High School Scientists and Engineers Win Nearly $9 Million at the Regeneron International Science and Engineering Fair 2023

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$75,000 Top Award Goes to 17-year-old Kaitlyn Wang for breakthrough innovation to accelerate exoplanet discovery in the largest international STEM competition for teens

TARRYTOWN, N.Y. and WASHINGTON, D.C., May 19, 2023 (GLOBE NEWSWIRE) -- Regeneron Pharmaceuticals, Inc. (NASDAQ: **REGN**) and Society for Science (the Society) announced that Kaitlyn Wang, 17, of San José, CA, won the **$75,000 top award** in the 2023 Regeneron International Science and Engineering Fair (Regeneron ISEF), the world's largest global pre-college science and engineering competition, for a project that explored planets that orbit very close around their suns. Other top prizes went to projects in the fields of computational biology, animal sciences and neurobiology.

The top winners were honored during two award ceremonies, the first of which took place on the evening of May 18 and featured Special Award winners. The Grand Awards Ceremony was held on the morning of May 19 and included the announcement of the top prize of $75,000. In total, nearly U.S. $9 million was awarded to the finalists, who were evaluated based on their projects' creativity, innovation and depth of scientific inquiry. The competition featured over 1,600 young scientists representing 49 states and 64 countries across the world.

Kaitlyn Wang won first place and received the **$75,000** George D. Yancopoulos Innovator Award, named in honor of the pioneering drug researcher and Regeneron co-founder, President and Chief Scientific Officer, for finding an efficient way to identify certain exoplanets that orbit very closely around their stars. Previous techniques used to detect these ultra-short-period planets required enormous computational power but were not as effective at identifying these planets. Kaitlyn surmounted that problem by creating a special algorithm that runs on cheap hardware and results in much faster and higher-precision findings. Using her research, she says she found the smallest of these planets ever discovered.

Saathvik Kannan, 17, of **Columbia, Missouri**, received one of two Regeneron Young Scientist Awards of **$50,000** for using biocomputational methods to understand the causes of heightened infectivity in the disease mpox after it reemerged in 2022. Saathvik's approach, named Bioplex, uses a combination of machine learning and three-dimensional comparative protein modeling to decode structures like those that enable the mpox virus to replicate. This allowed him to identify the mutations in the virus that likely made it more infectious as well as other mutations that could make it resistant to antibiotics. Saathvik believes scientists will also be able to apply Bioplex to future outbreaks of other viruses.

Teepakorn Keawumdee, 17; **Pannathorn Siri**, 16; and, **Poon Trakultangmun**, 18, of **Bangkok, Thailand**, received the second Regeneron Young Scientist Award of **$50,000** for developing an innovative incubation chamber that promotes the survival of the green lacewing insect, a natural predator of the mealybug, a harmful pest. In nature, the green lacewing has a low survival rate, but the team's new system increased the lacewing's survival rate five-fold. In field tests, their incubation system was an effective alternative to insecticides and lowered the mealybug population density nearly four-fold.

"Congratulations to the Regeneron International Science and Engineering Fair 2023 winners," said Maya Ajmera, President and CEO, Society for Science and Executive Publisher, Science News. "I am humbled by the creativity and determination demonstrated by these exceptional students and proud of all they have accomplished with their outstanding research abilities. Together, these students from various academic disciplines and geographies are solving the world's most intractable problems."

Regeneron ISEF provides a global stage for the best and brightest young scientists and engineers around the world. Through this competition Regeneron and the Society support and invest in the next generation of leading STEM innovators who are generating ideas and acting as catalysts for the change needed to improve the well-being of all people, society and the planet.

"We are thrilled to celebrate this year's Regeneron ISEF finalists as they join our growing community of bold individuals tackling the world's most pressing challenges," said George D. Yancopoulos, M.D., Ph.D., co-founder, President and Chief Scientific Officer of Regeneron. "I applaud today's finalists and all the ISEF participants for their relentless pursuit of groundbreaking ideas that ignite positive and sustainable change in our world. I owe so much of my passion for science to the experiences and mentors I had in high school, and I hope that today is just the beginning of a lifelong commitment to STEM for many of these students."

Other top honors from the competition include:

Natasha Kulviwat, 16, of **Jericho, New York**, received the Gordon E. Moore Award of **$50,000** for Positive Outcomes for Future Generations for her search for biomarkers to help prevent suicides. By analyzing de-identified brain tissue from 20 people, Natasha measured levels of two proteins, cytokine and claudin-5, and found that neuroinflammation and claudin-5 were increased

in the brains of suicide cases. Her work suggests that high levels of the protein claudin-5 could serve as pre-markers for suicide and that certain anti-inflammatory drugs might decrease claudin-5 levels.

Yuyang Wang, 16, of **Shanghai, China**, received the Craig R. Barrett Award for Innovation of **$10,000** for his development of an inchworm-style stick-climbing robot. This type of robot conventionally has grabbers that allow it to climb over and under obstructions like a caterpillar does, but he added skateboard-like wheels, which allow it to perform better than existing inchworm-style robots when the angle is less than 22°. The hybrid wheel/grabber assembly is novel, and he believes his robot will work well for tasks that are potentially dangerous to humans, such as inspecting damaged high-voltage lines.

Rishabh Ranjan, 17, and **Gopalaniruddh Tadinada**, 17, of **Louisville, Kentucky**, received the H. Robert Horvitz Prize for Fundamental Research of **$10,000** for building a custom, automated system to detect gastrointestinal cancer before serious symptoms appear. The team's system combines robotics and machine learning to analyze blood samples to identify healthy patients, as well as those with pancreatic, colorectal or hepatic cancers, in only three hours at an estimated cost of only $300. Detecting these cancers before they metastasize could make treatment much simpler and more effective.

Eugene Chen, 16, of **Shanghai, China**, received the Peggy Scripps Award for Science Communication of **$10,000** for his inexpensive energy-saving device that recycles the condensation produced by air conditioners to improve their energy efficiency. His device directs the cooling fan's airflow to spray the air conditioner's condensation at its own condenser, lowering its temperature and thus reducing power consumption and improving its energy efficiency. Eugene believes his easy-to-install device can reduce the amount of electricity used by air conditioners by more than 10%.

More information about the top winners and visual assets can be found at https://www.societyforscience.org/regeneron-isef-2023-media-kit/

Daniel Levin, 18, of Pittsburgh, Pennsylvania; **Alexander Plekhanov**, 17, of Portland, Oregon; and **Kevin Zhu**, 18, of Old Westbury, New York received the **Dudley R. Herschbach SIYSS Award**, which provides the finalists with an all-expenses-paid trip to attend the Stockholm International Youth Science Seminar, which includes attendance at the Nobel Prize Ceremonies in Stockholm, Sweden.

George Cheng, 17, of Cary, North Carolina, and **Yik Chun John Peng**, 17, of Shanghai, China received the **EU Contest for Young Scientists Award**, which is presented to two projects that will represent Regeneron ISEF at the EU Contest for Young Scientists to be held in Brussels, Belgium, September 13-17, 2023.

Full list of all award-winning ISEF 2023 Finalists

Full list of Special Award ISEF 2023 Finalists

In addition to the Top Award winners, 450 finalists received awards and prizes for their innovative research, including "First Award" winners, who each received a $5,000 prize. The following lists the First Award winners for each of the 21 categories, from which the Top Awards were chosen:

Category and Sponsor	Winner	Location
Animal Sciences, sponsored by Society for Science	Teepakorn Keawumdee	Bangkok, Thailand
	Pannathorn Siri	
	Poon Trakultangmun	
Behavioral and Social Sciences, sponsored by Society for Science	Emma Colarte Delgado	Southwest Ranches, FL
Biochemistry, sponsored by Regeneron	Harrison Hao-Tian Tang	Shanghai, China
Biomedical and Health Sciences, sponsored by Regeneron	Natasha Kulviwat	Jericho, NY
	George Cheng	Cary, NC
Biomedical Engineering, sponsored by Society for Science	Rishabh Ranjan	Louisville, KY
	Gopalaniruddh Tadinada	
	Muhammad El-Sherbiny	Fort Lee, NJ
Cellular and Molecular Biology, sponsored by Regeneron	Sarah Jennings	Ossining, NY
Chemistry, sponsored by Beal Bank	Ekin Asyali	Gaziantep, Turkey
	Sude Gulsen	
	Faisal Almuhaysh	Hofuf, Saudi Arabia
Computational Biology and Bioinformatics, sponsored by Regeneron	Saathvik Kannan	Columbia, MO
	Kevin Zhu	Old Westbury, NY
Earth and Environmental Sciences, sponsored by National Geographic Society	Franziska Borneff	Roanoke, VA
	Paige Hinkle	Sinking Spring, PA
Embedded Systems, sponsored by Microsoft	Yik Chun John Peng	Shanghai, China
Energy: Sustainable Materials and Design, sponsored by Siemens Energy	Eugene Chen	Shanghai, China

Engineering Technology: Statics and Dynamics, sponsored by Howmet Aerospace Foundation	Yuyang Wang	Shanghai, China
	Ethan Zentner	Glendale, WI
Environmental Engineering, sponsored by Jacobs	Mohammed Alarfaj	Al Khobar, Saudi Arabia
	Aryan Mago	Shrewsbury, MA
Materials Science, sponsored by Howmet Aerospace Foundation	Calvin Mathew	Davie, FL
Mathematics, sponsored by Akamai Foundation	Meryl Zhang	Plano, TX
Microbiology, sponsored by Robert I. Schattner Foundation	Shriya Bhat	Richardson, TX
	Daniel Levin	Pittsburgh, PA
Physics and Astronomy, sponsored by Richard F. Caris Charitable Trust II	Alexander Plekhanov	Portland, OR
	Kaitlyn Wang	San José, CA
Plant Sciences, sponsored by Society for Science	Dongtian Liu	Shanghai, China
Robotics and Intelligent Machines, sponsored by Regeneron	Timucin Erbas	Acton, MA
	Kai Turner	Sydney, Australia
Systems Software, sponsored by Microsoft	Harshil Avlani	Chandler, AZ
Translational Medical Science, sponsored by Regeneron	Aditi Avinash	Castle Pines, CO
	Alanna Polyak	Plano, TX

View all the finalists' research here.

About the Regeneron International Science and Engineering Fair
The Regeneron International Science and Engineering Fair (Regeneron ISEF), a program of Society for Science for over 70 years, is the world's largest global science competition for high school. Through a global network of local, regional and national science fairs, millions of students are encouraged to explore their passion for scientific inquiry. Each spring, a group of these students is selected as finalists and offered the opportunity to compete for approximately U.S. $9 million in awards and scholarships.

In 2019, Regeneron became the title sponsor of ISEF to help reward and celebrate the best and brightest young minds globally and encourage them to pursue careers in STEM as a way to positively impact the world. Regeneron ISEF is supported by a community of additional sponsors, including Akamai Foundation; Beal Bank; Gordon and Betty Moore Foundation; Howmet Aerospace Foundation; Jacobs; King Abdulaziz & his Companions Foundation for Giftedness & Creativity; Lyda Hill Philanthropies; Microsoft; National Geographic Society; Richard F. Caris Charitable Trust II; Rise, an initiative of Schmidt Futures and the Rhodes Trust; Robert I. Schattner Foundation; Siemens Energy; Texas A&M Engineering; Perot Museum; Cesco Linguistic Services; Insaco; Oracle Academy; Southern Methodist University; The University of Texas at Dallas; Army ROTC; ExxonMobil; and The Hoglund Foundation. ISEF alumni have gone on to have world-changing careers in science and engineering and earn some of the most esteemed honors, including the National Medal of Science, MacArthur Foundation Fellows, National Academy of Sciences and National Academy of Engineering Inductees. Many are entrepreneurs across a wide range of industries. Learn more at https://www.societyforscience.org/isef/.

About Society for Science
Society for Science is a champion for science, dedicated to promoting the understanding and appreciation of science and the vital role it plays in human advancement. Established in 1921, Society for Science is best known for its award-winning journalism through Science News and Science News Explores, its world-class science research competitions for students, including the Regeneron Science Talent Search, the Regeneron International Science and Engineering Fair and the Thermo Fisher Scientific Junior Innovators Challenge, and its outreach and equity programming that seeks to ensure that all students have an opportunity to pursue a career in STEM. A 501(c)(3) membership organization, Society for Science is committed to inform, educate and inspire. Learn more at www.societyforscience.org and follow us on Facebook, Twitter, Instagram and Snapchat (Society4Science).

About Regeneron
Regeneron (NASDAQ: REGN) is a leading biotechnology company that invents life-transforming medicines for people with serious diseases. Founded and led for 35 years by physician-scientists, our unique ability to repeatedly and consistently translate science into medicine has led to nine FDA-approved treatments and numerous product candidates in development, almost all of which were homegrown in our laboratories. Regeneron's medicines and pipeline are designed to help patients with eye diseases, allergic and inflammatory diseases, cancer, cardiovascular and metabolic diseases, pain, hematologic conditions, infectious diseases and rare diseases.

Regeneron believes that operating as a good corporate citizen is crucial to delivering on our mission. We approach corporate responsibility with three goals in mind: to improve the lives of people with serious diseases, to foster a culture of integrity and excellence and to build sustainable communities. Regeneron is proud to be included on the Dow Jones Sustainability World Index and the Civic 50 list of the most "community-minded" companies in the United States. Throughout the year, Regeneron empowers and supports employees to give back through our volunteering, pro-bono and matching gift programs. Our most significant philanthropic commitments are in the area of science education, including the Regeneron Science Talent Search and Regeneron International Science and Engineering Fair.

For additional information about the company, please visit www.regeneron.com or follow @Regeneron on Twitter.

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