

January 22, 2014

Tetra high school intern is semifinalist in the 2014 Intel Science Talent Search

Emily D'Amato from Forest Hills Central High School, Grand Rapids, MI was selected as a semi-finalist in the 2014 Intel Science talent Search for her project conducted as an intern at Tetra, "The Development of Phosphodiesterase 4D Inhibitors with 3D Printing and Molecular Visualization Software for the Treatment of Acrodysostosis."

Acrodysostosis is a rare genetic disorder caused by mutations in PDE4D that is characterized by brachydactyly and intellectual disability. For her project, Emily implemented a novel drug design process using 3D printing to model drug molecules and then developed one of the most potent PDE4D inhibitors discovered to date.

To investigate the potential of the new PDE4D inhibitor as a treatment for acrodysostosis, she first determined the activity of PDE4D with acrodysostosis mutations. She reports that the mutations activate the enzyme approximately two fold, thereby reducing cAMP signaling. Kinetic biochemical assays revealed that the PDE4D inhibitor discovered by Emily decreased mutant PDE4D activity, allowing her to hypothesize that such PDE4D inhibitors might have the potential to treat acrodysostosis.

###