

Posted on Sun, Jul. 6, 2008

Student Spotlight

Students: Molly and Bernadette Hritz.

School: Villa Joseph Marie High School, Holland.

Achievement: The Hritz sisters, of Holland, placed among the top students in the world competing in this year's International Science and Engineering Fair in Atlanta. Molly, 17, placed third in the cellular and molecular biology division. Bernadette, 15, placed fourth in zoology. More than 1,500 students from around the world competed in the fair May 10-17.

Molly, who graduated this year, developed a project that examined celiac disease, an autoimmune condition of the small intestines. She also lunched with a group of Nobel laureates during the fair when a question she submitted was selected to be posed to the award-winning scientists.

Bernadette, who will enter the 10th grade in the fall, examined the antibiotic properties of marine sponges. She received a special award from the Army during the competition. The sisters have won a series of science fairs, including the Delaware Valley Science Fair, at which both won gold medals.

Molly: "Science has always been a big part of our life. Both of our parents are electrical engineers, and our aunts and uncles and grandfathers are all various forms of scientists."

Bernadette: "They always encouraged us. When we were little they took us on scientific trips. At Christmas break, we would all get together and do a family science experiment, and then we'd go to the kitchen and talk about what we learned."

Molly on her project: "When a person with celiac disease eats gluten, the body signals itself to attack and destroy the fingerlike projections that line the small intestine, and that causes many of the symptoms of celiac, such as malabsorption, anemia and other complications. I was looking into understanding how the autoimmune mechanism works and how the body signals itself. Usually the body knows the difference between invaders and its own cells, and in an autoimmune disease that connection is broken."

Results: "I looked at a specific marker, CXCR3. I discovered that plasma cells were expressing this marker and showed that celiac patients had a high concentration of CXCR3-expressing plasma cells. I was interested because my mom, Bernadette, my two younger sisters, and me, we have celiac disease."

Bernadette on her project: "I focused on marine biology and the Gulf of Mexico marine sponges. I did my research because new antibiotics have to be developed because new bacteria like MRSA, the superbug, is developing resistance. Marine sponges have a natural antibiotic. I wanted to see if I could isolate a new antibiotic. My hypothesis was that the sponges would indeed inhibit growth of the bacteria. I used marine bacteria and commercial bacteria."

Results: "The results show that the sponges inhibited the growth of the marine bacteria and the staph infection [the commercial bacteria]. The important thing is that MRSA is a staph infection, so it could be a potential link to an antibiotic to fight this deadly superbug."

Molly on finishing among the top: "The level of science is top-notch, so we weren't expecting anything. We were just happy to be there and share our science."

Bernadette: "It was such a blessing; such a neat experience. We met people from around the world who had an interest in science like we did. That was really special. Winning didn't matter, but then we did."

Molly talks lunch: "It was amazing to get to talk to a Nobel laureate and ask them as many questions as we wanted about their research and their experience. What impressed me was how humble they were about their accomplishments. They said it was the work of many, and they encouraged us to continue our passion for science."

Molly on the future: "I'm going to the University of Scranton, and I'm going to major in biochemistry, cellular and molecular biology. I'm interested in medicine and research particularly because of the celiac disease, and I'm also interested in pediatrics."

Bernadette: "I am thinking about being a marine biologist or a researcher. And something I'd like to do is pharmacognosy, which is finding drugs or antibiotics from natural sources to help people."



Sisters Molly (left) and Bernadette Hritz of Villa Joseph Marie placed highly at the International Science and Engineering Fair in Atlanta.

READER FEEDBACK

Post a comment

SAVE AND SHARE



Today's Most Viewed **Most Emailed**

- Sixers, Williams agree on 5-year deal
- Princess Chunky a male named Powder - victim of economic downturn
- Are researchers close to developing an exercise pill?
- DHS workers suspended in child's death
- Independence Mall evacuated

» **More Most Viewed**

- Here kitty, kitty...S.J. officials seek owner of 44-pound cat
- Princess Chunky a male named Powder - victim of economic downturn
- A once-segregated Shore
- DHS workers suspended in child's death
- Medicare adds to do-not-pay list

» **More Most Emailed**

LATEST STORIES IN THIS SECTION

- **Local artists make mark on exhibit** 2:09am
By Victoria Donohoe
- **School Notes** 07/18/2008
- **Godfather of witness protection** 07/18/2008
By Karin Kasdin
- **Best Bets** 07/18/2008
- **Local News in Brief** 07/18/2008

What an adviser and former teacher says: "Both of them are outstanding and enthusiastic researchers," said Lois Tyburski, a biology teacher at Villa Joseph Marie High School. "They both display a total understanding of the scientific method and the use of experimental controls. They are meticulous and tireless in their data gathering, and both of them focused in on projects that have relevance to the betterment of mankind."

- Kristin E. Holmes

Comments

[Sign in to post a comment](#)

0 comments

Register to Comment

Why are we asking you to register? We've made some changes to the Philly.com commenting system to increase the quality of the user experience and dialogue, and reduce the number of inappropriate or offensive posts. You're now required to have a registered username and account before adding a comment. This will improve the comments for everyone. We apologize for the inconvenience. [Join the conversation!](#)



Already Registered? Sign In

Email Address

Password

[Forgot Password?](#)



Sponsored Links

marine biology scholarship
Register & Search over 1.5 Million College Scholarships - It's Free!.
www.FastWeb.com

Marine Biology Colleges
We've made 17,702 college matches during the last 30 days. It's free.
edsoup.com/Marine-Biology

Underwater Inspection
NBIS certified bridge inspection, dams, pipelines, and other infrastructure. Underwater repair and maintenance. Marine and underwater construction inspection. UCI is an ADC member company.
www.underwaterconsultants.com

Washers Outlet

LOWEST PRICES
IN THE CITY

Washers Outlet

LOWEST PRICES
IN THE CITY

New York Diamond Exchange

Dealers Prices To
The Public

Len's Auto Body

4819 Cottman
Avenue -- 24 Hour
Towing

Fh Goldbuyers

It's The Fastest
Way To Put Cash
In Your Pocket!

PHILLY.COM: [News](#) | [What's Happening](#) | [Sports](#) | [Restaurants & Food](#) | [Arts & Entertainment](#) | [Living](#) | [Travel](#) | [Business](#) | [Health](#) | [Opinion](#)

SITE SERVICES: [Advertise on Philly.com](#) | [View print ads/special sections](#) | [Mobile Edition](#) | [The e-Inquirer](#) | [Join Our Team](#)

THE INQUIRER: [News](#) | [Front Page](#) | [Sports](#) | [Business](#) | [Obituaries](#) | [Arts & Entertainment](#) | [Food, Home & Life](#) | [Health & Science](#) | [Education](#) | [Opinion](#) | [Blogs & Columns](#) | [Subscriber Services](#)

DAILY NEWS: [City & Local](#) | [Sports](#) | [Yo! Features](#) | [Columnists](#) | [Daily News Opinion](#) | [Photos](#) | [Multimedia](#) | [National News](#) | [Obituaries](#) | [Subscriber Services](#)

CLASSIFIEDS: [Jobs](#) | [Cars](#) | [Real Estate](#) | [Rentals](#) | [Marketplace](#) | [Celebrations](#)

PARTNERS: [The Trend](#) | [Active Adult Housing](#) | [Beach and Bay Homes](#) | [Homes and Living](#) | [Homes and Living - Ocean County](#) | [Communities Magazine](#) | [Employment Weekly](#) | [Taste of Philadelphia](#) | [Philly Neighborhoods](#) | [Parade Magazine](#)

[About Philly.com](#) | [Contact Us](#) | [Terms of Use & Privacy Statement](#) | Copyright 2008

Latest News Feed All RSS Feeds