

NEW JERSEY COMMISSION ON CANCER RESEARCH

**Returning \$10
to New Jersey
for Every
Research \$1 Awarded**



2007 ANNUAL REPORT
*Featuring grant program
evaluation
and outcomes report*

Evaluation Highlights

As part of his 2006 budget address, Governor Jon Corzine called for a “cost effective and functionally efficient government that will benefit and enhance the State’s economy, restore public confidence and allow for the continued delivery of vital programs.”

With this charge in mind, the New Jersey Commission on Cancer Research (NJCCR) enlisted the help of the Edward J. Bloustein School of Public Policy at Rutgers, The State University to provide an intensive evaluation of its programs. The results of that study, highlighted in this annual report, show that the State’s investment in the NJCCR pays tremendous dividends.

\$10.44 invested back to NJ laboratories

for every state dollar awarded

8 out of 10 NJCCR grant awardees

*successfully obtain national funding**

9 out of 10 grantees published

*in at least one peer-reviewed journal**

7 out of 10 post-doctoral fellows

*secured academic or industry research positions within four years of award**

8 out of 10 post-doctoral fellows published

*at least two peer-reviewed papers from their award**

100% of sponsors rated

the Training Fellowship Awards as extremely or very useful to the development of their laboratory

**Numbers presented here are approximate*



Dear Governor Corzine:

We who serve on the New Jersey Commission on Cancer Research (NJCCR) thank you most sincerely for your continued support of our activities. This 2007 Annual Report summarizes key accomplishments and research highlights from a wide range of science supported by our program.

Throughout this report, you will see evidence of our continued efforts to identify, solicit, and support high quality, innovative research that will have a significant impact on cancer in New Jersey, as well as our commitment to ensure that this research is disseminated and translated in the health care and public health arenas.

Of greatest significance in 2007 were the exciting results from a 15 month intensive and independent evaluation of the NJCCR programs that was conducted by members of the Bloustein School of Urban Policy & Planning at Rutgers, The State University. The NJCCR commissioned this rigorous self-assessment to measure its efficiency and effectiveness based on quantifiable data. It is our pleasure to report that the positive outcomes of NJCCR strategies to promote original and significant cancer research in New Jersey exceeded our expectations in all categories.

For example, the NJCCR's open and fair system of Seed Grant awards provides proven benefits to scientists and research institutions throughout the state by: leveraging \$10.44 back to New Jersey for every state dollar spent; stimulating new ideas and research directions and opening doors to national recognition. Increased funding for state research institutions is also expanded through the indirect costs included in these awards.

Furthermore, the NJCCR Training Fellowships contribute to the development of a technically skilled workforce that adds substantial benefit to research laboratories across the state by enhancing laboratory competitiveness, generating new research ideas, and augmenting biomedical training. The Fellowships also ensure a highly trained scientific workforce for New Jersey's pharmaceutical and biotechnology industries.

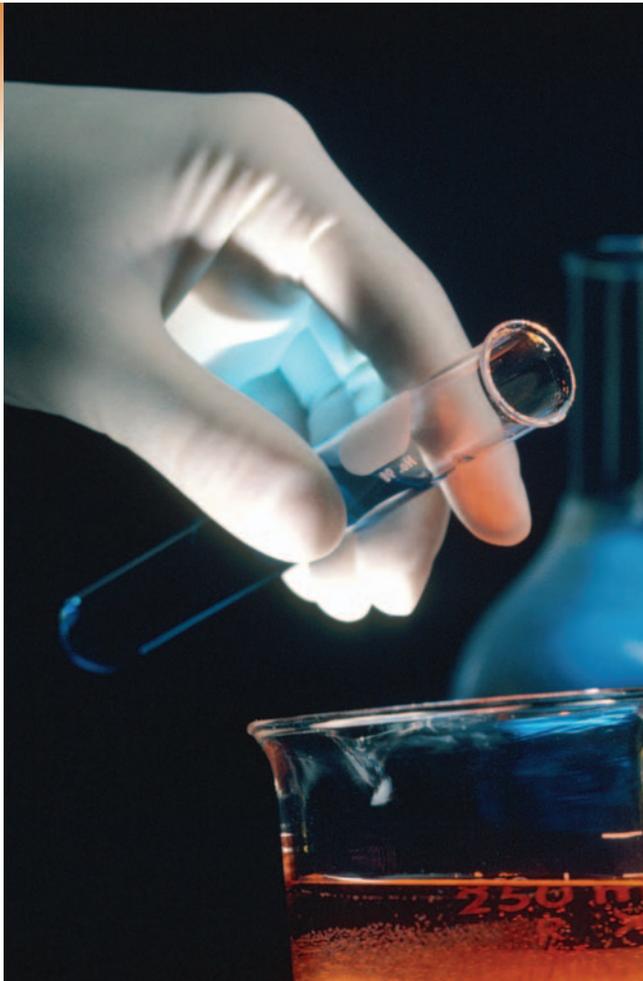
These findings demonstrate the clear and substantial role that the NJCCR plays in enhancing cancer research in New Jersey. At the same time it addresses your commitment to establishing a government that is outcome-driven. The NJCCR is the only agency receiving state-appropriated cancer research funds that can demonstrate this type of return on investment.

As we know, cancer represents a significant health concern for the citizens of New Jersey. Through the NJCCR, our state has established a unique and valuable mechanism for bringing the benefits of a dynamic cancer research enterprise to the fight against cancer. We look forward to working together with you to continue to bring New Jersey to the cutting edge in the fight against this devastating disease.

Respectfully yours,

A handwritten signature in blue ink that reads "Anna Marie Skalka". The signature is fluid and cursive, with a long horizontal flourish at the end.

Anna Marie Skalka, Ph.D.
Chairwoman



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Rita McKnight 31

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ACKNOWLEDGEMENT

It is evident that the progress and achievements detailed in this report were realized through the vision, dedication and hard work of many individuals, particularly Commissioner Heather Howard, former Commissioner Dr. Fred M. Jacobs, and Deputy Commissioner/State Epidemiologist Dr. Eddy A. Bresnitz.

The NJCCR is established in, but not of, the New Jersey Department of Health and Senior Services (DHSS). The NJCCR collaborates with the Office of Cancer Epidemiology Services, the Office of Cancer Prevention & Control, and the New Jersey Cancer Education and Early Detection program to offer integrated services to the citizens of New Jersey.

The NJCCR also benefits from the strong support services available in the DHSS, including fiscal, human resources, and information technology. The NJCCR works effectively with the DHSS to implement its mission of service to the public.





2.....Returning \$10 to New Jersey for Every Research \$1 Awarded

Founded in 1983 (Cancer Research Act – P.L.83, Ch.6), the New Jersey Commission on Cancer Research (NJCCR) promotes and funds significant cancer research projects proposed and carried out by New Jersey scientists. The Act dedicates annually a sum of no less than \$1 million to the NJCCR to fund research into the causes, prevention and treatment of cancer. For over two decades, the NJCCR has provided more than \$30 million in support of discovery-oriented basic science cancer research.

The NJCCR has worked closely with experts throughout the state to achieve significant advances in understanding the cellular and molecular events that lead to cancer. Only by understanding the molecular and genetic properties of cancer cells can we understand what causes them to become malignant and how to reverse or prevent these changes.

While much remains to be discovered about the etiology of cancer, the potential to unravel these unknowns has accelerated remarkably. Scientists are closer to fully understanding the more complex interplay among the myriad of factors involved in cancer progression. This knowledge will, in turn, lead to ever expanding opportunities for prevention and cure.

New findings from laboratory research have already aided cancer specialists in the design of procedures for early diagnosis and improved treatment. Important insights have been gained regarding the role of oncogenes, tumor suppressor genes, immunological factors and carcinogenic agents in the cancer process. As a result of discoveries made in these areas, new frontiers have emerged including molecular epidemiology, gene therapy, genetic risk evaluation, immunodiagnosis and immunocytotherapy, that hold significant promise in furthering the battle against cancer.

That is why for over 20 years, our strategy has been to support New Jersey scientists by providing “seed” money for creative new research into the causes, prevention and treatment of cancer. Our goal has been to fund promising ideas from New Jersey’s most creative scientists, which enables us to excel in recognizing and supporting many important cancer research breakthroughs from their infancy.

Looking back over our 24 years of progress, we are proud of how far cancer research has advanced in New Jersey as a result of the NJCCR’s efforts. We are also proud of the proven success on our investment strategy, which has resulted in a return of over \$10 dollars in federal, peer-reviewed funding for every dollar provided through the NJCCR. Looking ahead, the NJCCR is more committed than ever to funding innovative research and accelerating the pace at which new therapies and drugs are brought to the patients who need them most. We are also committed to continuing our efforts to bring together New Jersey laboratory and clinical investigators, patients, legislators, and citizens, to advance our important mission.

“Over the years, I have seen first hand, the critical impact that the NJCCR has had throughout the State in the fields of cancer research. Individuals such as Arthur Levinson (CEO, Genentech), Rudolph Jaenisch (Professor at MIT and world authority in Stem Cell research), Moshe Oren (Professor, Weizmann Institute and Director of Biological Sciences), Daniel Linzer (Dean of Sciences, Northwestern University), Gigi Lozono (Head of Genetics, M.D. Anderson Cancer Center, Houston Texas) and many others who are now employed by the Pharmaceutical Companies in New Jersey, all have benefited from the programs supported in part by the NJCCR. Indeed, it is a remarkable record with such a modest budget.”

Arnold J. Levine, Ph.D.
Professor, Institute for
Advanced Study
Professor, Cancer Institute of
New Jersey



4.....Returning \$10 to New Jersey for Every Research \$1 Awarded

This report of the New Jersey Commission on Cancer Research's major activities for the year 2007 is only a partial overview of the high quality work that is carried out every day in New Jersey in support of our mission.

Maximizing Value for the Citizens of New Jersey

Impact of the New Jersey State Commission on Cancer Research's Grant & Post-doctoral fellowship program (1998 – 2004 *Evaluation and Outcomes Report Summary*)

Of greatest significance in 2007 were the exciting results from a 15 month intensive and independent evaluation of the NJCCR programs. Cognizant of Governor Jon Corzine's strong efforts to ensure that the best value for services is provided to the people of New Jersey, members of the Bloustein School of Urban Policy & Planning at Rutgers University completed this rigorous assessment to measure the NJCCR's efficiency and effectiveness based on quantifiable data.

Results summarized below demonstrate the clear and significant role that the NJCCR plays in enhancing cancer research in New Jersey. (*Full report can be found at the back of this publication*)

NJCCR GRANT RECIPIENTS

- NJCCR grant recipients bring back \$10.44 for every state dollar awarded in new research dollars to New Jersey. Indirect costs to the institution increase this amount even more.
- More than 85% of NJCCR grant recipients go on to obtain major national grants within 4 years of their NJCCR award. This is 4 X better than national averages for scientists with new applications to major funding agencies.
- 8 out of 10 new scientists without any track record or grant history get major national grants within 4 years of their first NJCCR award.
- Reported Benefits to Grantees (Qualitative Analysis)
 - ✓ Strengthens ability to compete successfully for larger grants.
 - ✓ Enhances capacity to change research direction.
 - ✓ Allows exploration of promising new ideas.
 - ✓ Increases opportunities for peer reviewed presentations and national collaborations.

“From my perspective, the most important point to be made is the breadth and depth of the extent to which the relatively modest investments of the State in the support of the NJCCR have paid off in improving cancer research, care and prevention in New Jersey.”

Arnold B. Rabson, M.D.
Associate Director for Basic Science,
The Cancer Institute of NJ
Professor of Molecular Genetics,
Microbiology and Immunology and
Pathology and Laboratory Medicine
UMDNJ-Robert Wood Johnson
Medical School

2007 – The Year's Highlights

“Over 20 years ago, the NJCCR provided me a seed grant to support my research, and the success of this research was a determining factor for me to devote most of my research efforts to study the etiology of cancer formation and the mechanisms of cancer prevention. Since then, my laboratory has brought in more than \$30 million in National Cancer Institute grants based directly or indirectly on the research conducted by seed grants from the NJCCR.”

Chuns S. Yang, Ph.D.
Professor and Chair
John L. Colaizzi Chair
in Pharmacy
Department of
Chemical Biology
Ernest Mario School of
Pharmacy
Rutgers, The State
University of
New Jersey

POSTDOCTORAL FELLOWSHIPS

- Sixty nine percent (69%) of postdoctoral fellows who responded found academic or industry research positions within just 4 years of award.
- Eighty five percent (85%) published at least two publications per study.
- One hundred percent (100%) of sponsors rated the usefulness of the fellowship program as extremely or very useful to the development of their laboratories.
- Sixty one percent (61%) of the fellows contributed to the laboratory's capacity to attract national funding in amounts between \$1.7 and \$3.5 million each.
- Benefits to Fellows (Qualitative Results)
 - ✓ Enhances ability to begin new research direction.
 - ✓ Results in new discovery or significant finding.
 - ✓ Supports ability to attract national funding.
 - ✓ Supervises training of graduate and undergraduate students.

In conclusion, these findings prove that the NJCCR is an effective, outcome driven agency dedicated to strengthening cancer research in New Jersey and to helping our citizens receive the benefits from this research.

2007 Annual Retreat on Cancer Research

“With your support and participation, the Annual Retreat is now the largest scientific meeting held in New Jersey,” New Jersey Commission on Cancer Research Scientific Chair Dr. James Broach told a standing-room-only audience in UMDNJ-Robert Wood Johnson Medical School's Auditorium as he opened the 2007 *Annual Retreat on Cancer Research*.

This day long event on May 31 featured seven focus sessions on: clinical research and population science; cancer control and psychosocial intervention; molecular mechanisms of tumor growth; cytokines and cancer immunology; cancer pharmacology and developmental therapeutics; carcinogenesis and chemoprevention; transcriptional regulation and oncogenesis, and a public forum on addressing the unmet needs of young adults with cancer.



Panel members participate in the Public Forum at the 2007 Annual Retreat on Cancer Research

The retreat has progressed since its inception in 1987. Since then, over 8,500 participants have come together to engage in and create a unique learning environment. With their shared expertise and development of innovative projects, these initiatives have led to some outstanding innovative research in New Jersey.

The New Jersey Commission on Cancer Research and The Cancer Institute of New Jersey hosted the retreat to promote interaction among investigators, provide a forum for the presentation of original research, aid in career development and training through presented lectures and focus groups, and increase awareness of resources available within New Jersey.

No scientific meeting is complete without distinguished speakers, and this event was no exception. Each year the retreat has included presentations by invited world-renowned researchers specifically chosen for their scientific accomplishments. [Dr. Craig B. Thompson](#), Director of the Abramson Cancer Center and Chair of the Department of Cancer Biology at the University of Pennsylvania School of Medicine, provided the morning keynote address on “Therapeutic Manipulation of Programmed Cell Death to Enhance Cancer Treatment.” The afternoon keynote address featured [Dr. V. Craig Jordan](#), Vice President and Scientific Director for Medical Science at Fox Chase Cancer Center, who presented on “Successful Translational Research for the Targeted Treatment and Prevention of Breast Cancer.”

Another highlight of the retreat was the public forum, which focused on the unmet needs of young adults with cancer. According to a National Cancer Institute Progress Review Group Report entitled: *Closing the Research Gap: Adolescents and Young Adults with Cancer* issued in the spring of 2007, cancer is the leading cause of death among 15-39 year olds, excluding homicide, suicide and unintentional injury. The NJCCR, along with the CINJ, developed this forum so that the needs of this group can be met head on and to challenge New Jersey researchers and allied health care professionals to develop and implement new strategies to address the situation.

[Matthew Zachary](#), an 11 year, young adult cancer survivor started off the program with a very personal and motivational discussion on his battle with cancer entitled “I’m Too Young for This!” Immediately following Mr. Zachary’s passionate speech, audience members interacted with the following panel members to discuss some of the complex issues common to young adults battling this disease: [Betsy A. Kohler, MPH](#), New Jersey Department of Health and Senior Services, [Darlene G. Gibbon, MD](#), The Cancer Institute of New Jersey, [Generosa Grana, MD](#), Cooper Cancer Institute, [Kathleen Neville, PhD](#), Kean University, [Julie E. Larson, LMSW](#), CancerCare, [Regina Cunningham, PhD, RN](#), The Cancer Institute of New Jersey and [Barbara Rabinowitz, PhD](#), Meridian Health System and member of the NJCCR. Presentation from the public forum can be viewed at <http://rwjms.umndj.edu/itunesu>.

Additionally, poster sessions were held throughout the day featuring the excellent work being conducted in New Jersey. Each year, talented graduate and postdoctoral students compete for the NJ Cancer Research Awards for Scientific

“Each year, we in the cancer community have an opportunity to come together and share our work with each other with the hope that we will be able to apply this information toward the development of new lines of treatment and prevention.”

Edmund C. Lattime, Ph.D.
Professor of Surgery,
Molecular Genetics,
Microbiology &
Immunology
UMDNJ-Robert Wood
Johnson Medical School
Deputy Director,
The Cancer Institute of
New Jersey
Co-chair, Annual Retreat
on Cancer Research

2007 – The Year's Highlights

"I am happy to report that my research program has been continuously funded by the NSF since my NJCCR grant 8 years ago, bringing to New Jersey over a million research dollars and training for over 30 undergraduate student researchers, most of whom are still in the state attending graduate or medical school, doing research, practicing medicine, working in the pharmaceutical/biotech sector, or teaching."

Julie Drawbridge, Ph.D.
Chair, Department of
Biology
Rider University

Excellence. Below are the winners of the awards, which are sponsored by Johnson & Johnson pharmaceutical company:

1. **Ahmed Lasfar**, UMDNJ – New Jersey Medical School, for "IFN-Lamda Displays Potent Anti-Tumor Activity in Hepatocellular Carcinoma (HCC)"
2. **Adrienne T. Black**, Rutgers, The State University of New Jersey, for "Induction of the PGE2 Biosynthetic Pathway by UVB Light is Regulated by the P38 and JNK Map Kinases in Primary Cultures of Murine Keratinocytes"
3. **Gaofeng Fan**, CABM-Rutgers, The State University, for "PIN1 Markedly Enhances the Oncogenic Activity of the REL Protein Subunits of NF- κ B"
4. **Manav Korpai**, Princeton University, for "A Mouse Model for In Vivo Detection and Disruption of TGF-Beta Signaling in Breast Cancer Metastasis"
5. **Pellegrino G. Magro**, UMDNJ-RWJMS-Cancer Institute of New Jersey, for "Regulation of MDR1 Transcription and Chomoresistance by the Mixed Lineage Leukemia 1 (MLL1) Protein"
6. **Henderson Marschall**, UMDNJ-RWJMS-Cancer Institute of New Jersey, for "Topors May Function as a Tumor Suppressor by Maintaining Genomic Stability"
7. **Jeffrey J. Martino**, Rutgers, The State University, for "Roles for GRM1 Pathway Components in Melanoma Tumor Cell Signaling"
8. **Robin Mathew**, UMDNJ-Robert Wood Johnson Medical School, for "Autophagy Suppresses Tumor Progression by Limiting Chromosomal Instability"
9. **Prasun J. Mishra**, UMDNJ-RWJMS-Cancer Institute of New Jersey, for "Dihydrofolate Reductase as an Oncogene: A Novel Role for an Essential DNA Synthesis Enzyme"
10. **Claude E. Monken**, UMDNJ-RWJMS-Cancer Institute of New Jersey, for "Recombinant Vaccinia Virus Expressing an Anti-IL-10 Antibody is Useful in Both an Adjuvant and a Treatment Setting"
11. **Sonia C. Picinich**, UMDNJ-RWJMS-Cancer Institute of New Jersey, for "Investigation the Role of Tumor-Secreted Factors in Chemotaxis of Mesenchymal Stem Cells to the Tumor Microenvironment"
12. **Sophia Spadavecchia**, UMDNJ-New Jersey Medical School, for "Host Cell Control of Cell and Promoter Specific Transactivation by the KSHV ORF57/MTA Protein"



L to R: Walid Abushahba and Ahmed Lasfar stand by their NJCCR award winning poster

8.....Returning \$10 to New Jersey for Every Research \$1 Awarded

White Beeches Sponsors Annual Benefit Event to Aid Cancer Research

The NJCCR is fortunate to have the support of hundreds of talented volunteers who selflessly contribute their time and expertise. Their skills, coupled with a passion to fight the war against cancer, provide incredible power and energy to fund research and to help people cope with cancer.

On September 11, 2007 the Ladies of White Beeches Golf and Country Club hosted a benefit luncheon in Haworth, New Jersey. The benefit raised over \$10,600 for cancer researchers in New Jersey. The daylong event brought together over 250 people who competed in bridge and golf tournaments. A wonderful luncheon and award ceremony followed, which also featured a Chinese auction.

This event has become the NJCCR's largest single-day fundraiser for cancer research and education. Over the past several years "The Ladies" have raised more than \$200,000, of which one hundred percent of the proceeds supported cancer research at non-profit institutions in New Jersey.

As more funding for cancer research is needed to support the many deserving and promising programs in New Jersey, the NJCCR is fortunate and grateful and fortunate to be the beneficiaries of this very successful event.

The New Jersey Breast and Prostate Cancer Research Funds

The NJCCR administers the New Jersey Breast Cancer Research Fund (BCRF) and the Prostate Cancer Research Fund (PCRF). The BCRF and PCRF are replenished through individual contributions and a check-off box on the New Jersey State Income Tax Return, which allows citizens to voluntarily contribute a portion of their income tax refund or payment. The BCRF finished number one among tax choices in tax year 2006, raising over \$220,000 for breast cancer research. Additionally, the PCRF generated over \$23,000 for tax year 2006. These funds support breast and prostate cancer research grants and fellowships, as well as cancer educational programs.

Through a competitive scientific peer review process, the NJCCR makes awards for research projects focusing on the causes, prevention, screening, treatment or cure of breast or prostate cancer. Grants may also be awarded to support basic, behavioral, clinical, demographical, epidemiological and psychosocial research.

As these funds are combined with private donations and other special project revenues, the NJCCR will be able to award more grants, fellowships, and scholarships to breast and prostate cancer researchers throughout the state.



Conquer Cancer License Plate

The Conquer Cancer specialty license plate is making good on its promise to 'take the fight against cancer to the streets of New Jersey'. Since its inception in 1998, over 52,000 license plates have been sold and more than \$3.9 million dollars have been raised for cancer research in the state.

The NJCCR uses one hundred percent of the monies from the license plates to fund talented scientists at New Jersey research institutions. All grants and fellowships are competitive and subject to stringent scientific review. This nonpartisan approach ensures that the very best research is funded. The majority of seed grants awarded by the NJCCR have been very successful in attracting national funds for continued research in New Jersey. For every dollar the NJCCR has awarded, over \$10 has been returned to the state for continued research. With this return on investment, the purchase of one conquer cancer license plate provides the same benefit for cancer research as would a \$500 contribution.

In 2007, over 2,700 plates were sold. When the proceeds from these sales were combined with renewal fees, more than \$550,000 was raised for cancer research. With the consistent success of the license plate, New Jersey cancer researchers and the public can look forward to additional grant and fellowship awards.

New Jersey motorists can purchase the plate at any time during the registration cycle for \$50, with a \$10 annual renewal fee, at all Motor Vehicle Commission offices or through its website www.accessdmv.com.



The overall objectives, strategies and priorities of the NJCCR are set by the Commissioners, who actively participate in overseeing the program and make final recommendations on the research projects to be funded. In each Grant Cycle, the NJCCR awards grants based on the member's recommendations, following peer reviewer's evaluations, assessment of responsiveness to program priorities, and available funds.

The NJCCR currently consists of ten members appointed by the Governor with the consent of the Senate: five scientists/clinicians; two members from non-profit health organizations, one member from private industry; one ex-officio member from the Department of Health and Senior Services, and one ex-officio member from the Department of Environmental Protection.

Anna Marie Skalka, Ph.D. – Chairwoman

Dr. Skalka has been the Senior Vice President for Basic Science and Director of the Institute for Cancer Research at the Fox Chase Cancer Center in Philadelphia since 1987. Previously, she chaired the Department of Molecular Oncology at the Roche Institute for Molecular Biology in Nutley. Dr. Skalka has served on a number of national and international scientific advisory committees, and on the editorial boards of several scientific journals. She was a recipient of an Outstanding Investigator Grant from the National Cancer Institute and an unrestricted grant for research in infectious diseases from the Bristol Myers Squibb Co. In 1994, in recognition for her outstanding achievements, Dr. Skalka was elected a Fellow of the American Academy of Arts and Sciences and in 1996 she was elected to the American Association for the Advancement of Science and the American Academy of Microbiology (AAM), serving on the Board of Governors from 1999-2002. Dr. Skalka is an internationally recognized expert on molecular genetics and the molecular biology of RNA tumor viruses. Together with former Commissioner Dr. Lynn Enquist, she is coauthor of the leading virology textbook. Dr. Skalka resides in Princeton, New Jersey.

Kenneth R. Adler, M.D., FACP – Vice Chairman

Dr. Kenneth Adler is currently an attending physician in Hematology-Oncology at Morristown Memorial Hospital and an assistant clinical professor at the University of Medicine and Dentistry of New Jersey. He attended the University of Pittsburgh and graduated from Albany Medical College in New York. In addition, his internal medicine residency and Hematology-Oncology fellowship was completed at Albany Medical Center. In 2002, Dr. Adler was awarded the American Cancer Society of St. George National Award for his volunteer work on the local, state, and national level. He has served as a volunteer of the American Cancer Society since 1981 and has served on the National Oversight committee for the I Can Cope national program and chaired the state committee for patient

and family services. He is active on the board of Cancer Hope Network and Gilda's Club and serves on the medical advisory board of the Susan G. Komen Foundation. Dr. Adler was recently appointed to the National Clinical Practice Committee of the American Society of Hematology. Furthermore, Dr. Adler has been recognized as one of the leading oncologists/hematologists in the Metropolitan New York/New Jersey area, in the Castle-Connolly Top Doctors in the Northeast Region and has also been named in *New Jersey Monthly* for the past eight years. He was named Physician of the Year by the American Cancer Society, and was honored by the New Jersey State Assembly for this award. He also received the Physician Home Care Award for Somerset County and was honored at the 2003 Pink Tie Ball by the Susan G. Komen Foundation of Northern New Jersey for his care of women with breast cancer. Dr. Adler was honored to receive the Community Service Award from the VNA of Northern New Jersey in 2004. He recently wrote and helped edit the introduction to the book *I'm Sorry You Have to Be Here*, by his patient Lois Cappetta-Bhatt, a mother's story on cancer, family, and support. In December, 2006 Dr. Adler received the American Society of Hematology National Public Service Award for the work he did on Pay-for-Performance for the society.

Thomas Atherholt, Ph.D.

Dr. Atherholt is a member of the Division of Science, Research and Technology of the New Jersey Department of Environmental Protection (DEP) where he is a research microbiologist. Dr. Atherholt received his doctorate in microbiology from Rutgers University. He performed environmental research at the Coriell Institute for Medical Research in Camden, NJ prior to joining the DEP in 1990. Dr. Atherholt serves as an ex-officio member representing the Commissioner of the Department of Environmental Protection. He was awarded a Professional Achievement Award by the State of New Jersey for award-winning drinking water research, in May 2001. He resides in Moorestown, New Jersey.

Eddy A. Bresnitz, M.D., MS

Eddy A. Bresnitz, M.D., MS is an internist and preventive medicine physician and serves as the Deputy Commissioner for the Public Health Services Branch in the New Jersey Department of Health and Senior Services. Dr. Bresnitz joined the Department as Assistant Commissioner/ State Epidemiologist in 1999 and became Senior Assistant Commissioner in 2003 and Deputy Commissioner in 2005. In his role as Deputy Commissioner/State Epidemiologist, Dr. Bresnitz oversees the Divisions of HIV/AIDS Services, Family Health Services, Public Health and Environmental Laboratories, and Epidemiology, Environmental and

Occupational Health Services. The Branch includes the Cancer Epidemiology Service, the Office of Cancer Control and Prevention, the Comprehensive Tobacco Control Program and New Jersey CEED program. Dr. Bresnitz received his M.D. degree in 1974 from McGill University in Montreal, followed by an internship and residency in internal medicine at Montefiore Hospital in New York City. He completed fellowships in pulmonary medicine and clinical epidemiology in the early 1980s at the University of Pennsylvania, where he also received an MS in clinical epidemiology. Prior to joining the Department of Health and Senior Services, Dr. Bresnitz was Professor and Chairman of the Department of Community and Preventive Medicine at the MCP Hahnemann (now Drexel University) School of Medicine in Philadelphia. Dr. Bresnitz is currently the President of the Council of State and Territorial Epidemiologists. Dr. Bresnitz serves as an ex-officio member representing the Commissioner of Health and Senior Services. Dr. Bresnitz resides in Lawrenceville, NJ.

James Broach, Ph.D.

Dr. Broach is currently serving as Associate Director of the Lewis-Sigler Institute for Integrative Genomics and Professor at Princeton University, Department of Molecular Biology. He completed his undergraduate studies at Yale University and was awarded a Bachelor of Science degree in Chemistry in 1969. In 1973, he was awarded a Ph.D. in Biochemistry from the University of California, Berkeley, where he also completed his Predoctoral fellowship in Biochemistry, and Postdoctoral Fellowship in Medical Physics. In addition, he completed a Postdoctoral Fellowship at Cold Spring Harbor Laboratory, upon which he was employed in the capacity of a Staff Scientist. Subsequently, he joined the State University of New York at Stony Brook as an Assistant/Associate Professor, a position he held just prior to serving in his current position at Princeton University. In the past, Dr. Broach has served as a Postdoctoral Fellow with the American Cancer Society, an Investigator for the American Heart Association, a Fellow with the American Academy of Microbiology, and a Member of the National Institutes of Health's Genetics Section. He also served as an Associate Editor for the Journal *Molecular and Cellular Biology* and Associate Editor for the Journal *Cell*. He also served as Co-Chairman of the 1991 Gordon Conference on Extrachromosomal Elements and Chairman of the 1993 Gordon Conference on Plasmid and Chromosome Dynamics. Dr. Broach was on the Scientific Review Board of the Frederick Cancer Center, Co-Founder/Director of Research for Cadus Pharmaceuticals, Co-Director/Review Board Member for the Life Sciences Research Foundation, he is a retired Editor of *Molecular and Cellular Biology*, and has published numerous articles in the field.

Barton A. Kamen, M.D., Ph.D.

Dr. Kamen received his M.D. and Ph.D. from Case Western Reserve University. He then did a residency and fellowship in Pediatrics and Pediatric Hematology/Oncology and Pharmacology at Yale University. After spending 15 years at the University of Texas Southwestern Medical Center as a Professor of Pediatrics and Pharmacology and as the Carl B. and Florence E. King Distinguished Professor of Pediatrics, he moved to the Cancer Institute of New Jersey at the Robert Wood Johnson Medical School in 1999. He is a Professor of Pediatrics and Pharmacology, Director of Pediatric Oncology and an Associate Director of the Center. During his career he has been a recipient of a Leukemia Society Scholar Award, a Damon Runyon Walter Winchell Fellow and a Burroughs Wellcome Clinical Pharmacology Award and is one of only ten American Cancer Society Clinical Research Professors. He has authored approximately 250 papers and is the current Editor-in-Chief of the *Journal of Pediatric Hematology Oncology*. Dr. Kamen resides in Princeton Junction, NJ.

Marie T. Leithauser, MBA, MS

Marie Leithauser is Group Director of Planning and Management, Discovery and Exploratory Clinical Research, Research and Development, Bristol-Myers Squibb. Previously, Ms. Leithauser was the Departmental Administrator and Adjunct Professor for the Laboratory for Cancer Research at Rutgers, The State University. In addition, her past experience includes positions as a Research Assistant at Vanderbilt University, and as a Laboratory Manager/Research Assistant in the Department of Biochemistry at the Medical College of Wisconsin. Ms. Leithauser earned her Masters of Business Administration from the University of Wisconsin-Milwaukee and a Masters of Science degree in Oncology from the University of Wisconsin-Madison. She resides in Lambertville, NJ.

Harvey L. Ozer, M.D.

Dr. Ozer is Associate Dean for Oncology Programs at New Jersey Medical School (NJMS) of the University of Medicine and Dentistry of New Jersey (UMDNJ), and Director of the NJMS-University Hospital Cancer Center of UMDNJ in Newark. He previously served at NJMS as Chairman of the Department of Microbiology and Molecular Genetics, where he remains Professor, and as Senior Associate Dean for Research. His research on molecular mechanisms of carcinogenesis and of aging has been continuously funded by the National Institutes of Health for over 30 years. An internationally recognized expert on molecular genetics and cell biology of DNA tumor viruses and their cell interactions, Dr. Ozer has served on multiple National Institutes of Health and foundation training and research review

panels as well as on editorial boards of scientific journals and on advisory committees to academic programs. He received his M.D. and initial research training at Stanford Medical School. Dr. Ozer resides in Hoboken, New Jersey.

Barbara Rabinowitz, Ph.D.

Dr. Rabinowitz is the first Commission member with expertise in the psychological and psychosocial aspects of cancer. She completed her doctorate in Social Work at Rutgers University and is also a registered nurse. Dr. Rabinowitz has published chapters in textbooks for physicians on the psychosocial aspects of cancer care as well as numerous articles on this and related topics. She has completed two important cancer research projects and is a frequent invited presenter for professional organizations nationwide. She is also the recipient of the national American Cancer Society St. George Award for leadership. Dr. Rabinowitz is the Director of Oncology Services for Meridian Health. In addition, she maintains a private practice in psychotherapy and sex therapy and resides in Lakewood, New Jersey.

Jeffrey A. Warren, M.P.A.

Jeffrey Warren is a Senior Advisor to the National Pharmaceutical Council and a Principal with JR Market Strategies, Inc., a healthcare consulting firm. Previously, Mr. Warren was responsible for Strategic Marketing and Media Relations for Pfizer Health Solutions. Earlier in his career, he served as Executive Vice President, Corporate Development for Cathedral Healthcare System. During his tenure with Cathedral, Mr. Warren was a National Program Director for the Robert Wood Johnson Foundation's New Jersey Health Services Development Program. Mr. Warren's past experience includes a tenure as Vice President, Corporate Development with Hackensack Medical Center and serving as the first Executive Secretary of the New Jersey Hospital Rate Setting Commission. He is on the board of the Adler Aphasia Center and is on the board of the Institute for Medication Access and Compliance. Mr. Warren serves on the Editorial Task Force Committee of AMGA's "Group Practice Journal". Jeff has a Masters Degree (MPA) in Health Policy, Planning and Administration from the Wagner School of Public Service at NYU. He resides in Parsippany, NJ.

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16.....Returning \$10 to New Jersey for Every Research \$1 Awarded

During its history, the NJCCR has successfully pursued a course of action that has brought it national recognition. Its highly competitive grant program, which relies upon systematic scientific peer review, assures that state monies for cancer research are awarded to those programs and scientists that offer the greatest potential for success. While providing immediate assistance to highly promising scientists, these seed grants also represent a sound long-term investment in the health of all New Jersey citizens.

“The NJCCR has held up as an efficient model and the gold standard of how to implement a state supported cancer research program.”

Marco Gottardis, Ph.D.
Group Director
Oncology Drug Discovery
Bristol-Myers Squibb Company

Through awards, researchers are able to compete successfully and position themselves for national grants for their projects. With additional funding coming from outside sources, scientists working in New Jersey are building a research infrastructure to deal with the critical problems posed by cancer for the citizens of New Jersey.

The funds that the NJCCR directs to research on the causes, prevention, detection, and cure of cancer are investments in the future of New Jersey citizens. By encouraging and identifying innovative research on cancer, and attracting and training some of the most talented and gifted scientists, New Jersey is making a research investment that can pay vital dividends in future years. These funds provide critical leverage in developing new scientific infrastructures and networks crucial for a broad-based and comprehensive approach to the fight against cancer. The NJCCR’s challenge is to allocate funds rapidly and flexibly to assure that the new and promising ideas are brought quickly to bear on the understanding and prevention, detection, and cure of cancer.

Overall, applications for funding to the NJCCR have substantially increased in number. As a consequence, while the NJCCR has been able to fund a reasonable percentage of meritorious research proposals, some deserving applications have gone unfunded. Nevertheless, this highly competitive grant program was able to award 10 grants in 2007 for \$642,668.

TWO YEAR AWARDS

Ruth Steward, Ph.D., Rutgers, The State University of New Jersey
PDCD2/Zfrp8 in Cell Proliferation and Leukemia
\$99,000

Guy Werlen, Ph.D., Rutgers, The State University of New Jersey
The Role of PEA-15 in T Lymphocyte Development and Activation
\$99,000

“The NJCCR’s initial investment of \$62K in my laboratory 17 years ago has enabled me to bring in over \$2.9 million in federal dollars from the National Institutes of Health/National Cancer Institute to study leukemia and lymphoma.”

Céline Gélinas, Ph.D.
Professor of Biochemistry
Center for Advanced Biotechnology and Medicine, and
UMDNJ-Robert Wood Johnson
Medical School

Research and Grant Highlights

“In the critical first year of my lab, when funding was scarce and resources limited, the NJCCR provided me with the first external research grant to fund our study on the molecular mechanism for the deadly spread of breast cancer to other organs. This grant, although small in scale, enabled us to generate important research results to ultimately compete in the following year for over \$5 million dollars of research funding from the Susan G. Komen Foundation, the American Cancer Society, the Department of Defense, and the NIH.”

Yibin Kang, Ph.D.
Assistant Professor
Department of Molecular
Biology
Princeton University

ONE YEAR AWARDS

Debabrata Banerjee, Ph.D., UMDNJ-The Cancer Institute of New Jersey
Bone Marrow Derived MSCs for Therapy of Liver Mets of CRC
\$48,675

Yi Lisa Lyu, Ph.D., UMDNJ-Robert Wood Johnson Medical School
Molecular Basis for Doxorubicin Cardiotoxicity
\$49,500

Yongkyu Park, Ph.D., UMDNJ-New Jersey Medical School
Function of Non-coding RNA, roX, in Gene Expression
\$49,500

BREAST CANCER RESEARCH FUND

Hillary Collier, Ph.D., Princeton University
Tissue Quiescence in Homeostasis and Breast Cancer
\$49,500

Mary Lou Galantino, Ph.D., The Richard Stockton College of New Jersey
Impact of Yoga on Chemotherapy in Women in Breast Cancer
\$49,493

Vassiliki Karantza-Wadsworth, M.D., Ph.D., UMDNJ-Robert Wood Johnson Medical School
Breast Cancer Growth Modality/Genotype and Treatment
\$99,000

PROSTATE CANCER RESEARCH FUND

Anant Madabhushi, Ph.D., Rutgers, The State University
Computerized Detection and Grading of Prostate
\$49,500

Chih-Cheng Tsai, Ph.D., UMDNJ-Robert Wood Johnson Medical School
Roles of Atrophia Proteins in Prostate Cancer
\$49,500

Since 1988, the NJCCR has helped to attract and retain promising scholars pursuing careers in cancer research through its most successful fellowship program. Attracting a core of outstanding scientists to our research institutions not only brings in additional research dollars from other sources; it attracts promising investigators. Jobs are created, our technological base is enhanced, and the quality of science education is improved. As promising students come to New Jersey for their training, a continual source of scientists is also available for the pharmaceutical and biotechnology industries when these students graduate.

Over the years, the fellowship program has proven to be a sound and promising investment that has helped establish the foundation for the kind of scientific investigation that will keep New Jersey at the forefront in the war against cancer.

This year, the NJCCR was able to award 30 fellowships totaling \$843,000 to students of outstanding merit.

POST DOCTORAL FELLOWSHIPS

Kieran Dilks, Ph.D., Princeton University
Four-Dimensional Characterization of FOXO/DAF-16
 2 years, \$70,500

Alison Hottes, Ph.D., Princeton University
Tracking Mutational Effects Through Cellular Networks
 2 years, \$70,500

Michael Law, Ph.D., UMDNJ-School of Osteopathic Medicine
Transcription Factor Acetylation in Yeast
 2 years, \$70,500

Brian Onken, Ph.D., Rutgers, The State University
Genetic Dissection of a Documented Anti-Cancer State
 2 years, \$70,500

Daniel Spencer, Ph.D., UMDNJ-New Jersey Medical School
Targeting IRF-5 Signaling for Cancer Chemotherapy
 2 years, \$70,500

Florian Ulrich, Ph.D., Princeton University
In Vivo Analysis of EMT During Drosophila Gastrulation
 2 years, \$70,500

“Of the former awardees from my lab, one has a successful career in the New Jersey biotech industry, two others have successful faculty positions, and the most recent awardee is starting her post-doctoral work at MIT.”

Jean Schwarzbauer, Ph.D.
 Professor
 Department of Molecular Biology
 Princeton University

Fellowships: A Commitment to the Future

“It is important to point out that the NJCCR grant recipients carry their positive New Jersey scientific experiences to new heights. For example, Venkat Narra, a past NJCCR sponsored post-doctoral fellow in our laboratory, is now an Associate Professor at Robert Wood Johnson Medical School and Ravi Harapanhalli is a Branch Chief at the US FDA. We applaud their achievements and know that they are strongly tied to their NJCCR fellowships.”

Roger W. Howell, Ph.D.
Professor of Radiology
Chief, Division of
Radiation Research
UMDNJ-New Jersey
Medical School

PRE DOCTORAL FELLOWSHIPS

Jonathan Chappelow, Rutgers, The State University
Detecting Prostate Cancer on 3T MRI: Image Registration
2 years, \$40,000

Peter Mazari, UMDNJ-Robert Wood Johnson Medical School
Cloning a Viral Receptor on Human 143B Osteosarcomas
2 years, \$40,000

Ryan Norman, Princeton University
Investigating Tulp3 in Sonic Hedgehog Signaling
2 years, \$40,000

Kerri-Ann Norton, Rutgers, The State University
Computational Modeling of DCIS
2 years, \$40,000

Pedro Rodriguez, UMDNJ-New Jersey Medical School
Activation of RhoB in the Endosome by Ccpg1
2 years, \$40,000

Johna Van Stelten, Princeton University
Effects of Treg Modulation on Vaccine Immunotherapy
2 years, \$40,000

Ahmet Tunceroglu, UMDNJ-New Jersey Medical School
Development of a FRET-Based Diagnostic Assay for CML
2 years, \$40,000

Anibal Valentin, Rutgers, The State University
The Role of c-Rel in EBV-Medicated B Cell Survival
2 years, \$40,000

VIRGINIA KOEHLER LYMPHOMA AWARD

The NJCCR received a significant amount of contributions in memory of Ms. Virginia Koehler. As a result, the NJCCR was able to match these funds and offer one award that examined the causes, prevention or treatment of lymphoma.

Alison Tuske, UMDNJ-Robert Wood Johnson Medical School
Study of Adult T-cell Leukemia Using Transgenic Mice
2 years, \$40,000 (pre-doctoral fellowship)

SUMMER FELLOWSHIP (\$4,000 each)

Shawna Bennet, Rutgers, The State University

Manisha Bhattacharya, UMDNJ-Robert Wood Johnson Medical School

Kristen Bridges, Rutgers, The State University

Stuart Carter, Princeton University

Walter Chen, Princeton University

Tom Feng, Princeton University

Aileen Gavin, UMDNJ-New Jersey Medical School

Keren Glinert, Princeton University

Tiffany Jow, Stevens Institute of New Jersey

Karen LeSuer, Drew University

Valentina Marcelli, Rutgers, The State University

Derek Rudge, Princeton University

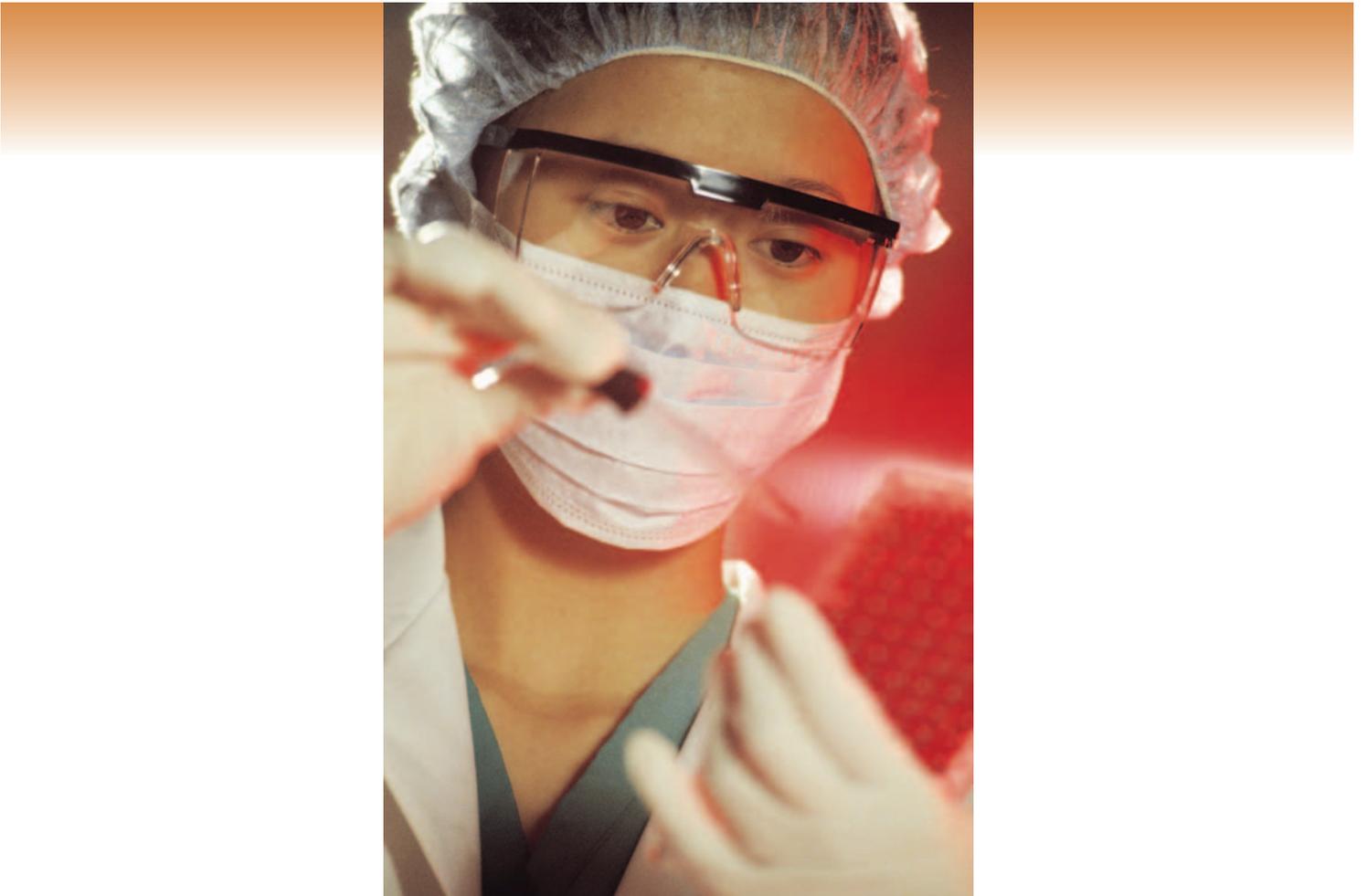
Rajani Sharma, Princeton University

Aubrey Wagenseller, Princeton University

Matthew Zegarek, Rutgers, The State University

“The NJCCR funding provided to undergraduates in my laboratory has made it possible for them to devote their summers to cancer research. It has helped to inspire them to commit to further research on cancer biology and is essential to train our future New Jersey doctors and scientists.”

Hilary Collier, Ph.D.
Assistant Professor
Department of Molecular
Biology
Princeton University



22.....Returning \$10 to New Jersey for Every Research \$1 Awarded

Funding

Cancer Research Fund	\$1,000,000
FY06/07 Second Year Award Funding	674,150
Conquer Cancer License Plate	577,665
Breast Cancer Research Fund	223,917
Prostate Cancer Research Fund	23,111
Gifts, bequests, donations, grants	54,603
Total Revenues	\$2,553,446

Expenses

FY07 First Year Award Funding	
Grants, Fellowship, Meetings/Programs	\$1,032,813
FY07/08 Second Year Award Funding/Carryover	591,583
FY06/07 Second Year Award Funding	674,150
Research management & support	254,900
Total Expenditures	\$2,553,446

Monies raised through the Breast Cancer Research Fund, Prostate Cancer Research Fund, and the Conquer Cancer License Plate or from contributions, do not finance the Commission's operating expenses. 100% of these contributions go directly to an approved cancer research project in New Jersey and are tax deductible.

Furthermore, what this information does not show, is the value of the tremendous amount of volunteer time that goes into these activities – the human element that makes the work of the New Jersey Commission on Cancer Research (NJCCR) possible. On behalf of the NJCCR, we would like to thank everyone who has contributed time or money towards the fight against cancer.



24.....Returning \$10 to New Jersey for Every Research \$1 Awarded

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Garden State Cancer Center
Belleville, NJ

Marie Hoover, Ph.D.
Advanced Biomedical Laboratories
Cinnaminson, NJ

Alice Y. Liu, Ph.D.
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Piscataway, NJ

Edith Postel, Ph.D.
Princeton University
Princeton, NJ

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Wallburg, NJ

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Hackensack University Medical
Center
Hackensack, NJ

Generosa Grana, M.D.
Cooper Cancer Institute
Camden, NJ

The NJCCR has been fortunate in being able to work with a large number of health professionals, researchers, policy makers, and advocates from throughout New Jersey as part of its Advisory Group structure. The NJCCR wishes to thank all advisory group members for their support and to record its deepest appreciation for the contributions and services of members of the various Sub-Committees and Working Groups throughout the year.

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Monmouth Jct., NJ

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Trenton, NJ

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Co-Chair:

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The PEER Review Org. of NJ
East Brunswick, NJ

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Former Assemblywoman
Montville, NJ

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Kristina Thompson, LCSW
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New Brunswick, NJ

Carmen M. Velez
Tree of Life
Williamstown, NJ

Judith Wilbergh
Medical Center of Ocean County
Brick, NJ

New Jersey Pediatric
Hematology Oncology Network

Chair:

Peri Kamalakar, M.D.
Newark Beth Israel Medical Center &
Monmouth Medical Center

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Hospital
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Margaret Masterson, M.D.
Jersey Shore Medical Center
Neptune, NJ

Lawrence J. Ettinger, M.D.
St. Peter's University Hospital
New Brunswick, NJ

Dona Schneider, Ph.D., MPH
Rutgers, The State University
New Brunswick, NJ

It is with profound sadness that New Jersey has lost two of its most respected and recognizable breast cancer advocates in Rhonda and Rita.

This short tribute is meant to honor the many ways in which Rhonda and Rita made a difference. They are acknowledged here for their tireless work to educate every woman, especially minority women, about breast cancer and help them understand and navigate through the many options that are available for their benefit.



Rhonda Y. Berry



Rita McKnight

Rhonda and Rita's work will never be forgotten and their efforts will always be felt in the cancer community.



APPENDIX - EVALUATION AND OUTCOMES REPORT

Impact of the New Jersey State Commission on Cancer Research's
Grant & Post-doctoral fellowship program
(1998 – 2004)

I. BACKGROUND AND SIGNIFICANCE

As part of his 2006 budget address, Governor Jon Corzine called for “cost effective and functionally efficient government that will benefit and enhance the State’s economy, restore public confidence and allow for the continued delivery of vital programs.” With this charge in mind, the NJCCR recognized the need to formulate additional assessment criteria for New Jersey’s investment in cancer research. While the NJCCR monitors its activities on a regular basis, it initiated an intensive self-evaluation of its operations to measure its efficiency and effectiveness against quantifiable outcomes.

To further this objective, the NJCCR enlisted the help of Professor Dona Schneider at the Edward J. Bloustein School of Public Policy at Rutgers, The State University of New Jersey. Professor Schneider agreed to provide an independent evaluation of its programs. Christopher Hanson, a health policy doctoral student in the Bloustein School, formulated appropriate methodologies and developed specific criteria based upon quantitative and qualitative outcomes for measuring the success of NJCCR Seed Grants and Training Fellowship Programs. Major findings from his independent evaluation are summarized in this report.

II. SEED GRANT PROGRAM

Purpose

Use competitive Seed Grant funding mechanisms to strengthen cancer research in New Jersey by increasing the growth of national research dollars brought back to the state and stimulating investigations into emerging issues of significant concern in New Jersey.

Background & Significance

New Jersey lags significantly behind national averages and neighboring states in National Cancer Institute (NCI) grant funding per capita (see Chart 1). In response to this concern, the NJCCR created a highly competitive grant program that relies upon [systematic scientific peer review](#). This ensures that state monies for cancer research are awarded to those programs and scientists that offer the greatest potential for success. Through these awards, researchers are able to establish themselves in the rigorous world of national scientific competition as well as position themselves for national research funding. The indirect costs

included with national awards contribute significant revenues for the operational budgets and infrastructure capacity of New Jersey research institutions. Consequently, the Seed Grants allow New Jersey researchers and their institutions to build the knowledge and infrastructure to **compete for additional funding** so they may deal satisfactorily with the critical problems posed by cancer for the citizens of New Jersey. This grant mechanism represents a sound, long-term investment in the health of all New Jersey citizens.

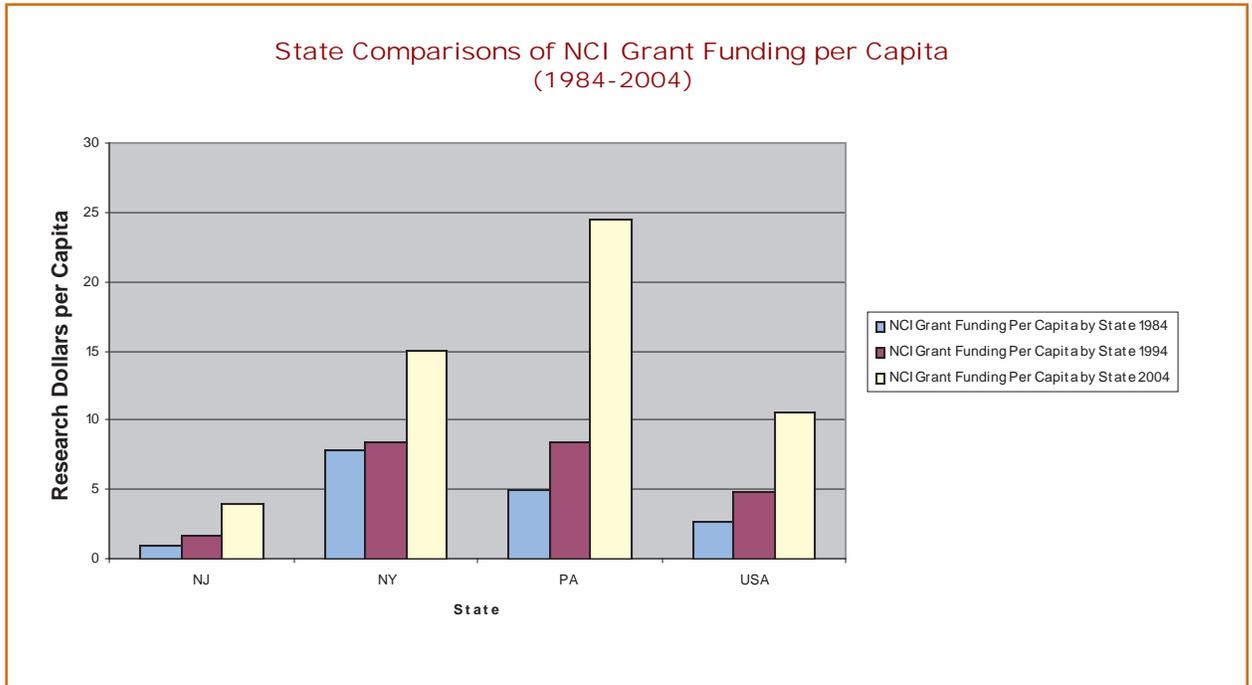


Chart 1. New Jersey lags behind neighboring states and the United States as a whole in attracting National Cancer Institute (NCI) dollars, the major source of cancer research funding. A major objective of the NJCCR Seed Grant Program is to reduce this gap.

Evaluation

Surveys were sent to all (n=59) NJCCR Seed Grant awardees from the years 1998 to 2004. Forty-nine (49) replies were obtained for a response rate of 81.4 percent. Results of the evaluation are listed below.

1. Percentage of new proposals developed from data obtained with NJCCR Seed Grants
 Eighty-eight (88%) percent of NJCCR awardees submitted proposals to national funding agencies. Seventy-three (73%) percent did so within three years of their NJCCR Seed Grant award.
2. Amount of national funding leveraged back to New Jersey from NJCCR Seed Grants
 Eighty-four (84%) percent of all responding grant awardees successfully obtained national funding within four years of NJCCR award completion.

NJCCR grant recipients are four times more successful in obtaining major national research grants than the average applicants across the nation. (See national benchmarks on page 5 for comparison)

Grantees leveraged an average \$10.44 in new research funding for New Jersey laboratories for every dollar (\$1) of NJCCR (state) money received.

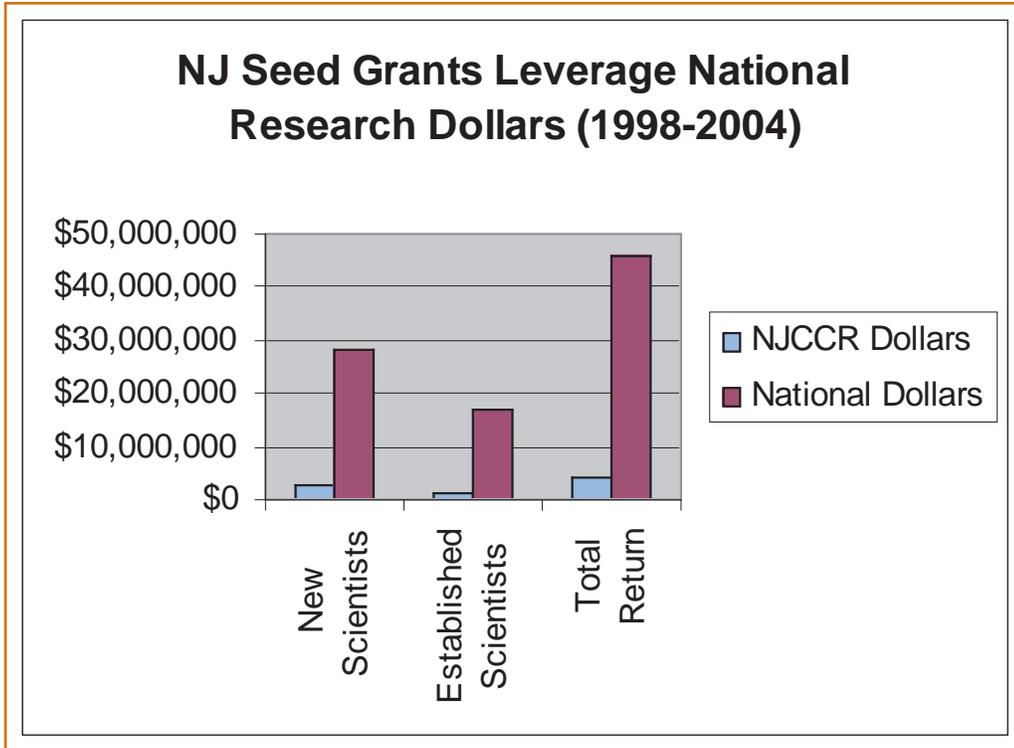


Chart 2. New Jersey scientists use the data and knowledge gained from their NJCCR Seed Grants to strengthen proposals to federal/national funding agencies. On average, they bring back more than ten times the amount of their original NJCCR grant in new research dollars to New Jersey. New investigators without a track record or grant history are especially successful with more than 8 in 10 getting first grants within four years of their first NJCCR awards.

3. Benefits to new investigators from Seed Grants

Eighty-eight (88%) percent of new investigators received national funding allowing them to establish their labs in New Jersey.

Thirty-three (33) new investigators without the benefit of established reputations leveraged \$9.66 in new funding for every dollar of NJCCR grant money.

4. Number of publications in peer-reviewed journals based upon knowledge gained from Seed Grants (measures knowledge dissemination)

Eighty-three (83%) percent of NJCCR grantees published in at least one (1) peer-reviewed journal and sixty (60%) percent published in two or more journals with an average of 2.1 papers per grantee.

5. Benefits of Seed Grants to awardees (Qualitative results)

- a. Strengthens ability to successfully compete for larger grants
- b. Enhances capacity to change research direction
- c. Allows exploration of promising new areas of research
- d. Increases opportunities for peer-reviewed presentations and national collaborations

National Benchmarks for Comparison

The average NCI (RO1) new grant submission success rate for 1999 to 2004 was 17.45 percent. See: H.G. Mandel and E.S. Vesell, Declines in Funding of NIH R01 Research Grants, Science 313 (2006), 1387–1388.

The average National Science Foundation (NSF) Competitive Funding Rate for New Grant Awards for 1996 to 2005) was 18.9 percent. See: http://www10.gencat.net/agaur_web/recursos/jornades/NSF_CRobinson.pdf.

The average American Cancer Society (ACS) new submission grant award rate for 1998 to 2002 was 25 percent. See: R. Vogler in Enhancing Philanthropy’s Support of Biomedical Scientists: Proceedings of a Workshop on Evaluation. National Academies Press (2006), page 77.

III. TRAINING FELLOWSHIP PROGRAM

Purpose

Promote training of cancer researchers in New Jersey as a means of recruiting outstanding scientists and enhancing the research environment in the state.

Program Significance

Attracting talented postdoctoral trainees to New Jersey expands research capacity within the state by providing a talented pool of young scientists who are essential for successful basic and translational research. According to the Committee on Science & Engineering and Public Policy (2006), “The postdoctoral population has become indispensable to science and engineering enterprises, performing a substantial portion of the nation’s research in every setting.”

In addition to generating new discoveries and knowledge, post-doctoral fellows often lay the scientific groundwork for larger, national grants and train other

students on a daily basis. The fellows also represent an excellent source of well-trained scientists for New Jersey's biotechnology and pharmaceutical industry.

Evaluation

The effectiveness of the NJCCR Training Fellowship Program at stimulating cancer research activity was evaluated for post-doctoral awardees for the period 1998 to 2004. Twenty (20) post-doctoral fellows were identified and surveyed. Thirteen (13) replies were received for a sixty-five (65%) percent response rate. These small numbers do not allow for a statistical analysis, but the information provided by the awardees is summarized below.

1. Fellows found academic or industry positions.

Sixty-nine (69%) percent of post-doctoral fellows who responded found academic or industry research positions within four years of their Training Fellowship Award (See Benchmarks for comparison).

2. Fellows produced peer-reviewed papers.

Eighty-five (85%) percent published at least two peer-reviewed papers from their postdoctoral work.

3. Fellows produced benefits for their sponsors' New Jersey laboratories.

One hundred (100%) percent of sponsors rated the Training Fellowship Awards as very or extremely useful to the development of their laboratory programs.

Sixty-one (61%) percent of sponsors stated that the fellows contributed to the ability of their laboratory to attract national funding in amounts between \$1.7 and \$3.5 million per Training Fellowship awarded.

4. Benefits of Training Fellowships to awardees (Qualitative Results)

- a. Enhances the ability to begin a new research direction
- b. Initiates involvement in a new discovery or significant finding
- c. Supports an independent ability to attract national funding
- d. Provides supervised training for post-doctoral, graduate and undergraduate students in cancer research



"I would like to re-express my gratitude for the great support I received from your agency. During the postdoctoral

training funded by the NJCCR I co-authored 14 papers which are published or accepted for publication in various biomedical journals and I actively participated in several scientific events. The scientific activity performed while a postdoctoral fellow had a high impact on my career.

I am happy to let you know that recently I was offered a research scientist (permanent) position with the Computational Biology and Bioinformatics Department at the Broad Institute of MIT and Harvard. In addition, I have a visiting position with the Simons Center for Systems Biology at the Institute for Advanced Study in Princeton under the leadership of Professor Arnold Levine.

The opportunities to work in these prestigious institutions were offered to me mainly based on the work done as a postdoctoral fellow funded by the NJCCR and I would like to thank you again very much for your generous help."

Gabriele Alexe, Ph.D.
NJCCR Post-doctoral Fellow
2000-2002

National Benchmarks for Comparison

Seventy-seven (77%) percent of NIH-awarded Fellows and 72.3 percent of Non-NIH Fellows hold research positions in academia or industry from 7 to 14 years after post-doctoral completion. As NJCCR Fellows were evaluated only zero (0) to four (4) years after their post-doctoral Training Fellowship awards, these benchmark comparisons underestimate their success rate. See: C. Sherman in *Enhancing Philanthropy’s Support of Biomedical Scientists: Proceedings of a Workshop on Evaluation*. National Academies Press (2006), page 120.

IV. THE CHALLENGE OF INCREASED RESEARCH CAPACITY

The number of cancer researchers eligible for NJCCR Seed Grant funding in New Jersey has more than doubled, from 297 in 1985 to 703 in 2004 (Chart 3), yet the NJCCR budget has remained flat, decreasing more than 4-fold in buying power over this same period (Chart 4). This expanded pool of scientists provides the opportunity to open new avenues of cancer research and to train cancer research fellows. However, many of these scientists find that funding to help them jump-start their projects and host fellows is simply unavailable. It is critical that the NJCCR be able to respond to the needs of this expanding group of researchers who will foster progress in cancer research in the state by building infrastructure and research programs that will improve not only treatment, but cancer prevention and control.

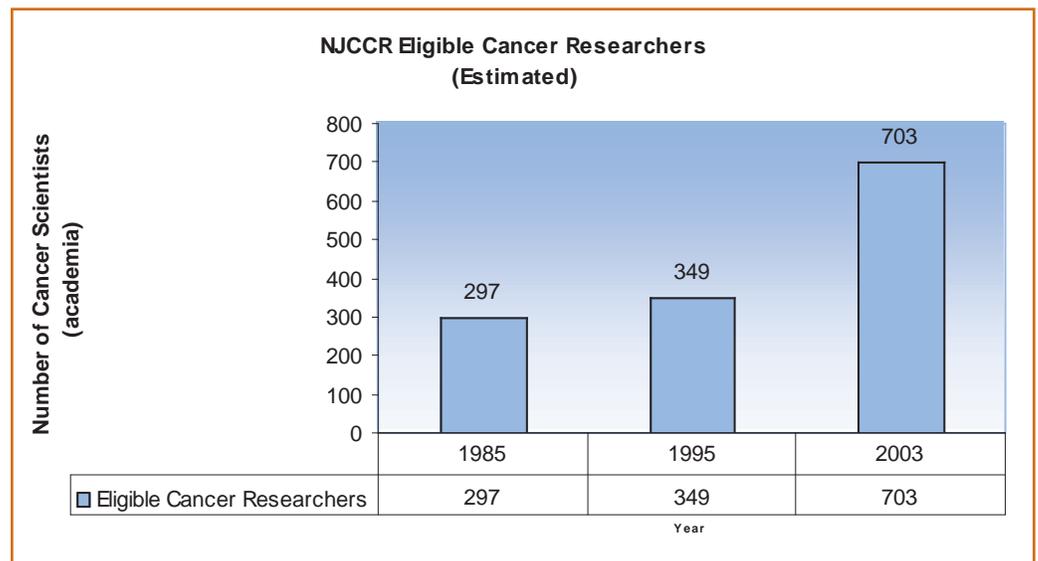


Chart 3. Jump-starting new careers and research directions for scientists brought into the state through the expansion of New Jersey’s research institutions is imperative for progress in cancer research. It is no longer possible for the NJCCR to meet the needs of all worthy Seed Grant and Training Fellowship applicants because of the flat funding allocation the agency receives annually.

Funding Restrictions

1. The NJCCR was forced to reduce seven (7) Seed Grant applications by 50 percent or more (range \$49,500-\$74,470) during the 2005-2006 grant cycle.
2. The NJCCR was unable to fund 13 applications recommended for funding.
3. The NJCCR was forced to reduce its pre- and post-doctoral Training Fellowship awards by 50 percent over the past ten (10) years, to only five (5) per year.

The NJCCR struggles to provide stipend support at NIH levels for current awards. Evaluations of post-doctoral fellowship programs at the national level indicate that such reductions have a negative affect on the quality of training and result in more new scientists leaving research.

4. Because of flat funding, the NJCCR is less able to foster and solidify New Jersey's cancer infrastructure. This limits the benefit it can bring to New Jersey citizens.

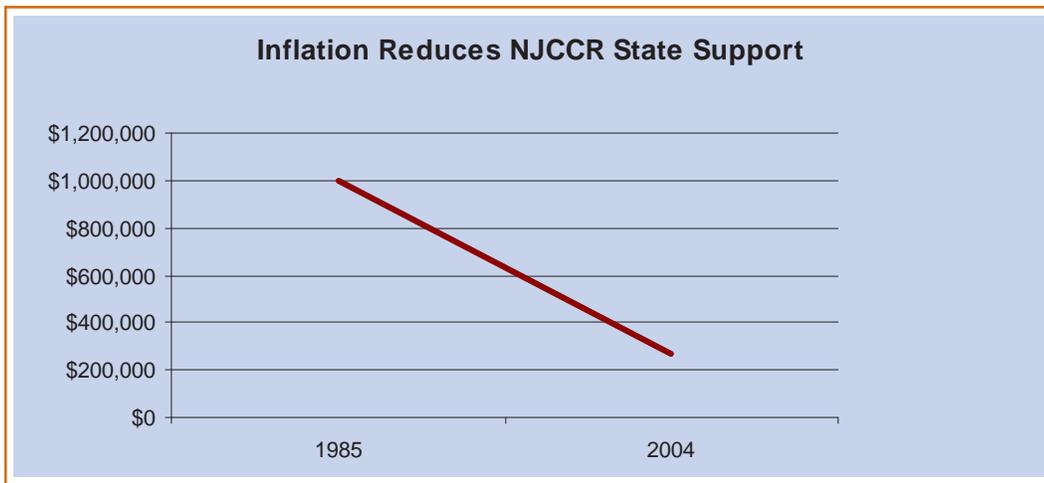


Chart 4. Inflation reduces the state's appropriation to less than a quarter of its initial value.

Because the state appropriation for the NJCCR has not increased from the original \$1 million dollars set out by P.L. 83, C 6, t52; 9-u1 in 1983, the real value of this appropriation has been eroded by 73.5 percent (based upon the Biomedical Research and Development Price Index @ 3.5% per annum). If the NJCCR's original funding level simply kept parity with inflation, the present value for its FY 2007 state appropriation should be \$2.735 million. In fact, budgets for more recently created state research agencies reflect a much more realistic level of support (i.e., New Jersey Spinal Injury Commission, New Jersey Traumatic Brain Injury Commission and New Jersey Research Council on Autism, each funded at about \$4.5 million per annum). A similar appropriation for the NJCCR is critical if the potential benefits it can bring to the state are to be fully realized.

V. REACHING OUT TO SERVE NEW JERSEY

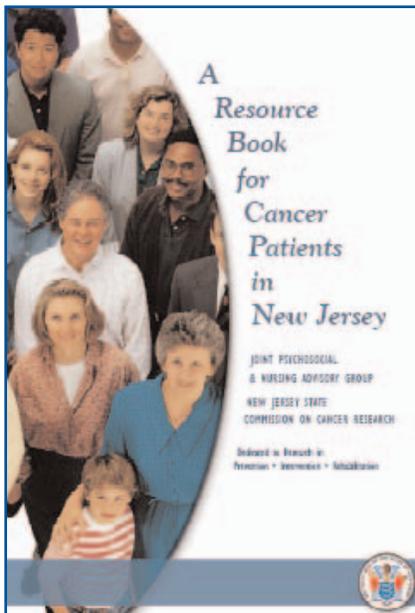
Cancer is the number one health concern of the citizens of New Jersey. The NJCCR has a long-standing history of innovative programs and educational initiatives aimed at community outreach and research dissemination. Together with its advisory groups and community partners, it has worked to mobilize, integrate, and coordinate the delivery of research discovery and evidence-based interventions to all citizens of New Jersey. Highlights of these activities are provided in this section.

IMPACT NJ

Participation in cancer clinical trials (CCTs) is low for many minorities and underserved populations. Misperceptions, inaccurate beliefs, and myths about clinical trials are common barriers, yet few actual interventions exist to reduce these obstacles.

In 2001, the NJCCR joined with the 100 Black Men of New Jersey to address the low participation of ethnic minorities in cancer clinical trials. The result was the formation of a new program, called IMACT NJ, representing a partnership that includes community leaders, researchers, healthcare providers, and faith based groups. Created to reduce barriers to enrollment in CCTs, IMPACT NJ's goals are to develop and launch a community-based education program aimed at increasing knowledge and understanding of the CCT process, engaging consensus building to address barriers, and promoting self-advocacy.

A RESOURCE BOOK FOR CANCER PATIENTS IN NEW JERSEY



Helping patients deal with the complexities of cancer, find critical resources and learn self advocacy.

This resource book, assembled by the Nursing/Psychosocial Advisory Group of the NJCCR, provides anyone facing cancer with critical information and guidance from the day of diagnosis to long term survivorship.

It is provided free of charge to cancer patients throughout New Jersey.

TAKING AIM AT IMPROVING QUALITY OF LIFE FOR CANCER PATIENTS

As survival improves for cancer patients, concerns about the effects of cancer and its treatment on the quality of a cancer patient's life have been raised. The choices facing patients and families are considerably more complex today, requiring timely and comprehensive information about the physical, emotional and financial toll of treatment. The NJCCR's Nursing/Psychosocial Advisory Group designed and conducted a "roundtable" to identify strategies to move New Jersey forward as it seeks to improve quality of life for cancer patients. The report, including policy issues and considerations, may be found at

http://www.nj.gov/health/ccr/documents/2006_1.pdf

**SHARING PERSPECTIVES:
RESEARCHERS REACHING OUT**

Educating cancer patients, survivors, and the public about emerging developments in cancer research has always been a high priority for the NJCCR. Designed by cancer patients for cancer patients, this program seeks to open channels of communication and encourage interaction between researchers and communities of cancer survivors and cancer patient advocates. Highlights of cancer studies by New Jersey scientists are emphasized.



CANCER and THE OLDER ADULT

More than one-half of all new cancer diagnoses are in adults over the age of 65 and more than 70% of cancer deaths occur in this age group. Yet, very little attention has been paid to the needs of cancer and older adults. In order to strategically address this emerging concern, the NJCCR formed a Task Force on Cancer in the Older Adult to promote a statewide, comprehensive approach to this problem with a special focus on research and clinical trials, myths and misperceptions, co-morbidities, and treatment decisions and screening/wellness. The group has been studying this issue for several years and is preparing to publish a strategic policy report in the coming year. For additional information, see http://www.nj.gov/health/ccr/cancer_and_aging.pdf

CANCER SURVIVORSHIP

More than 60% of people diagnosed with cancer now survive five years or more after treatment. Many survivors who anticipated a return to “normal” health find themselves experiencing ongoing and distressing health and psychosocial problems. The Joint Nursing/Psychosocial Advisory Group to the NJCCR sponsored a series of national conferences for researchers and health providers to bring attention to this important concern.

Reports on these activities can be found at <http://www.nj.gov/health/ccr/survivorshiprpt.pdf>

VI. SUMMARY

An independent evaluation of the NJCCR determined that the agency responded to its 1983 mandates by developing successful programs aimed at:

- Supporting promising new scientists seeking to break into the competitive world of cancer research and senior investigators seeking new cancer research directions (Seed Grant Program).

- Training new cancer scientists (Training Fellowship Program).
- Promoting access to clinical trials throughout New Jersey, especially for minorities and the medically underserved, enhancing quality of life of cancer patients and survivors, and educating patients, providers and the public at large about new discoveries in cancer research (Outreach Programs).

The NJCCR plays a clear and significant role in enhancing cancer research. Its open and fair system of grant awards provides proven benefits to scientists and research institutions throughout the state by [leveraging \\$10.44 back to New Jersey for every state dollar spent](#). The Seed Grant Program stimulates new ideas and research directions, and opens doors to national recognition and funding for both new and established cancer researchers. Research results from the Seed Grant Program are shared via the peer-reviewed literature and by grantee presentations of their research findings at national conferences, thus providing national recognition for New Jersey's cancer researchers and their research institutions. Increased funding for state research institutions is also expanded through the indirect costs included in the leveraged federal and national funding awards.

Training Fellowships contribute to the development of a technically skilled workforce that adds substantial benefit to research laboratories across the state. This improves laboratory competitiveness, generates new research ideas and augments biomedical training. The fellowships also assure a highly-trained scientific workforce for New Jersey's pharmaceutical and biotechnology industries.

The NJCCR strategies to promote original and significant cancer research in New Jersey have been enormously effective. Since its inception in 1983, the NJCCR has helped launch the careers of over 250 scientists and provided resources to train more than 100 Fellows in cancer research. This success, however, would likely have been even greater if the agency had not been restricted by flat funding. In other words, if the NJCCR annual budget had been adjusted for inflation, an even better return would likely have been realized. Given that cancer costs the State of New Jersey almost \$6 billion annually, it would be fiscally responsible for the state to identify a mechanism to increase the NJCCR appropriation at least to equivalent 2007 dollars (\$2.73 million). An additional ~2-fold increase (to \$5 million) would take advantage of the expanded scientist base in New Jersey and represents a solid investment for both the state and its citizens.



Results Through Research



**Returning \$10
to New Jersey
for Every
Research \$1 Awarded**



**Jon S. Corzine
Governor**