT

HONORS

2004:	NYSTAR-James D. Watson Fellowship
2003:	Merck-MIT Computational and Systems Biology Fellowship
2002:	National Research Service Award, NIEHS-NIH
2000:	University at Albany Award for Excellence
1996:	Peter Marfry Memorial Scholarship, University at Albany
1993:	Magna Cum Laude, University at Albany

Professional Associations

2004-present:	Environmental Mutagen Society
1998- present:	American Chemical Society
1995- present:	American Association for the Advancement of Science

Manuscripts

Reviews

Begley, T. J. and Samson L. D. Reversing DNA damage with a directional bias. *Nat Struct Mol Biol*. (2004) 8: 688-90.

Begley, T. J. and Samson L. D. Network Responses to Damaging Agents, *DNA Repair*. (2004) 3:1123-32.

Begley, T. J. and Samson L. D. A Fix for RNA. *Nature,* (2003) **421**: 795-796

Begley, T. J. and Samson L. D. AlkB mystery solved: Oxidative demethylation of *N1*-methyladenine and *N3*-methylcytosine adducts by a direct repair mechanism. *Trends in Biochemical Sciences* (2003) **28**: 93-96

Refereed

Said, M. R.*, **Begley, T. J.***, Oppenheim, A. V., Lauffenburger, D. A. and Samson, L. D. Global Network Analysis of Phenotypic Effects: Protein Networks and *S. cerevisiae* Damage Recovery. *PNAS* (in press)

Begley, T. J., Rosenbach, A. S., Ideker, T. and Samson, L. D. Hot Spots for Toxicity Modulation Identified by Genomic Phenotyping and Localization Mapping. *Molecular Cell* (2004) **16**:117-25.

Begley, T.J., Haas, B. J., Morales JC**,** Kool, E.T. and Cunningham, R.P. Kinetics and binding of the thymine-DNA mismatch glycosylase, Mig-*Mth*, with mismatch-containing DNA substrates. *DNA Repair*. (2003) **2**: 107-*120*

Begley, T. J., Rosenbach, A. S., Ideker, T. and Samson, L. D. Recovery Pathways in *S. cerevisiae* Revealed by Genomic Phenotyping and Interactome Mapping. *Mol Cancer Res* (2002) **1**: 103-112.

Mol C.D., Arvai A.S., **Begley T.J.**, Cunningham R.P. and Tainer J.A. Structure and activity of a thermostable thymine-DNA glycosylase: evidence for base twisting to remove mismatched normal DNA bases. *J Mol Biol* (2002) **315**: 373-84.

Begley, T.J., Jelinsky, S.A. and Samson, L.D. Complex Transcriptional responses to Macromolecular Damaging Agents: Regulatory Responses Specific for S_n2 Alkylation and the MAG1 Gene. *Cold Spring Harbor Symposia on Quantitative Biology*, (2000) 383 - 393.

Begley, T.J., Haas, B.J., Noel, J., Shektman, A., Williams, W. A., and Cunningham, R.P. A New Member of the Endonuclease III Family of DNA Repair Enzymes Which Removes Methylated Purines from DNA. *Curr Biol* (1999) **9**: 653-656.

Begley, T.J. and Cunningham, R.P. *Methanobacterium thermoformicicum* Thymine DNA Mismatch Glycosylase: Conversion of an N- glycosylase to an AP Lyase. *Protein Engineering* (1999), **12**: 333-340

Fetrow, J.S., Spitzer, J.S., Gilden, B.M., Mellender, S.J., **Begley, T.J.**, Haas, B.J., Boose, T.L. Structure, function, and temperature sensitivity of directed, random mutants at proline 76 and glycine 77 in omega-loop D of yeast iso-1-cytochrome c. *Biochemistry* (1998) **37**: 2477-87

*Authors contributed equally to work

Seminars and Presentations

2004: "From Systems to Molecules, Complex Cellular Responses to Damage" American Society for Microbiology Conference on DNA

Repair, Host: Prof. Graham Walker

2004: “From Systems to Molecules, Complex Cellular Responses to Damage” Netherlands Cancer Institute, Antoni van Leeuwenhoek Hospital
Host: Prof. Laura J. van’t Veer

2003: “Network Maps in DNA Repair ”. NIH-EU Conference on Molecular Signatures of DNA Damage Induced Stress Response: Seminar Host: Prof. Ben Van Houten, NIEHS-NIH

2003: “Complex Cellular Responses To Damage: A Systems Overview ”. Gordon Research Conference: Mammalian DNA Repair
Seminar Host: Prof. Richard Wood

2002: “Recovery Pathways in *S. cerevisiae* Revealed by Genomic Phenotyping and Interactome Mapping”, Whitehead Institute, Massachusetts Institute of Technology,
Seminar Host: Prof. Susan Lindquist.

2002: “Damage Resistance Pathways in *S. cerevisiae*”, American Chemical Society National Meeting, Boston, M.A.

Seminar Host: Division of Chemical Toxicology

2002: "Recovery Pathways in *S. cerevisiae* Revealed by Genomic Phenotyping and Interactome Mapping", Gordon Research Conference: Mutagenesis

2002: "Genomic Phenotyping", Cancer Center Research Focus, Massachusetts Institute of Technology,
Seminar Host: Prof. Philip Sharp

2001: "Genomic Phenotyping in *Saccharomyces cerevisiae*", Toxicology Group, Division of Bioengineering and Environmental Health, Massachusetts Institute of Technology,
Seminar Host: Dr. Peter Wishnok

2001: "Coordinated Cellular Responses to Macromolecular Damaging Agents Identified Using Organized Toxicogenomic Screens", Gordon Research Conference: Genetic Toxicology

2000: "Phenotypic Macroarrays Using DNA Damaging Agents", Department of Cancer Cell Biology, Harvard School of Public Health,
Seminar Host: Prof. Karl Kelsey

1999: "Substrate Recognition by Members of the Endonuclease III Family of DNA glycosylase", American Society for Microbiology conference on DNA repair and mutagenesis

1999: "Base Flipping and Chemical Editing in the Endonuclease III Family of DNA Glycosylases", Department of Cancer Cell Biology, Harvard School of Public Health,

Seminar Host: Prof. Leona Samson

1998: "*Methanobacterium thermoformicicum* Thymine DNA Mismatch Glycosylase: The Effect of Strand Cleavage on Glycosylase Activity", Gordon Research Conference: Mutagenesis

Teaching and Administrative Experience

Feb 2002: "Global Transcriptional Profiling, DNA Chips and Genomics", Guest Lecturer, Systems Pharmacology and Toxicology, BEH.201, Division of Bioengineering and Environmental Health, Massachusetts Institute of Technology,

1997-1999: Biological Science Graduate Representative to the Student Legislature**,** University at Albany

1998-1999: Grant Reviewer, Graduate Student Organization, University at Albany

1997-1999: Genetics Discussion Section, Bio212, Teaching Assistant, Fall Semester, University at Albany

1997-1999: Immunology Lab, Bio335, Teaching Assistant, Spring Semester, University at Albany

1996: Cell Biology Lab, Bio302, Teaching Assistant, Spring Semester, University at Albany

Funding / Grants

Active

James D. Watson Fellowship
New York State Office of Science, Technology and Academic Research

$200,000 / 2 years

10/01/2004- 9/30/2006

Alkylating agents are a class of chemotherapeutic compounds that are used to treat a number of different types of cancers found in the blood, lung, breast and brain. Alkylating agents can react with nucleophilic centers found in DNA, to generate cytotoxic lesions that selectively kill fast growing cells associated with some cancers. Most cells have the potential to influence the cytotoxicity of alkylating agents, and therefore the efficacy of treatment, through the coordinated action of different DNA repair pathways. Central to the applicants work is the hypothesis that DNA repair pathways interface with signaling and metabolic processes, via a network of DNA damage response proteins, and that these interactions influence the efficiency of repair. The applicant will use computational and systems biology approaches to construct mouse cell models detailing chemotherapeutic resistance mechanisms. The main goals of his research are to (1) identify mammalian gene products that influence the cytotoxic potential of chemotherapeutic compounds and (2) perform targeted genetic and biochemical characterization of signaling pathways that mediate cellular alkylation resistance. The applicant's research plan entails the use of high throughput phenotypic experiments, in conjunction with gene specific mouse knock downs and selected chemotherapeutic compounds, to identify novel gene products that influence killing by alkylating agents. In addition, he will use mass spectrometry based molecular interaction mapping, phenotypic anchoring and computational methods to build a detailed model of cellular resistance mechanisms. Modern genetic and biochemical methods will also be employed to analyze specific proteins involved in damage initiated signaling pathways, with these targeted studies used to gain detailed mechanistic information about alkylation resistance pathways.

Active

PROTEIN INTERACTION NETWORKS IN DNA REPAIR

1 K22 ES012251-01: National Institute of Environmental Health Sciences

Transition to Independent Research (TIP) $300,000 / 3 years

07/01/2004- 06/30/2007

DNA alkylation damage caused by environmental agents is recognized as an initiator of carcinogenesis. Most cells have the potential to avoid this process through the coordinated action of different DNA repair pathways. These pathways need to be extensively choreographed at the protein level to insure the proper initiation of DNA repair and processing of the lesion**. We will therefore test the hypothesis that human proteins that interact with key DNA alkylation repair pathways are critical for preventing agent induced cytotoxicity and mutagenesis.** To test this hypothesis and gain mechanistic insight into the coordination of human DNA repair pathways we will undertake the following three aims. First, we will determine the phenotype of RNAi based knock-downs of a limited set of homology identified DNA alkylation repair genes from humans, after treatment with methyl methansulfonate (MMS) and methyl nitrosoamide MNU (MNU). This will be done in a human lymphoblastomia cell line (TK6) to systematically characterize the phenotype of specific protein deficient cells to alkylating agents. Secondly, we will identify the pre-and post-treatment (MMS and MNU) protein-protein

interacting partners for this core group of important DNA alkylation repair proteins. This will be done using yeast two-hybrid screens and mass spectrometry based identification of proteins identified in protein pull-down experiments. Importantly, this will allow us to generate basal and induced protein interaction maps to analyze the dynamic processes associated with cellular responses to these mutagens. Lastly, we will build DNA alkylation resistance pathways using RNAi based phenotyping of interacting partners and targeted DNA repair assays. All data will be collected in a database, computationally compiled and systematically tested to identify key components of DNA repair pathways which coordinate their mode of action. Collectively this study will provide important mechanistic insights into the coordination of human DNA repair pathways after challenge from an environmental alkylating agent. The combination of two simple techniques, RNAi based phenotyping and targeted protein-protein interaction mapping, provides us with a powerful tool to map biological pathways, better understand the coordination and fidelity factors important for different human DNA repair pathways and systematically explore the human genome for crucial DNA repair accessory proteins.

TOXICOGENOMIC APPROACHES TO STUDY ALKYLATION RESISTANCE

Completed

F32-ES11733: National Institute of Environmental Health Sciences

	04/01/2002-8/31/2003
Individual Post Doctoral National Research Service Award (NRSA)	$ ~52,000 / year

STATUS: The major goals of this project were to (1) systematically screen an ordered library of 4800 *S. cerevisiae* gene deletion strains for alkylation sensitive or resistant phenotypes (2) compile the >350,000 data points into a publicly accessible database and (3) use computational techniques to identify and examine the different cellular pathways that are important for maintaining viability after exposure to an alkylating agent. Methods used in Goals 1-3 were designed to train the applicant in the use of genomic tools, large data set handling and computational techniques that would be applicable to mammalian systems. Goals 1 and 2 have been completed, while goal 3 is in progress.

AIMS: Alkylating agents are found in the form of reactive intracellular metabolites, environmental carcinogens and chemotherapeutic compounds. After reaction with DNA, alkylating agents have been shown to produce a number of mutagenic and / or cytotoxic lesions which include 3-methyladenine, O^6-methylguanine, and alkylphosphate moieties. DNA repair proteins involved in direct, base excision, nucleotide excision, mismatch and recombination repair have been shown to be extremely important in battling the cytotoxic effects of alkylation damage. Similarly, proteins involved in cell cycle arrest, signaling and protein degradation have also been shown to be vital in preventing alkylation induced cytotoxicity. Little is known about the global coordination of these activities after attack by an alkylating agent or other cellular processes important for viability after challenge by an alkylating agent. In addition to DNA repair and cell cycle arrest, the prevention of DNA damage is another viable cellular defense mechanism. DNA found in the nucleus is arranged around histones and complexed with other proteins in a structure called a nucleosome. The organization of nuclear packaged DNA

suggests a role for histone and nucleosomal proteins in protecting DNA from damage. **The following specific aims are designed to help identify many of the cellular processes cells use to combat the effects of exogenous alkylating agents and will focus on the hypothesis that proteins involved in nucleosome architecture can modulate the effects of DNA alkylation damage.** This hypothesis will be tested using genomic, genetic and biochemical experiments. First, we will Identify all yeast gene deletion strains sensitive to the S_n2 alkylating agent methyl methanesulfonate (MMS). The subsequent results will be analyzed using a number of computational approaches and a database model was designed, which makes the results easily accessible and useful to the scientific community. Secondly, we will implement a publicly accessible database for visual querying and data mining of high throughput experiments performed to identify gene deletion strains sensitive to MMS. This database will provide the means to efficiently target phenotypically affected gene deletion strains for future work**.** Lastly, we will explore the role that proteins involved in histone modification and nucleosome architecture play in modulating the effect of alkylation induced DNA damage.

References

Available on request from:

Prof. Leona D. Samson

Ellison American Cancer Society
Research Professor
Biological Engineering Division, and
Director of the Center for
Environmental Health Sciences
Massachusetts Institute of Technology
77 Massachusetts Avenue, 56-235
Cambridge, MA 02139
Tel (617) 258-7813
fax (617) 253-8099
lsamson@mit.edu

Prof. Richard P. Cunningham

Professor of Biological Sciences

Department of Biological Sciences

Associate Director for the Center for Comparative
Functional Genomics
SUNY at Albany
1400 Washington Ave.

Albany, NY 12222
Phone (518) 442-4331
Fax (518) 442-4767
moose@csc.albany.edu

Prof. Peter C. Dedon

Associate Professor of Toxicology
Biological Engineering Division, 56-787
Associate Director, Center for Environmental Health
Massachusetts Institute of Technology
77 Massachusetts Avenue, 56-235
Cambridge, MA 02139
Phone (617) 253-8017
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Christine M. Lussier

P.O. Box 458

Slingerlands, NY 12159
(401) 954-8118 (Cell)
(518) 475-7685 (Home)
cmlussier6@aol.com

Academic Preparation

- **M.S. Environmental Science, G.P.A. 3.9 (*Aug. 2003*)**

  University of Rhode Island, Kingston, RI
  Thesis Research:
  - **The distribution and comparative sampling of mosquitoes associated with West Nile virus in national parks in the northeastern United States**

  Non-Thesis Research:
  - Tested Deer ticks for Lyme Disease using PCR
  - Investigated the optimal salinity and organic content for larval *Cx. pipiens, Cx. restuans,* and *Cx. salinarius*
  - Examined the pathogenicity of *Entomophthora culicis* against adult and larval *Cx pipiens, Cx. restuans,* and *Cx. salinarius*

- **B.S. Environmental Science; minor in Biology, G.P.A. 3.4 *(May 2000)***

  University of Maine at Machias, Machias, ME

  Specializations:
  - Marine and terrestrial ecosystems
  - Secondary Education

- **Study Abroad, Biological Science *(Jan.-June 1999)***

University of Wales, Bangor, North Wales

Professional Experience

- **University at Albany, State University of New York (Nov 2004 – present)**

  Department of Biomedical Sciences, Rensselaer, NY, 12144
  Research Assistant in the Begley Laboratory

❖ **Health Research Inc. / NY State Dept. of Health *(Nov. 2003-Sept. 2004*)**

Division of Infectious Disease, Griffin Lab, Slingerlands, NY

Assistant Research Scientist

- Performed experiments in biosafety levels 2 and 3 with West Nile virus and St. Louis encephalitis
- Performed plaque assays and titrations on West Nile virus
- Supervised and trained insectary staff
- Identified mosquito species using PCR techniques
- Conducted research on the vector competence of mosquitoes for West Nile virus
- Maintained mosquito colonies and organized the insectary
- Performed indirect immunofluorescence assays (IFA) on mosquitoes for alphaviruses, flaviviruses, and bunyaviruses

❖ **RI Department of Environmental Management *(May-Sept. 2002, 2003)***

Mosquito Abatement, Kingston, RI

Mosquito Technician

- Trapped and speciated mosquitoes
- Conducted West Nile virus bird surveillance
- Performed data entry using the Arbonet database
- Participated in public relations regarding mosquito control and West Nile virus

❖ **American Biophysics (*Feb. 2002-May 2003*)**

East Greenwich, RI

Mosquito Consultant

- Taught employees to speciate mosquitoes
- Speciated mosquitoes caught in Mosquito Magnet traps across the United States

❖ **University of Rhode Island *(Sept. 2002-May 2003)***

Kingston, RI

Entomology Teaching Assistant

- **Planned, organized, taught, and evaluated undergraduate laboratory**
- **Tutored undergraduate students**
- **Administered and graded lecture exams**
- **Purchased laboratory supplies**

❖ **University of Rhode Island *(Sept. 2001-May 2002)***

Kingston, RI

Entomology Graduate Research Assistant

- Organized and purchased supplies for insect pathology laboratory
- Analyzed data and prepared a manuscript on the management of the stinging ant, *Myrmica rubra*
- Conducted pathogenicity trials on the effects of *Metarhizium anisopliae* on non-target insects
- Maintained mosquito colonies

- **University of Maine *(Sept. 1997-Dec. 1998)***

Machias, ME

Tutor

- Tutored undergraduate students in English, writing, and literature

Research Skills

Molecular: PCR, RT-PCR, Gel Electrophoresis, IFA, Northern/ Southern/Western Blots, Cloning recombinant DNA, *E. coli* electroporation, Recovery and purification of DNA fractionated on agarose gels

Virology: Plaque assays, Mosquito viral inoculations, Vector competence assays, Titrations

Cell Culture: EYSMAY and GFBS for *Entomophthora culicis*, MacConkey's agar for *Serratia marcesens*

Computer: Microsoft Word, Excel, PowerPoint, Adobe InDesign and Photoshop, Data analysis using SPSS, SAS, SYSTAT, and BIOMSTAT

Entomology: Mosquito and tick rearing, Mosquito and tick speciation, Harvesting tick saliva, Tick dissections, Mosquito and tick collection

Other: Biosafety levels 2 and 3 training, Aseptic techniques, Animal care, Environmental sampling, Writing research proposals and scientific papers; Chicken wing vein bleeds

Presentations

- **"Distribution and Comparative Trapping of Mosquitoes"** University of Rhode Island, Kingston, RI *(2003)*

- **"Peritrophic Membranes as a Barrier to Parasites"**

***University of Rhode Island, Kingston, RI* (2001)**

Professional Service

- **Entomological Society of America**
  Eastern Branch, URI
  Graduate Student Representative *(2002-2003)*

Publications

- Ginsberg, H.S., **Lussier, C.**, Manski, D., and G. Ouelette. 2002. Management of the stinging ant, *Myrmica rubra*, using a baited granular formulation of hydramethylnon, 1997. Arthropod Management Tests 127(J3).

- **Lussier, C.**, Ginsberg, H., Lebrun, R., et al. The comparative trapping of mosquitoes associated with West Nile virus in eight national parks. Journal of the American Mosquito Control Association. *Submitted*.

- **Lussier, C**., Ginsberg, H., Lebrun, R. The distribution of mosquitoes in eight national parks. *In prep*.

Ulrike Begley

UBegley@tufts-nemc.org

40 Carroll Ct
Westwood, MA 02090
(781) 329 6796

Tufts New England Medical Center
Molecular Cardiology Research Institute
Tupper Building 14

750 Washington Street
Boston, Massachussets 02111
(617) 636 9003

Residency Status: **Permanent US Resident**

Tufts New England Medical Center
Molecular Cardiology Research Institute
Tupper Building 14
750 Washington Street
Boston, Massachussets 02111

Education

Julius-Maximilian University, Würzburg, Germany, 1992-1999
Diplom in Biology, Major: Biochemistry, (grade: A); Minor: Microbiology, (grade: A); and Minor: Plant Physiology, (grade: B+).
M.S. Equivalent

University at Albany, State University of New York November 1997 – November 1998
Diploma Thesis Research,
Thesis title: Cloning and Characterization of the Intron Encoded Endonuclease I-*Two*I from Bacteriophage Twort, (grade: A).

Thesis advisor: Dr. David A. Shub

Professional Employment

Research Scientist, Department Of Biomedical Sciences, May 2003 - Present

University at Albany

Dr. Thomas Begley Laboratory

Research Associate Molecular Cardiology Research Institute, May 2003 - Present

Tufts New England Medical Center

Dr. Jonas Galper Laboratory

Research Associate, Cardiovascular Division, Brigham and Women's Hospital / Harvard University
Supervisor: Dr. Jonas Galper August 1999 – May 2003

Language Skills

Fluent in English and German, working knowledge of Spanish. Lived in Germany, USA and Spain.

Honors

Deutscher Akademischer Austauschdienst DAAD, one year scholarship for German students to study in the United States, University at Albany, 1996–1997; Hoechst AG Praktikum (3 month Internship), 1995; Parlamentarisches Patenschaftsprogramm, one year scholarship organized by German parliament and the U.S. Congress to facilitate the exchange of high school seniors between these two countries, Wilmington, Delaware, 1988-1989.

General Statement

Senior researcher seeks an independent laboratory position that offers the opportunity to work with little guidance from principal investigator. Applicant has the experience to design, perform and evaluate experiments, implement and maintain quality control protocols, and initiate new experimental approaches in consultation with principal investigator. In addition, the applicant has the ability to oversee the daily activity of research assistants and trainees, and coordinate their lab activities with postdoctoral fellows and the principal investigator.

Demonstrated Duties and Responsibilities

My past duties included the supervision of research assistants and coordination of their activities between tissue culture, lab maintenance and experiments. I have evaluated and reviewed the performance of laboratory members. In collaboration with the principal

investigator, I have developed and maintained a laboratory training program that includes instructions for primary cultures (cardiomyocytes, human dermal cells, and human umbilical vein endothelial cells), safety protocols, experimental design, data collection and proper statistical measures of collected data. In addition, the applicant has significant experience in implementing new research protocols, has produced data to satisfy a number of aims specified in NIH grants, has played an active role in the preparation of NIH grants for review, contributed as an author to a number of publications and has presented her work at both regional and national scientific meetings. Lastly, my duties have also included significant responsibility for overseeing proposed budgets and monitoring the inventory needs of the laboratory.

Qualifications

Excellent interpersonal skills; significant initiative, the ability to work independently and supervise the work of others; maintain a harmonious and productive work environment; strong analytical skills and the capacity to think creatively and conceptually; Excellent oral and written communicative skills; documented ability to prioritize tasks, achieve deadlines, identify problems and develop solutions. Advanced computer skills that include Power Point, Excel, Photoshop and the ability to capture and filter photo-microscopic data.

Manuscripts

Fetrow, J.S., **Begley (Dreher), U.,** Wiland, D.J., Schaak, D.L. and Boose, T.L. (1998) Mutagenesis of histidine 26 demonstrates the importance of loop-loop and loop-protein interactions for the function of iso-1-cytochrome c. *Protein Sci*, **4**: 994 - 1005

Landathler, M., **Begley, U**. Lau, N. C. and Shub, D.A. (2002) Two self splicing group I introns in the ribonucleotide reductase large subunit gene of Staphylococcus aureus phage Twort. *Nucleic Acids Res*, **30**: 1935-1943

Park, H.J., **Begley, U**., Kong, D., Yu, H., Yin, L., Hillgartner, F. B., Osborne, T. F. and Galper, J. B. (2002) Role of sterol regulatory element binding proteins in the regulation of G-alpha(i2) expression in cultured atrial cells. *Circ Res*, **91**: 32-37

Park, H.J., Kong, D., Iruela-Arispe L., **Begley, U**., Tang, D. and Galper, J.B. (2002) 3-Hydroxy-3-methylglutaryl coenzyme A reductase inhibitors interfere with angiogenesis by inhibiting the geranylgeranylation of RhoA. (2002) *Circ Res*, **91**: 143-150

Presentations

Begley, U. Park, H. J., Kong, D., Yu, H., Yin, L., Hillgartner, F. B., Osborne, T. F. and Galper, J. B. Sterol Regulatory Binding Protein Coordinately Regulates the Expression of Parasympathetic genes in cultured chicken heart cells. Poster Presentation, American Heart Association National Conference, November 2001.

Begley, U. Sterol (SREPB) Regulation of Para-Sympathetic Response Genes in Cultured Atrial Cells. Seminar, Cardiovascular Division Brigham and Women's Hospital, October 2001

Technical Skills

Adenovirus and retrovirus preparations and amplification, adenoviral infection of endothelial cells, HUVECs, HDMECs, BAECs and embryonic chick cardiomyocytes isolation and culture, monkey kidney cell line

cultures, mouse maintenance, transfections, luciferase reporter assays, *in vitro* angiogenesis assay using 3D collagen gels, preparation of lipoprotein depleted serum, preparation of collagen from rat tails, fusion protein purifications, Light microscopy, flow cytometry (FACscan), experience with bacterial and yeast systems, bacteriophage, plasmid and genomic DNA isolation, cloning, PCR and RT-PCR, restriction mapping, gel electrophoresis, site directed and random mutagenesis, protein engineering, protein structure-function relationships, DNA sequencing, Northern blots, Southern blots, Western Blots, oligonucleotide design and purification, vector construction, use of pET vectors for protein expression, cell sonication, SDS-PAGE, large scale protein preparations, UV-VIS spectrophotometry, experience with endonuclease assays, experience with STORM phosphoimager, experience with radioactive isoptopes.

Computer Proficiencies

PC / Macintosh / UNIX / Internet based computing, familiar with the GCG package, MacVector, Microsoft Office, Kaliadagraph, BLAST, CLUSTAL, INSIGHT, RasMol, ISIS Draw, Aldus Photostyler, Corel Graphics.

Experience and Accomplishments

RESEARCH PROJECTS:

Role of Autonomic Nervous System in Cardiovascular Disease
Role of Ras in the regulation of parasympathetic genes
Role of Ras Dependent Kinases in the Expression of Parasympathetic Response Genes

1999 – Present: Research Assistant, Cardiovascular Division, Brigham and Women's Hospital, Harvard University

- Managed daily operations, ordering and administrative responsibilities in a lab specializing in angiogenesis
- Responsible for initiating and maintaining human, avian and monkey cell cultures
- Purified C3 toxins
- FACscan analysis to monitor apoptosis

1997 – 1998 Masters Thesis Research, University at Albany, Albany, NY, USA

- Delivered 4 presentations of results and research in progress to members of David Shub's lab and Marlene Belford's lab at the David Axelrod Institute
- Helped train undergraduate students in the Shub lab

- In addition to experiments, performed general lab maintenance and some ordering responsibilities

1996 – 1997 Diplom Prüfungen, Julius-Maximilian University Würzburg, Germany

- Prepared and passed with high honors for final examinations in biochemistry, microbiology and plant physiology

1995 – 1996 Studied Abroad, University at Albany, State University of New York, **ALBANY NY, USA**

- Worked in the laboratory of Dr. Jacque Fetrow, and contributed to a paper on structure-function studies for yeast cytochrome C

1992 – 1995 Julius-Maximilian University, Würzburg Germany, Undergraduate Studies

- Hoechst AG Internship, Frankfurt, Germany, worked in a industrial setting that specialized in recombinant human insulin production.
- Supervised incoming freshman at the University
- Teaching Assistant in Reproduction and Evolutionary Biology
- Field Assistant in Plant Taxonomy

References

Prof. David A. Shub, Biological Sciences,
University at Albany, Albany, NY, 12222;
Phone: 518 442 4324
shub@cnsunix.albany.edu

Prof. Jonas Galper, Tufts New England Medical Center
Molecular Cardiology Research Institute
Tupper Building 14
750 Washington Street
Boston, Massachussets 02111
(617) 636 9003

Dr. Ho-Jin Park Tufts New England Medical Center
Molecular Cardiology Research Institute
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CV - John P. Rooney

149 Pine St., Kingston, NY, 12401

home:845-339-0948 / mobile:845-430-1196

e-mail: jprooney36@yahoo.com

Education
Bachelor of Science, Biology, minor, Criminal Justice

Rochester Institute of Technology, Rochester, NY, 2003

- Graduated High Honors, G.P.A. 3.68

- Relevant course work includes molecular biology, genetics, bioinformatics, microbiology, introductory cell biology, analytical chemistry, and organic chemistry.

Professional Experience

University at Albany, State University of New York, Dec 2004 – present
Research Assistant, Begley Laboratory

Molecular Biology Research Technician, July 2003 – Dec 2004

The Center for Human Genetic Studies, NewPaltz, NY

- Sequenced DNA including PCR products and palsmids on a fluorescence
based LiCor IR2 sequencer.

- Troubleshot and modified protocol for PCR product sequencing, resulting
in increased sequence quality.

- Performed mutational analysis by SSCP on genes of interest.

- Immortalized and maintained mammalian cell lines.

- Created cDNA of a gene of interest, ligated it into a T-Vector, and
transformed E.Coli with the recombinant plasmid.

- Designed and synthesized numerous oligonucleotides on an ABI 3900 DNA
synthesizer.

Laboratory Skills
- PCR ,RT-PCR, and cDNA sythesis.

- DNA sequencing

- Single Stranded Conformational Polymorphism analysis

- Molecular Cloning and plasmid isolation.

- Cell culture

- Bacterial culture

- Oligonucleotide synthesis

- Restriction digests

- DNA and total RNA extraction from both whole blood and cultured cells.

Computer Skills

- Knowledge of most major genetics databases, including the NCBI databases, PDB and GDB.

- Familiar with bioinformatics programs including GCG's Wisconsin Package, and internet based programs including GenScan, Grail, ORFinder, 3dPSSM, ClustalW, and SOSUI.

- Proficient with Microsoft applications including Word, Works, Excel, and Power Point.

- Basic Unix and LAN skills.

Awards and Honors

- Consistent Dean's List status

- R.I.T. Presidential and Alumni Scholarships

- Honor Student in the Department of Biology

Publications

Higgins, JJ, Pucilowska, J, Lombardi, RQ, Rooney, JP. Candidate Genes for Moderate Mental retardation: a non-syndromic recessive type on chromosome 3p26.3 - 3p26.1. Clin Genet 2004, 65: 496-500.

Higgins, JJ, Lombardi, RQ, Tan EK, Jankovic, J, Pucilowska, J, Rooney, JP. Haplotype Analysis at the ETM2 locus in a Singaporean sample with Familial Essential Tremor. Clin Genet 2004;(in press).

Higgins, JJ, Jankovic, J, Lombardi, RQ, Pucilowska, J, Tan EK, Ashizawa, T, Rooney, JP. Haplotype Analysis at the ETM2 Locus in American and Singaporean populations with Familial Essential Tremor. Neurology 2004;62(suppl 5):A27.

References

Joanna Pucilowska, MS

Lab manager, The Center For Human Genetic Studies

Phone: 845 - 256 - 1155

David Germick, Pharm.D., MBA

Pharmacist, Wegman's Food Markets

585 - 426 - 3727

Douglas Merrill, Ph.D

Department head, Biology department, Rochester Institute of Technology

585 - 475 - 2496

merrill@mail.rit.edu (Preferred method of contact)

Laboratory of Dr. Douglas Conklin

Douglas Conklin	Principal Investigator
Matthew Ryan Curley	Research Assistant
Kate Farley	Research Assistant
Michelle Lastro	Postdoctoral Fellow

Curriculum vitae

Douglas S. Conklin, PhD.
Assistant Professor
Department of Biomedical Sciences
Gen*NY*Sis Center for Excellence in Cancer Genomics
University at Albany
East Campus, B342A
One University Place
Rensselaer, NY 12144-2345
Phone: (518) 591-8333
Fax: (518) 525-2799
Email: dconklin@albany.edu

Education

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Pittsburgh	BS	1985	Microbiology
University of Wisconsin-Madison	PhD	1992	Molecular Biology
Cold Spring Harbor Laboratory	Postdoc	1993-1997	Cancer Genetics

Honors

1993 Damon Runyan-Walter Winchell Postdoctoral Fellowship
1993 NIH Postdoctoral Trainee
1985 NIH Predoctoral Trainee

Positions and Employment

1983-1985	Undergraduate research, Univ. of Pittsburgh
1985-1988	NIH Predoctoral Trainee, U. of Wisconsin-Madison
1988-1992	Graduate Assistant, U. of Wisconsin-Madison
1993-1996	Damon Runyan Postdoctoral Fellow, Cold Spring Harbor
1997- 1999	Senior Fellow, Cold Spring Harbor Laboratory
1999-2000	Senior Staff Scientist, Genetica, Inc.
2001-2002	Scientist, Cold Spring Harbor Laboratory
2002-2003	Research Investigator, Cold Spring Harbor Laboratory
2003-pres	Assistant Professor, University at Albany

Selected peer-reviewed publications (in chronological order).

Jacobson, L.A., L. Jen-Jacobson, J.H. Hawdon, G.P. Owens, M.A.Bolanowski, S.W. Emmons, M.V. Shah, R.A. Pollock and D.S. Conklin. 1988. Identification of a putative structural gene for cathepsin D in *Caenorhabditis elegans*. *Genetics* 119: 355-363

Conklin, D.S., J.A. McMaster, M.R. Culbertson, and C. Kung, 1992. *COT1*, a gene involved in cobalt accumulation in *Saccharomyces cerevisiae*. *Mol. Cell. Biol*. 12: 3678-3688

Conklin, D.S., C. Kung and M.R. Culbertson, 1993. The *COT2* gene is required for glucose-dependent divalent cation transport in *Saccharomyces cerevisiae*. *Mol. Cell. Biol*. 13: 2041-2049

Conklin, D.S., M.R. Culbertson and C. Kung, 1994. *Saccharomyces cerevisiae* mutants sensitive to the antimalarial and antiarrhythmic drug, quinidine. *FEMS Letters* 119: 221-228

Conklin, D.S., M.R. Culbertson and C. Kung, 1994. Interactions between gene products involved in divalent cation transport in *Saccharomyces cerevisiae*. *Mol. Gen. Genet*. 244: 303-311

Conklin, D.S., K. Galaktionov and D. Beach, 1995. 14-3-3 proteins associate with CDC25 phosphatases. *Proc. Natl. Acad. Sci*. 92: 7892-7896

Hannon, G.J., P.Q. Sun, A. Carnero, L. Xie, R. Maestro, D.S. Conklin, and D. Beach, 1999. MaRX: An approach to genetics in animal cells. *Science* 283:1129-1130

Durfee, T., O. Draper, J. Zupan, D.S. Conklin, and Zambryski, P.C., 1999. New tools for protein linkage mapping and general two-hybrid screening. *Yeast* 15:1761-1768

Paddison P. J. , A. A. Caudy, E. Bernstein, G.J. Hannon and D.S. Conklin, 2002. Short hairpin RNAs (shRNAs) induce sequence-specific silencing in mammalian cells, *Genes Dev.* 16:948-58

McCaffrey, A.P., L Meuse, T-T T. Pham, D.S. Conklin, G.J. Hannon, and M.A. Kay, 2002. RNA interference in adult mice. *Nature* 418:38-9

Carmell, M.A., L. Zhang, D.S. Conklin, G.J. Hannon, and T.A. Rosenquist. 2003, Germline transmission of RNAi in mice. *Nat Struct Biol* 10:91-2

Conklin, D.S., 2003. RNA interference-based silencing of mammalian gene expression *Chembiochem*. 4:1033-1039

Kumar, R., D. S. Conklin and V. Mittal, 2003. High throughput selection of effective RNAi probes for gene silencing. *Genome Res.* 13:2333-40

Paddison*, PJ, Silva*, JM, Conklin*, DS, Schlabach, M., Li, M., Aruleba, S., Balija, V., O'Shaughnessy, A., Gnoj, L., Scobie, K., Chang,K., Westbrook,T., Sachidanandam, R., McCombie, WR, Elledge SJ and Hannon, GJ, 2004, A resource for large-scale RNAi based screens in mammals. *Nature* 428, 427 - 431

Book chapters

McManus, M.T. and D. S. Conklin, 2003. shRNA-mediated silencing of mammalian gene expression.
In *RNAi: a guide to gene silencing,* Cold Spring Harbor Press

Hannon, G. J. and D. S. Conklin, 2003. RNAi by short hairpin RNAs expressed in vertebrate cells.
In *mRNA Processing and Metabolism: Methods and Protocols, Methods in Molecular Biology Series,* Humana Press

Recent Presentations

RNAi-based mammalian functional genomics, (invited presentation), Taconic Laboratories Inc, October 2004

RNAi-based mammalian functional genomics, (invited presentation), University at Albany, Dept of Biological Sciences, September 2004

Applications of RNAi in mammals, (invited presentation), University at Albany, Dept of Chemistry, September 2004

RNAi-based mammalian functional genomics, (invited presentation), Berlex Corporation, June 2004

RNAi-based mammalian functional genomics, (invited presentation), McGill University, May 2004

RNAi-based mammalian functional genomics, (invited presentation), Roswell Park Cancer Institute, April 2004

Mammalian applications of RNAi, (invited presentation), GE Global Research, December 2003

High throughput RNAi in Mammals, (invited presentation), IBC's 2nd International Conference on RNAi, Boston, November 2003

RNAi in mammalian functional genomics, (invited presentation), RNAi Symposium, David Axelrod Institute, October 2003

Mammalian applications of RNAi, (invited presentation), 6th Annual PEACE Conference, Mont Tremblant, September 2003

Theory and Applications of RNAi, Gordon Research Conference, 2003

Mammalian applications of RNAi, (invited presentation), University of Pennsylvania, 2003

Mammalian applications of RNAi, (invited presentation), University of Southern California, 2003

Mammalian applications of RNAi, (invited presentation), Dartmouth University, 2003

Mammalian applications of RNAi, (invited presentation), University at Albany, 2003

Mammalian applications of RNAi, (invited presentation), Aventis iLab Workshop, Wiesbaden, 2003

Mammalian applications of RNAi, (invited presentation), Drexel University, 2002

Mammalian applications of RNAi, (invited presentation), Ambion, 2002

Mammalian applications of RNAi, (invited presentation), Pfizer, 2002

Large scale hypomorphic mutation analysis of mammalian genomes, D.S. Conklin, P. J. Paddison, J-M Silva, R. Sachidanandam, G.J. Hannon, (platform presentation) Genome Sequencing & Biology Meeting Cold Spring Harbor Laboratory, 2002

Teaching:

Guest lecture in BMS 601 “Tyrosine kinases”

Guest lecture in Biology 248A “Enzymes of RNAi”

Patents:

Beach, D., G.J. Hannon, D.S. Conklin, and P.Q. Sun, Modified retroviral vectors. Serial No. 6,025,192

Beach, D., G.J. Hannon, S. Hammond, E. Bernstein, A.A. Caudy, D.S. Conklin, and P.J. Paddison. Methods and Compositions for RNA interference. Serial No. 60/243,097 (pending)

Matthew Ryan Curley
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Box c0175 Bucknell University
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Permanent Address
49 Gretel Terrace
Ballston Lake, NY 12019
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Education

Bucknell University, Lewisburg, PA (Expected Date of Graduation May 2004)
Bachelor of Science
Major: Cell Biology/Biochemistry
Minor: Art
Cumulative GPA: 3.42
Relevant Courses: Molecular Biology, Cell Biology, Biochemistry I, Biochemical Methods, Virology, Immunology, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Biological Physical Chemistry

- Teaching Assistant (Fall and Spring 2003, Fall 2002)
- Deans List 4 of 7 Semesters
- Member of Alpha Lambda Delta Freshman Honor Society (2001)

Relevant Experience

Research Assistant, Bucknell University (Summer 2002, Spring and Fall 2003)
Biology Department, Professor Mary Howe

- Participated in study of kinetochore proteins in *C. elegans*

Research Assistant, New York State Dept. of Health Wadsworth Labs (Summer 2001)

- Studied cell membrane structure/function in single cell organisms

Additional Experience

Intern, CSEA Labor Union
Marketing Department, Employee Benefit Fund (Summer 2000)

- Data Base maintenance, Filing, Calling on Members

Records Maintenance (Summer 2003)

- Data Base maintenance, Construct Mailings, Filing

Relevant Skills

- Biological: Gel electrophoresis, Northern Blot, Southern Blot, DNA Sequencing, PCR, Cell Culturing, ELISA Assay, Fluorescent Microscopy
- Computational: Microsoft Office Programs, Sigma Plot, Swiss-Prot

Kate Farley

652 Morris St. Apt. 2
Albany, NY 12206

(518) 435-9085
kmefarley@yahoo.com

Objective

Obtain a position that will utilize my education in the biological sciences.

Education

Fall 2002 University at Albany Albany, NY
- Graduate Student – School of Public Health

1997 - 2002 University at Albany Albany, NY
- B.S. in Biology
- B.A. in Psychology

Work Experience

2002 – present
Research Technician I Wadsworth Center Albany, NY

2002 - 2003
Graduate Assistant Peptide Synthesis Facility, Wadsworth Center
- Synthesized peptides using ABI 477 synthesizer
- Cleaved and deprotected synthetic peptides
- Purified peptides using preparative HPLC with System Gold Software

2001–2002 Wadsworth Center Albany, NY
Student Assistant in the lab of Dr. Erasmus Schneider
- Gel electrophoresis and Western blots
- Extracted RNA and Performed real time PCR
- Analyzed data obtained from experiments

1997–2002 Our Lady of Lourdes Summer Care Utica, NY
- Supervise junior level employees
- Supervised children from age 3 through 12
- Organized trips and events

Lab Skills:

Western Blotting, Gel electrophoresis, RNA extraction, PCR and real time PCR, Peptide synthesis, preparative HPLC, Tissue culture and transfection of mammalian cells, virus titers, DNA plasmid purification, ELISA, Radio-immuno assays, Radioreceptor assays, Antibody purification and conjugation

Computer Skills:

Microsoft Windows, Microsoft Word, Excel, PowerPoint, Internet and Email, Software used to run the Light Cycler for quantitative PCR, GraphPad software/Prism 3.0

References:

References furnished upon request

Michele T. Lastro

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1126 Trumbull Corners Road
Newfield, NY 14867
Home Phone (607) 564-3380

E D U C A T I O N

Ph.D. Cornell University, *Department of Animal Science*, Degree expected 2004
Minors: Pharmacology and Physiology
Dissertation Topic: Signal transduction pathways involved in the initiation of bovine oocyte maturation.

M.S. Cornell University, *Department of Animal Science*, 1/2000
Minor: Physiology
Thesis: Cytoplasmic Polyadenylation and its Role in Bovine Oocyte Maturation: An Analysis of Cyclin B1 and B2 mRNA Transcripts.

B.S. Cornell University 5/1994

R E S E A R C H E X P E R I E N C E

Graduate Research Assistant **Cornell University Ithaca, NY**
Supervisor: W. Bruce Currie **September, 1997-present**

- Routinely perform *in vitro* maturation, fertilization and culture of bovine oocytes/embryos for use in weekly experiments
- Used RT-PCR to develop probes to screen a bovine cDNA library to obtain cyc B2 cDNA
- Cloned and sequenced full-length bovine cyclin B2 cDNA GenBank accession # AF080219
- Performed mutagenesis to delete 40 bp fragment from bovine cyclin B2 cDNA to perform quantitative PCR analysis
- Adapted RT-PCR protocol to perform cytoplasmic polyadenylation analysis on bovine cyclin B1, B2, A and mos transcripts
- Performed RNA gel-shift assays on 3' sequence specific oligonucleotides to assess RNA binding protein behavior during cytoplasmic polyadenylation
- Perform cAMP assays to assess adenylate cyclase activity in bovine cumulus-oocyte complexes in response to pharmacological manipulation
- Use confocal microscopy and calcium imaging techniques to assess calcium response in oocytes during *in vitro* maturation and to view calcium movement through gap junctions
- Also proficient in the following laboratory techniques:SDS-PAGE, immunocytochemistry, western analysis, immunoprecipitation, RNase protection assays, mammalian somatic cell culture
- Maintain radioisotope records and inventories

Laboratory Technician **Cornell University Ithaca, NY**
2/1995- 8/1997

- Technician to graduate students and research associates studying transcriptional regulation during early embryonic development

- Managed embryology laboratory, ordered supplies, made reagents
- Routinely performed *in vitro* maturation, fertilization, culture of bovine oocytes/embryos
- Supervised undergraduate students

Laboratory Technician **Cornell University Ithaca, NY**
8/1994- 8/1996

- Managed large embryology laboratory, ordered supplies, made reagents
- Managed large rabbit colony
- Performed surgical and non-surgical embryo flushing and transfer in rabbits and cattle
- Assisted with ultrasound-guided oocyte pick-up in cows and heifers
- Used computer-Assisted Sperm Analysis (CASA) to compare different bovine sperm separation techniques

T E A C H I N G E X P E R I E N C E

Graduate Teaching Assistant **Cornell University Ithaca, NY**
Courses: Domestic Animal Biology I and II
Domestic Animal Reproduction
Gamete Physiology

- Designed laboratories, written exercises and quizzes for basic animal biology and reproduction courses
- Graded labs, quizzes, exams
- Graded and critiqued written exercises and provided feedback to students
- Maintained records of course grades
- Ran review sessions and discussion sections and guided student-led discussions of scientific papers
- Taught undergraduate students how to read and evaluate scientific articles
- Invited to deliver in-class lectures on oocyte development, maturation and ovulation and the cell cycle during early embryo development
- Supervised undergraduate teaching assistants
- Counseled students individually with academic and personal problems

Additional Teaching Experience

Teach molecular biology techniques to undergraduate researchers

Co-Taught short course in Embryo Transfer

Volunteered to teach science to third-grade students at Northeast Elementary School

P R O F E S S I O N A L E X P E R I E N C E

Business Intern, OptiGen, LLC **Ithaca, NY**
1/1999- 8/1999

- Developed and wrote organization’s first handbook of personnel policies

- Researched and helped secure health insurance and retirement benefits for employees
- Used my interest in start-up biotech companies and scientific knowledge to help implement a detailed marketing plan for a company that performs genetic testing for inherited diseases in dogs
- Assembled detailed binder describing the genetics of eye disease, the technology behind OptiGen's tests and laboratory procedures to be used as the primary resource during meetings with prospective clients
- Wrote scientific articles geared towards the lay public

P R E S E N T A T I O N S A N D S E M I N A R S

- Cornell University Graduate Student Symposium 2003
  Title: Characterization of Bovine Cumulus Cell and Oocyte Adenylate cyclases
- Society for the Study of Fertility (SSF) 1999 meetings Aberystwyth, Wales
  Title: Preventing Polyadenylation Delays but does not Prevent Maturation of Bovine Oocytes: Changes in Cyclin B1 and B2 Transcripts
- Cornell University Graduate Student Symposium 1999
  Title: Cytoplasmic Polyadenylation During Oocyte Maturation
- Cornell Department of Animal Science Seminar 1998
  Title: B-Cycling: The IVM Trail Cytoplasmic Polyadenylation and its Role During in vitro Maturation of Bovine Oocytes

P U B L I C A T I O N S

M Lastro, GG Ignotz, WB Currie 1999 Preventing Polyadenylation Delays but does not Prevent Maturation of Bovine Oocytes: Changes in Cyclin B1 and B2 Transcripts. **Journal of Reproduction and Fertility** v 23 p43.

publications in progress:

Characterization of Bovine Cumulus Cell and Oocyte Adenylate Cyclases

Calcium Movement During Oocyte Maturation: An Analysis of Cumulus-Oocyte Gap Junctional Communication

Calcium as a trigger of Cytoplasmic Polyadenylation During Bovine Oocyte Maturation

I N T E R E S T S A N D A C T I V I T I E S

- Volunteer with Cornell Companions
  Visit mentally and physically disabled children with my three dogs
- Volunteer with Expanding Your Horizons Conference
  The conference is designed to introduce junior high-aged girls to career opportunities available in
  math, science, and engineering through hands-on workshops.
  Spoke at several area middle schools to describe the conference and recruit attendees.
- Rescue and place abused and abandoned dogs

- Enjoy traveling, gourmet cooking, running, water sports and an avid sports fan

R E F E R E N C E S

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OptiGen LLC
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Laboratory of Dr. Chittibabu Guda

Chittibabu Guda	**Principal Investigator**
Purnima Ambati-Guda	**Postdoctoral Fellow**

CHITTIBABU GUDA, Ph.D.
A208, East Campus
Gen*NY*Sis Center for Excellence in Cancer Genomics
Department of Epidemiology and Biostatistics
1 University Place, Rensselaer, NY 12144
☎ (518) 591-8339, Fax (518) 525-2799

WORK HISTORY

- **Assistant Professor (2004-Current)**
  University at Albany, State University of New York
  Gen*NY*Sis Center for Excellence in Cancer Genomics
  Department of Epidemiology & Biostatistics
- **Instructor in Bioinformatics (2000-2004)**
  BIOINFORMATICS CERTIFICATION PROGRAM
  Department of Biosciences, UCSD Extension, La Jolla, CA 92093
- **Bioinformatics Scientist (2001-2004)**
  Post-Graduate Researcher (1999-2001)
  BIOINFORMATICS CORE @ LIPID MAPS, MITOPROTEOME, JCSG, PDB
  University of California San Diego
  San Diego Supercomputer Center, La Jolla, CA 92093
- **Post-Doctoral Research Associate (1996-99)**
  BIOINFORMATICS & MOLECULAR BIOLOGY
  Iowa State University, Ames, IA 50011
- **Graduate Teaching & Research Assistant, (1992-96)**
  Department of Botany & Microbiology
  Auburn University, Auburn, AL 36849

EDUCATION

- **Ph. D.,** MOLECULAR BIOLOGY, (1996)
  Auburn University, Auburn, AL 36849
- **M. Sc (Ag)**, GENETICS & PLANT BREEDING, (1992)
  AP Agricultural University, Hyderabad, India
- **B. Sc. (Ag),** AGRICULTURAL SCIENCES, (1990)
  AP Agricultural University, Hyderabad, India

TEACHING EXPERIENCE

COURSES

*The first two are core courses in the Bioinformatics Certification Program at the UCSD Extension

- *Tools and Algorithms in Bioinformatics, UCSD Extension (2001-2004)
- *Advanced Tools and Algorithms in Bioinformatics, UCSD Extension (2002-2004)
- Protein Data Analysis and Modeling in Bioinformatics, UCSD extension (2000-2001)
- Recombinant DNA techniques-Lab, Auburn University (1995-96)
- Introduction to Plant Biology-Lab, Auburn University (1994-96)

TUTORIALS AND WORKSHOPS

- Presented bioinformatics training workshops at Pfizer Global R&D, La Jolla, CA, 2003

- Taught a tutorial on "Bioinformatics Tools and Algorithms" at the International Conference on Computer Science and its Applications (ICCSA), July 2003 at National University, San Diego, CA.

BIOINFORMATICS RESEARCH EXPERIENCE

ALGORITHM DEVELOPMENT

Developed the following new algorithms for protein sequence or structure data analysis.

pTARGET

- A new algorithm for predicting subcellular locations of proteins based on functional domain occurrence patterns and amino acid compositional differences.
- This method could predict proteins targeted to nine different subcellular locations in eukaryotic
  cells at high accuracy rate.

MITOPRED

- A genome-scale method for predicting nucleus-encoded mitochondrial proteins in eukaryotes.
- Complete proteomes of six eukaryotic species have been analyzed using this method and
  nucleus-encoded mitochondrial proteins were estimated for each species.

CE-MC

- A new algorithm for multiple protein structure alignment using Monte Carlo optimization.
- Multiple structural alignment is performed based on the differences in the C-α coordinate distances by iterative exploration of the search space using random numbers.
- About 10,000 lines of code completely written in C and C++.
- A standalone version of CE-MC for local installation has been developed and released. This
  tool is accessible at http://cemc.sdsc.edu

WEBSERVER & DATABASE DEVELOPMENT

MITOPRED WEB SERVER

- A web server for the prediction of nucleus-encoded mitochondrial proteins
- Provides pre-calculated predictions for the entire SwissProt/TrEMBL eukaryotic proteins
- Implemented in PERL/CGI interface, accessible at http://mitopred.sdsc.edu

CE-MC WEB SERVER

- A web server for the alignment of multiple protein structures using Combinatorial Extension (CE) and Monte Carlo (MC) Optimization.
- Users could upload local coordinate files and perform multiple alignments against all structural neighbors in Protein Data Bank (PDB). Implemented in C/C++/CGI interface, accessible at http://cemc.sdsc.edu

SledgeHMMER WEB SERVER

- A web service for batch searching of protein sequences against Pfam database
- Provides pre-calculated Pfam search results for all protein sequences in the SwissProt/TrEMBL databases in three different search modes *i.e.,* merged, glocal and local

- Implemented in PERL/CGI interface, accessible at http://SledgeHMMER.sdsc.edu

DMAPS DATABASE

- Database of Multiple Alignments for Protein Structures
- Provides pre-calculated multiple structure alignments for all structural neighbors in PDB
- Implemented in PERL/C/CGI interface, accessible at http://dmaps.sdsc.edu

GENOME-SCALE DATA ANALYSIS

- Through understanding of the commonly used bioinformatics tools including NCBI-Toolkit, HMMER, INTERPRO, CLUSTALW, PHYLIP, Post-translational site prediction tools and structure alignment tools *etc.*
- Extensive experience in local installation, testing and seamless integration of various bioinformatics tools for high-throughput genome-scale data analysis.
- Developed several customized data analysis pipelines for proteome-scale functional annotation.
- Developed several automated pipelines for target identification in protein structure determination.
- Developed methods for domain boundary prediction, profile building and phylogenetic data analysis

COURSEWORK IN COMPUTER SCIENCE & BIOINFORMATICS

*Coursework was completed partly at Iowa State University and partly at UC San Diego.

- C++ Programming I & II
- Java Programming I & II
- Programming in PERL/CGI
- Relational Database Systems
- Data mining and Data Warehousing
- Concepts in Computational Molecular Biology
- Computer Analysis of Genome Information
- Microarray Technologies-Workshop
- Biostatistics
- Pattern Recognition for Bioinformatics

COMPUTATIONAL & PROGRAMMING SKILLS

- Extensive experience in developing bioinformatics algorithms and applications using C/C++, PERL and CGI, on UNIX environment.
- Expert in genome-scale data analysis using UNIX/LINUX clusters, batch processing of high-throughput data on supercomputers and developing automated pipelines.
- Experience in SQL and development of relational databases using mSQL, MS-Access & ORACLE

MOLECULAR BIOLOGY EXPERIENCE

My Ph.D. dissertation work was in plant molecular biology. I have extensive theoretical, experimental and teaching experience in genetics, biochemistry and molecular biology. I worked on several wet lab research projects including:

- Expression of biodegradable elastomers in bacteria and plants
- Expression of foreign genes in tobacco chloroplasts
- Transformation and production of transgenic soybean plants for disease resistance
- Expression of green fluorescent protein (GFP) and Acetyl CoA Carboxylase (ACCase) genes in *Arabidopsis.*

RESEARCH GRANTS

- **Project Leader**, PACI REU Grant, 2003 to develop a standalone version of the Multiple Structure Alignment Program based on Monte Carlo Optimization.

INVITED LECTURES

- Guest lecture at the Department of Biological Sciences, Cal State University, San Marcos, CA, February, 2004
- Panel Member, Panel Discussion on "Challenges in Bioinformatics", ICCSA, July 2003, San Diego
- Speaker, Workshop on Computer Aided Drug Design (CADD), Summer, 2001 at the UCSD Extension.

CONSULTING EXPERIENCE

- External Bioinformatics Consultant on the NIH MARC U*STAR Grant, Office of Biomedical Research & Training, California State University, San Marcos, CA.

AWARDS

- 'Instructor of the Year' Award presented by the Dept. of Biosciences at the UCSD Extension, 2002
- DOE Travel Award for Oral Presentation at the Pacific Symposium on Biocomputing (PSB) 2001, Hawaii
- Certificate for Academic Excellence by Auburn University, 1995

- UNIDO (United Nations Industrial Development Org.) Travel Award for Poster Presentation in the *International Symposium on Plant Molecular Biology and Biotechnology*, New Delhi, 1994
- AP Agricultural University Graduate Fellowship, India, 1990-1992

PUBLICATIONS

1) **Guda C**. Tools and Algorithms in Bioinformatics. World Scientific Publishing Corporation, Singapore. (***In Preparation***)
2) Cotter D, **Guda C**, Saunders B, Subramaniam S. LMLPD: LIPID MAPS Lipid Proteome Database (***In Preparation***)
3) Guda P, **Guda C**, Fahy E, Subramaniam S. Reconstruction of human mitochondrial metabolic pathways (***In Preparation***)
4) **Guda C**, Chukkapalli G, Bourne PE, Shindyalov IN. DMAPS: A Database of Multiple Alignments for Protein Structures. (***In preparation***)
5) Meller N, **Guda C**, Schwartz MA, Ravichandran KS. CZH proteins - New family of Rho GEFs. **Journal of Cell Science** (***In preparation***)
6) **Guda C,** Subramaniam S. pTARGET: A domain-based method for predicting protein sub-cellular localization. ***Biochemistry*** (***In preparation***)
7) **Guda C**, S. Lu, Scheeff ED, Bourne PE, Shindyalov IN. ***2004***. CE-MC: A Multiple Protein Structure Alignment Server. **Nucleic Acids Research,** 32: W100-W103 [Pubmed]
8) **Guda C,** Guda P, Fahy E, Subramaniam S. ***2004***. MITOPRED: a web server for genome-scale prediction of mitochondrial proteins. **Nucleic Acids Research,** 32: W372-W374 [Pubmed]
9) Chukkapalli G, **Guda C,** Subramaniam S. ***2004*** SledgeHMMER: A web server for batch searching of Pfam database **Nucleic Acids Research**, 32: W542-W544 [Pubmed]
10) **Guda C**, Fahy E, Subramaniam S. ***2004***. MITOPRED: A genome-scale method for prediction of nuclear-encoded mitochondrial proteins. **Bioinformatics**, 20:1785-1794 [Pubmed]
11) Heine A, Canaves JM, von Delft F, Brinen LS, Dai X, Deacon AM, Elsliger MA, Eshaghi S, Floyd R, Godzik A, Grittini C, Grzechnik SK, **Guda C**, Jaroszewski L, Karlak C, Klock HE, Koesema E, Kovarik JS, Kreusch A, Kuhn P, Lesley SA, McMullan D, McPhillips TM, Miller MA, Miller MD, Morse A, Moy K, Ouyang J, Page R, Robb A, Rodrigues K, Schwarzenbacher R, Selby TL, Spraggon G, Stevens RC, van den Bedem H, Velasquez J, Vincent J, Wang X, West B, Wolf G, Hodgson KO, Wooley J, Wilson IA. ***2004***. Crystal structure of O-acetylserine sulfhydrylase (TM0665) from *Thermotoga maritima* at 1.8 Å resolution, **Proteins**, 56:387-391 [Pubmed]
12) Schwarzenbacher R, Canaves JM, Brinen LS, Dai X, Deacon AM, Elsliger MA, Eshaghi S, Floyd R, Godzik A, Grittini C, Grzechnik SK, **Guda C**, Jaroszewski L, Karlak C, Klock HE, Koesema E, Kovarik JS, Kreusch A, Kuhn P, Lesley SA, McMullan D, McPhillips TM, Miller MA, Miller MD, Morse A, Moy K, Ouyang J, Robb A, Rodrigues K, Selby TL, Spraggon G, Stevens RC, van den Bedem H, Velasquez J, Vincent J, Wang X, West B, Wolf G, Hodgson KO, Wooley J, Wilson IA. ***2004***. Crystal structure of an iron-containing 1,3-propanediol dehydrogenase (TM0920) from *Thermotoga maritima* at 1.3 Å resolution, **Proteins**, 54:174-177 [Pubmed]
13) Schwarzenbacher R, Canaves JM, Brinen LS, Dai X, Deacon AM, Elsliger MA, Eshaghi S, Floyd R, Godzik A, Grittini C, Grzechnik SK, **Guda C**, Jaroszewski L, Karlak C, Klock HE, Koesema E, Kovarik JS, Kreusch A, Kuhn P, Lesley SA, McMullan D, McPhillips TM, Miller MA, Miller MD, Morse A, Moy K, Ouyang J, Robb A, Rodrigues K, Selby TL, Spraggon G, Stevens RC, van den Bedem H, Velasquez J, Vincent J, Wang X, West B,

Wolf G, Hodgson KO, Wooley J, Wilson IA. ***2003***. Crystal structure of uronate isomerase (TM0064) from *Thermotoga maritima* at 2.85 Å resolution, **Proteins**, 52:142-145 [Pubmed]

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16) Lesley SA, Kuhn P, Godzik A, Deacon AM, Mathews I, Kreusch A, Spraggon G, Klock HE, McMullan D, Shin T, Vincent J, Robb A, Brinen LS, Miller MD, McPhillips TM, Miller MA, Scheibe D, Canaves JM, **Guda C**, Jaroszewski L, Selby TL, Elslinger MA, Wooley J, Taylor SS, Hodgson KO, Wilson IA, Schultz PG, Stevens RC. ***2002.*** Structural genomics of the *Thermotoga maritima* proteome implemented in a high-throughput structure determination pipeline. **Proceedings of the National Academy of Sciences, USA** 99:11664-11669 [Pubmed]
17) **Guda C**, Scheeff ED, Bourne PE, Shindyalov IN***. 2002***. Comparative Analysis of Protein Structure: New Concepts and Approaches for Multiple Structure Alignment. In: **Protein Structure Prediction: Bioinformatics Approach**, pp.451-459
18) **Guda C**, Scheeff ED, Bourne PE, Shindyalov IN. ***2001***. A new algorithm for the alignment of multiple protein structures using Monte Carlo optimization. **Proceedings of the Pacific Symposium on Biocomputing** (pdf), pp. 275-286 [Pubmed]
19) **Guda C**, Lee SB, Daniell H. ***2000***. Stable transformation of chloroplasts using a universal integration vector. **Plant Cell Reports**, 19:257-262 [Abstract]
20) Daniell H, **Guda C**. ***1997***. Biopolymer production in microorganisms and plants (*Review Article*). **Chemistry and Industry,** 14: 555-558
21) Brixey J, **Guda C**, Daniell H. ***1997***. The chloroplast *psbA* promoter is more efficient in *E. coli* than the T7 promoter for hyperexpression of a foreign protein. **Biotechnology Letters** 19: 395-399 [Abstract]
22) Daniell H, **Guda C**, McPherson DT, Zhang X, Urry DW. ***1997***. Hyper expression of a synthetic protein based polymer gene. **Methods in Molecular Biology**, 63: 359-371 [Pubmed]
23) Urry DW, McPherson DT, Xu J, Daniell H, **Guda C**, Gowda DC, Jing N, Parker TM. ***1996***. Protein- Based Polymeric Materials: Syntheses and Properties. In: **The Polymeric Materials Encyclopedia**: Synthesis, Properties and Applications, pp. 2645-2699, CRC Press, Boca Raton
24) **Guda C**, Zhang X, McPherson DT, Xu J, Cherry JH, Urry DW, Daniell H. ***1995***. Hyperexpression of an environmentally friendly synthetic polymer gene. **Biotechnology Letters**, 17: 745-750
25) Zhang X, **Guda C**, Datta R, Dute R, Urry DW, Daniell H. ***1995***. Nuclear expression of an environmentally friendly synthetic protein based polymer gene in tobacco cells. **Biotechnology Letters**, 17:1279-1284
26) Daniell H, Zhang X, **Guda C.**, Urry DW. ***1995***. Plastics from Plants. **Highlights of Agricultural Research**, 42: 18-19
27) Daniell H, **Guda C**, Singh NK, Weete JD, Cherry JH. ***1994***. Photosynthesis, epicuticular wax and lipid changes in cowpea cultivars grown under hyperthermic conditions. In: Biochemical and Cellular Mechanisms of Stress Tolerance in Plants (J.H. Cherry ed.) **NATO ASI Series**, Vol. H 86: 213-227, Springer-Verlag, Heidelberg.

PURNIMA AMBATI-GUDA

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Gen*NY*Sis Center for Excellence in Cancer Genomics
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WORK EXPERIENCE

- **Programmer Analyst II (**2002-2004)
  Bioinformatics Core, Mitoproteome Group
  San Diego Supercomputer Center
  University of California San Diego, La Jolla, CA 92093

- Post-Graduate Researcher (**2000-2001)**
  Bioinformatics Core, Protein Data Bank
  San Diego Supercomputer Center
  University of California San Diego, La Jolla, CA 92093

- **Senior Research Fellow** (1997-1999)
  Council of Scientific and Industrial Research
  New Delhi, India

- **Junior Research Fellow (**1995)
  Indian Council of Agricultural Research
  New Delhi, India

EDUCATION

- Ph.D., **BIOCHEMICAL ENGINEERING, 2000**
  Dept of Chemical Engineering,
  Andhra University, Visakhapatnam, AP 530 003, India
- **M.Sc.,** MICROBIOLOGY, 1994
  Nagarjuna University, AP 522 510, India
- **B.Sc**. BIOLOGY, 1992
  Andhra University, Visakhapatnam, AP 530 003, India

BIOINFORMATICS EXPERIENCE

- Advanced PERL programming and developing automated pipelines for data analysis.
- Experience in UNIX and shell programming.
- Working knowledge in the use of Access database, Oracle, SQL servers, Excel etc
- Experience in using different platforms such as SGI, SOLARIS, LINUX.
- Reconstruction of mitochondria-associated metabolic and disease pathways.

- Extensive experience in curation and annotation of nucleus-encoded mitochondrial proteins.
- Developed new methodology for the analysis of Voltage-Gated Ion Channel Proteins.
- Extensive experience in local installation and evaluation of open source bioinformatics applications.
- Expert in using BLAST suite, HMMER suite, SRS, GCG and other bioinformatics software.

AWARDS

- *Senior Research Fellowship* awarded by the ***Council of Scientific and Industrial Research (CSIR),*** New Delhi, INDIA, 1997
- *Junior Research Fellowship* awarded by the Central Institute of Freshwater Aquaculture, ***Indian Council of Agricultural Research (ICAR)*****,** New Delhi, INDIA, 1995
- *Senior Research Fellowship* awarded by the Central Institute of Freshwater Aquaculture, ***Indian Council of Agricultural Research (ICAR)*****,** New Delhi, INDIA, 1995

PUBLICATIONS

1. **Guda P**, Guda C, Cotter D and Subramaniam S. Reconstruction of human mitochondrial metabolic pathways (***In preparation***)
2. **Guda P,** Boojala V. B. Reddy, Philip E. Bourne, Maurice Montal. Analysis of voltage-gated ion channel sequences: conserved and semi-conserved patterns in voltage sensing and pore forming structural domains (***In preparation***)
3. Mendu D, **Guda P**, Ayyanna C. (2004) Purification and immunological characterization of α-amylase from Bacillus licheniformis. ***Enzyme and microbial technology*** (***In Press***)
4. Guda C, **Guda P**, Fahy E and Subramaniam S. (2004) MITOPRED: a webserver for genome-scale prediction of mitochondrial proteins. ***Nucleic Acids Research,*** 32:W372-W374
5. Cotter D, **Guda P**, Fahy E. and Subramaniam S. (2004) MitoProteome : Mitochondrial protein sequence database and annotation system**.. *Nucleic Acids Research,*** 32:D463-D467
6. Mendu D, **Ambati P,** Ramesh, Ayyanna C. (2003) Purification of $\propto$-Amylase from *Bacillus licheniformis* by Chromatofocusing and Gel filtration chromatography. ***World Journal of Microbiology and Biotechnology.*** 18:547-550
7. **Ambati P,** Ayyanna C. (2000) Optimization of medium constituents and fermentation conditions for citric acid production from palmyra jaggery using Response Surface Method, ***World Journal of Microbiology and Biotechnology*** 17:331-335
8. **Ambati P.** (2000). Studies on physico-chemical and nutritional paramemters for citric acid production of palmyra jaggery using *Aspergillus niger.* Ph.D Thesis, Andhra University, India.

ABSTRACTS

1. Boojala V B Reddy, **Guda P,** Maurice Montal, Philip E.Bourne. 2001. A profile-based consensus sequence alignment method for progressive multiple alignment of evolutionary related protein sequences: Analysis of voltage-gated ion channel proteins. In the ***PSB 2001,*** Hawaii. **(Poster)**

2. **Guda P,** Boojala V B Reddy, Maurice Montal, Philip E Bourne. 2000. Sequence data analysis of voltage-gated ion channel proteins. In the ***ISMB 2000*** meetings held at SDSC, UCSD. **(Poster)**
3. **Ambati P**, Ayyanna C. 1999. Effect of trace metal ions and minerals on citric acid production, in ***The 8th Asian Pacific Confederation of Chemical Engineers*****,** Thailand. **(Oral Presentation)**
4. **Ambati P**, Ayyanna C. 1998. Effect of alcohols on citric acid production, in ***CHEMCON-98***, held at Andhra University, AP, India. **(Oral Presentation)**
5. **Ambati P**, Ayyanna C. 1996. Comparative studies on citric acid production from various millets using *Aspergillus niger*, in ***The First International Symposium on Microbial Exploitation***, held at Banaras Hindu University, MP, India. **(Oral Presentation)**
6. **Ambati P,** Ayyanna C. 1995. Studies on production of citric acid by solid state fermentation using *Aspergillus niger*, in ***The 47th Indian Pharmaceutical Congress*** held at Andhra University, AP, India. **(Oral Presentation)**

Laboratory of Dr. Igor Kuznetsov

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Igor Kuznetsov **Principal Investigator**

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Igor B. Kuznetsov, Ph.D.	**Assistant Professor**

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE (*if applicable)*	YEAR(s)	FIELD OF STUDY
Novosibirsk State University (Novosibirsk, Russian Federation)	M.S.	1992	Cytology and Genetics with minor in Mathematics
Mount Sinai School of Medicine/NYU, NY, NY	M.Phil.	2001	Biomathematics
Mount Sinai School of Medicine/NYU, NY, NY	Ph.D.	2003	Biomathematics
Mount Sinai School of Medicine/NYU, NY, NY	Postdoctoral training	2003	Biomathematics

B. Positions and Honors.

Positions:

1992-1993	Research Trainee	Institute of Cytology and Genetics, Russian Academy of Sciences
1993-1997	Junior Research Associate	Institute of Cytology and Genetics, Russian Academy of Sciences
1997-2003	Graduate Research Assistant	Mount Sinai School of Medicine, NYU
2003	Postdoctoral Fellow	Mount Sinai School of Medicine, NYU
2003-2004	Research Associate	University of Kansas
2004-present	Assistant Professor	Department of Epidemiology and Biostatistics Gen*NY*sis Center for Excellence in Cancer Genomics State University of New York at Albany

Honors and Fellowships:

1987-1992	Novosibirsk State University, Special Stipend Recipient
1992	Award from the State Department of Science of the Russian Federation for the work presented at the 30th Annual International Conference “Students and Scientific Progress”
1997-1998	City University of New York Graduate Fellowship Award
2001	Mount Sinai Graduate School of Biological Sciences, Travel Award Recipient

C. Patents and selected peer-reviewed publications

Peer-Reviewed Publications (in reverse chronological order):

I.Kuznetsov and S.Rackovsky, 2004, Comparative computational analysis of prion proteins reveals two fragments with unusual structural properties and a pattern of increase in hydrophobicity associated with disease-promoting mutations. *Protein Science,* 13:3230-3244.
I.Kuznetsov and S.Rackovsky, 2004, Class-specific correlations between protein folding rate, structure-derived and sequence-derived descriptors. *Proteins: Structure, Function and Bioinformatics*, 54:333-341.
I.Kuznetsov and S.Rackovsky, 2003, Similarity between the C-terminal domain of the prion protein and chimpanzee cytomegalovirus glycoprotein UL9. *Protein Engineering*, 16(12): 861-863.
I.Kuznetsov and S.Rackovsky, 2003, On the properties and sequence context of structurally ambivalent fragments in proteins. *Protein Science,* 12:2420-2433.
I.Kuznetsov and S.Rackovsky, 2002, Discriminative ability with respect to amino acid types: assessing the performance of knowledge-based potentials without threading. *Proteins: Structure, Function and Genetics*, 49:266-284.
I.Kuznetsov, P.Morozov, Yu.Matushkin, 1998, Alpha-helix retention in prion proteins. *Genetika,* 34:183-189
I.Kuznetsov, P.Morozov, Yu.Matushkin, 1997, Prion proteins: evolution and preservation of secondary structure. *FEBS Letters*, 412:429-432.
I.Kuznetsov and P.Morozov, 1996, GEOMETRY: a software package for nucleotide sequence analysis using statistical geometry in sequence space. *Bioinformatics (CABIOS)*, 12:297-301.
I.Kuznetsov and S.Rodin, 1995, Comparative computational analysis of thermodynamic parameters of the transfer RNA secondary structure. *Genetika*, 31:1566-1574.
S.Rodin and I.Kuznetsov, 1993, Theoretical study of the features of compensatory substitutions in the stem regions of the transfer RNA. *Genetika*, 29:1256-1266.

C. Research Support.

Start-up funds from the University at Albany – State University of New York

D. Other

Reviewing for research journals:

PROTEINS: Structure, Function and Bioinformatics
Protein Engineering

Professional Societies:

International Society for Computational Biology (ISCB)
American Society for Biochemistry and Molecular Biology (ASBMB)

Teaching:

Spring, 2004 Co-director, ‘Introduction to Bioinformatics’ graduate course (BIOL 701/EECS 700, University of Kansas)
Summer, 2004 Bioinformatics workshops at the University of Kansas and Pittsburg State University

Laboratory of Dr. Scott Tenenbaum

Scott Tennenbaum	**Principal Investigator**
Evelina Loghin	**Research Technologist**
Georgi G Shablovsky	**Research Associate**
Christopher Zalesk	**Bioinformatics**
Timothy Edward Baroni	**Postdoctoral Fellow**
Francis J. Doyle	**Bioinformatics**
Michael Malak	**Postdoctoral Fellow**

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Scott A. Tenenbaum, Ph.D.	Assistant Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Missouri	B.A.	1986	Liberal Arts and Sciences
Wright State University, Dayton Ohio	M.S.	1989	Microbiology / Immunology
Tulane University School of Medicine	Ph.D.	1994	Microbiology / Immunology
Tulane University School of Medicine	(Post-doc)	1994-1997	AIDS-Research
Duke University Medical Center	(Post-doc)	1997-2003	RNA-Protein interactions

D. Positions and Honors.

Employment

1987-89	Graduate Research Assistan	Wright State University
1989-94	Graduate Research Assistant	Tulane University School of Medicine
1994-96	Postdoctoral Fellow	Tulane University School of Medicine
1997-00	Postdoctoral Fellow	Duke University Medical Center
2000-03	Senior Research Associate	Duke University Medical Center
2003-present	Assistant Professor	University at Albany-SUNY

Honors and Fellowships:

1988 Wright State University Microbiology Graduate Teaching fellowship.
1989 Tulane University Graduate Student Fellowship.
1992.94 The Mary Bird Perkins Hematology / Oncology Pre-Doctoral Fellowship.
1993 The College of Rheumatology Student Travel Award.
1994 The Roche Laboratories Award for Excellence in Clinical Research.

1994 The American Association of Blood Banks Transfusion Medicine Award.
1994 The American Society for Microbiology Student Travel Award.
1994-96 The National Hemophilia Foundation Judith Graham Pool Fellowship.
1997 NIH Postdoctoral Research Fellowship (Viral Oncology).

1998 NIH Postdoctoral Research Fellowship (Autoimmune Immunology).
1999 NIH Postdoctoral Research Fellowship (Viral Oncology).

2000 The Duke University Comprehensive Cancer Center James A. Wilson, M.D. Fellow in Cancer Award.
2001 The Duke University Comprehensive Cancer Center Robert M. and Barbera R. Bell Basic Science of Cancer Award.

Teaching Experience:

1988 ***Instructor***, Medical Technologist Microbiology. Wright State University, Dayton, OH.
1989 ***Instructor***, Nursing Microbiology. Wright State University, Dayton, OH.
1991-92 ***Instructor***, Nursing Microbiology and Immunology. Delgado College, New Orleans, LA.
1992-96 ***Instructor***, Medical Microbiology and Immunology. Tulane University, New Orleans, LA.
1997-03 ***Instructor***, Microbiology Workshop. Duke University Medical School, Durham, NC.
2004 ***Instructor***, BMS632/AMC603 Prokaryotic Genetics. Wadsworth Center, UAlbany-SUNY

Consulting:

1996 Lucent Technologies Inc. Coral Gables, FL.
1995-96 Louisiana Land and Exploration Inc., New Orleans, LA.
1995-99 Autoimmmune Technologies, LLC, New Orleans, LA.
2001-Present Taproot Ventures LLC, San Mateo, CA
2001-Present Ribonomics Inc., Research Triangle Park, NC

Presentations:

2004 The Ninth Annual RNA Society Conference. Madison, WI.
2004 McGill University, Department of Biochemistry. Montreal, Quebec.
2004 GI-CFG Symposium, Rensselaer, NY
2003 The Symposium on RNA Biology V. RNA, Tool and Target. Research Triangle Park, NC.
2002 Beyond the Identification of Transcribed Sequences. Washington, D.C.
2002 The Third Annual Northwest Microarray Conference. Seattle, WA.
2002 MOLECULAR EVOLUTION AND BIOINFORMATICS CONFERENCE. SORRENTO, ITALY.
2002 The Seventh Annual RNA Society Conference. Madison, WI.
2001 The Triangle Array Users Group Meeting. Research Triangle Park, NC.
2001 The Symposium on RNA Biology IV. RNA: Target and Tool. Chapel Hill, NC.
2001 The Second Annual Northwest Microarray Conference. Seattle, WA.
2001 The Sixth Annual RNA Society Conference. Banff, Canada.
1999 The Fourth Annual RNA Society Conference. Edinburgh, Scotland.
1996 Children Afflicted by Toxic Substances (CATS), Santa Fe, NM.
1995 The American College of Rheumatology Conference, San Francisco, CA.
1994 The ATLA Silicone Toxicity Symposium, Dallas, TX.

1994 Pediatrics AIDS Clinical Trial Unit, TUMC, New Orleans, LA.
1994 The American Rheumatology Conference, San Antonio, TX.
1994 The American Society for Microbiology Meeting, Shreveport, LA.
1993 Louisiana State University, Department of Rheumatology, New Orleans, LA.
1993 Department of Clinical Immunology and Allergy, TUMC, New Orleans, LA
1993 Department of Pediatrics, Tulane Medical Center, New Orleans, LA.
1993 Association for Research in Otolaryngology, St. Petersburg, FL.

Scientific Interests:

1) The role of mRNA-binding proteins in regulating post-transcriptional gene regulation
2) The biology and etiology of autoimmunity
3) Viral-host interactions at the molecular level and
4) Understanding the organization of the mRNP infrastructure in the cell and how it relates to global gene expression regulation in cancer

Scientific Organization Memberships:

The American Association for the Advancement of Science
The RNA Society
American Society of Microbiology
American Society of Virolgy

Patents:

1) Keene, J.D., Carson, C.C. and Tenenbaum, S.A. Methods for the Endogenous Isolation and Identification of Messenger RNA Subsets. USP# 6,635,422

2) Garry, R.F., Tenenbaum, S. A., and Plymale, D. R. A Method For Detecting Anti-Polymer Antibodies and a Diagnostic Test Kit For Use in the Aid Of Diagnosis of Fibromyalgia and Chronic Fatigue Syndrome. (International patent pending).

3) Garry, R.F., Tenenbaum, S. A., and Plymale, D. R. A Method for Detecting Anti-polymer Antibodies and Diagnosing Silicone Related Disease, Fibromyalgia, and Chronic Fatigue Syndrome. USP# 5,834,215

4) Garry, R.F., Tenenbaum, S. A., and Plymale, D. R. A Method to Aid in the Diagnosis of Silicone Related Disease. USP# 5,620,859

Publications:

1) Tenenbaum, S. A., Leissinger, C. A., and Garry, R. F. (1993). Seroreversion of HIV-1 antibodies in seroreactive individuals. *Journal of the American Medical Association* 270; 2178-2179.

2) Garry, R.F., Hart, D. J., Tenenbaum, S. A., Luo-Zhang, H., Breeding, S. A. L. and Alexander, S. S. (1993). Sjogren's syndrome and assays for retroviral proteins. *Arthritis & Rheumatism* 35:1405-1406.

3) Tenenbaum, S. A., Voss, T. G., Garry, R.F., and Gallaher, W. R. (1994). Sequence similarities between retroviral proteins and components of the spliceosome- *AIDS Research & Human Retroviruses* 10:521-523.

4) Jaspan, J. B., Luo, H., Ahmed, B., Tenenbaum, S., Voss, T., Sander, D. M, Bollinger, K., Baquet, T., Garry, R. F. (1995). Evidence for a retroviral trigger in Graves' disease. *Autoimmunity* 20:135-142.

5) Cuellar, M. L., Scopelitis, E., Tenenbaum, S. A., Garry, R. F., Silveira L. H., Gonzalo, C. and Espinoza, L. R. (1995). Serum antinuclear antibodies in women with silicone breast implants. *Rheumatology* 22:236-240.

6) Chiang, C-F., Tenenbaum, S. A., Verrett, R., Leissinger, C.A. and Garry R.F. (1995). The activity of granzyme A, a serine protease in the killing granules of cytotoxic T-lymphocytes, is reduced in cells from HIV-infected hemophiliacs. *AIDS Research & Human Retroviruses* 12:235-239.

7) Jaspan, J. B., Bryer-Ash, M., Sullivan, K., Lopez, M., Wolfe, M., Clejan, S., Cao, Y., Tenenbaum, S., Sander, D. M., Ahmed, B., and Garry, R. F. (1996). The interaction of a type A retroviral particle and class II human leukocyte antigen susceptibility genes in the pathogenesis of Graves' disease. *Journal of Clinical Endocrinology and Metabolism* 81:2271-2279.

8) Scandurro, A. B., Rondon, I. J., Wilson, R. B., Tenenbaum, S. A., Garry, R. F. and Beckman, B. S. (1997). Interaction of erythropoietin RNA binding protein with erythropoietin RNA requires an association with heat shock protein 70. *Kidney International* 51:579-594.

9) Tenenbaum, S.A., Rice, J. C., Espinoza L R-, et al. (1997). Use of antipolymer antibody assay in recipients of silicone breast implants. *Lancet* 349; 449-454.

10) Tenenbaum, S.A., Carson C.C., Lager, P.J. and Keene, J.D. (2000). Identifying mRNA subsets in messenger ribonucleoprotein complexes by using cDNA arrays. *Proceedings of the National Academy of Sciences (U S A)* 97(26):14085-90.

11) Brown, V., Ceman, S., Peng, J., Darnell, J.C., O'Donnell, W.T., Tenenbaum, S. A., Jin, X., Wilkinson, K.D., Keene, J.D., Darnell, R.B., and Warren, S.T. (2001). Identification of mRNAs associated with the fragile X mental retardation protein complex in the brain. *Cell* 107; 477-487.

12) Keene, J.D. and Tenenbaum, S.A. (2002). Eukarotic mRNPs May Represent Post-Transcriptional Operons. *Molecular Cell* 9; 1161-1167.

13) Tenenbaum, S.A. and Keene, J.D. (2002). Using messenger RNP autoantibodies to reveal networks of posttranscriptional operons. In *From Proteomics to Molecular Epidemiology. K. Conrad (Eds.); Pabst Science Publishers.* 3; 26-42.

14) Eystathioy, T., Chan, E.K.L., Tenenbaum, S.A., Keene, J.D., Griffith, K., and Fritzler, M..J. (2002). A phosphorylated cytoplasmic autoantigen, GW182, associates with a unique population of human mRNAs within novel cytoplasmic speckles. *Molecular Biology of the Cell* 13; 1338-1351.

15) Tenenbaum, S.A., Lager, P.J., Carson C.C., and Keene, J.D. (2002). Ribonomics: Identifying mRNA subsets in mRNP complexes using antibodies to RNA-binding proteins and genomic arrays. *Methods* 26; 191-198.

16) Tenenbaum, S.A., Carson C.C., Atasoy, U., and Keene, J.D. (2003). Combining *en masse* array analysis of gene regulation using genome-wide approaches to nuclear run-ons (e*m*RON) and mRNP isolation (ribonomics). *Gene* 317; 79-87.

17) Intine, R.V., Tenenbaum, S.A., Sakulich, A.L., Keene, J.D., and Maraia, R.J. (2003). Differential phosphorylation and subcellular localization of LaRNPs associated with precursor tRNAs and translation-related mRNAs. *Molecular Cell* 12: 1301-1307.

18) Penalva, L.O., Tenenbaum, S. A., and Keene, J.D. (2004). Gene Expression Analysis of Messenger RNP Complexes. *Methods Mol Biol*. 257:125-34.

Research Support:

Funding

Funded Grant:	NIH 1R21HG003679-01 (9/01/04-07/31/06)
Role:	PI
Title of Project:	Identifying functional regulatory elements in RNA
Budget:	410,000 Total Direct Costs
Major Goals:	As part of the ENCODE project we will develop new technologies combining ribonomic profiling with tiling array analysis that will facilitate the system-wide identification of RNA based regulatory elements.

Pending Grant:	NIH 1R21 HG003625-01 (Pending 4/01/05-03/31/07)
Role:	PI
Title of Project:	Using RNA-binding proteins to study the hidden transcriptome
Budget:	300,800 Total Direct Costs
Major Goals:	We are combining ribonomic profiling with tiling array analysis to facilitate the system-wide study of the hidden transcriptome.

Pending Grant:	NIH 1R21MH074319-01 (Pending 4/01/05-03/31/07)
Role:	PI
Title of Project:	Using RBPs to Study Gene Expression in Schizophrenia
Budget:	413,600 Total Direct Costs
Major Goals:	We are combining ribonomic profiling with tiling array analysis to facilitate the system-wide study of gene expression in schizophrenia.

Principal Investigator/Program Director (Last, First, Middle):

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Loghin, Evelina	Biochemist

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Clemson University	MS	2000	Biochemistry
University of Medicine and Pharmacy Carol Davila	BS	1997	Pharmacy

Positions and Honors:

Professional Experience

- Research Technologist, Department of Biological Sciences, University at Albany State University of New York (SUNY), September 2001-present
- Research Technologist III, Department of Bioengineering, Clemson University, December 2000-2001
- Graduate Student, Department of Biological Sciences, Biochemistry Program, Clemson University & GHS Biomedical Cooperation May 1998 - December 2000.
- Pharmacist, Salviafarm, Ploiesti, Romania, 1997.

Honors and Awards

- GHS/CU Biomedical Graduate fellowship
- Research Skills
- Maintain cell culture (mammalian and yeast, Saccharomyces cerevisiae).
- Assays for analysis of DNA recombination: Transfection/Transformation of plasmid DNA into the mammalian and yeast cells respectively; Reporter gene assays such as β-galactosidase and Luciferase/Renilla.
- Nucleic Acid techniques: DNA purification (plasmid preparation), sub-cloning, PCR (cold and radioactive), RNA isolation and analysis (Northern), agarose and polyacrylamide gel electrophoresis.
- Protein techniques: Protein separation by SDS-PAGE, detection by Coomassie Brilliant Blue R-250, and Ponceau S, Immunoblotting (Western), and protein identification by enhanced chemiluminescence (ECL).
- Protein purification using MBP, GST, TAP, and His tags.
- In vivo Protein-Protein interaction by Co-immunoprecipitation.

- Protein-DNA interaction by Chromatin Immunoprecipitation (ChIP).
- In vitro kinase assays using γ-P32 and different purified proteins.
- Enzyme kinetics techniques – Bicinchoninic Acid Assay (BCA) and Quantigold assays for protein concentration estimation, and colorimetric assays for Alkaline Phosphatase, Horseradish Peroxidase enzymes.
- Prepare silicon surfaces for adsorption of different proteins/enzymes.

Research experience

Research Technologist, Dep. of Biology SUNY at Albany, Sept. 2001-present

- My work at SUNY involves the general stress response (the most common type of stress in yeast) in Saccharomyces cerevisiae.
- General stress in yeast consists of heat shock, osmotic shock, glucose starvation, low pH, irradiation and each tress triggers the transcription of about 200 genes (known as stress response element, STRE-containing genes) that protect and adapt cells.

    - Analyzed the kinetics of Cyc7 (a gene whose expression is activated under stress) mRNA by heat shock.
    - Performed the Co-immunoprecipitation to identify the physical interaction between proteins involved in the general stress response such as Srb10 and Srb11 (two members of the mediator complex), Srb11 and Msn2 (a transcriptional factor that activates the STRE genes upon stress), Srb11 and Rox3 (an essential member of the mediator complex).
    - Analyzed the interaction between different proteins and genes involved in the general stress response by performing Chromatin Immunoprecipitation (ChIP), a powerful in vivo technique that looks at the DNA-Protein interaction. The ChIP method was used to verify the interaction between proteins such as Msn2, Srb11, and Srb10 and genes whose expression is altered under stress (Cyc7).
    - Performed kinase experiments to check the enzymatic activity of Srb10 protein using substrates like CTD and Rsk1 (a protein that is been suggested to regulate the specificity of Srb10 activity).

Research Technologist, Dept. of Bioengineering, Clemson University, Dec. 2000-Sept. 2001

- My work was part of a project whose goal was to make MEMS devices compatible with biological fluids.
- Several proteins/enzymes were used to study their adsorption to the different organic surfaces.
- Biochemical and specific surface methods were used to determine how much protein is bound to the surface and the state (native/denatured) of the protein after adsorption to the surface.
    - Performed protein assays, such as Bicinchoninic Acid assay (BCA) and Quantigold.
    - Performed enzyme kinetic assays for alkaline phosphatase and horseradish peroxidase enzymes.
    - Analyzed protein/enzymes adsorption to different chemical surfaces (silicon, glass).

Research Associate, Dep. of Biology, Clemson University, May 1998-Dec. 2000

- Verified that PPAR is endogenously expressed and functionally active in MCF-7 and MDA-MB-231breast cancer cells.
- Identified PPAR γ1 as the major isoform present in breast cancer cells at least at the level of transcription.
- The regulation of PPARγ1 is totally relying in 1 kb fragment of 5' flanking region and it involves phosphorylation.
    - Handled two types of breast cancer cell lines (MCF-7 and MDA-MB-231) and mouse fibroblast cells (CHO K1).
    - Handled E.Coli bacterial cells (maintaining the cell culture, and transforming the bacterial cells into competent cells).

- Developed an antisense expression vector for peroxisome proliferator activated receptor gamma 1 gene (PPARγ1) and tested on MCF-7 and MDA-MB 231 human breast cancer cells.
- Tested a human 3Kb fragment of PPAR γ1 5' flanking region for promoter activity in two types of breast cancer cells, MCF-7 and MDA-MB 231.
- Performed deletion analysis to find the regions of PPAR γ1 promoter important in regulation of PPAR γ1 gene transcription.
- Tested the new constructs generated by deletion analysis in human breast cancer cells.
- Sequenced PPAR γ1 promoter.

Publications:

Abstracts and Presentations

- Evelina Loghin and Michael W. Kilgore - Regulation of Peroxisome Proliferator Activated Receptor gene expression in MCF-7 and MDA-MB 231 human breast cancer cells. 9th Annual South Carolina Statewide Research Conference on Molecular Approaches to Biological Problems, Wild Dunes, SC, January 2000.

- X Wang, PL Tate, SR Thoennes, E Loghin, TM Price and MW Kilgore. Signal Cross Talk between Estrogen Receptor Alpha and Beta and the Peroxisome Proliferator-Activated Receptor gamma1 in MDA-MB-231 Breast Cancer Cells. Era of Hope, Department of Defense Breast Cancer Research Program Meeting. Atlanta, GA, June 2000.

- MW Kilgore, X Wang, SR, Thoennes, E Loghin and TM Price. Estrogen Receptor Alpha and Beta Mediate Transcriptional Activation of the Peroxisome Proliferator-Activated Receptor Gamma1 in MDA-MB-231 Breast Cancer Cells. 82nd Annual meeting of the Endocrine Society, Toronto, Canada, June 2000.

- Xin Wang, Evelina Loghin and Michael W. Kilgore. Peroxisome proliferator-activated receptor gamma: Novel promoters and transcriptional regulation in human breast cancer cells. 83nd Annual meeting of the Endocrine Society, June 2001.

Publications

- Keith Lenghaus, Jeff W. Dale, J.Caroline Henderson, David C. Henry, Evelina R. Loghin, and James J. Hickman. Enzymes as Ultrasensitive Probes for Protein Adsorption in Flow Systems. Langnuir 2003, 19, 5971-5974

Principal Investigator/Program Director (Last, First, Middle): Tenenbaum, Scott A.

BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Shablovsky, Georgi Georgievich	Research Assistant

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Pavlov Medical Institute, St. Petersburg, Russia	M.D.	1992	Internal Medicine
McGill University, Montréal, Canada	Ms.Sc.	1999	Molecular Biology

A. Positions and Honors.

Positions and Employment

1988 Assistant Programmer, Center of Prophylaxis of Pulmonary Diseases, St. Petersburg, Russia

1992-1994 Fellow in Hematology/Oncology and Molecular Biology, Petrov Research Institute of Oncology, St. Petersburg, Russia

2000-2002 Programming Analyst, Mid-Hudson Media, Hudson, NY

2002-2004 Research Associate, Bioinformatics, Department of Biology, Rensselaer Polytechnic Institute, Troy, NY

2004- Research Associate, Center for Functional Genomics, University at Albany, NY

Other Experience and Professional Memberships

2002-2004 Web Developer, Bioinformatics Center at RPI and Wadsworth, Rensselaer Polytechnic Institute, Troy, NY

2004 - Web-Based Database Application Programmer for Sloan Science Master's Outreach Project

B. Selected publications (in chronological order).

1. N. Dainiak, L. Karkanitsa, O.A. Aleinikova, J. Albanese, G. Shablovsky, S. Sorba, Q. Hamid, [1996] “Plasma membranes and cytokine gene expression: utility in assessing biological effects of exposure to ionizing radiation from the Chernobyl accident in healthy individuals and myelodysplastic syndrome” (abstract). Presented at the *Annual Meeting of the American Society of Hematology*, (December 6, 1996).

2. G. Shablovsky, N. Dainiak, L. Karkanitsa, N.G. Kruchinsky, V.A.Ostapenko, O.Ghaffar, Q.Hamid. [1997] “IL-4 and IL-5 in patients exposed to ionizing radiation in Chernobyl” (abstract). Presented at the *Annual Meeting of the American Thoracic Society* (May 5, 1997).

3. R. Taha, G. Kovalev, G. Shablovsky, N. Dainiak, O. Ghaffar, and Q. Hamid, “Expression of Th2-type cytokines in the bronchial mucosa of children with asthma compared to adult atopic asthmatics” (abstract). Presented at the *Annual Meeting of the American Thoracic Society* (May 5, 1997).

4. G. Shablovsky, O. Ghaffar, R. Taha, A. Soussi-Gounni, R. Olivenstein, P. Ray, A. Ray, Q. Hamid. [1998] “Expression of Stem Cell Factor and c-kit in Allergic Asthma” (abstract). Presented at the *Annual Meeting of the American Academy of Allergy, Asthma and Immunology* (March 13, 1998).

BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Zaleski, Christopher	Bioinformatics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Rockland Community College	AAS	1996	Business Administration
Western Connecticut State University	BA	1999	Computer Science
University at Albany	BA	2005	Biology

(1)Positions and Honors:

Technical Summary:

Languages: High level of proficiency and recent focus in Java 2, with solid experience in Visual Basic, SQL, HTML, JavaScript and C++.
Operating Systems: High level of proficiency with all flavors of Microsoft Windows. Also some limited experience with RedHat Linux and Macintosh OS.
Development Environments: Borland JBuilder, Sun Forte, Microsoft Visual Studio
Database Management Systems: Microsoft SQL Server 6.5/2000

Communications protocols: TCP/IP, JDBC, JMS

Employment**:**

Initia Inc. New City, NY

Software Systems Engineer 1/01 – 9/02

Software based videoconferencing system solutions.

- One of three lead engineers responsible for project design concepts and system architecture. Decisions included Design Patterns, Inter-process communication and DBMS.
- Directly managed a team of four developers with design and implementation of client and server-side modules. Assisted with design pattern choices, code implementation and integration.
- Assisted in creation of project timelines and assured the completion of functionality requirements were fullfilled in a timely manner.
- Designed and coded server-side modules including Session Management, Scheduling, and Asynchronous Communications protocols. Technologies used included many standard J2SE/J2EE APIs, JMS, JDBC, extensive Multi-Threading, Reflection, and Socket IO.
- Assisted in distribution and support of beta systems on customer sites.

VideoBureau Inc. New City, NY

Software Development Engineer 3/99 – 1/01

Videoconferencing software development, hardware control, and installation.

- Design and implementation of a web-based client interface for videoconferencing control system. Created using HTML, Java, JavaScript, VBScript, and Active Server Pages. The interface was Drag-and-Drop controllable, and reflected current state of system sessions and controlled devices using real-time data.
- Created web-based interface for videoconferencing system database. Used HTML, JavaScript and ADO to implement sets of forms and wizards for database I/O.
- Implemented Multimedia control station interface using VisualBasic. Used to directly control and schedule content for up to fifty audio/video devices, including conferences, security cameras and television.

Boehringer Ingelheim Inc. Ridgefield, CT

Lead Support/Systems Analyst 5/97 – 3/99

Top 20 international pharmaceutical company.

- Lead support of international remote access services, consisting of connectivity from Windows 95 clients to Netware servers and Windows NT domains. Responsible for all remote access related support that could not be handled by tier 1 support staff.
- Managed software and hardware rollouts for the company sales force, including shipping & receiving of laptops, modem installations, and software installations/upgrades.
- Taught training classes on the use of remote access & telecommuting to classes of ten to fifty clients.
- Traveled nationally for on-site support of software and hardware, as well as installation of Cisco ISDN routers.

(2)Publications:

(3)Ongoing Research:

Discovery of common structural motifs in unaligned RNA sequences that have been precipitated using Ribonomic techniques.
Role: Bioinformatics

Timothy Edward Baroni

Wadsworth Center (NYSDOH)
David Axelrod Institute for Public Health
PO Box 22002 - CMS 5228 100 Heritage Rd., Apt. 7
Albany, NY 12201-2002 Guilderland, NY 12084
(518) 402-2536 (518) 577-7089
tbaroni@wadsworth.org tbaroni@bigfoot.com

Education

Ph.D. - Chemistry (August 1992 - May 1997; University of Kansas, Lawrence, KS) Research
director - Professor Joseph A. Heppert, Ph. D. Dissertation: “High Oxidation State Complexes of Tungsten with Ortho-Chelating Phenols”
B.S. - Chemistry (August 1988 - May 1992; Rockhurst College, Kansas City, MO)

Research Experience

Wadsworth Center (NYSDOH)
Division of Genetic Disorders
Postdoctoral research affiliate ⁄ Marlene Belfort, Ph.D. Oct 2003–present
Project: “Mechanism of cleavage in natually-occurring and engineered inteins”
Washington University School of Medicine
Department of Medicine, Division of Oncology
Postdoctoral research associate ⁄ Professor K. Weilbaecher, M.D. Aug 2002–Sep 2003
Project: “β3-integrin mediation of bone metastases in mice”
Department of Medicine, Division of Molecular Oncology
Postdoctoral research associate ⁄ Professor R. K. Brachmann, M.D. June 2000–July 2002
Project: “Suppressor mutations to bestow transcriptional activity to common p53 mutants”
Washington University (Department of Chemistry)
Postdoctoral research associate ⁄ Professor K. L. Wooley, Ph.D. June 1999–May 2000
Project: “Inorganic-polymeric core-shell nanoparticles”
University of Kansas (Department of Chemistry)
Postdoctoral research associate ⁄ Professor A. S. Borovik, Ph.D. June 1997–July 1998
Project: “2,6-Carbamidoylpyridine ligands in supramolecular assemblies”
Graduate research assistant ⁄ Professor J. A. Heppert, Ph.D. Oct. 1992–May 1997
Dissertation: “High Oxidation State Tungsten Phenoxides with Ortho-Chelating Groups”
Rockhurst College (now **Rockhurst University**, Department of Chemistry)
Undergraduate research assistant ⁄ Professor D. Gibbs, Ph.D. June 1990-May 1991
Project: “Stereoselective production of β-hydroxyketones via fermentation by S. cerevisiae”

Research Interests

Developing methods to solve problems simply and practically: a“back-to-basics” approach to
assess artificial, contrived, or natural systems ⁄ what does my experiment tell me?
Molecular bases of disease: By what mechanism do mutations alter signaling?
Genetic and/or biochemical screening to identify proteins and/or small molecules to modulate signaling pathways/cellular processes

Expression profiling (by chip, ELISA, etc.), molecular modeling, computational chemistry,
and bioinformatics: virtual experiments to direct research

Professional Experience

RGB Laboratories, Inc. (Kansas City, MO – now owned by Roots, Inc.) May 1991–August 1992
Quality assurance analysis of liquid and solid fertilizers (AA, pH, gravimetry, TDS, etc.)
Performed product and process research and development

Awards and Honors

1991 ACS Undergraduate Award in Analytical Chemistry
Phi Lambda Upsilon (chemistry honor society, inducted Spring 1996)
University of Kansas Graduate Teaching Fellowship (Fall 1992 and Spring 1994)
University of Kansas Graduate Research Fellowship (Spring 1993–Fall 1993 and Summer
1994– Spring 1997)

Professional Organizations

American Chemical Society (1991–2000)
American Association for Cancer Research (2002-present)

Teaching Experience

Assistant Professor – Kansas City Kansas Community College (August 1998–August 1999)
← General Chemistry for allied health professional programs: Instructed and prepared
material for both laboratory and lecture sections.
← Organic Chemistry I & II: Instructed and prepared materials for both laboratory and
lecture sections for these traditional undergraduate chemistry track classes.
← Developmental Math: a chemistry-oriented, problem solving mathematics class
Teaching Assistant and Research Assistant – University of Kansas (1992–1998)
← Molecular modeling, computational chemistry, and bioinformatics: virtual experiments to
direct research
← Instructed undergraduate laboratories in General Chemistry I & Organic Chemistry II.
← Substitute lecturer in Professor Heppert's graduate level inorganic classes
← Mentor and instructor to graduate & undergraduate students in experimental design,
preparation and analyses and projects

Abstracts

1. "Restoring fuction to p53 mutants" T. E. Baroni, T. Wang, H. Qian, L. N. Truong, J. Zeng, A.
E. Denes, S. W.-Y. Chen, and R. K. Brachmann (AACR Meeting, San Fancisco , CA, 2002)
2. "Supramolecular assemblies of 2,6-bis(carbamoylpyridines)" Q. Yu, T. E. Baroni, A. S.

Borovik (KANSYN Meeting, Lawrence, KS, 1998)
3. “Supramolecular assemblies of tungsten complexes with unusual chelating groups” T. E.
Baroni, V. L. Kolesnichenko, J. A. Heppert (KANSYN Meeting, Manhattan, KS, 1997)
4. “Organometallic free acids of high-valent tungsten.” T. E. Baroni, R. R. Hodel, R. P. Kingsborough, M. D. Morton, A. L. Rheingold, G. P. A. Yap, J. A. Heppert (National ACS Meeting, Anaheim, CA, 1994)

Publications

1. Baroni, T. E., Wang, T., Qian, H., Truong, L. N., Zeng, J., Denes, A. E., Chen, S. W.-Y., and
Brachmann, R. K. "A global suppressor motif for p53 cancer mutants" Proceedings of the
National Academy of Sciences **2004**, 101, 4930-4935.
2. Qian, H., Chen, S.W.-Y., Baroni, T. E., Wang, T., and Brachmann, R. K. "Wide spectrum of
residual wild-type and dominant-negative activities of p53 cancer mutants" (submtted).
3. Kolesnichenko, V., Mason M. H., Botts J. B., Botts A. M., Baroni T. E., Heppert J. A., Rheingold A. L., Liable-Sands L., Yap G.P. “Tungsten oxo salicylate complexes from tungsten
hexachloride reactions systems” Inorganic Chemistry **2001**, 40, 5010-5016
4. Yu, Q.; Baroni, T. E.; Borovik, A. S.; Liable-Sands, L.; Rheingold, A. L. “Hydrogen bonded
antiparallel β-strand motifs promoted by 2,6-bis(carbamoylpeptide)pyridine” Journal of the
Chemical Society, Chemical Communications (Cambridge) **1999**, 16, 1467-1468.
5. Yu, Q.; Baroni, T. E.; Borovik, A. S.; Liable-Sands, L.; Rheingold, A. L. “Synthesis and
structure of chiral 2,6-bis(2-carbamoyl)carbamoylpyridine ligands” Tetrahedron Letters
1998, 39, 6831-6834.
6. Baroni, T. E.; Bembenek, S.; Heppert, J. A.; Hodel, R. R.; Laird, B. B.; Morton, M. D.; Barnes, D. L.; Takusagawa, F. “Hydrogen bonding in tungsten(VI) salicylate free acids”
Coordination Chemistry Reviews **1998**, 174, 255-282.
7. Baroni, T. E.; Kolesnichenko, V. L.; Seib, L.; Liable-Sands, L. M.; Yap, G. P. A.; Rheingold, A.
L.; Heppert, J. A. “Supramolecular assemblies of tungsten complexes with unusual chelating
groups.” Polyhedron **1998**, 17, 759-768.
8. Baroni, T. E.; Heppert, J. A.; Hodel, R. R.; Kingsborough, R. P. “Supramolecular assemblies
involving organometallic free acids.” Organometallics **1996**, 15, 22, 4872-4879.

Laboratory Skills & Research Specialties

Vigorous verbal and well-written communication skills on a variety of topics, especially

relating to chemistry, biology and physical sciences.
Chemical background ideal for understanding technologies and strategy for molecular
processes, since most molecular biology techniques are biochemical in nature.
Design and construction of targeting vectors for conditional knockout mice using Cre-loxP
technology.
Organizing and performing general lab tasks (equipment operation and troubleshooting, oil
changes, repairs, ordering materials, cleanups, freezer and incubator maintenance).
Strong background in molecular biological techniques: restriction digests, gel electrophoresis, PCR, cloning, sub-cloning, vector construction for genomic and plasmid
constructs, including plasmid library generation and screening in yeast.
Experience in tissue culture techniques: preparation of media, manipulation, freezing, and
transfection of adherent and suspended cell lines as well as harvesting of murine tissues for
primary culture.
Conversant in Western blotting and immunochemical detection practices.
Mouse manipulation techniques in barrier facility: caging, sacrificing, anesthesia, injections
(subcutaneous, peritoneal, intratibial, left ventricle), dissections, tissue harvesting and
fixation.
Adept at computer operation, configuration, software and hardware installation, troubleshooting, modest programming. Familiarity with MS-DOS, Windows 3.11/95/98, Mac
OS X, and many flavors of UNIX (including building of source code).

Skilled in use of DNA Strider, BLAST, MS Office X, Filemaker Pro (track sample origin, storage and bioinformatic data in a variety of templates). CS ChemOffice, Jandel Scientific’s
Sigma Plot, and Internet resources (http, FTP, telnet, e-mail protocols, newsgroups, etc.)
Proficient with several molecular modeling programs: Alchemy and Sybyl (PC or UNIX,
Tripos), Chem3D (PC/Mac), QUANTA/CHARMM (UNIX), CAChe (Mac), ISISDraw (PC).
Training in manipulation of air and/or water sensitive chemicals via Schlenk line and glove
box techniques to perform inorganic and organic synthesis: solid state (ampoule/bomb) and
homogeneous reactions, ligand synthesis, organometallic & coordination compounds.
Post-synthetic compound purification via chromatography, distillation, sublimation, or
recrystallization
NMR spectroscopy -- $_{1}$H, $_{13}$C, NOE, and simple 2D experiments (COSY, ROSY, etc.).
Familiarity with Varian XL300, Bruker AM500 & DRX400, and GE QE300 spectrometers, IR,

UV-Visible and mass spectral data interpretation
Conversant in X-ray diffraction: single crystal (data collection and refinement) & powder
diffraction spectra.
Simple glassblowing (sealing ampoules, repairing star fractures/cracks, simple modifications)
Minor electrical and mechanical repair experience (glove boxes, rotory evaporators, stirring/hot plates, pH meters, balances, and other common laboratory equipment)

References

Marlene Belfort, Ph.D., Division Chair, Division of Genetic Disorders, Wadsworth Center, New York
State Department of Health, 120 New Scotland Ave, Albany, NY 12208 — (518) 473-3345 —
belfort@wadsworth.org
Katherine N. Weilbaecher, M.D., Assistant Professor, Washington University School of Medicine,
Depatment of Medicine, 660 S. Euclid, Box 8069, Saint Louis, MO 63110-1026 — (314) 454-
8858 — kweilbae@im.wustl.edu
Rainer K. Brachmann, M.D., Assistant Professor, University of California at Irvine, Departments of
Medicine and Biological Chemistry, Med Sci I, C202, Zot 4075, Irvine, CA 92697-4075 — (949)
824-8778 — rbrachma@uci.edu
Joseph A. Heppert, Ph.D., Professor, Director of Center for Science Education, University of
Kansas, Department of Chemistry, Rm 1023 Malott Hall, Lawrence, KS 66045 — (785) 864-
4150 — jheppert@ku.edu

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Doyle, Francis J.	Bioinformatics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
SUNY Geneseo, Geneseo, NY	BA	1996	Communication
Pace University, New York, NY	MS	2000	Computer Science
SUNY Albany, Albany, NY		2003	Nanotechnology

(4)Positions and Honors:

Technical Summary:

Languages: High level of proficiency and recent focus in Java 2 (I am a Sun certified Java Programmer), with solid experience in IBM Mainframe Assembly, Visual Basic, SQL, and C++.
Operating Systems: High level of current proficiency with all versions of Microsoft Windows, and with a number of UNIX variants including Redhat Linux. Previous professional experience with IBM Mainframe OS/390, and Apple Macintosh systems.
Development Environments: Sun Forte, Microsoft Visual Studio, Emacs, ISPF
Database Management Systems: Microsoft SQL Server 2000, MySQL
Communications protocols: TCP/IP (TCP & UDP), HTTP, Telnet, JMS, JDBC, ODBC, H.320/H.323, SNA, X.25

Employment**:**

Doyle Systems Analysis, Inc. Albany, NY

Software Systems Consultant 9/02 – 11/04

- Various, ranging from VBA MS Office customization, Linux support and MySQL query analysis, to Java programming and network installation.

Initia Inc./ VideoBureau Inc. New City, NY

Software Systems Engineer 3/01 – 9/02

Software based videoconferencing system solutions.

- Designed and implemented distributed device management framework for video communications server utilizing JMS. Managed other programmer's integration of devices into this framework.
- Designed and implemented device drivers for real-time control of Tandberg and Polycom video codecs,
  including XML parsers for state retrieval, and Telnet and HTTP client modules

  for high-level device communications.

- Designed and implemented the alarm management system for the server, including an SNMP agent which allowed integration with third party network monitoring tools. Tested and demonstrated this ability with HP Openview.
- Managed project source code control server (StarTeam) and weekly build (ANT utility)/ archival process.
- Represented company by presenting product technology to prospective (technical and non-technical) investors.

Donovan Data Systems, Inc. New York, NY

Programmer *Analyst 8/99 – 3/01*

Primary supplier of data systems and software to the advertising industry.

- Responsible for maintaining and updating mainframe assembly language programs for demographic research and analysis.
- Programmed client side, PC based user interfaces (in Visual Basic) in tandem with their corresponding mainframe server applications.

MBIA Insurance Corporation New York, NY

Production Support Intern *7/98 – 2/99*

Financial services company, member of both Fortune 500 and the S&P 500 index.

- Provided end user support for Windows NT 4.0/Windows 95, MS-Office, and PC hardware.
- Performed large rollouts and configuration of new software.
- Lead and assisted in the analysis and resolution of various IT problems ranging from application troubles to network failure.

Verizon (NYNEX/Bell Atlantic) White Plains/New York, NY

Operations Support Specialist (Contractor) *6/96 – 9/97*

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- Provided operational support for the NYNEX NCMS computer telephony integration system distributed across Windows, AIX, and AS400 platforms.
- Created “component failure impact analysis matrix” enabling accurate determination of impact of component outages on overall system availability.
- Performed operational support tasks and user support for CTI applications running on various systems.
- Assisted in analysis and resolution of host/network problems.

(5)Publications:

(6)Ongoing Research:

Discovery of common structural motifs in unaligned RNA sequences that have been precipitated using Ribonomic techniques.
Role: Bioinformatics

Michael Malak

1 Kimberly Circle
Troy, NY 12180
(518) 283–5611
mmalak@alum.mit.edu

Education Rensselaer Polytechnic Institute, Troy, NY
Doctor of Philosophy in Physics, August 1998
California Institute of Technology, Pasadena, CA
Master of Science in Physics, June 1991
Massachusetts Institute of Technology, Cambridge, MA
Bachelor of Science in Physics, June 1989

Experience CommerceHub, Albany, NY 2001–present
Developer.
Responsible for designing and writing LaTeX and Java code to produce packing slips and other documents for online retailers and their suppliers. Retailers include QVC, Target, Sears, K-B Toys, Costco, Walgreen's, Circuit City, Macy's, Kmart, ShopNBC, and Staples. Responsible for tools for maintenance and migration of XML control data.

Wolfram Research, Inc., Champaign, IL 2000–2001
Strategic Applications Developer/Consultant.
Developed examples and applications of J/Link (integration of Mathematica and Java) and webMathematica. Projects included 12 notebooks with interactive Java controls, multimedia extensions using the Java Media Framework, and Mathematica Server Pages. Developed a quantum-mechanics website with applets that display results computed by serverside Mathematica Server Pages.

Rensselaer Polytechnic Institute, Troy, NY 1994–2000
Assistant Professor (Clinical) of Physics. (2000)
Taught four sections of Studio Physics I (Mechanics). Lectured, led discussions, performed demonstrations, and assisted students in the highly interactive studio environment. Developed
hypermedia modules for instruction.
Adjunct Assistant Professor of Physics. (1999)
Taught three sections of Studio Physics II (Electricity and Magnetism, Waves and Vibrations, and Modern Physics). Lectured, performed demonstrations, assisted students, and developed hypermedia materials.
Postdoctoral Research Assistant for Project Links, Department of Mathematical Sciences. (1998–1999)
Developed World-Wide-Web-based hypermedia modules for use in studio classrooms as part of an NSF-sponsored multi-university collaboration. Wrote HTML and TEX pages, created Java applets, supervised other HTML and Java programmers, and developed JavaScript functions for intramodule navigation, mathematical expressions, and multimedia. Module topics include electromagnetism and Fourier series. Researched the use of TEX as a hypermedia
language and acted as contact with IBM's Advanced Internet Publishing group.
Graduate Research Assistant, Anderson Center for Innovation in Undergraduate Education. (1994–1998)
As part of Project Links, developed Web-based modules for Studio Physics II (Electricity and Magnetism) and vector calculus. Components include hypertext, graphics, animations, Java-based interactive illustrations, symbolic math assignments, spreadsheet exercises, and analysis of videotaped experiments.

Experience (cont.)
Teaching Assistant (1994–1997) for Studio Physics I (Mechanics) and II (Electricity and Magnetism).
Lectured, performed demonstrations, assisted students, wrote hypermedia modules and

in-class worksheets, and graded for studio classes.

California Institute of Technology, Pasadena, CA 1990–1993
Teaching Assistant for Undergraduate Computational Physics.
Lectured and assisted students in computer laboratory, wrote problem sets, and graded students'
programs. Topics included Mathematica, quadrature and integration, Runge-Kutta methods, simulation of interplanetary probes, simulated neural nets and annealing (the traveling salesman problem), parallel computation, and computer control of instruments and experiments.

California Institute of Technology, Pasadena, CA 1989–1990
Teaching Assistant for Graduate Computational Physics.
Topics included basic numerical methods, Hartree-Fock calculation, Metropolis simulated annealing, white dwarf stars, and fluid dynamics.

Publications and Presentations

"JavaScript for Embedding Mathematics in Web Pages", Michael Malak, invited poster, MathML International Conference 2000, October 2000.

"Adding Video to Your Web Pages", Michael Malak, Computing in Science and Engineering, March 2000.

"Project Links: Hypermedia Modules for Introductory Electricity and Magnetism", Michael J. Malak, AAPT Announcer **29**, 2. Invited Paper for AAPT Summer Meeting, August 5, 1999.

"Multimedia Applications in Studio Physics Courses", K. Min, M. Malak, P. Casabella, J. Haus, and J. Wilson, in Current Practice in Multimedia Education, R. Bradbeer, ed. Hong Kong: City University of Hong Kong Press, 1999.

"Hypermedia Modules for Electricity and Magnetism", Michael J. Malak, Ph. D. thesis, Rensselaer Polytechnic Institute, June 1998.

"Hypermedia Modules for Electricity and Magnetism", Michael J. Malak, Joseph W. Haus, and Jack M. Wilson, AAPT Announcer **27**, 4. Contributed Talk at AAPT Winter Meeting, January 8, 1998.

"Java-based Interactive Illustrations for Studio Physics", Michael J. Malak and Jack M.Wilson, AAPT Announcer **27**, 12. Contributed Talk at APS/AAPT Joint Meeting, April 19, 1997.

Activities California Institute of Technology, Pasadena, CA 1989–1993
• Chair, Graduate Review Board: Investigated alleged violations of the Honor Code by graduate students.
• Graduate Student Council: Physics representative, Computer Coordinator, Publications Committee member.
• Theater Arts at Caltech: Acted and stage-managed.

Massachusetts Institute of Technology, Cambridge, MA 1985–1989
• MIT Dramashop: Acted, directed, built sets, and wrote plays.
• Sigma Pi Sigma (Physics honor society)

Professional Organizations

American Physical Society
American Association of Physics Teachers