

Superintendent's Highlight January 10, 2020

We start the year off on a thrilling note as we just received news that POBJFKHS senior Kreena Totala has been named as a Regeneron Student Talent Search Scholar for 2020. This Science Talent Search is one of the nation's oldest and most prestigious science and math competition for high school seniors. Kreena will receive \$2,000 for the honor, and POBJFKHS will also be awarded \$2,000 to support our Research Program. Scholars were chosen based on their exceptional research skills, commitment to academics, innovative thinking and promise as scientists. Kreena is one of the 40 finalists chosen to compete for \$1.8M in additional awards, including the top award of \$250,000, in Washington, D.C., in March.



Kreena is a Social Science Research student who conducted her project in District under the mentoring of Ray Tesar, Lead Research Teacher Coordinator, and with the support of her AP Capstone Research teacher, Rohe Sheikh. As a student in both the POBJFK Social Science Research Program, as well as the AP Capstone Program, Kreena has taken such courses as Advanced Placement Seminar, Advanced Placement Research, Advanced Placement Psychology and Social Science Research Lab.

Kreena's research project title is: **A Novel Predictive Paradigm for Pediatric ADHD Behavior Through Thalamocortical White Matter Analysis.** The purpose of Kreena's study was to explore the poorly understood neurological underpinnings of pediatric ADHD. Even though ADHD is one of the most frequently diagnosed mental disorders in children, its method of diagnosis is often controversial as it can only be diagnosed with behavioral assessments. To test her hypothesis, Kreena obtained brain scans of 44 children (22 ADHD, 22 control) through an open database. Using diffusion tractography (imaging similar to an MRI scan) Kreena analyzed the white matter connectivity between different parts of the brain in the ADHD and control populations. Significant alterations were found in the ADHD patients which then correlated with behavioral deficits associated with ADHD such as attention and executive function. The current study proposes a novel use of white-matter tractography to more accurately diagnose children with ADHD for a neurological perspective.

In addition to her outstanding academic accomplishments, Kreena is a member of three honor societies (National, Science, French), POBJFK HS Mathletes, orchestra, Science Olympiad and is an athlete on the varsity track team. Keep an eye out for Kreena when the Nobel Prizes are given out in the future!! #POBproud.