

CELEBRATING *Excellence*

**NEW JERSEY
COMMISSION ON
CANCER
RESEARCH**

2014-2017



 **NJCCR**
NEW JERSEY
COMMISSION ON
CANCER RESEARCH

2017 Annual Report
Featuring grant program
evaluation and
outcomes report

The New Jersey Commission on Cancer Research (NJCCR) promotes significant and original research in New Jersey into the causes, prevention and treatment of cancer and serves as a resource to providers and consumers of cancer services.





Dear Governor Murphy:

As Chairperson of the New Jersey Commission on Cancer Research and on behalf of our Commissioners, it gives me immense pleasure to present a progress report on our activities over the past three years from 2014-2017.

In our 30-year history, since the NJ Commission on Cancer Research was formed by the NJ state legislature, we have awarded more than \$43 million for over 850 peer reviewed cancer research grants and student fellowships. Our grantees have leveraged a return over ten dollars in federal research funding for every New Jersey Commission on Cancer Research dollar awarded for a total of over \$450 million. These grants have been awarded to the Cancer Institute of New Jersey, Rutgers University, Princeton University, Rider University, The Rutgers School of Dental Medicine and Rowan University.

The funds have been used for basic science cancer research, including research for breast, lung, colon and prostate cancer. We have instituted an Annual Fall Cancer Research Symposium where we have had greater than 50 poster presentations by the grantees presenting their research findings. At this event, we had a panel discussion on “post-fellowship employment opportunities” by members of the NJ Commission on Cancer Research to help grantees find career positions after they have completed their research work.

I am pleased to announce that many of the dedicated volunteer commissioners have been honored for their work both regionally and nationally. Our Chairperson Emerita, Dr. Anna Marie Skalka was honored by the Fox Chase Cancer Center for her research and teaching achieved at that institution over many years. Commissioner Shawna Hudson was the lead investigator and had published a national study on cancer survivorship and had her work presented by the New York Times. Dr. Kathleen Scotto, Dean of Research at the Rutgers School of Biomedical Health and Sciences was recognized by the American Cancer Society for her research work in New Jersey and spoke in New York City about those accomplishments.

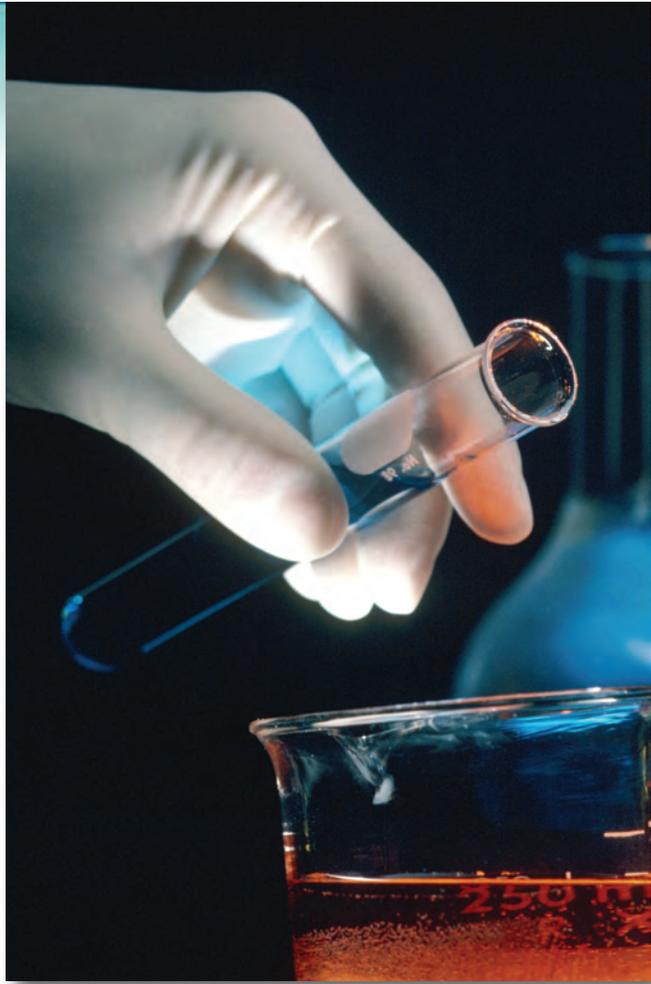
I received the Augusta Stone Award in 2014 from Morristown Medical Center for 35 years of volunteer work and support to that institution. In 2017 I was privileged to be the Medical Honoree at the Starry Night Gala by the American Cancer Society for Northwest New Jersey. The people of New Jersey are so fortunate to have our dedicated volunteer commissioners to support our research efforts to eradicate this disease and make cancer history. We look to you for your support over the next four years of our NJ Commission on Cancer Research mission to provide the funding and administrative support to accomplish our goals.

Respectfully submitted,

Kenneth R. Adler M.D., F.A.C.P.

Chairperson, NJCCR







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The New Jersey Commission on Cancer Research (NJCCR) promotes significant and original research in New Jersey into the causes, prevention and treatment of cancer and serves as a resource to providers and consumers of cancer services.







To ensure that the citizens of New Jersey receive the fullest benefit of our nation's fight against cancer through the promotion and funding of research into the causes, prevention and treatment of cancer.

Our Mission



Members of the NJ Commission on Cancer Research, Rider University, June 2nd 2015



- ❖ New Jersey is ranked 5th in the nation in the incidence of cancer.¹
- ❖ But is ranked in the bottom half among all the states for cancer deaths in the U.S.²
- ❖ An estimated 51,680 people in New Jersey were diagnosed with cancer in 2017, and 15,880 succumbed to the disease, according to the American Cancer Society's report "Cancer Facts & Figures 2017"³.
- ❖ The New Jersey Commission on Cancer Research (NJCCR) promotes significant and original research into the causes, prevention and treatment of cancer and serves as a resource to providers and consumers of cancer services.
- ❖ The Commission was founded by legislation in 1983, (Cancer Research Act, P.L. 83, Ch.6) to promote and fund significant cancer research projects proposed and carried out by New Jersey scientists. The Act dedicates annually a sum of \$1 million to the NJCCR to fund research into the causes, prevention and treatment of cancer.⁴
- ❖ Since 1983, the NJCCR has awarded more than \$43 million for over 850 peer-reviewed cancer research grants and student fellowships to support discovery-oriented basic science cancer research. On average, each NJCCR research dollar leverages \$10.44 in federal funding to New Jersey laboratories; a total of over \$450 million for cancer research in New Jersey.

1 U.S. Cancer Statistics Working Group. Cancer Rates in the U.S. by State. All Cancers Combined; Incidence Rates by State, 2015, Atlanta (GA), Department of Health and Human Services, Center for Disease Control and Prevention, and National Cancer Institute, 2015. Available at: <http://www.cdc.gov/cancer/dcpc/data/state.htm>

2 U.S. Cancer Statistics Working Group. Cancer Rates in the U.S. by State. All Cancers Combined; Incidence Rates by State, 2015, Atlanta (GA), Department of Health and Human Services, Center for Disease Control and Prevention, and National Cancer Institute, 2015. Available at: <http://www.cdc.gov/cancer/dcpc/data/state.htm>

3 Cancer Facts & Figures 2017. American Cancer Society. Available at: <http://www.cancer.org> and <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-036845.pdf>

4 In 2012 the New Jersey Commission on Cancer Research did not receive an annual appropriation. The \$1 million appropriation was restored in 2013. In 2017, the state appropriation was doubled to \$2 million.



It is difficult to find anyone in New Jersey who has not been touched by cancer in some way. Our state consistently ranks among the top ten nationally in the incidence of cancer. In 2015, it was ranked 5th in incidence of cancer in the U.S. by the Centers for Disease Control and Prevention's (CDC) Cancer Statistics Working Group. The cost of this disease is measured in human suffering, in lives lost, lives potentially wasted, and huge medical costs.

The New Jersey Commission on Cancer Research (NJCCR) was founded by the Cancer Research Act – P.L.83, Ch.6 in 1983 to promote and fund significant cancer research projects proposed and carried out by New Jersey scientists. The Act dictates that the NJCCR receives no less than \$1 million annually for research into the causes, prevention, and treatment of 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. That is why for over 30 years the NJCCR has provided more than \$43 million in support of discovery-oriented basic science cancer research; and, has worked closely with experts statewide to achieve significant advances in understanding the cellular and molecular events that lead to cancer.

The U.S. remains a powerhouse of innovation: the National Science Foundation recently reported that total national research and development funding from all sources reached nearly \$500 billion in 2015. The share supplied by industry also reached a record high 69%⁵. This is great news; however, industry focuses its vast resources on development over basic research. Basic research, is the foundational research on which all the rest depends.

Unfortunately, on the federal level, funding for basic research has declined. At its height in the 1970s, government funding for basic research represented 2% of gross domestic product (GDP), but by 2014, had dropped to 0.78% of GDP⁶. If we hope for solutions in the future to meet some of humanity's greatest problems including cancer, we must invest in basic cancer research.

Since its inception, the Commission committed to funding basic cancer research. Our strategy has been to provide the most promising proposals with seed money, and to support research fellowships, as they embody creative new studies into the causes, prevention and treatment of cancer. As evidenced above, this funding is needed now more than ever.

We are gratified with how far the state's cancer research has advanced and proud that our investment strategy has leveraged on average over \$10.44 in peer-reviewed federal funding for every dollar the NJCCR has invested. We are 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; and in continuing our efforts to bring together New Jersey laboratory and clinical investigators, patients, policymakers, and citizens, to advance our mission.

⁵ National Science Foundation Report, September 2016

⁶ Wall Street Journal, Op-ed, Dr. L. Rafael Reif President MIT, "The Dividends of Funding Basic Science" December 6, 2016



The overall objectives, strategies, and priorities of the NJCCR are set by the Commissioners, who are volunteer experts in various relevant areas. The Commissioners actively participate in overseeing the program and making final recommendations on the research projects to be funded. In each grant cycle, the NJCCR supports applications based on peer reviewers' evaluations, assessment of responsiveness to program priorities, and available funds.

The NJCCR currently consists of 10 members, appointed by the Governor with the consent of the Senate: 6 scientists/clinicians, 2 members from private industry, 1 ex-officio member from the NJ Department of Health, and 1 ex-officio member from the NJ Department of Environmental Protection.

1. Kenneth Adler, M.D., FACP 2004 – Present
Chair
 Summit Medical Group, MD Anderson Cancer Center
 Scientist/Clinician
2. Kathleen Scotto, Ph.D. 2010 – Present
Vice-Chair
 Rutgers School of Biomedical and Health Sciences
 Scientist/Administrator
3. Anna Marie Skalka, Ph.D. 1983 – Present
Chair Emerita
 Fox Chase Cancer Center
 Scientist/Administrator
4. Generosa Grana, M.D., F.A.C.P. 2015 -- Present
 MD Anderson Cancer Center at Cooper
 Scientist/Clinician
5. Robert Hariri, M.D. Ph.D. 2011 – Present
 Celgene, Cellular Therapeutics
 Private Industry
6. Shawna Hudson, Ph.D. 2015 -- Present
 Rutgers Robert Wood Johnson Medical School
 Scientist/Educator
7. Li Li, Ph.D., D.A.B.T. 2015 -- Present
 Novartis Pharmaceuticals Corporation
 Private Industry

Commission Membership

- | | |
|--|----------------|
| 8. Brian Pachkowski, Ph.D.
Ex-Officio Member
NJ Department of Environmental Protection | 2016 – Present |
| 9. Karen Pawlish, M.P.H., Sc.D.
Ex-Officio Member, DOH
NJ Department of Health | 2012 – Present |
| 10. Jonathan Yavelow, Ph.D.
Rider University, Molecular Biology
Scientist/Educator | 2010 – Present |

Dr. Kenneth Adler (Chair)

Dr. Adler specializes in hematology/oncology, with a special interest in benign and malignant hematology and in geriatric oncology. In addition to his role at Summit Medical Group, he is an Assistant Clinical Professor of Medicine at the New Jersey Medical School and Hospice Medical Director at the VNA of Somerset Hills. He is the Co-Chair of the American Society of Hematology Practice and Partnership, and is a fellow of the American College of Physicians, a member of the American Society of Clinical Oncology and the American Society of Hematology. Dr. Adler has been awarded several outstanding honors throughout his career, including most recently in 2014 he received the prestigious Augustus Stone Award for his volunteer service to the Morristown Medical Center, and in 2017 he was the Medical Honoree of the American Cancer Society for Northwest New Jersey.

Dr. Generosa Grana

Dr. Grana is the Director of the MD Anderson Cancer Center at Cooper. She is also a Professor of Medicine at Cooper Medical School of Rowan University and an Adjunct Professor of Cancer Medicine at The University of Texas MD Anderson Cancer Center. Dr. Grana completed her fellowship in hematology and oncology at Fox Chase Cancer Center and Temple University in Philadelphia where she also completed a post-doctoral fellowship in preventive oncology. Dr. Grana's clinical and research endeavors at Cooper have focused on breast cancer, cancer genetics and community outreach interventions aimed at underserved populations. She has received numerous awards including the American Cancer Society Silver Chalice Award and the Susan G. Komen for the Cure "Light of Life" Award.

Dr. Robert Hariri

Dr. Hariri is the Chairman and Founder of Celgene Cellular Therapeutics, one of the world's largest human cellular therapeutics companies. Dr. Hariri has pioneered the use of stem cells and biomaterials to treat a range of life threatening diseases. He received his medical degree and Ph.D. from Cornell

University. Dr. Hariri received his surgical training at The New York Hospital-Cornell Medical Center where he also directed the Aitken Neurosurgery Laboratory and the Center for Trauma Research.

Dr. Shawna Hudson

Dr. Hudson is Professor and Research Division Chief in the Department of Family Medicine and Community Health at the Rutgers Robert Wood Johnson Medical School. She is a full research member of the Rutgers Cancer Institute of New Jersey in the Cancer Prevention and Control Program, and she also has a secondary faculty appointment in the Rutgers School of Public Health in the Department of Social and Behavioral Health Sciences. She is the co-chair for the Rutgers Biomedical Health Sciences emerging signature program in Community Health and Health Systems. Dr. Hudson is internationally known for her NIH funded research that examines long-term follow-up care for cancer survivors and their transitions from specialist to primary care, and has authored and co-authored numerous research papers and book chapters.

Dr. Li Li

Dr. Li is currently a Director at the Novartis Institute for BioMedical Research, where he has worked for over 13 years. He received his Ph.D. in Toxicology from the University of Texas-Houston School of Public Health. He is a member of the Society of Toxicology and a board certified toxicologist. He is a recipient of numerous awards, most recently the Team Innovation Award from Novartis. In addition, he has co-authored many articles on toxicology innovation in research journals.

Dr. Karen Pawlish (*ad hoc* from NJ DOH)

Dr. Pawlish holds both a Sc.D. and M.P.H in epidemiology with a focus on cancer epidemiology conducting population-based epidemiologic studies at the New Jersey State Cancer Registry (NJSCR). She is currently a co-investigator/NJSCR site study coordinator for the Women's Circle of Health Study (a population-based case-control study of breast cancer in African American women) and the Epidemiology of Hepatocellular Carcinoma study (a population-based case-control study of liver cancer). She also functions as the New Jersey site study coordinator/co-investigator for the Genome Wide Admixture Scan for Multiple Myeloma in African Americans study (a multi-site case study of multiple myeloma in African Americans).

Dr. Brian Pachkowski (*ad hoc* from NJ DEP)

Dr. Pachkowski is a member of the Division of Science, Research and Environmental Health at the New Jersey Department of Environmental Protection (DEP) where he is a research scientist who assesses the potential cancer and non-cancer human health effects of chemicals in the environment. Dr. Pachkowski received his doctorate in environmental sciences and engineering from the University of North Carolina at Chapel Hill. Prior to joining the DEP in 2013, he was an Oak Ridge Institute for Science and Education (ORISE)





postdoctoral fellow at the US Environmental Protection Agency's National Center for Environmental Assessment where he participated in the development of human health assessments of environmental contaminants.

[Dr. Kathleen Scotto \(Vice-Chair\)](#)

Dr. Scotto is currently Vice-Chancellor for Research and Research Training, Rutgers Biomedical and Health Sciences and Vice Dean for the School of Graduate Studies, Rutgers, the State University of New Jersey. She received her Ph.D. from the Cornell Graduate School of Medical Sciences. Prior to joining Rutgers, she served as an Associate Professor of Molecular Pharmacology and Experimental Therapeutics at Memorial-Sloan Kettering Cancer Center and Professor with tenure at the Fox Chase Cancer Center. In addition to her administrative roles, Dr. Scotto maintains an active NIH funded laboratory at Rutgers Cancer Institute of New Jersey.



[Dr. Anna Marie Skalka \(Chair Emerita\)](#)

Dr. Anna Marie (Ann) Skalka is Professor Emerita and former W.W. Smith Chair in Cancer Research at the Institute for Cancer Research at the Fox Chase Cancer Center in Philadelphia, where she served as Sr. Vice President for Basic Science from 1987 until 2008. She received a Ph.D. degree in Microbiology from New York University Medical School. Dr. Skalka has also been deeply involved in state, national, and international advisory groups concerned with the broader, societal implications of scientific research, including the NJCCR, which she chaired from 2008-2013. In recognition of her many research accomplishments; she has been honored by election to the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the New York Academy of Science and the Board of Governors of the American Academy of Microbiology.

[Dr. Jonathan Yavelow](#)

Dr. Yavelow has been a Professor of Biology at Rider University for over 35 years, and a collaborator and member with the NJCCR since 1984. He received his Ph.D. in Cellular and Molecular Biology from the University of Southern California, Los Angeles. He previously served as a Visiting Member at the Institute for Advanced Study in Princeton. He also helped to convene and lead the Science Advisory Board at Rider University, from 1990-2010.

NJCCR has provided seed funds to established scientists to investigate new areas of research that may be high risk, but if successful will have higher impact. For instance, an NJCCR grant allowed me to develop a new computer-aided imaging system to analyze human biopsy specimens. These early studies, supported by the NJCCR, were the basis for two five-year grants, one from the National Cancer Institute and another from the National Science Foundation, to support further work.

In collaboration with an international team of scientists and clinicians we developed new quantitative tests for the diagnosis and prognosis of women with breast cancer. These tests could benefit about 7,000 New Jersey women who are expected to be diagnosed with breast cancer each year, and 226,000 women overall in the United States.

Dr. David Axelrod
Professor
Rutgers, the State
University of New Jersey

We rely heavily on our staff, and are thankful for their ongoing dedication and commitment to team work and excellence.

Acting Executive Director

Candido A. Africa III, M.D., CPM

Consultant

Jennifer Sullivan, Esq.

The Commission's office is located in Trenton, New Jersey

Phone: 609-292-2204

E-Mail: NJCCR@DOH.NJ.gov

Fax: 609-984-3346

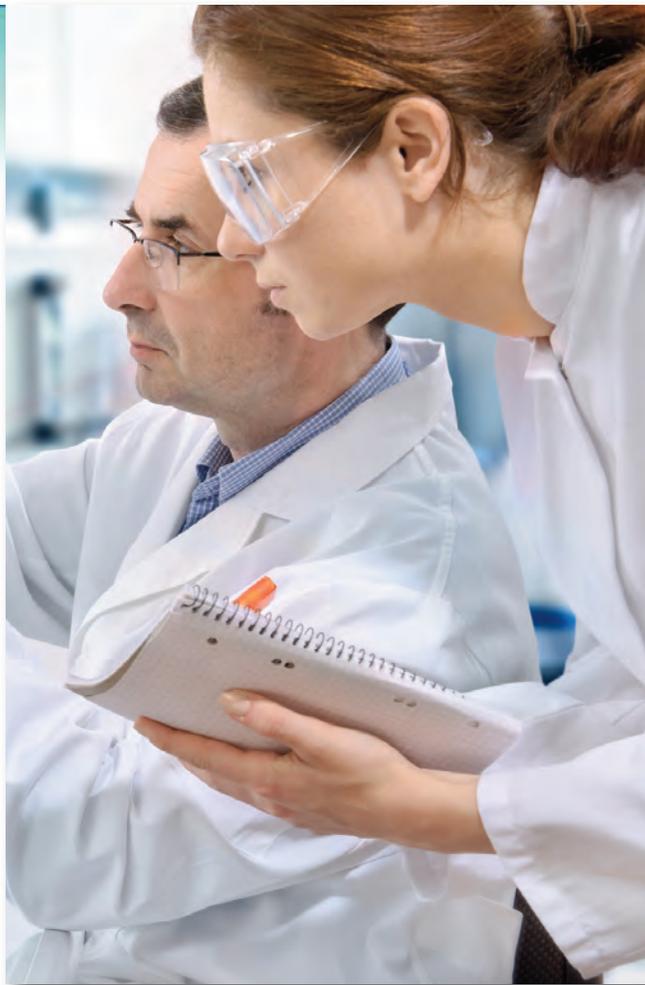
Website: <http://nj.gov/health/ccr/index.shtml>

Mailing address is:

New Jersey Department of Health
Community Health and Wellness Unit
New Jersey Commission on Cancer Research
50 E. State Street, 6th Floor
PO Box 364
Trenton, NJ 08625-0364

Physical location is:

New Jersey Department of Health
Community Health and Wellness Unit
New Jersey Commission on Cancer Research
50 E. State Street, 6th Floor
Trenton, NJ 08625-0364



Economic Changes

As with many other states across the country, New Jersey now faces an unprecedented economic crisis; an economic restructuring based on global competition, technological advancements, and health care reform. These are structural changes that are not temporary, and require new approaches to establish and maintain economic stability in an economy that is forever changing. So, why should its citizens continue to fund cancer research during such difficult times? For an increasing number of people, a diagnosis of cancer is no longer a death sentence. In recent years, statistics have shown that the death toll from some of the most common cancers has dropped to its lowest levels, and survival rates continue to climb. Currently, there are over 15.5 million cancer survivors living in the United States.

As of 2014, the overall death rate from cancer has declined by 25%. The decline is attributed to reduction in smoking rates, as well as better early detection and treatment options .

These outcomes have been possible thanks in no small part to the efforts of the thousands of cancer researchers and doctors who have dedicated their lives to beating this disease.

Scientific research into cancer does make a difference. New Jersey is proud to be leading the way in the fight.

Strengthening New Jersey Institutions in World-Class Research

University-based research strengthens the recipient institutions. World-class research institutions such as Rutgers and Princeton Universities attract highly talented students and faculty. Healthy growing academic institutions bolster New Jersey's economy.

New Jersey's cancer research enterprise extends beyond the laboratory and campus. NJCCR research funding augments New Jersey's reputation as "the

Research from the Rutgers Cancer Institute of New Jersey and other U.S. health and academic institutions show that a diet high in calcium and low in lactose may reduce the risk of ovarian cancer in African-American women. The work, which appears in the British Journal of Cancer (doi:10.1038/bjc.2016.289), also found that sun exposure in the summer months may reduce the risk of developing the disease in this population.

The associations were evaluated among participants in the African-American Cancer Epidemiology Study, which is an ongoing population-based case-control study of African American women in 11 states including New Jersey. The study's lead author, Rutgers Cancer Institute researcher, Bo "Bonnie" Qin, Ph.D., is a 2016 post-doctoral cancer research fellowship recipient.

"High-Calcium, Low-Lactose Diet May Reduce Risk of Ovarian Cancer in African American Women"

Rutgers CINJ, September 16th, 2016

Why State Funding Matters

In a previous study of 42 survivors of early-stage breast and prostate cancers, Dr. Shawna Hudson, medical sociologist at the Cancer Institute of NJ, and co-authors wrote in the Annals of Family Medicine that about “70% of cancer survivors have co-morbid conditions that require a comprehensive approach to their medical care.”

Too often, Dr. Hudson’s team wrote, once they finish cancer treatment and its immediate aftermath, survivors fail to receive appropriate care from their primary care doctors. They said patients needed “a better understanding of what cancer follow-up care is, its lifelong duration, and the potential for varying degrees of monitoring.” Many of the participants in their study “were unaware that cancer follow-up care extends beyond surveillance for recurrence.”

*“When Cancer Strikes Twice”
Jane Brody,
New York Times*

December 25, 2017

world’s medicine chest.” Our state has one of the highest concentrations of pharmaceutical and biotechnology industries in the country—with over 3,000 life science establishments in New Jersey, including 13 of the world’s top 20 biopharmaceutical companies maintaining a presence here. The biopharmaceutical industry’s direct economic impact in New Jersey topped \$47.5 billion in 2014 alone⁸. The ability of this industry to tap New Jersey’s cancer research talent as well as its research breakthroughs bolsters its strength and in turn New Jersey’s economy.

NJCCR has provided more than \$43 million in discovery-oriented cancer research grants in its 30-year history. Our research grant recipients have, in turn, brought to New Jersey research laboratories millions of dollars in federal financial support. An independent evaluation of the NJCCR by the Edward J. Bloustein School of Public Policy at Rutgers has shown that the NJCCR represents one of New Jersey’s great success stories in terms of public investment in cancer research:

- ❖ 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 **4X** 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.

My laboratory investigations have been driven by an abiding interest in understanding the consequences of genetic arrangement in evolution and disease, and in using viruses to elucidate fundamental mechanisms in biology... We have made substantial contributions in the area of retroviral oncogenesis, delineated mechanisms that control retroviral gene expression and elucidated critical details of the structure and function of the retroviral enzymes.

*Dr. Ann Marie Skalka
“Finding, Conducting
and Nurturing
Science: A Virologist’s
Memoir”*

*Annual Review of
Virology 2017 4: 1-35*

8 HealthCare Institute of NJ (HINJ), HINJ and New Jersey’s Life Sciences Community, www.hinj.org

Former Chair of the NJ Commission on Cancer Research Dr. Skalka was honored by Fox Chase Cancer Center at a Symposium in her honor on October 20th, 2016. Dr. Skalka has been a member of the Commission since 1983.

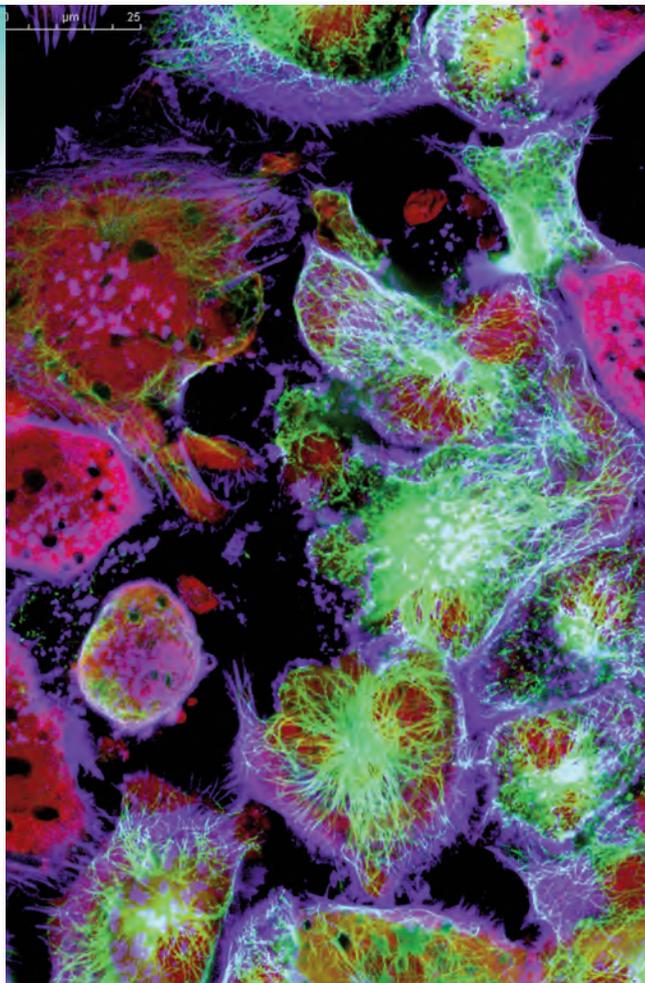
Dr. Skalka is internationally acclaimed for her seminal contributions to virology and to our understanding of relationships between mechanisms of DNA recombination, replication, and repair. Her discoveries have increased our knowledge of how retroviruses can cause cancer, and her research with retroviral proteins laid the foundation for development of current AIDS therapies.



FOX CHASE CANCER CENTER
SYMPOSIUM TO HONOR
ANNA MARIE SKALKA, PhD
October 20, 2016

 **FOX CHASE**
CANCER CENTER
TEMPLE HEALTH

Dr. Anna Marie Skalka Honored



The NJ Commission on Cancer Research held its second Cancer Research Symposium at Rider University on November 8th, 2017. The Symposium featured the work of its most recent pre- and post- doctoral fellowship recipients, and honored NJ State Senator Anthony Bucco and Dr. Fred Cohen for their work in support of the Commission. The keynote speaker was Dr. Yibin Kang, Professor of Molecular Biology at Princeton University and former Commission post-doctoral fellow.

Dr. Kang's research focuses on the molecular mechanisms of cancer metastasis, and he has leveraged his original Commission grant into millions of dollars in additional National Institute of Health (NIH) and private foundation funding for his groundbreaking work.



Commission Members and Dr. Yibin Kang, Princeton University



Award Recipients NJ Senator Anthony Bucco and Dr. Fred Cohen

Cancer Research Symposium 2016

The Commission held its first Cancer Research Symposium in November 2016. Dr. Scott Kachlany, Associate Professor in the Department of Oral Biology and Microbiology at Rutgers School of Dental Medicine, gave the keynote address. The address was focused on his development of the therapeutic agent Leukothera, based on Kachlany's discovery that an oral bacterium, which causes periodontal disease, can produce a protein that can be used to kill leukemia cells in animals.

Once more, the work of current pre- and post-doctoral fellows was also featured.



Commission Members, Dr. Scott Kachlany and NJ Assemblyman Dan Benson

2017: The Year in Review



Breast Cancer



Prostate Cancer



Lung Cancer

Funding

Aside from the annual \$1 million state budget appropriation, the NJCCR receives funding from two other sources: sale of the “Conquer Cancer” license plate, and state income-tax check-offs for breast, prostate, and lung cancers.

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 63,000 license plates have been sold and more than \$5.5 million dollars have been raised for cancer research in the state.

In Fiscal Year 2017, a total of 20,114 plates were sold or renewed. When the proceeds from these sales were combined with renewal fees, more than \$251,600 was raised for cancer research. 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.state.nj.us/mvc/Vehicle/ConquerCancer



New Jersey Breast, Prostate & Lung Cancer Research Funds

The NJCCR administers targeted funds for cancer research. The New Jersey Breast Cancer Research Fund (BCRF) was created in 1995. The Prostate Cancer Research Fund (PCRF) was initiated online as recently as 2012, creating support for prostate cancer research. All four designated support vehicles 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.

2017: The Year in Review

These designated funds support breast, prostate, and lung 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 these cancers. Grants may also be awarded to support basic, behavioral, clinical, demographical, epidemiological and psychosocial research.



The following funds were raised in 2017:

Research Fund	Raised in Tax Year 2017
New Jersey Breast Cancer Research Fund	\$ 282,277
New Jersey Prostate Cancer Research Fund	\$ 32,628
New Jersey Lung Cancer Research Fund	\$ 5,981

The NJCCR funds research projects that focus on the genetic, biochemical, viral, microbiological, environmental, behavioral, socioeconomic, demographic and psychosocial aspects of cancer prevention, causes, development, treatment and palliation. Such research may include studies that relate to fundamental aspects of cancer; however, these projects must include biologic systems, tissues, cells, human subjects and/or other materials that have a direct relationship to cancer.

The NJCCR offers Pre- and Post-Doctoral Fellowships to trainees at New Jersey non-profit research institutions with formally established and active graduate research programs. Candidates must apply for a fellowship under the guidance of a Sponsor—a scientist (tenured, tenure-track or equivalent position) capable of providing mentorship to the Fellow. In addition to aiding in the planning, execution and supervision of the proposed research, the Sponsor's role is to foster the development of the Fellow's overall knowledge, technical and analytical skills, and capacity for scientific inquiry. The Sponsor is also expected to assist the Fellow in attaining his/her career goals. Awards are made to institutions for the support of the trainee under direct supervision of the Sponsor. A Sponsor is only eligible to mentor one NJCCR pre- or post-doctoral research trainee at any one time.

With the restoration of the \$1 million state budget appropriation for the NJCCR in FY17, the NJCCR was able to award 17 two-year cancer research fellowships in the amount of \$1.35 million, to the following scientists in New Jersey research institutions.

Post-Doctoral Fellowships

Mohammad Hadigol, Rutgers Cancer Institute of NJ

Data-driven ultra-deep sequencing design to detect prognostic small variants in leukemia

Oscar Pellon-Cardenas, Rutgers, the State University of NJ

Understanding transcriptional and epigenetic networks in the formation and progression of serrated carcinomas

Charles Chesson, Rutgers Cancer Institute of NJ

Improve on the design of tumor lysate SNAPS initially through exploring alternative polymers and materials used to engineer the particles and subsequently through the co-ligation and co-delivery of immunomodulatory molecules, such as natural killer (NK) cell activating ligands and blocking antibodies against inhibitory receptors

Wei Lei, Princeton University

Dissection of mechanisms of hepatitis B virus persistence

Thomas Pohl, Princeton University

Identification and characterization of the protein interactome of the multifunctional Pif1 family DNA helicases

Huailong Chang, Rutgers Cancer Institute of NJ

Roles of Metformin and RET signaling pathway in pancreatic cancer liver metastasis

Gaurav Mehta, Rutgers Cancer Institute of NJ

BRG1 is a master regulator of PI3K/Akt signaling in basal-like breast cancer

Suzanne Quaticcio-Gantor, Rutgers the State University of NJ

Aurora Kinase C regulation of centrosome clustering in cancer cells

Joonyoung Her, Rutgers the State University of NJ

Molecular role of the tumor suppressor BRCA1

Lisamarie Moore, Rutgers Biomedical Health Science NJ Medical School

Oxidative stress and the cancer risk of energetic protons and heavy ions

Pre-Doctoral Fellowships

Sheida Hayati, Rutgers the State University of NJ

Computational system analysis to identify biomarkers of predisposition to chemotherapy resistance in acute myeloid leukemia

David Calianese, Rutgers Biomedical and Health Science

Development of phosphatidylserine (PS) antibodies found in HIV positive patients as a potential cancer therapeutic

Brian Canter, Rutgers Biomedical and Health Science

The dependence of therapeutic efficacy of alpha particles on gap junctional intercellular communication between bone tissue and metastatic breast cancer cells

Sam Kogan, Rutgers Cancer Institute of NJ

The role of cellular zinc ion homeostasis in the mechanism of zinc metallochaperones as mutant p53 targeted anti-cancer therapies

Sheila Bandyopadhyay, Rutgers University- Newark,
School of Biomedical Science

Mechanistic role of Cdc42 variants in colon cancer progression

Joseph Iacona, Rutgers, Biomedical and Health Science

The role of miR-146a in non-small cell lung cancer

Alisya Anlas, Princeton University

The regulation of tumor dormancy by the host microenvironment

Grants and Fellowships 2015-2016

In addition to the 2017 grants, pre/post-doctoral awards were made to the following promising young scientists in 2015:

	Name	Organization	Title of Training Proposal
Pre	Nykia Walker	Rutgers University	Investigate how macrophages affects MSCs' function in the bone marrow during breast cancer dormancy
Pre	Mark Esposito	Princeton	Exploration of the dynamics of E-selectin in breast cancer metastasis
Pre	Calvin Leung	Rutgers University RBHS	Bystander effects in radium therapy
Pre	Michelle Sempkowski	Rutgers University	Unique binding geometries: Engineering of sticky patches on lipid nanoparticles for effective targeting of otherwise untargetable cells
Pre	Sarah Misenko	Rutgers University	Testing the Contribution of DNA Double-Strand Break Resection Factors to DNA Repair in Mammalian Cells
Pre	Katherine Morgan	Rutgers University RBHS	MicroRNAs mediating Notch signaling in lung adenocarcinoma
Pre	Dharm Patel	Rutgers University RBHS	Identifying the role of Bloom's Syndrome Helicase in mammalian DNA double strand break repair
Pre	Steven Huhn	Rutgers University RBHS	Regulation of Spindle Dynamics and Mitotic Fidelity by BCCIP.
Post	Julian Scherer	Princeton	Regulation of Herpesvirus Invasion of the Nervous System for Targeted Brain Cancer Therapy
Post	Pong Lan Thao Trans	Princeton	Identifying proteins that promote replication fork progression at protein-DNA complexes
Post	Kai Wu	Princeton	The role of tumor suppressor p53 pathway in HCMV infection
Post	Hanlin Tao	Rutgers University RBHS	Preventing and Treating Metastatic Pancreatic Cancer by Targeting Cell Metabolism
Post	Ruifang Zheng	Rutgers University RBHS	Epigenetic modulation by 1,25-dihydroxyvitamin D3 of differentiation-related genes in acute myeloid leukemia cells
Post	Alsion Obr	Rutgers University RBHS	Determining the role of Insulin/IGF Signaling in inflammation and metastasis of basal-like breast cancer

continued

Appendix: NJCCR Fellowship Awards 2015-16

	Name	Organization	Title of Training Proposal
Post	Stanley Kimani	Rutgers University RBHS	Epithelial efferocytosis as a tumor immune escape mechanism in breast cancer
Post	Miao Chen	Rutgers University RBHS	chenm4@rwjms.rutgers.edu
Post	Dan Li	Rutgers University RBHS	Deficiency of interferon regulatory factor 5 (IRF5) results in spontaneous mammary tumorigenesis.
Post	Minhong Shen	Princeton	Mechanism and Targeting of MTDH in Breast Cancer
Post	Gregory Ducker	Princeton	Mitochondrial folate metabolism in cancer cell growth and proliferation
Post	Minxing Li	Rutgers University	Regulation of E3 Ubiquitin Signaling by 53BP1: A New Target to Reduce Cancer Susceptibility
Post	Joseph Moloughney	Rutgers University RBHS	mTORC2 Regulation of the Hexosamine Biosynthetic Pathway in Cancer Metabolism

continued

Appendix: NJCCR Fellowship Awards 2015-16

2016 Pre/Post-Doctoral Fellowships Awarded:

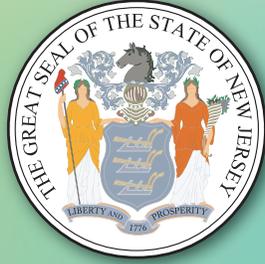
	Name	Institution	Title
Pre	Allison Simi	Princeton	Substratum stiffness regulates multinucleation in mammary epithelial cells
Pre	Constance McElrath	RBHS-Rutgers, NJMS	Interferon and inflammation induced colorectal cancer
Pre	Sheida Hayati	RBHS-Rutgers, SHRP	Systems Analysis of Alternative Polyadenylation in Cancer
Pre	Jeremy Tang	RBHS-Rutgers, CINJ	TRIM33's Role in DNA Repair and Endogenous Retrotransposon Suppression
Pre	Thomas Linz	Rutgers, The State University	Effective targeting and killing of otherwise untargetable triple negative breast cancers using sticky nanoparticles loaded with the alpha particle generator actinium-225
Pre	Jose Zamalloa	Princeton	Identification of Cancer Driver Metabolites Through Genomic Approaches
Pre	Sayantani Goswami	Rutgers, The State University	Molecular mechanism of Vitamin D mediated anti-inflammatory response against inflammatory intestinal tumorigenesis
Pre	Lauren Sherman	RBHS-Rutgers, NJMS	Stem cell delivery of drugs to dormant breast cancer and other solid tumors
Post	Kevin Tong	Rutgers, The State University	Epigenomic-impact of signaling pathways regulating colon tumorigenesis
Post	Bo "Bonnie" Qin	RBHS-Rutgers, CINJ	Vitamin D and epidemiology of ovarian cancer in African-American women
Post	Qiang Feng	Rutgers, The State University	Exploring role of innate lymphoid cells in progression of an inflammation-associated colorectal cancer using a mouse model of high disease susceptibility
Post	Xuetian Yue	RBHS-Rutgers, CINJ	The role and mechanism of Glutaminase 2 in liver cancer metastasis
Post	Laura Perez	RBHS-Rutgers, CINJ	Study the role of host autophagy in lung tumor growth
Post	Qiang Ding	Princeton	Utilization of a humanized mouse model to characterize hepatitis C Virus induced hepatocarcinogenesis

continued

Appendix: NJCCR Fellowship Awards 2015-16

	Name	Institution	Title
Post	Mei Fong Pang	Princeton	Interplay between Matrix Stiffness, Integrin-Linked Kinase (ILK) and Hypoxia in the Regulation of Breast Cancer Stem Cells (CSC) Niche
Post	Vidyaramanan Ganesan	Rowan	Enhancing anti-cancer drug sensitivity by manipulating mitochondrial dynamics
Post	Guoqiang Wang	Rutgers, The State University	Genetic Dissection of the Anti-aging Effects of Exercise, a Route to Cancer Prevention
Post	Ashley Day	RBHS-Rutgers, CINJ	Health Beliefs and Behaviors Among Individuals Diagnosed with Squamous Cell Carcinoma
Post	Consuelo Ibar	Rutgers, The State University	Cytoskeletal stiffness regulates the hippo pathway via re-localization of LIM domain proteins and LATS kinases
Post	Jia Peng	Princeton	Defining roles of GPR56 in regulation of mammary gland development and breast cancer progression





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