

2022 SURF Fellowship Reaches New Heights

This year's Summer Undergraduate Research Fellowship (SURF) program at Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine has reached new heights not only in the number of scholars, but also in the range of research experiences offered.

The National Cancer Institute (NCI) and the Miller School funded the 10-week program, which began May 23 and concludes on July 29. It is the first in-person SURF fellowship since 2019.



The 2022 SURF program welcomed a cohort of 30 scholars.

While the program had grown from three to four fellows in 2017

to hosting up to 12 in recent years, the 2022 cohort includes 30 scholars, according to Priyamvada Rai, Ph.D., who directs SURF and is principal investigator of the NCI grant.

“Within SURF this year, we have 20 Comprehensive Research Experiences to Advance Training and Education (CREATE) scholars, funded by NCI’s R25 grant, who are doing oncology-focused research at Sylvester,” said Dr. Rai, who is affiliated with the Tumor Biology Program at Sylvester and is professor of radiation oncology at the Miller School. “We also have 10 scholars that are supported by the Office of the Dean, who are working on non-oncology-based projects at other Miller School sites of excellence, including the Lois Pope Project to Cure Paralysis.”

Broad Range of Backgrounds, Interests

The 2022 SURF scholars were chosen from 110 applicants and represent more than 20 academic institutions nationally, including the University of Miami.

One of the selected applicants, CREATE scholar Abdul-Jalil Dania, is a rising sophomore at Washington University in St. Louis who grew up in Weston. Dania said the Sylvester-based program appealed to him because it seemed like a great opportunity to “dip my toes in scientific research at a renowned research institution. What was alluring to me was the structured programming, large cohort, the chance to learn from some of the best scientists, and, of course, South Florida,” he said.



Priyamvada Rai, Ph.D., directs SURF and is principal investigator of the NCI grant.

While Dania's goal is to get an M.D., or possibly an M.D./Ph.D., he is still exploring his interests.

"The exposure to the variety of research being simultaneously conducted in a research lab is extremely helpful," Dania said.

The SURF experience immerses students from diverse backgrounds in hands-on, innovative biomedical research in the laboratories of Sylvester and Miller School faculty members, including labs in biochemistry, biomedical engineering, cell

biology, cancer biology, epidemiology, genetics and epigenetics, microbiology and immunology, neuroscience, pharmacology, physiology, and public health sciences.

‘Spectrum of Opportunities’

Mentored research experiences for undergraduates in different labs are typically at the core of SURF programs in the U.S., according to Dr. Rai.

“That’s at the core of ours, as well, but really our goal has been to show kids the spectrum of opportunities that exists when somebody gets a Ph.D. in science, technology, engineering, and mathematics, or STEM. Particularly when you’re talking about the CREATE scholars, we want to introduce them to the gamut of technologies, tools, and approaches that are used in oncology-based research,” Dr. Rai said.

“Our scholars leave this program with not just the research experience and career skill development; they’re going to leave with a good working knowledge of computational biology and excellent knowledge of disparities research,” she said. “They are also learning things like conflict resolution. They’ll learn about academic biotech ventures and how clinical trials are designed to take research from bench to bedside. It’s really a holistic, experiential program.”



The community health engagement component of the program aligns with the missions of Sylvester and the Miller School.

For example, in addition to experiencing mentored research in Sylvester's tumor biology, cancer control, and cancer epigenetics programs, CREATE scholars have access to training in how to write, present science, and read, review, and critique scientific literature effectively.

This year's program features new options for learning, including a mini computational biology boot camp, where Stephan Schürer, Ph.D., associate director of data science at Sylvester, introduces scholars to computational biology.

Engaging with the Community

"Another unique thing about our SURF program is related to the Miller School and Sylvester's commitment to community health engagement," Dr. Rai said. "This year's scholars are

experiencing sessions from some of our leading faculty at Sylvester, including a lecture about the Sylvester-developed software Scan360, which takes data from the community and mines it to understand where the sources of disparities are. We have also been going out into the community on the Game Changer vehicle.”

The SURF class of 2022 is diverse and represents much more than only students with strong research experience.

“We really look to see which students would most benefit, and are very mindful to give this opportunity to highly motivated students who may not have had the opportunity to conduct much prior research,” Dr. Rai said.



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Students Set for Success

One example is CREATE fellow Beatriz Guevara, a University of

Miami student who graduated this spring and is the mother of a 3-year-old.

Getting accepted into UM four years ago was a “dream come true” for Guevara, who graduated from high school in Ecuador and was accepted to a top South Florida university despite English being her second language. Shortly after receiving her acceptance letter, she found out she was pregnant.

“I was not expecting this at all,” Guevara said. “My whole world came crashing down, and I thought my life was over and all my plans destroyed.”

She took a semester off to be with her daughter, a time that led to self-discovery, acceptance, and renewed purpose. “I learned to see life from another perspective... I came back to school stronger than ever,” Guevara said. Since then, she has stayed at the top of her class, and she plans to complete her combined B.S./M.S. program next year and apply to graduate school.

“I feel so lucky to be part of this program, and I am enthusiastic about what the future holds for me,” Guevara said. “I cannot wait for the day when I can give back to my community and be an example for many other women out there in my same situation.”



SURF fellows Beatriz Guevara, Natalia St. Hilaire Brice, and Abdul-Jalil Dania

Tomorrow's Diverse Pool of Professionals

The SURF 2022 class will help to form a pool of researchers, clinicians, and scientists that reflects society, Dr. Rai said.

CREATE fellow Natalia St. Hilaire Brice, a University of Notre Dame undergraduate student who is studying health disparities as a fellow, comes from a hardworking family of immigrants from Haiti who live in Broward County.

The biology major, who is on track to go into medical school, said she has always had a love for science.

"I plan to provide medical care for underprivileged children and refugees in resource-poor areas to provide them with a better life," Brice said. "I chose this program because I saw the unique opportunities to mentor me, allow me to explore intricate topics of my interest, and gain valuable research experience. I was intrigued by the opportunity to [focus on] the social determinants of health solutions through

collaborating with fellow intellectual leaders to understand how to positively impact communities in need.”

While this year’s SURF is a hit with students and faculty, the program continues to evolve, according to Dr. Rai.

“Every year, we give the kids evaluations to fill out at the end of each session, then a more extensive evaluation at the end of the program. I also do a debrief with them. Based on what we learn from their input, we tweak the following year’s program accordingly,” she said. “It’s all about giving the SURFers an experience that makes them excited and inspired to pursue a career in biomedicine.”

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