

EVELYN MCCHESENEY, Breck School, Golden Valley, Minn.

MADELINE MCCUE, Breck School, Golden Valley, Minn.

PROJECT: Engineering a broad-spectrum antibacterial probiotic via inclusion of antimicrobial peptide-encoding DNA, year two

FIELD: Engineering

MENTOR: Ms. Lois Fruen, Science Research Instructor, Breck School; Dr. Yiannis Kaznessis, Department of Chemical Engineering and Materials Science, University of Minnesota

The team of Evelyn and Madeline engineered a genetic system that can be used to turn commonplace bacteria into antibiotics. With this project the world can combat the growing amount of antibiotic-resistant pathogenic bacteria that are causing major problems in global health care.



EVELYN MCCHESENEY

YEAR: Senior

HOMETOWN: Golden Valley, Minn.

“My favorite thing about STEM is that there is always more to discover. No matter how much we think we know about a topic, we will never know everything, which makes STEM so exciting for me as a career.”

As a child Evelyn’s interest in science and math was first piqued when she started exploring science museums. She now enjoys taking other students to science museums so they can experience her love for the world of science. Evelyn is a leader on her Robotics Team and Lego League Team.

Evelyn has earned a second-degree black belt in karate, been awarded the Science Department Book Award, and is the Robotics Team captain. She plans to major in Biomedical Engineering and has applied to Johns Hopkins University, Stanford University, Yale University, Case Western University, Northeastern University and the University of Minnesota.

Evelyn looks to her mother as her role model and has always been inspired by her mother’s love for work no matter how stressful it may be. If Evelyn could meet one person in history it would be Rosalind Franklin, a female in the world of STEM who faced many obstacles because of her gender yet still contributed to major discoveries of the molecular structures of DNA and RNA.



MADELINE MCCUE

YEAR: Senior

HOMETOWN: Minneapolis

"I'm fascinated by genetic engineering! I love the idea of augmenting the natural process of evolution to better suit our rapidly progressing society."

Coming from a pair of doctor parents, Madeline has been hearing about medical updates around the dinner table for many years. Her father taught her about the basic principles of algebra when she was three and she has been hooked ever since.

Madeline speaks English, Spanish, Italian and Vulcan. She has performed in a circus, enjoys playing the piano and dancing. Madeline thinks of Commander Spock from *Star Trek* as her role model and she would love to meet Alexander the Great.

Aspiring for a career with the United Nations or the U.S. State Department, Madeline plans to major in International Relations and has applied to Harvard University, Stanford University, Yale University, the University of Southern California, Brown University, and the University of California at Los Angeles. Madeline has been previously named a National Merit Scholar Semifinalist and received the First Grand Prize at the Minnesota Academy of Science State Science Fair.