

Project titled: Pathogenic Bacterial Elimination: Bacterial Lysis Through the Application of Muramidase Teen's project nets 8 science awards

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Acton teen Anthony Querques was the recipient of the Dr. Marijane Doyle Award for submitting the most outstanding project at the Health Sciences Division at the 47th-annual Bay Area Science and Engineering Fair at McMaster University in Hamilton. Querques's older sister Marianne won the same award twice earlier this decade.

Photo by Eamonn Maher

As the youngest of four science whiz kids in the Querques household in Acton, 14-year-old Anthony admits it's a big help to get tips about his latest experiment from his siblings while sitting at the dinner table.

But the Grade 8 St. Joseph's Catholic School student can take all of the credit for the idea and research behind his multiple-award-winning biology project at the recent Bay Area Science and Engineering Fair in Hamilton, which was titled, "Pathogenic Bacterial Elimination: Bacterial Lysis Through the Application of Muramidase."

For his project, Querques targeted the potentially deadly E. coli bacteria, having read about the Walkerton tragedy of 2000 and other recent deaths traced to tainted green onions and spinach. He incorporated muramidase—a bacteria-killing enzyme found in human saliva and sweat, as well as in chicken egg whites—into his experiment.

"I was reading a nutritional magazine about E. coli contaminated food and there was a terrible story about a baby that died because its mother fed it bad spinach and I thought it would be interesting if I could find a way to try to eliminate the harmful bacteria in food," Querques said. "As an application, you could use it to spread on food as protection against E. coli, but you just need to find another form of the

enzyme that won't cause stinging of the eyes and skin irritation."

Using 10 petrie dishes with ground beef as the subject matter, Querques observed the cultures' growth over several days and determined that larger doses of the crystallized egg whites halted the bacteria's spread.

His findings impressed the judging panel enough to earn the McMaster University BASEF competition's gold medal, along with seven other awards and a trip to Truro, N.S. May 12-20 for the Canada Wide Science Fair, where he'll present the same muramidase project.

It's not the first time a Querques family member has won the BASEF event as Anthony's sister Marianne, now a McMaster student, received the honour in 2003 and 2004, while brother Nicolas won a trip to the Canada Wide Science Fair in 2005. His other brother Joseph has also garnered several prestigious awards in competitions including one last year to create an inventory system for the Georgetown Bread Basket food bank.

"Because everyone in my family is science-oriented, I have a lot of help if I'm stuck on a project and there's something else or different that I can try," added Querques, who enjoys soccer and alpine skiing for recreation.

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