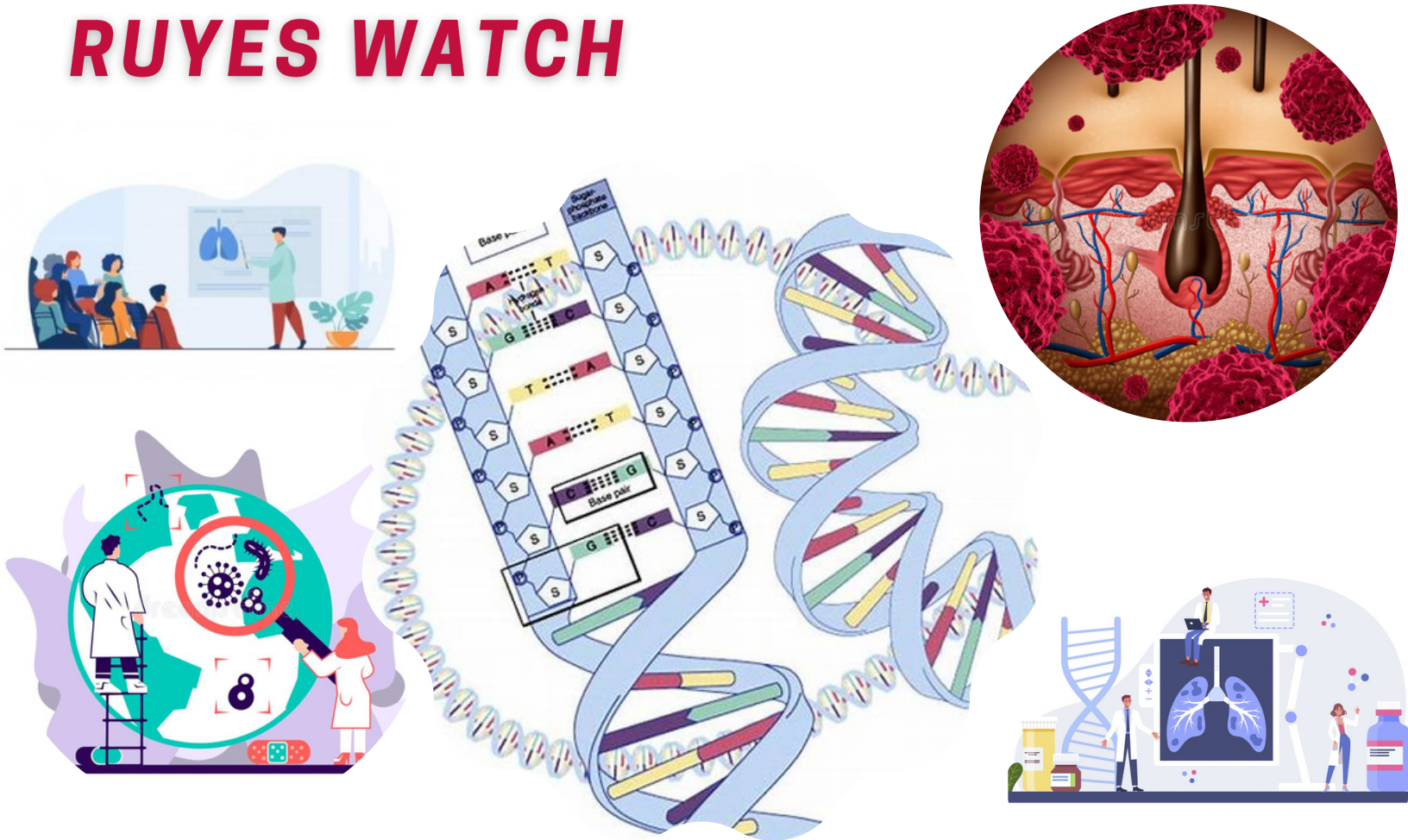


MAY-JUNE 2023

# RUTGERS YOUTH ENJOY SCIENCE

## *RUYES WATCH*



### IN THIS ISSUE:

- Upcoming/Past Events
- Cancer Awareness
- Problem Based Learning
- Linden High School Field Trip
- Woodridge High School Field Trip



### 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.



### RUYES ORIENTATION

In-person orientation begins on June 26, 2023

Welcome!

Rutgers Youth  
Enjoy Science  
[ R U Y E S ]

Promoting  
Biomedical  
Workforce  
Diversity

**RUTGERS**  
Cancer Institute  
of New Jersey  
**RUTGERS HEALTH**

**NCI**  
Designated  
Comprehensive  
Cancer Center



# RECENT EVENTS



## MAY

### Topic

Linden High School Cancer Health Fair

### Activity

- 5 interactive booths for Linden Middle and High School students
- Hosted at Linden High School Library

### Hosted by

Linden High School  
Pramila Natarajan & Tristan Mondesir  
Caitlyn Ramdat & Nat Czepielewski  
Casandra Gabriele, Program Coordinator  
Harleen Badwal, Student Assistant

## APRIL

### Topic

Woodbridge - YES (Youth Enjoy Science) Club & Community Outreach & Engagement

### Activity

- Vaping & Tobacco Cessation, Speaker, Monica Gilles (COE)

### Hosted by

Maria Tolentino, RUYES & Woodbridge High School

## MARCH

### Topic

Woodbridge - YES (Youth Enjoy Science) Club

### Activity

- Overview of Radiation Oncology with Dr. Malcom Mattes at W-YES Club

### Hosted by

Maria Tolentino  
Woodbridge High School

## MARCH

### Topic

Linden - YES (Youth Enjoy Science) Club & Woodbridge - YES (Youth Enjoy Science) Clubs

### Activity

- Student field trip to Rutgers Cancer Institute of New Jersey

### Hosted by

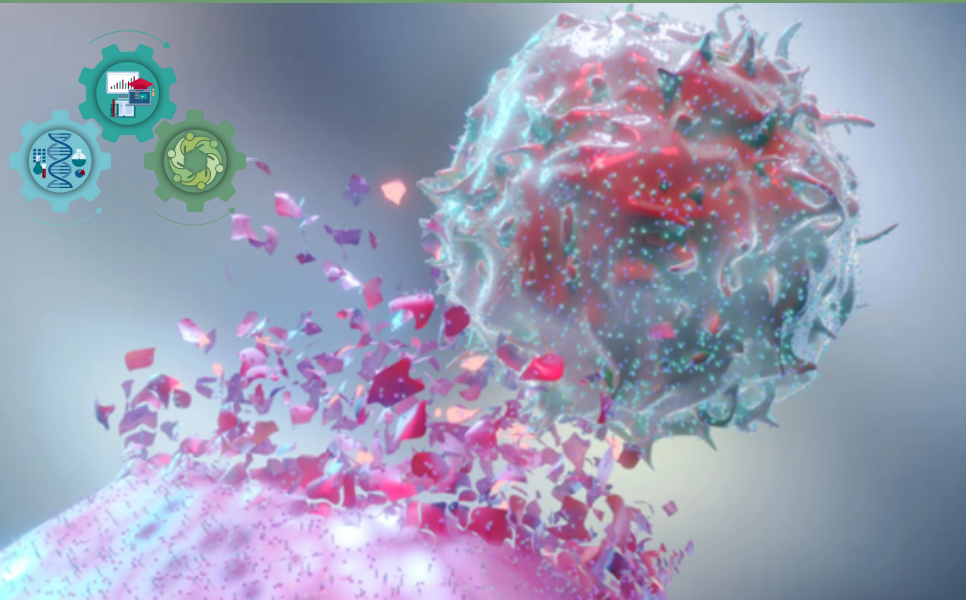
RUYES & Rutgers Cancer Institute of New Jersey Education and Training Department



WINTER ISSUE

# Cancer Awareness

SKIN CANCER



## Myths:

- 1.) Glass protects the skin from UV damage.
- 2.) Sun exposure is necessary to prevent vitamin D deficiency.
- 3.) Sunscreen is waterproof.
- 4.) Your skin is safe if it does not burn.
- 5.) Eating certain foods can prevent sunburns.

## Dermatologist recommendations and Facts:

No matter your skin tone, dermatologists encourage you to check your skin for signs of skin cancer.

It's true that if you have a darker skin tone, you have a lower risk of getting skin cancer, but people who have darker skin tones can develop skin cancer. In darker skin tones, skin cancer is more likely to be found in an advanced stage when it's harder to treat. Advanced melanoma can be deadly.

Getting in the habit of performing skin self-exams can help you find skin cancer early.

### Many deaths could be prevented if people knew these facts:

- Caught early, melanoma is highly treatable.
- Melanoma can develop anywhere on the skin, including skin that's had plenty of sun exposure and skin that's usually protected from the sun.
- Melanoma can develop under or around your fingernails and toenails.
- You can find melanoma early by examining your skin for the ABCDEs of melanoma and checking your nails.

## Skin Cancer Screening:

- Tests are used to screen for different types of cancer when a person does not have symptoms.
- Screening for skin cancer may include examination by both the patient and the health care provider.
- Screening tests for skin cancer are being studied in clinical trials.
- If an area on the skin looks abnormal, a biopsy is usually done. The doctor will remove as much of the suspicious tissue as possible with a local excision. A pathologist then looks at the tissue under a microscope to check for cancer cells. Because it is sometimes difficult to tell if a skin growth is benign (not cancer) or malignant (cancer), you may want to have the biopsy sample checked by a second pathologist.

## Prevention:

Practice Safe Sun!

- Seek shade when appropriate, it is crucial to remember that the sun's rays are the strongest between 10 a.m. and 2 p.m. Any time your shadow appears shorter than you, seek shade.
- Wearing sun protective clothing is another form of protection from the sun's harmful rays. Wear a lightweight and long-sleeved shirt, pants, a wide-brimmed hat, and sunglasses with UV protection, when possible.
- Apply a broad-spectrum, water-resistant sunscreen with an SPF of 30 or higher to all skin not covered by clothing. Remember to reapply every two hours or after swimming or sweating.

References:

[May is Skin Cancer Awareness Month \(aad.org\)](http://aad.org)

[Skin Cancer Screening \(PDO®\)-Patient Version - NCI](#)

[5 myths about skin cancer prevention - and some truths | Cancer | UT Southwestern Medical Center \(utswmed.org\)](#)

# RUYES Student Highlights

## **CELINE DUNCAN**

BEGAN AS A COLLEGE  
SOPHOMORE

ENTERING JUNIOR  
YEAR



**School you are attending:** Rutgers University

**Major:** Biology

**The lab worked in last summer:** Pilot Study: Microbiome Feasibility and Breast Cancer survivorship in minority women.

**PI:** Elisa Bandera, MD, PhD

**Lab Mentor:** Nur Zeinomar, PhD, MDH

**Name of the research project completed:** Feasibility of Collecting Fecal Samples in a Cohort of Black and Hispanic Breast Cancer Survivors: A Pilot Study

**What have you learned through RUYES/how it has helped you grow:**

I have learned the importance of maintaining diversity in healthcare while being involved in this research and how there is an unequal representation in data collection across ethnicities. I also learned more about healthcare inequity in general and the effects it has on minority populations and their health. RUYES has also helped me improve my skills in communication of science and knowledge regarding the research field as a whole. I knew very little about how meticulous the process behind research was and it was eye opening to witness the work behind important discoveries in health, especially cancer.

**Future goals:** I hope to apply to Physician Assistant School.

## **GISELLE JEAN-MARIE**

BEGAN AS A HIGH  
SCHOOL SOPHOMORE

ENTERING JUNIOR YEAR



**School you are attending:** Stuart Country Day School

**The lab worked in last summer:** Mitrofanova Virtual Lab

**PI:** Antonina Mitrofanova, PhD

**Name of the research project completed:** Biological Pathways Associated with Chronological Aging Play a Role in Prostate Cancer Progression

**What have you learned through RUYES/how it has helped you grow:**

This program has helped me better to understand myself and my interests in the STEM field. I loved getting involved with experienced scientists who were extremely kind, intelligent, and helpful in guiding me and including me in their research.

## **CAITLYN RAMDAT**

BEGAN AS A HIGH  
SCHOOL JUNIOR

CURRENTLY ATTENDING:  
JOHNS HOPKINS  
UNIVERSITY



**School you are attending:** Johns Hopkins University

**Major:** Molecular and Cellular Biology and Public Health

**The lab worked in last summer:** Dr. Steinberg and the Tobacco Dependence Program

**PI:** Marc L. Steinberg, PhD

**Name of the research project completed:** RWJ Barnabas Health Healthcare Professional Survey Regarding Lung Cancer Screening and Tobacco Treatment Practices

**What have you learned through RUYES/how it has helped you grow:**

RUYES taught me a lot of soft skills I did not have before. My lab was not a wet lab, but I got to see the world on a much grander scale.

**Future goals:** I wish to become a pediatric-oncology surgeon! For a while now, I've been debating my career - I know that I wanted to work in neonatology/pediatrics.

## **JADA GRACE SQUIRES**

BEGAN AS A HIGH  
SCHOOL JUNIOR

CURRENTLY ATTENDING:  
CASE WESTERN  
UNIVERSITY



**School you are attending:** Case Western Reserve University

**Major:** Neuroscience with a Minor in Communications of Health Professions

**The lab worked in last summer:** The Mitrofanova Lab with Dr. Mitrofanova alongside peer mentors Sukanya Panja and Michael Craigie

**PI:** Antonina Mitrofanova, PhD

**Name of the research project completed:** Biological pathways associated with cancer progression

**What have you learned through RUYES/how it has helped you grow:**

Being a part of RUYES has taught me the importance of being devoted and diligent. Working under researchers for both summers has not only expanded my knowledge on cancer research, but it has also shed light on many reasons as to why research has great importance today.

**Future goals:** I hope to continue my education after college and attend graduate school to become a Certified Anesthesiologist Assistant. I am greatly passionate about working in the medical field in the near future.



# RUYES Teacher Curriculum Highlights

## CREATING LEARNING TOOLS AND DISCOVERING DNA MUTATIONS

JESSICA VAN HORN  
TEACHER AT BERGEN CITY CHARTER HIGH SCHOOL

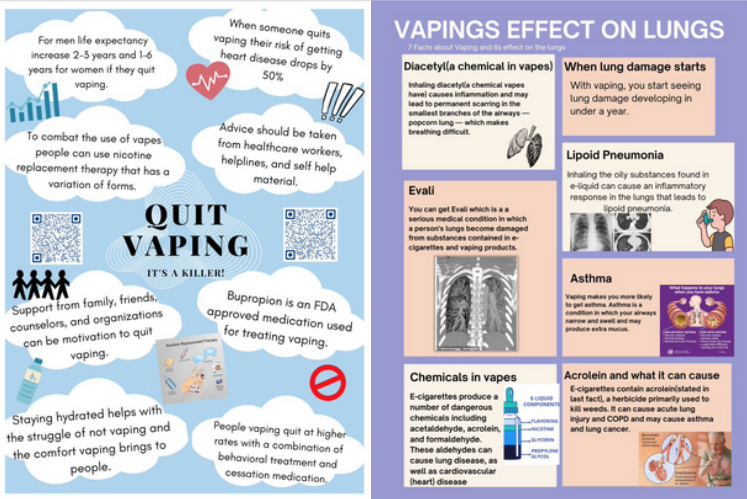
Ms. Van Horn's project assisted student learning about DNA. For background knowledge, students were given an outline to form different types of educational games. Students made morph charts to help formulate an actual design. There were several games that were created by students, including a Ping-Pong game with questions, the game of Life game board, a wheel spinning game with amino acids, and a codon game with a stop code in a Monopoly format. One game allowed you to shoot hoops and answer questions, while another combined gambling with soccer. Only students who are not in Ms. Van Horn's class could play the games. Her students wrote a graded lab report upon completion of their game boards.



## TOBACCO CESSATION AND VAPING LEADING TO LUNG CANCER (CREATING DIGITAL PSA)

PRAMILA R. NATARAJAN  
TEACHER AT LINDEN HIGH SCHOOL

Ms. Natarajan's project aimed to increase student awareness of the negative impact of vaping. Her students created a PSA for youth to educate them. Students also created a survey by coming up with questions in groups. A QR code was posted in the cafeteria and media center, got 284 results within 3-4 days (last time there were 113 responses). Students read and studied the graph to analyze the results. Ms. Natarajan made stations where students rotated and wrote down their conclusions. The three different formats for the PSAs were poster, video, and written script. Students also listed what the criteria and constraints were. Students used a morph chart to formulate specific guidelines for the PSAs. After the posters are presented, they will be put around the school.



# RUYES Teacher Curriculum Highlights

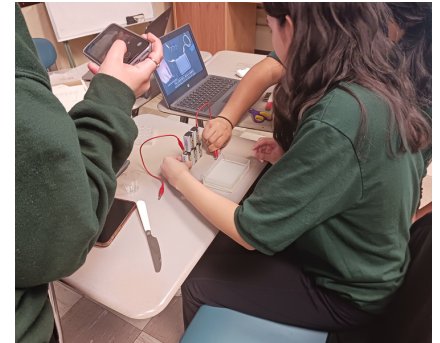
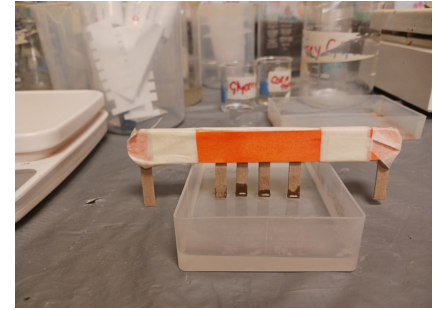
## CREATING AND USING COMMON TOOLS FOR CANCER RESEARCH WITH HIGH SCHOOL STUDENTS ON A BUDGET

STACY MCKOY

TEACHER AT INNOVATION HIGH SCHOOL JERSEY CITY

Ms. McKoy's project based learning module consisted of a pre-activity where students watched a video, completed a virtual lab, and physically practiced how to use a micropipette. Students learned about DNA and built a DNA model with Lego sets and the formation of an origami. They practiced how to correctly load the gel. Students then completed a life-size gel electrophoresis activity.

Ms. McKoy's students completed a design outline where they worked with a \$15 budget. They listed homemade materials and created a blueprint of their plans. The project was a success, and the results were amazing.



## RAISING AWARENESS ABOUT UNDERREPRESENTED CANCERS (CANCER TYPES WEBSITE)

TRISTAN MONDESIR

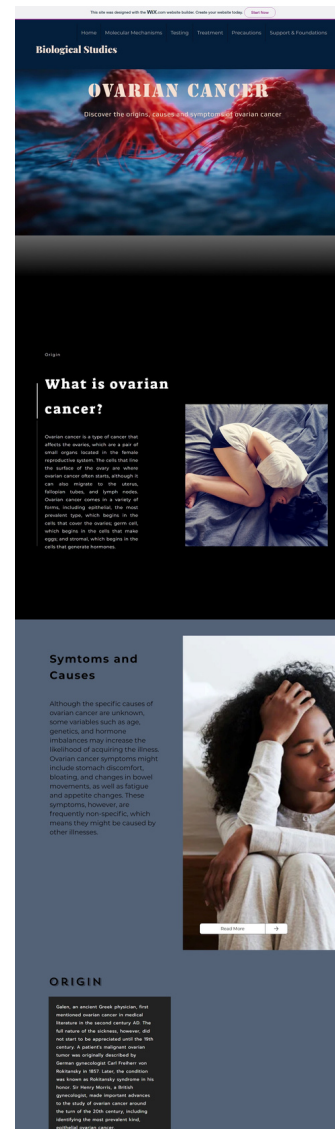
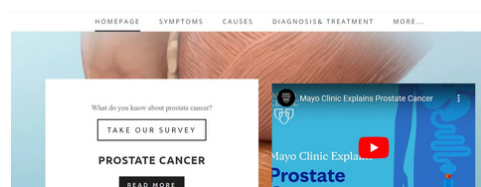
TEACHER AT LINDEN HIGH SCHOOL

The focus of Mr. Mondesir's project is raising awareness about underrepresented cancers, specifically ovarian and prostate. His students brainstormed and made websites according to the rubric. Each group had a redesign opportunity where each website was reviewed by their peers, but students were unaware of whose website they were reviewing. This project allowed students to work on their professional development and obtain a basic understanding of cancer development.

Mr. Mondesir began this project with his students at the beginning of the school year and worked on it once/twice a week. He is using his experience with the creation of different websites to create plans for the continuation of this project in the future.

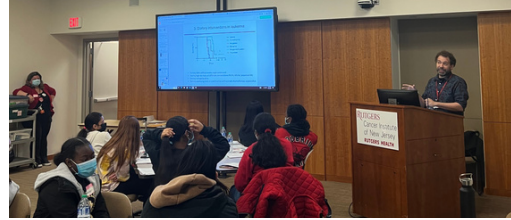


### Prostate Cancer



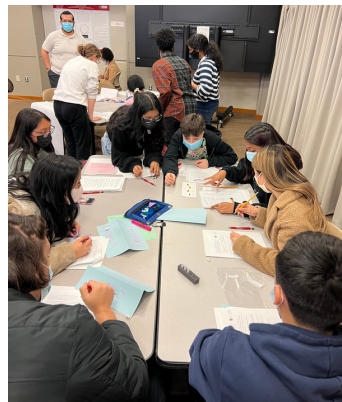
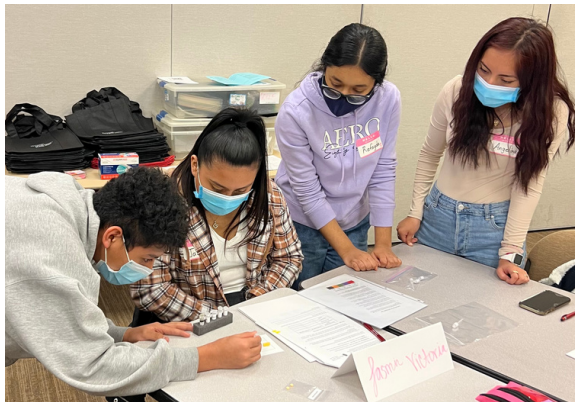


# Woodbridge High School Field Trip to Rutgers Cancer Institute of New Jersey



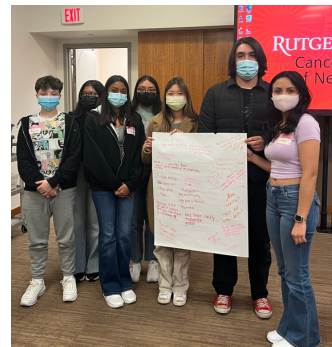
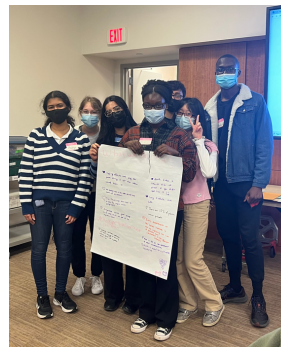
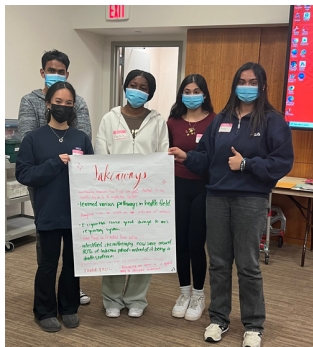
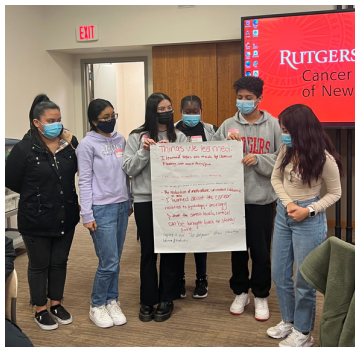
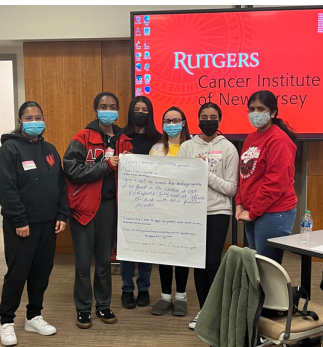
The Rutgers Cancer Institute of New Jersey hosted a field trip for Woodbridge High School (WHS) students on March 30, 2023. They learned about new research, how to use micropipettes, and conducted an experiment to test chemicals in vapes. The students also toured the different areas of Rutgers Cancer Institute of New Jersey, including the Madireddy lab. Through Dr. Katie Darabos's presentation of her research on the measures of biological stress calculated through saliva samples, the students were introduced to a new area of research and learned more about the field of Behavioral Science, as well as the role of psychology in oncology.

Dr. Daniel Herranz Benito discussed the targets in the treatment of T-cell leukemia alongside his work on the discovery and characterization of enhanced regions that are crucial for cancer cell survival and growth.



When asked to share what they learned, students expressed their interest in the speakers' topics and their journeys to becoming successful researchers. Students then worked in groups to carry out an experiment on vaping chemicals using a cell health test kit consisting of a control, cinnamaldehyde, pentanedione, vanillin, a cell health test solution, and samples of lung tissue. Cinnamaldehyde, pentanedione, and vanillin imitated the flavors of cinnamon, butter/caramel, and vanilla respectively. Through this experiment, the students comprehended that flavors are used as an attraction mechanism to advertise to the teenage population.

Both students and teachers expressed excitement at participating in this hands-on activity.



Over the course of the trip, students wrote down the most interesting fact that they learned upon the completion of each activity.

Once the field trip came to an end, each group presented their posters.



# Linden High School Cancer Health Fair

Rutgers Youth Enjoy Science (RUYES) held a Cancer Health Fair in conjunction with Linden Public High School on May 22, 2023. The event was originally planned by RUYES students Caitlyn Ramdat and Nat Czepielewski. To help bring this fair to fruition, Program Coordinator Casandra Gabriele sought the collaboration of Linden High School teachers and RUYES trainees Pramila Natarajan and Tristan Mondesir, as well as additional RUYES students and the Community Outreach & Engagement (COE) program.



The day began with an address by Dr. Sunita Chaudhary, Principal Investigator of Rutgers Youth Enjoy Science.

The fair consisted of tables and activities manned by RUYES, COE, and Linden High School students:

- Tobacco Cessation, Ryan Moulton (COE)
- Human Papillomavirus (HPV), Shantelle James (COE)
- Ultraviolet Skin Cancer/Sun Safety, Casandra Gabriele (RUYES)
- Cancer Research Poster Presentations:  
Caitlyn Ramdat, Nat Czepielewski, Pranavi Kondam, Chardege Exantus, Leyneir Cespedes, and Deanna Lescouflair
- Exercise and Vaping, Kelly Gallagher (LHS)
- Vaping and Its Effects on the Human Body, Pramila Natarajan and students (LHS)

Near the day's conclusion, a presentation on Tobacco Cessation with Monica Gilles (COE) via Zoom was made available to parents, middle school, and high school classrooms throughout the district.

