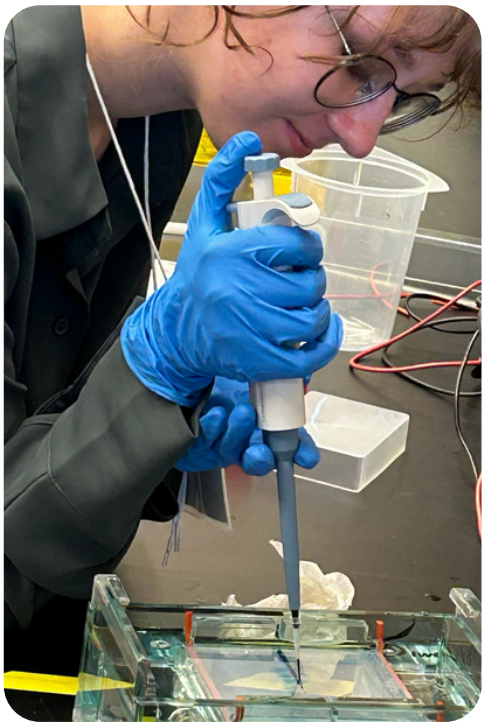
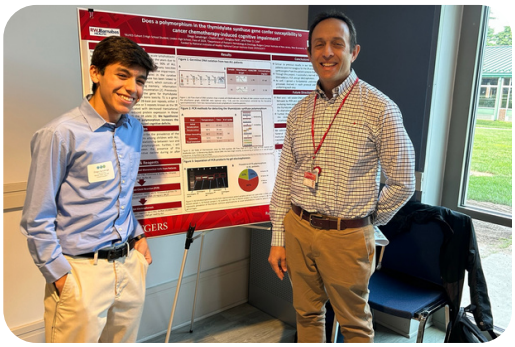
JULY-AUGUST 2023

RUTGERS YOUTH ENJOY SCIENCE

RUYES WATCH





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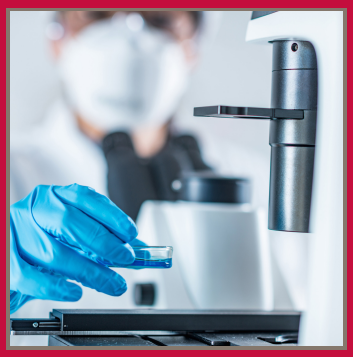


ABOUT RUYES

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

Applications open November 4, 2023.
Visit: www.cinj.org/ruyes **for eligibility and** to apply.
Email us at RUYES@cinj.rutgers.edu

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

UPCOMING EVENTS

OCTOBER 5, 2023

Topic
Rutgers Youth Enjoy Science visits Genetics Classes

Activity
- RUYES will be introduced to students attending Dr. Michael Verzi's genetics class

Hosted by
Rosa Messina, Program Coordinator &
Dr. Michael Verzi, Department of Genetics

OCTOBER 2023

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

Activity
- Dr. Tracy Anthony of Anthony Lab will present current research
- Career options within Nutritional Sciences

Hosted by
Maria Tolentino, RUYES
& Woodbridge High School

NOVEMBER 2023

Topic
Rutgers Youth Enjoy Science (RUYES) Mini-Day

Activity
- High School students will visit Rutgers Cancer Institute of New Jersey to gain insight into cancer-focused research and RUYES

Hosted by
Casandra Gabriele, Program Coordinator, & Rutgers Cancer Institute of New Jersey

NOVEMBER 4, 2023

RUYES APPLICATIONS OPEN!

View eligibility and application details on www.cinj.org/ruyes

UPCOMING INFO SESSIONS
Register:
https://go.rutgers.edu/v4wa19c
Friday, October 20 at 3:30pm
Monday, December 20 at 4pm

Cancer Awareness

BLOOD CANCER

Myths:

1.) All patients with blood cancer require a bone marrow transplant.

2.) Vitamins, supplements, and superfoods can prevent blood cancers.

3.) A blood test alone can be used to diagnose cancer.

4.) Chemotherapy is the only treatment for blood cancer.

Blood Cancer & Types:

When blood cell DNA mutates blood cancer can occur. DNA directs cells as to when to grow, divide, or die. Mutated DNA gives new instructions with blood cancer, and cells grow and divide at an expedited rate and live longer, as well. These now abnormal cells crowd the normal cells. Fewer normal cells impede upon the performance of cells' essential tasks, such as carrying oxygen and fighting infection.

Three Types of Blood Cancers:

- **Leukemia**: Results from a combination of environmental and genetic factors. Researchers believe exposure to high levels of radiation or certain chemicals can cause genetic changes that cause Leukemia.
- **Lymphoma**: Results from a change in genes in white blood cells, called lymphocytes, that causes them to multiply uncontrollably and live longer. Certain infections or a suppressed immune system may be factors.
- **Myeloma:** Results when plasma cells in bone marrow get new genetic instructions causing them multiply. There might be potential links between Myeloma and chromosomal change that affect genes controlling plasma cell growth.

Diagnosis & Tests:

- **Complete Blood Count (CBC) & Blood Chemistry Test**: These look to check for a high or low white blood count and a lower than normal red blood cell platelet count and other chemicals and tumor markers in the blood.
- **Computed Tomography (CT) Scan**: Creates 3D images of soft tissue using a series of X-rays to check for myeloma and bone damage.
- **Magnetic Resonance Imaging (MRI) Scan**: Uses a large magnet and radio waves to look for signs of leukemia or lymphoma.
- **Positron Emission Tomography (PET) Scan**: Produces images of your organs and tissues at work to look for signs of myeloma.
- **Bone Marrow Biopsies**: Analyze the percentage of normal and abnormal blood cells in bone marrow and may also test bone marrow sample for changes in DNA that may drive cancer growth.

Risk Reduction:

- Eat healthy.
- Move and exercise.
- Avoid radiation and chemical exposure.
- Understand and know your family history and inherited conditions.
- Get physicals and bloodwork routinely.

Treatments*:

Common treatments for blood cancer include:

- Chemotherapy
- Radiation Therapy
- Immunotherapy
- Targeted Therapy for Cancer
- CAR T-cell therapy
- Autologous Stem Cell Transplant
- Allogeneic Stem Cell Transplant

**For more on these treatments, please visit the sources listed below*

References:
Cleveland Clinic (my.clevelandclinic.org)
RWJBarnabas Health (www.rwjbh.org)

RUYES Student Highlights

SERENA RAWLE
BEGAN AS A COLLEGE JUNIOR

ENTERING SENIOR YEAR

School attending: Rutgers University - New Brunswick
Major: Cell Biology and Neuroscience
The lab worked in last summer: Xia Lab
PI: Dr. Bing Xia
Lab Mentor: Nur Zeinomar, PhD, MDH
Name of the research project completed: Determining the Role of RNF168 and RAD52 in BRCA1 and PALB2 Related Mammary Tumor Development
What have you learned through RUYES/how it has helped you grow: RUYES has been a great experience for me in this past year I have been a part of the program. Not only have I gained useful wet lab skills to help me navigate through my upper-level lab coursework, but I have also made essential connections with like-minded individuals. I initially started the RUYES program with no prior research experience, but my mentors welcomed me and provided me with guidance to assist me every step of the way. Additionally, attending professional development workshops enlightened me when it came to maintaining soft skills.
Future goals: I am going to graduate with my Bachelor of Arts in May 2024. After my undergraduate studies, I plan to take a gap year to obtain more hands-on patient care experience. Following the gap year, I want to attend PA school to become a certified physician's assistant, in which I aspire to specialize in pediatrics.

DEANNA LESCOUFLAIR
BEGAN AS A HIGH SCHOOL SENIOR

ENTERING FRESHMAN YEAR

School attended: Linden High School; **attending** Rutgers University - New Brunswick in September 2023.
Major: Intended Biotechnology Major
The lab worked in last summer: Hu Lab
PI: Dr. Wenwei Hu
Name of the research project completed: Monitor Colorectal Cancer Development Using P53 Transgenic Mice Models
What have you learned through RUYES/how it has helped you grow: Through RUYES I have learned many different research techniques, lab skills and ways to communicate research and science to the general public. It has also helped deepen my understanding on the different types of cancer and how it is different from the other types of cancer as well as different treatment options that are offered.
Future goals: I plan on continuing research in my undergrad and exploring different career paths as I begin my college experience. Along with continuing research, I am a foster youth advocate in which I will continue to present panels, and create change within the foster care system

MELANIE SPRUILL
BEGAN AS A HIGH SCHOOL JUNIOR

ENTERING SENIOR YEAR

School attending: Piscataway High School
The lab worked in last summer: Dr. Devine Lab
PI: Dr. Katie Devine
Name of the research project completed: Usability of Managing Your Health (MYH 2.0) to Help with the Transition of Childhood Cancer Survivors to Self-management of their own Healthcare
What have you learned through RUYES/how it has helped you grow: I have learned more about qualitative research and the future of research in general. I believe when people think of research, they envision a wet lab, but I've learned that dry labs are just as important. I've learned how many methods can be used to improve the lives of cancer patients and cancer survivors. I've also discovered that in my future career I desire to do research whether it's as a full-time career or part time.
Future goals: In the future I plan to become a registered nurse and hopefully remain involved in work at the Cancer Institute of New Jersey, whether it is research, administrative or clinical work.

RUYES Teacher Highlight

NAFEESAH SCOTT

TEACHER AT SCIENCE PARK HIGH SCHOOL - NEWARK

SUBJECTS: IB BIOLOGY HL AND ANATOMY & PHYSIOLOGY

The main factors that made RUYES an excellent fit for my career development was the hands on application of what I learned and teach in biology. I can now make direct connections to what I teach and its real life application in scientific research. I also got to experience what my students feel when learning something new which makes it easier for me to explain complex concepts.

Lastly working in the lab, combined with the Center for Mathematics, Science, and Computer Education (CMSCE) trainings, provided me with an in depth understanding of Next Generation Science Standards (NGSS) by giving me the opportunity to understand the bridge between skills and content. As an IB Biology teacher this program gave me invaluable experiences that directly translated to my IB Biology class. From working in the lab learning new skills and content with many different scientists, to shadowing my mentor during the Toxicology, Health & Environmental Disease (THED) program, to connecting and networking with other teachers, educators and scientists during our professional developments, RUYES has been a fundamental program for me in my teaching career. I wish I could do this every summer! I could not have asked for a better program or experience. I know I am a much better teacher for it. I highly recommend RUYES to anyone wanting to enhance their personal skills and teaching experience.

CURRICULUM TITLE: HEALTH INFORMATICS: THE ENVIRONMENT & CANCER PREVENTION

I have implemented this curriculum in almost every unit of my IB Biology and Anatomy & Physiology classes. In anatomy, I teach cancer and its environmental causes in almost every body system, especially the integumentary, respiratory and endocrine systems where the environment plays a big role in these cancers. In IB biology, I teach cancer development alongside biological concepts and the lab techniques used to explore the effects of environmental toxins our health. Once I've taught this I have students develop methods to improve health informatics in cancer in our community.

Students use their knowledge of cancer to develop methods of communicating cancer prevention methods in easy to understand language. This year students will be developing a pre- and post-survey to to evaluate the effectiveness of their developed communication tools.

By the end of my PBL, I am hoping that students will be able to share their knowledge of cancer prevention in their communities and beyond. In doing this, there will be more cancer prevention awareness through the communication of ways to reduce high risk behaviors and environments.

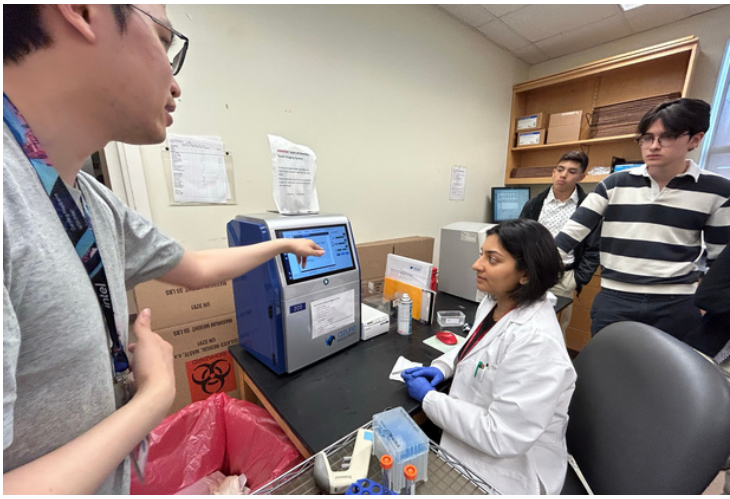
RUYES Professional Development

Summer 2023

HIGH SCHOOL TEACHERS CURRICULUM PLANNING & BUILDING WITH CENTER FOR MATHEMATICS, SCIENCE, AND COMPUTER EDUCATION (CMSCE)

ONCOLOGY PHYSICIAN TRAINING INITIATIVE TO MAXIMIZE DIVERSITY (OPTIM), RUYES STUDENTS & TEACHERS: *EFFECTIVELY COMMUNICATING SCIENCE WORKSHOP*, DR. JANET ALDER

ADDRESSING INEQUITIES, IMPLICIT BIAS, AND THE "ISMS" IN HEALTH CARE AND RESEARCH WORKSHOP, DR. ROBERT LIKE



LAB SKILLS TRAINING WITH KEVIN LIU OF XIA LAB

RUTGERS SCIENCE EXPLORER BUS (RSE), BUILDING MIDDLE SCHOOL CURRICULUM, DR. CARRIE FERRARO

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Summer 2023

Rutgers Youth Enjoy Science (RUYES) & BioCONECT Oncology Leadership Development (BOLD)

Experience in the BOLD Program through RUYES

MELANIE SPRUILL
HIGH SCHOOL STUDENT AT PISCATAWAY HIGH SCHOOL

Throughout the week of July 24-28, RUYES high school participants and I participated in the BOLD Program (BioCONECT Oncology Leadership Development), which introduced high school students to breast cancer to promote health advocacy, career awareness and leadership development. This week-long program allowed us to understand cancer related causes, diagnostic tools, treatment options, as well as clinical trials in the context of breast cancer.

Going into this program, I assumed it was going to be endless lectures and presentations from healthcare providers on the process of cancer diagnosis. Instead, we collaborated alongside with peers to diagnose, treat, and assist *Patient X* and role-played as *Patient X's* healthcare providers.

Along with following *Patient X's* medical journey, we also participated in activities that allowed us to enhance our leadership skills. Fun activities such as telephone, and simple activities like introducing myself properly to someone I have not met before, allowed me to learn better communication and networking skills.

The most exciting part of BOLD was the career speed networking event where we were given the opportunity to meet nearly 30 professionals from a variety of careers who work with Rutgers Cancer Institute of New Jersey. During this event, we spent about five (5) minutes with each professional interviewing and exploring their career path, and choice, and what a typical day looks like. As a senior in high school, this was a valuable experience as I am still exploring different healthcare careers and majors.

Overall, I am grateful to have been given the opportunity to be a part of BOLD. I have made new friends and connections, as well as gained invaluable knowledge about careers and breast cancer.

be BOLD
Lead the way for the future

The BOLD Program is organized through the LIFE Center at the Rutgers Cancer Institute of NJ with collaboration from the Rutgers School of Public Health and generously funded through the Val Skinner Foundation. For more information about BOLD visit www.cinj.org/bold

Rutgers Youth Enjoy Science
Research Poster Symposium

On August 23, 2023, RUYES hosted its third Annual Research Poster Symposium. This year's event was held at the Kathleen W. Ludwig Global Learning Center on Livingston Campus. The day began with opening remarks by Principal Investigator and Program Director, Dr. Sunita Chaudhary followed by sessions of research and poster presentations.

They keynote speaker, Dr. Christopher Sistrunk offered a presentation entitled, *STEM Careers: There Is No Wrong Way To Do It*. He spoke on his experiences and the many journeys some might take to find their calling.

A closing presentation from Dr. Wilfred Ngwa of Rutgers Global Health Institute, shared his research in technologies and radiation therapy, as well as the importance of working to make cancer treatment more accessible. He expressed his hopes that RUYES trainees would continue to aid research, education, and community outreach.

SUMMER — FALL'24

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

Science teachers from high schools with significant proportions of students from underrepresented backgrounds will have the opportunity to engage in mentored cancer research and curriculum development through RUYES.

STUDENTS

Students from low socio-economic or underrepresented backgrounds in STEM or first generation college students will have the opportunity to engage in mentored cancer research, professional development, and cancer-focused community outreach through RUYES.

Application Timeline

February 23
Early Decision

February 25
Application Review

March 1
First Round Decisions

Week of March 11
Zoom Panel Interviews

To Be Determined
Human Resources Presentation

June 24
Undergraduate RUYES Orientation Start Date