

News Release

Tenaflly Public Schools
Contact: Christine Corliss
Publicity Coordinator
E-Mail: ccorliss@tenafly.k12.nj.us
Phone: 201-816-4554

Tenaflly High School Teen's DNA Sequencing Research Published

Junior Lina Temimi one of 86 Students Nationwide to participate in Rutgers University-sponsored Waksman Institute Summer Experience

For Immediate Release

Tenaflly, NJ – January 3, 2022 –Tenaflly High School junior Lina Temimi is now a published researcher. One of 86 students representing high schools from across the country, Temimi participated in the intensive Waksman Institute Summer Experience (WISE) sponsored by the Rutgers University Waksman Institute in Piscataway, NJ.



Temimi's work in molecular biology, which strongly emphasized bioinformatics, focused on DNA sequence analyses of genes from the duckweed plant *landoltia punctata*, and how these genes compared to those found in other plant species and organisms. Duckweed is a fresh-water aquatic plant that is of interest to the scientific community because of its use in bioremediation, and its potential use as a biofuel. The research results were presented to an international online repository of DNA sequence data maintained by the National Center for Biotechnology Information (NCBI), which is part of the United States National Institutes of Health. Analyses conducted by Temimi resulted in two publications.

"We are so proud of the work that Lina has done, first getting accepted into this highly competitive program, and now adding published author to her list of accomplishments," said Tenaflly High School principal Jim Morrison. "To participate in such a worthwhile endeavor is inspiring, and now the results of her work are being used by scientists worldwide."

During the program, participants completed pre-and post-Program assignments; attended seminars conducted by the WISE project director who is a researcher and professor with the Rutgers University Department of Molecular Biology and Biochemistry; completed independent coursework for discussion and completion between each seminar; and learned about, and made use of, the online "DNA Sequence Analysis Program (DSAP)" to analyze assigned, unique, novel DNA sequences. Students used the same Web-based bioinformatic tools used by practicing scientists to analyze these gene fragments. Successful analyses of novel sequences required them to navigate and use information found on large databases

such as the different Basic Local Alignment Search Tool (BLAST) databases, the Conserved Domain Database (COD), the Transcriptome Shotgun Assembly (TSA) database, the Protein Data Bank (PDB), and the Arabidopsis Interactome database (maintained by The Arabidopsis Information Resource, TAIR). The New Jersey Academy of Science, now in its sixty-first year of active work in New Jersey, encourages the furthering of scientific research and education in NJ. The Academy is an affiliate of the American Association for the Advancement of Science (AAAS) and a member of the National Academies of Science (NAS).

According to Susan E. Coletta, Senior Science Education Specialist with the Rutgers University Waksman Institute, "Vetted analyses of students' work were submitted for publication to Genbank, commonly used by scientists for their research. Publication of each student's analyses was the goal of the 2021 WISE. I am pleased to report that the analyses conducted by Lina Temimi resulted in two publications, which can now be used by practicing scientists worldwide."

The submissions are accessible through "Landoltia punctata clone W880.21 reticulon-like protein B11 isoform X2-like, mRNA sequence" at <https://www.ncbi.nlm.nih.gov/nuccore/2093287193>, and "Landoltia punctata clone W882.21, mRNA sequence" at <https://www.ncbi.nlm.nih.gov/nuccore/2093287200>.

For more information on Tenafly High School, visit www.tenaflyschools.org.

For information on the Rutgers University Waksman Student Scholars Program, visit <https://wssp.rutgers.edu/wise>.

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