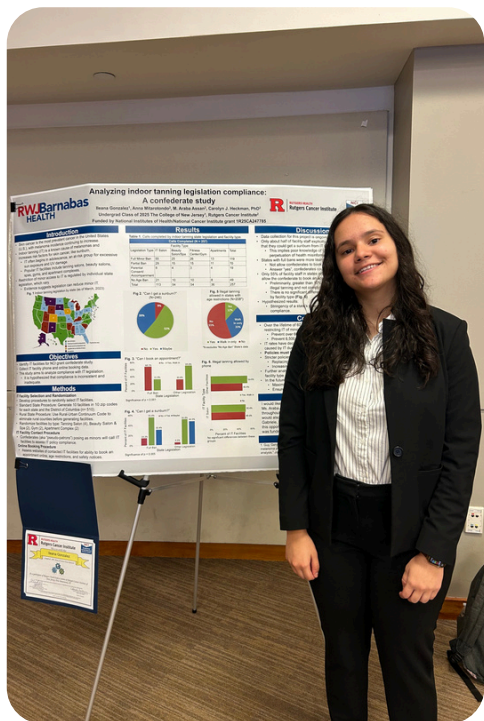


FALL 2024

# RUTGERS YOUTH ENJOY SCIENCE

## *RUYES WATCH*



### IN THIS ISSUE:

- \* Application Information
- \* RUYES Past & Upcoming Events
- \* Teacher Cancer-focused Lessons
- \* Meet RUYES Teachers
- \* Showcases: Curriculum & Expansion Lessons
- \* RUYES Student Highlight
- \* RUYES Research Poster Symposium

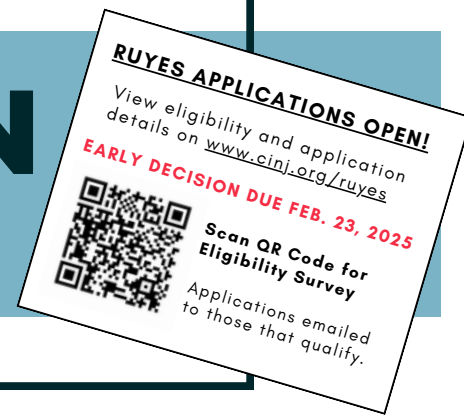
### ABOUT RUYES

The Rutgers Youth Enjoy Science (RUYES) program seeks to encourage youth from groups that are underrepresented in the biomedical sciences to pursue cancer research and healthcare careers.

### APPLICATION

Applications are open through February 23, 2025 for Early Decision! Visit: [www.cinj.org/ruyes](http://www.cinj.org/ruyes) to apply. Email us at [RUYES@cinj.rutgers.edu](mailto:RUYES@cinj.rutgers.edu)

# APPLICATION PROCESS



## Becoming a RUYES Participant

You must submit an application to be considered for the RUYES research experience. Once your application has been submitted, it will be reviewed by RUYES program staff, application review committee, and Rutgers Cancer Institute of New Jersey Principal Investigators (PI) who are interested in being mentors.

You will complete an interview during our match process, attend a mandatory human resources seminar, and prepare the necessary paperwork to begin onboarding.

## TEACHERS

High school science teachers from schools with large populations of students from underrepresented backgrounds can participate in mentored cancer research and curriculum development through the RUYES program

## STUDENTS

Students from low socioeconomic backgrounds, underrepresented groups in STEM, or who are first-generation college-bound will have the opportunity to participate in mentored cancer research, professional development, and cancer-focused community outreach through RUYES.

## Application Timeline



**February 23**  
Early Decision



**February 27**  
Application Review



**March 4**  
First Round Decisions



**Week of March 10**  
Zoom Panel Interviews



**April 2**  
Human Resources  
Presentation



**Week of March 24**  
Finalists and Mentors  
Interviews



**June of 2025**  
RUYES Orientation  
Start Dates



# PAST EVENTS

AUGUST 2024

## **Topic**

Rutgers Youth Enjoy Science (RUYES) & Oncology Physicians in Training to Maximize Diversity (OPTIM) Research Poster Symposium

## **Activity**

- Podium presentations by OPTIM med students, and RUYES high school student, undergraduate, and high school teachers
- Research Poster Symposium by RUYES years 3 and 4 and OPTIM year 3.
- Cancer information disseminated by Ryan Moulton, Cancer Control Specialist from Rutgers Cancer Institute Community Outreach and Engagement

## **Hosted by**

Casandra Gabriele & Rosa Messina, Program Coordinators and Rutgers Cancer Institute

JULY 2024

## **Topic**

**BOLD** Career Speed Mingling

## **Activity**

- RUYES High School students learned about various careers in STEM
- RUYES High Schoolers presented the program to students.

## **Hosted by**

Casandra Gabriele, Program Coordinator for RUYES & BOLD and Rutgers Cancer Institute

MAY 2024

## **Topic**

Science Park High School (Newark), Science Park Youth Enjoy Science (Sci Park YES) Club and Rutgers Cancer Institute

## **Activity**

- Presentation by Nur Zeinomar, PhD, MPH, Assistant Professor and Cancer Epidemiologist at the Rutgers Cancer Institute in the Section of Cancer Epidemiology and Health Outcomes

## **Hosted by**

Nafeesah Scott, RUYES, and Rutgers Cancer Institute

APRIL 2024

## **Topic**

Linden Public School 2nd Annual Cancer Health Fair & Rutgers Cancer Institute

## **Activity**

- Presentation by Gabriella Dumbrique, BS, Cancer Control Specialist from Rutgers Cancer Institute Community Outreach and Engagement
- Linden Youth Enjoy Science (L-YES) Awards Ceremony
- Hand-on Research Activities throughout the fair

## **Hosted by**

Casandra Gabriele, Program Coordinator, Pramila Natarajan & Tristan Mondesir from RUYES, and Rutgers Cancer Institute



# UPCOMING EVENTS

NOVEMBER 2024

## Topic

Rutgers Youth Enjoy Science (RUYES) Mini-RUYES Days for high school and undergraduate students

## Activity

- Podium presentations by OPTIM med students, and RUYES high school student, undergraduate, and high school teachers
- **November 7**, high school day at Rutgers Cancer Institute with presentation by Naomi Tan, PhD and Principal Investigator
- **November 8**, undergrad day at Rutgers Cancer Institute with presentation by Gregory Marshall, PhD candidate

## Hosted by

Casandra Gabriele & Rosa Messina, Program Coordinators and Rutgers Cancer Institute

HIGH SCHOOLERS (16+ YRS OLD) ARE INVITED TO APPLY FOR MENTORED CANCER RESEARCH:

THROUGH THE RUTGERS YOUTH ENJOY SCIENCE (RUYES) PROGRAM AT THE RUTGERS CANCER INSTITUTE

JOIN RUYES STAFF AND PARTICIPANTS ON NOVEMBER 7 11AM-3PM FOR RUYES MINI DAY



JOIN OUR TEAM FOR MINI RUYES DAY & INFORMATION SESSION

WHAT TO EXPECT? (DURING RUYES MINI-DAY)

- High Schoolers will have the opportunity to:
- Engage with current and past participants to learn about their research.
  - Acquire professional development training in Topics of Cancer Biology
  - Explore the risk of vaping in a demonstration of outreach and cancer risk reductions.
  - Discuss RUYES application process



RUYES Mini Day & Information Session Thursday, November 7 at 11am-3pm Location: Rutgers Cancer Institute 195 Little Albany St., New Brunswick, NJ Register: <https://go.rutgers.edu/v4wa19c>

## WHO WE ARE?

The Rutgers Youth Enjoy Science (RUYES) program seeks to encourage youth from groups that are underrepresented in the biomedical sciences to pursue cancer research and healthcare careers. The RUYES program is funded by the National Institutes of Health/National Cancer Institute grant 1R25CA247785.

## WHAT TO EXPECT? (FOR SUMMER)

- Undergraduates will have the opportunity to:
- Engage in research for 9-10 weeks during two consecutive summers. (2025 and 2026)
  - Receive professional development and training in Topics of Cancer Biology, Laboratory Skills, and Career Development.
  - Present their research findings at an Annual Research Symposium.
  - Receive compensation for their time and conservative funds towards temporary housing and parking.

RUYES@cinj.rutgers.edu  
www.cinj.org/ruyes



APPLICATIONS OPEN 11/4/2024 EARLY DECISION 2/23/2025

JOIN RUYES STAFF AND PARTICIPANTS ON NOVEMBER 8 FROM 2PM-5PM FOR AN RUYES MINI DAY

UNDERGRADS ARE INVITED TO APPLY:

MENTORED CANCER RESEARCH

THROUGH RUTGERS YOUTH ENJOY SCIENCE PROGRAM AT RUTGERS CANCER INSTITUTE

## WHO WE ARE?

The Rutgers Youth Enjoy Science (RUYES) program seeks to encourage youth from groups that are underrepresented in the biomedical sciences to pursue cancer research and healthcare careers. The RUYES program is funded by the National Institutes of Health/National Cancer Institute grant 1R25CA247785.

RUYES@cinj.rutgers.edu  
www.cinj.org/ruyes



JOIN OUR TEAM FOR MINI RUYES DAY & INFORMATION SESSION REGISTER:



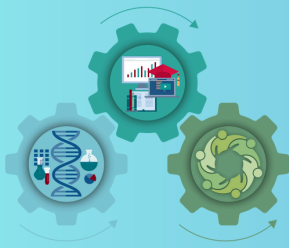
RUYES Mini Day & Information Session Friday, November 8, from 2pm-5pm Location: Rutgers Cancer Institute 195 Little Albany St., New Brunswick, NJ



APPLICATIONS OPEN 11/4/2024 EARLY DECISION 2/23/2025

**EVENT CANCELLED**  
Low Interest





# UPCOMING EVENTS



## NOVEMBER 2024-JANUARY 2025

### **Topic**

RUYES Information Sessions (via Zoom)

### **Activity**

- November 25 at 4pm: HS Students
- December 13 at 2pm: Undergrads
- January 13 at 4pm: Teachers

### **Register Here:**

<https://go.rutgers.edu/79dnoy4p>

### **Hosted by**

Casandra Gabriele & Rosa Messina,  
Program Coordinators & RUYES  
Participants

## NOVEMBER 2024

### **Topic**

Woodbridge High School Health &  
Research Symposium

### **Activity**

- RUYES participants will present research.
- Presentation by Rutgers Department of Nutritional Sciences
- Genetic Counsellor, Melissa Gandhi, MS LGC
- Information tables & stations

### **Hosted by**

Angelise Benimadho and Maria Tolentino, RUYES, Rutgers Cancer Institute

## 2024-2025 FIELD TRIPS\*

### **Rutgers Youth Enjoy Science**

is hosting upcoming field trips  
for schools associated with our program!

### **DECEMBER 2024 & JANUARY 2025**

at Rutgers Cancer Institute

#### **Thursday, December 19th**

Woodbridge High School, Maria Tolentino, RUYES  
Bayonne High School, Georgeanne Osanya, RUYES

#### **Thursday, January 23rd**

High Tech High School, Arun Srivastava, RUYES  
Linden High School, Pramila Natarajan & Tristan  
Mondesir, RUYES

#### **Thursday, January 24th**

Science Park High School, Phoebe Gruetter, RUYES

*\*Teachers trained through the RUYES program have the opportunity for a student field trip to Rutgers Cancer Institute. Don't forget to email [ruyes@cinj.rutgers.edu](mailto:ruyes@cinj.rutgers.edu) to book your time (60 days notice is required).*

# Highlight: Cancer-focused lessons, activities, and labs from Rutgers Youth Enjoy Science Teachers



Pramila Natarajan  
Linden High School

## Learning Through Play: Cancer Board Games!

Goal: Educate the younger population in Linden about different types of cancers

Assignment: Create a board game that teaches players about a certain type of cancer

NGSS Standards: HS-LS1-1, HS-LS1-2, HS-LS1-3



## Educational Model of a Nano-Based Drug Delivery System for Chemotherapeutics

Goal: Meet the need for models/tools to educate and help alleviate anxiety of patients, & empower them to make better treatment decisions

Assignment: Students design, build, & test an educational model of cancer drug delivery system using recycled and/or common household materials

NGSS Standards: HS-LS1-1



Maria Tolentino  
Woodbridge High School



Katie Cilluffo  
Edison High School

## Disparities in Cancer Treatment

Goal: Understand cancer treatment from a public health perspective

Assignment: Students learn about cancer disparities through background research, identification of the problem, designing a solution, & presenting their findings of the problem

NGSS Standards: HSL1-4

## Endocrine Disruptors & Cancer Prevention

Goal: Answer: How are endocrine-disrupting chemicals causing endocrine/breast cancers? What can we do to reduce exposure to these chemicals?

Assignment: Create a public health campaign to educate the public on the potential harm of endocrine-disrupting chemicals

NGSS Standards: HS-LS1-1



Nafeesah Scott  
Science Park  
High School







# Rutgers Youth Enjoy Science

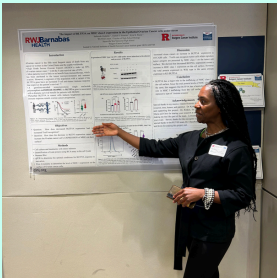
## *Meet our Teachers*



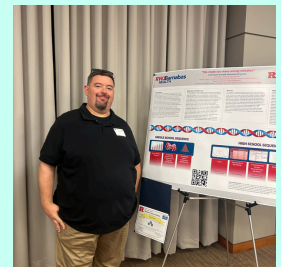
**Phoebe Gruetter**  
*Hosts a STEM/Cancer-focused  
Youth Enjoy Science Club*  
Science Park High School,  
Newark, NJ



**Paul Orbe**  
Union City High School,  
Union City, NJ



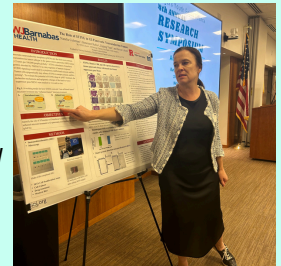
**Hafeezah Abdullah**  
Sayreville War Memorial High School,  
Sayreville, NJ



**Ryan Scott**  
Passaic County Technical Institute,  
Passaic, NJ



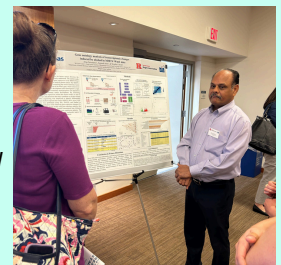
**Georgeanne Osanya**  
Bayonne High School,  
Bayonne, NJ



**Natalia Coleman**  
*Hosts a STEM/Cancer-focused  
Youth Enjoy Science Club*  
Jose Marti STEM Academy,  
Union City, NJ



**Yekaterina (Kate) Cilluffo**  
Edison High School,  
Edison, NJ



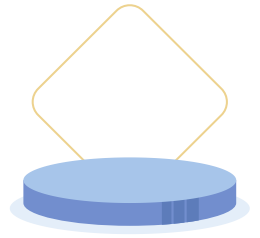
**Arun Srivastava**  
*Hosts a STEM/Cancer-focused  
Youth Enjoy Science Club*  
High Teck High School,  
Secaucus, NJ







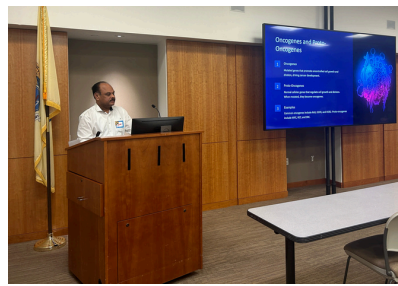
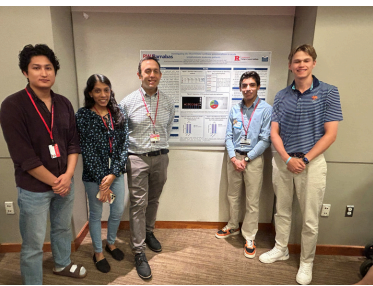
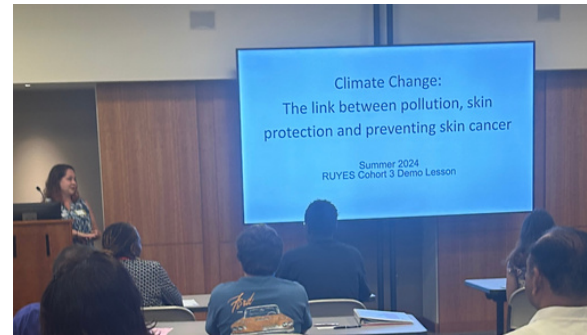
# Rutgers Youth Enjoy Science (RUYES), Center for Mathematics, Science and Computer Engineering (CMSCE), & Rutgers Science Explorer (RSE)



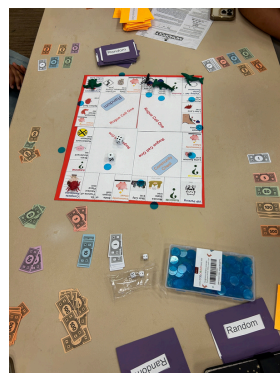
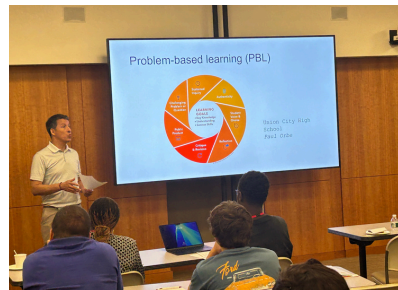
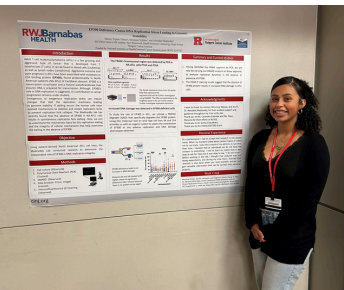
## *Curriculum & Expansion Pack Showcase*

On August 14, 2024, Rutgers Youth Enjoy Science (RUYES) teachers highlighted the cancer-focused curriculum they developed in collaboration with Rutgers Center for Mathematics, Science and Computer Engineering (CMSCE), and Rutgers Science Explorer (RSE) initiative of Rutgers Office of STEM (Science, Technology, Engineering and Mathematics) Education. These eight high school science teachers participated in professional development support to develop new cancer-focused Next Generation Science Standards (NGSS) and Problem Based Learning (PBL) curriculum.

During this event, RUYES Teachers were asked to demonstrate a 45-minute interactive lesson, lab, or activity to each other, RUYES undergraduate and high school participants, and program staff. This was followed by research poster presentations from two of our high school students, Diego Sanabriga, of Woodbridge High School, presenting his research from the Cole Lab and Shirley Tejada, of New Brunswick Health & Sciences, presenting her research from the Madireddy Program.



The afternoon segment was a showcase of the Middle School Expansion Pack, a collaboration of RUYES high school teachers, students, four middle school science teachers, and the Rutgers Science Explorer (RSE) Bus initiative to create expansion packs to correlate with the 3 lessons created by former RUYES students that piloted during the past 4 years on topics of cancer prevention, cancer screening, and cancer and the environment.







# RUYES Student Highlights



On Saturday, October 12, two RUYES students highlighted their research at the Edison Academy Research Convention at Middlesex College.

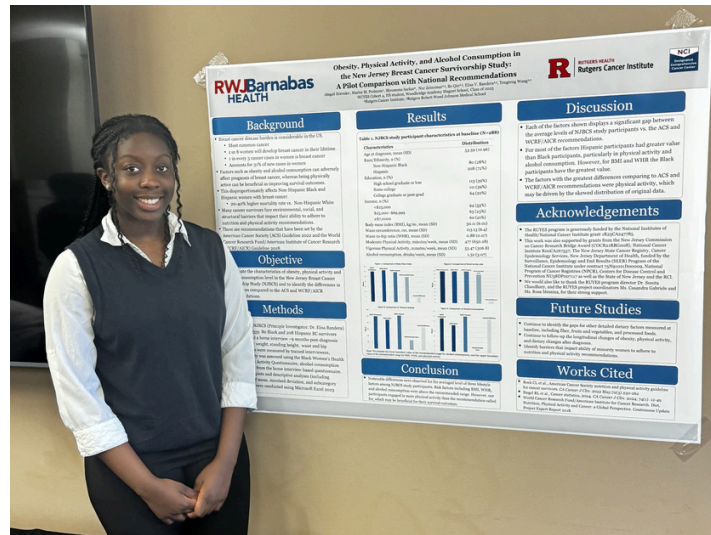
Abigail Ibranke of Woodbridge Academy Magnet school presented *Obesity, Physical Activity, and Alcohol Consumption in the New Jersey Breast Cancer Survivorship Study: A Pilot Comparison with National Recommendations*, research from the Wang Program and Shirley Tejada Tabor of New Brunswick Health & Sciences High School presented *EP300 Deficiency Causes DNA replication stress leading to genomic instability*, research from the Madireddy Program.

Their expertise and communication skills earned them acknowledgements. Abigail acquired the second place award, and Shirley received honorable mention.



I had to the opportunity to present my summer research poster at the Edison Academy Research Convention, in where college professors graded my presentation. Overall, it was a great experience!

**-Shirley Tejada Tabor**, RUYES Participant  
New Brunswick Health & Sciences High School







# Rutgers Youth Enjoy Science Research Poster Symposium

On August 22, 2024, RUYES hosted its fourth Annual Research Poster Symposium along with Oncology Physicians in Training to Maximize Diversity (OPTIM), a program for medical students. This year's event was held at the Rutgers Cancer Institute. The day began with opening remarks by Principal Investigator and Program Director, Dr. Sunita Chaudhary followed by podium presentations of OPTIM participants and the first research poster session featuring year 3 RUYES participants and OPTIM medical students.

The second session began with podium presentations from RUYES participants and the second poster session featuring year 4 RUYES participants

The keynote speaker, Dr. Robin Eubanks, Assistant Director of Equal Opportunity Fund presented, *Enter the Door towards Cultural Competence and Cultural Humility.*

**POSTER SYMPOSIUM AGENDA**

**Welcome & Introduction: Sunita Chaudhary, Ph.D.**  
Associate Professor of Surgery  
Interim Associate Director for Education and Training  
Director for Research Education

**10:30am OPTIM Podium Presentations**  
J. Gonzalez & S. Nallas, RWJMS  
S. Park, RWJMS  
S. Hinchman, NHTES

**10:35am RUYES Cohort 3 & OPTIM**  
Poster Session 1:  
Teachers: S. Srivastava, K. Cilluffo, G. Ganay & H. Abdallah  
Undergrads: A. Velasco, S. Rodriguez, P. FIBEL & I. Gonzalez  
High School: H. Miller & Adriana M.  
Med Students: J. Gonzalez, S. Park, S. Hinchman & S. Ibrahim

**11:00am RUYES Podium Presentation and Q&A**  
J. Gladajo, Woodbridge High School Class of 2023

**11:50am RUYES Podium Presentation and Q&A**  
P. FIBEL, New Jersey City University Undergraduate

**12:05pm RUYES Podium Presentation and Q&A**  
Teachers:  
A. Srivastava, High Tech High School, Secaucus  
J. Cilluffo, John P. Stevens High School, Edison

**12:20pm Lunch**

**12:35pm RUYES Cohort 4**  
Poster Session 2:  
Teachers: S. Ryan, P. Grewter, P. Orbe & N. Coleman  
Undergrads: T. Hart, L. Sanchez-Gonzalez, J. Jellin,  
J. Connor & M. Saxe  
High School: Angelly, Ben, Angelie, Adriana C., & Abigail

**1:15pm Keynote Speaker: Robin Eubanks, Ph.D.**  
Professor Emerita, The Door Towards Cultural Competence and Cultural Humility  
Rutgers University - School of Health Professions Faculty  
Assistant Director, Educational Opportunity Fund (EOF) Program

**2:05pm Closing Remarks**

**3:10pm**

**RESEARCH PROGRAMS AT CANCER INSTITUTE**

**CANCER METABOLISM & IMMUNOLOGY**

Specific Aims:

- To delineate the role of cell metabolism in the control of tumor cell growth, proliferation, and survival and to modulate metabolic pathways to improve cancer therapy
- To identify the metabolic, physical, and immunological relationships between the tumor and host to identify new approaches to cancer therapy
- To discover and develop innovative immune-based cancer treatment strategies including cell and gene therapy approaches.

**CANCER PREVENTION AND CONTROL**

Specific Aims:

- Advance the understanding of multi-level determinants of cancer risk, treatment, and patient-reported and survival outcomes with an emphasis on minorities and underrepresented populations.
- Characterize and prevent tobacco use and guide effective tobacco control strategies at multiple levels to reduce cancer morbidity and mortality.
- Enhance cancer risk reduction, screening behaviors, and outcomes through the development and evaluation of novel interventions and implementation science.

**GENOMIC INSTABILITY AND CANCER GENETICS**

Specific Aims:

- To elucidate the core mechanisms that provide genomic instability, including imprecise repair of DNA damage, DNA replication infidelity, or cell cycle and chromosome segregation errors, and how they lead to cancer and treatment susceptibility.
- To understand the regulatory networks and modifying factors of tumorigenesis, including how tissue homeostasis and cell fate determination mechanisms interface with genome maintenance and modulate tumorigenesis.
- To define the genome alterations and gene expression signatures in cancer, including actionable cancer drivers and subgroup classification, association of genomic and gene expression changes with the underlying mechanisms of genome maintenance, and development of genomics tools for precision oncology.

**CANCER PHARMACOLOGY**

Specific Aims:

- To understand the biology of key molecular targets in cancer that drive cell growth, proliferation, and survival so that they can be effectively exploited for cancer therapy.
- To determine the modes of action and mechanisms of resistance to anticancer agents.
- To discover and develop novel therapeutics and drug delivery technologies for more effective cancer treatment.

**CLINICAL INVESTIGATIONS AND PRECISION THERAPEUTICS RESEARCH**

Specific Aims:

- Target metabolic, cell death and survival pathways in cancer.
- Target DNA repair and cell cycle checkpoint abnormalities in cancer.
- Target the immune microenvironment in cancer.
- Investigate markers of response and resistance to cancer therapy.

**RWJ Barnabas HEALTH** **RUTGERS CANCER INSTITUTE** **NCI**

