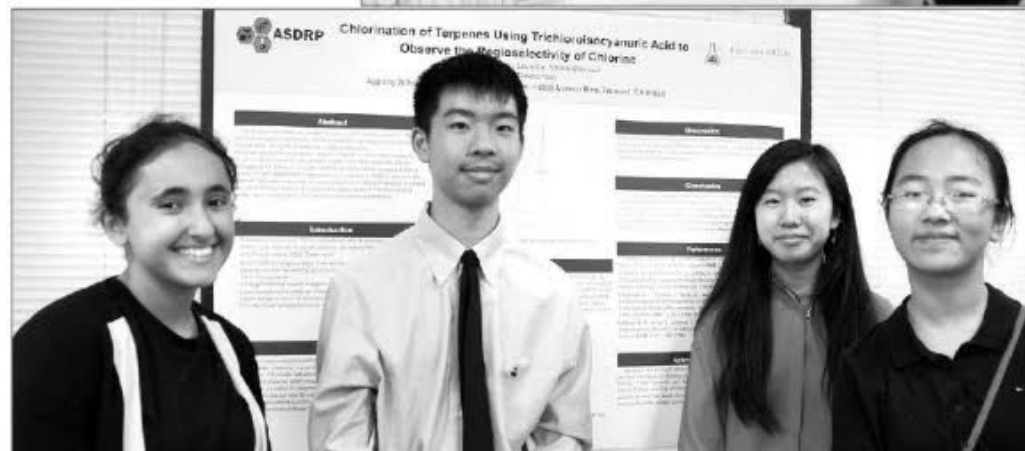


New Summer Research Program Picks Up STE(A)M

BY DAVID R. NEWMAN
PHOTOS COURTESY OF ASDRP

On Sunday, August 25, high school students from around the Bay Area gathered at Northwestern Polytechnic University in Fremont to present their scientific findings, the culmination of an intense 10-week summer program that gave them hands on experience doing high-level research in a professional lab setting.

This is the second year of the Aspiring Scholars Directed Research Program (ASDRP), a learning model that is quickly picking up STE(A)M, having grown from 90 participants last year to over 250 this year (selected from over



800 applications). Students are matched with research mentors who have experience in academia or industry, and together they design a research project. The end-of-summer Symposium & Expo is a way for the students to share their findings with their fellow colleagues, family and friends.

This year, 49 groups presented their work in the form of poster boards and oral presentations, covering a wide variety of STEM topics in fields ranging from chemistry and biology, to computer science, engineering, psychology and environmental science.

Atharva Gupta, a sophomore from Cupertino High School, said, "It was pretty amazing. I learned so much, not only about our topic, but also about how to present your research in a format that's easy to understand." Gupta's group presented on "Implicit Gender Bias within Resume-Ranking Tools," a title that typifies the level of research being conducted by these young scientists.

Said Jimmy Qian, M.D. student at Stanford University and one of the founders of the program, "We want to show young people the beauty of science, that there's much more to it than what you

get from most high school labs." In particular, Qian says they want to reach those students whose parents have never done science, who don't necessarily associate themselves with having a scientific mind, but who might be curious.

Allen Chen, a sophomore at Mission San Jose High School, said, "I loved being in a lab and getting that hands-on experience. It really beats out just learning it from a textbook." Chen's group presented on "Synthetic Studies Toward the Total Synthesis of Etoposide." It took them over 30 tries before one of their experiments was successful. Says Chen, "It definitely teaches you perseverance and

patience. I'd say it builds character through failure."

Typically, these types of summer programs are very expensive and are offered only at high end research institutions like MIT or Boston College. The goal of ASDRP is to be accessible to students of all socio-economic backgrounds. To that end, they offer full and partial tuition scholarships. Says Qian, "Talk to us, apply, join us for free. We'll even pay for your transportation to get here. Just come see if you like it."

As with most non-profits, it takes a village. Marketing for ASDRP has been

primarily through word-of-mouth, with some online flyers emailed through their parent organization, the Olive Children Foundation. Several members of Fremont STEM volunteer their time to help advise the students. Lab space has been provided by Berkeley Academy in Fremont, and lab equipment has been donated or deeply discounted by Nanalysis and BioLink Depot.

Natalie Hoffner, a senior at Mission San Jose High School, said, "I loved it! I spent so many hours in the lab, learning how to use the equipment, which I know is really expensive. To give high schoolers access to these resources is amazing. I also appreciated that the projects were primarily student-driven." Her research topic: "Synthesis of Nattokinase Protease Inhibitors."

At the end of the program, all the research papers are collected and assembled into a scientific journal. Says Stephanie Sun, a senior at Basis Independent Silicon Valley, "Writing the paper was interesting. We conducted a literary review, wrote an introduction, and discussed our methods. I had never written this type of paper before. I learned a lot."

Over 30 high schools were represented in this year's cohort, with over 600 people in attendance at the expo. In his closing remarks, Qian was proud and hopeful. "I hope this is something you take with you to college and beyond, because the world always has new problems, and we always need scientists to come solve those problems."

Perhaps Rohan Adwankar will someday be one of those scientists. He is currently a freshman at Irvington High School and enjoys chemistry. His group's topic: "Late-Stage Beckmann Rearrangements of Dibenzyldiene Cyclohexanones Towards Development of Novel Caprolactam Non-Nucleoside Reverse Transcriptase Inhibitors."

To learn more about ASDRP, email them at asdrp@fremontstem.com or visit www.fremontstem.org/asdrp

Applications for 2020 will be available on the website on October 15, 2019.

