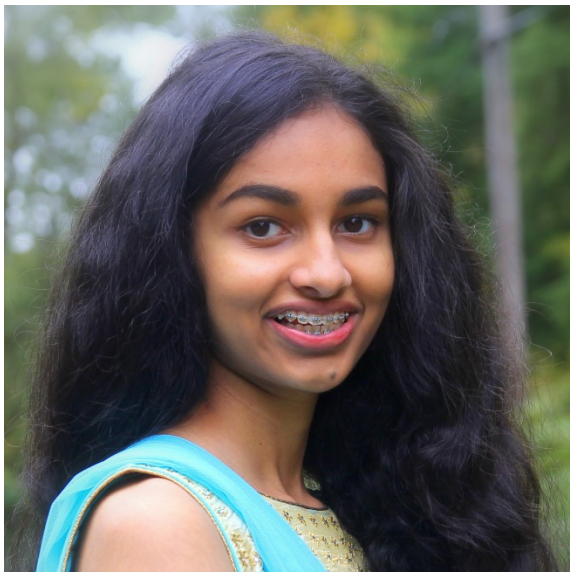
News release

Dec. 21, 2017

Jackson High student earns $25,000 college scholarship

Harshu Musunuri was regional finalist in 2017 Siemens Competition



Computational and Experimental Design of MIP Nanoparticles: A Novel Theranostic Solution to Detect and Neutralize Endotoxins – that's the title of Jackson High senior Harshu Musunuri's research project. The depth and quality of her research secured her place as a regional winner of the Siemens Competition and $25,000 toward her college tuition.

Her research tackles a difficult challenge faced in U.S. hospitals every day: gram-negative bacteria that cause sepsis which can lead to organ failure in patients. This is the leading cause of death in U.S. hospitals. Lipopolysaccharides (LPS) are harmful biomolecules found on the surface of gram-negative bacteria and are responsible for over 50 percent of sepsis cases. Musunuri designed a new polymer nanoparticle that captures the harmful LPS bacterial endotoxins and could be used to treat and diagnose the bacterial infection.

"Harshu's research leads to faster diagnostic testing in clinical settings that could reduce patient deaths from sepsis," says Dr. Brittany Needham, a postdoctoral scholar at Caltech. "She approached this problem in a far more comprehensive way than others have, and her method was particularly impressive. She figured out a way not only to detect this life-threatening bacteria; she also found a way to help prevent it."

Past efforts to detect and extract LPS effectively have been hampered by high costs or incompatibility with human body fluids. Musunuri's research could make it easier to detect the presence of LPS and prevent the resulting endotoxic shock syndrome that can lead to sepsis, multiple organ failure, and death.

Christopher Lausted at the Institute for Systems Biology mentored Musunuri throughout her project.

Musunuri is also the founder of a nonprofit organization that raises sepsis awareness called InflammAid. She is also a Davidson Fellow Laureate, a two-time Intel ISEF finalist, winning Best-of-Category in Physical Energy and the Innovation Exploration Award for her work on thermoelectrics. In 2016, Musunuri was a student presenter in the Sno-Isle Library TEDx series.

---more---

"The Siemens Competition was established in 1999 to boost access to higher education for students who are gifted in STEM. It is based on the culture of innovation, research and educational support that is the hallmark of Siemens. The competition, which is administered by Discovery Education, seeks to recognize and build a strong pipeline for the nation's most promising scientists, engineers and mathematicians, goals which we know from first-hand experience align well with those of Everett Public Schools," wrote Jolie Vigen, Director of Partnerships for Discovery Education, when she announced Musunuri's award.

---end---

For more information:
Leanna Albrecht, Director of Communications, 425-385-4040