



Défi BioTalent  
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BioTalent Challenge

## **New Way to Diagnose Flu Viruses, and Potentially Prevent Influenza Infection, Wins Ottawa High School Student Top Honours in National Biotech Competition**

*Health Canada's Preliminary Test of Student's Findings "Encouraging"*

*Ottawa, Toronto, Montreal, Calgary and Edmonton Students  
Win Canada-wide Competition Judged by Experts at NRC*

*Ottawa, Toronto to Compete for Canada in San Diego, June 16*

A ground-breaking study by a 17-year-old Ottawa student that demonstrated the potential of a new way to diagnose, and perhaps prevent, influenza has earned top national honours among 14 regional entries in the 2008 *Sanofi-Aventis BioTalent Challenge (SABC)*, announced today at National Research Council Headquarters, Ottawa.

Grade 12 student Maria Merziotis of Ottawa's Hillcrest High School won the top \$5,000 national prize, plus a \$1,000 prize for the project with the greatest commercial potential.

The application of her research related to identifying different influenza types, has already been tested by Health Canada with encouraging results.

Maria and the 2<sup>nd</sup> place team from Greater Toronto will compete for Canada at the international BioGENEius Challenge in San Diego, CA, June 16-18.

The top national runners-up:

### **2<sup>nd</sup> place, Greater Toronto (\$4,000)**

Jonathan Schneider, Josh Alman and Norman Yau, 15-year-old Grade 10 students at the University of Toronto School, identified genes that help a peculiar plant to survive in salty soil, a finding that could help develop crops resistant to excessive salt conditions in world coastal areas.

### **3<sup>rd</sup> place, Montreal (\$3,000):**

Vandana Rawal, a 15-year-old Centennial Regional High School student, worked to unlock one of the mysteries surrounding bipolar disorder, discovering a human gene variation that may explain why lithium is effective on some people but not others.

**4<sup>th</sup> place, Edmonton (\$2,000):**

Twins Mustafa and Hazal Babadagli, 17, attending Grade 12 at Old Scona Academic High School, developed a novel way to infiltrate cancer cells in hopes of switching off a gene that helps cancer spread.

**5<sup>th</sup> place, Calgary (\$1,000)**

Liz Meng, 17, of Sir Winston Churchill High School, discovered a way to boost from 15% to 91% the survival rate of frozen stem cells after thawing. Her hope is to one day help create a regenerative medicine alternative to surgeries such as knee replacements.

The competition, now in its 15<sup>th</sup> year, included teams from every province and, for the first time, a team from northern Canada, which found a new way to reveal arsenic pollution of northern snow.

## First place: Tricking the influenza virus

Influenza circles the globe in seasonal epidemics, causing tens of thousands of deaths in non-pandemic years and millions when a new strain triggers a pandemic. World health authorities are bracing for another pandemic if the deadly H5N1 avian strain ever mutates to a form that spreads easily among people.

The virus wreaks its havoc by binding to the sialic acid present on the surface of human cells. Working with her mentor, Dr. Michel Gilbert, of the National Research Council's Institute of Biological Sciences, Maria Merziotis synthesized a floating form of sialic acid (sialyllactose) that acts as an alternative receptor for the virus.

“This has the potential for both diagnostic and therapeutic applications,” says Maria. “It can be used to detect what strain of influenza is responsible for a specific infection. It can differentiate between human and avian strains. It may also be possible to interfere with the infection process by administering the floating sialyllactose through injection, nasal spray or to the lungs with a pump. The flu virus would attach to the artificial receptor rather than the human cell and infection would be prevented.”

Maria says the diagnostic application has already been tested by Health Canada with encouraging results.

Maria plans to pursue biochemistry studies next year at the University of Ottawa. She placed fourth in the 2007 Eastern Ontario SABC competition with a project about the bacteria-fighting effects of home remedies.

“The National Research Council and the Government of Canada are strong supporters of efforts such as this to raise public awareness, especially among students and educators, about emerging sciences and to encourage more students to consider careers in

biotechnology,” said Dr. Roman Szumski, NRC Vice President, Life Sciences, who hosted the award ceremony.

“The students in this competition represent some of the brightest young scientists in Canada and I congratulate them all on their outstanding achievements.”

He also thanked lead competition supporters, sanofi-aventis and **Sanofi Pasteur Limited** and **BioTalent Canada** for helping foster an appreciation of science and engineering education.

"Sanofi pasteur started this program in 1994 to get kids interested in studying science and biotechnology," said Mark Lievonen, President of Sanofi Pasteur Limited. "With 14 regional competitions and over 100 partners, the SABC is a great example of collaboration. Bringing the regional winners together for the national competition is a great step forward for the program, and we thank our partners at BioTalent for helping to make this event possible."

All regional winners presented their projects for judging by federal public service and private sector experts at the National Research Council in Ottawa, Tues. May 6. For the first time, the national competition was conducted face-to-face, with regional finalists flown to Ottawa for the event. In the past, the presentations were done via videoconference.

## **Background**

Now in its 15<sup>th</sup> year, the SABC is a high-level competition that introduces students to the real world of biotechnology by carrying out research projects of their own design.

The competition drives students to broaden their horizons and challenge their intellect. Each of the student teams work with a mentor in their community who provides expert advice and access to equipment and supplies. Many of the students who compete go on to careers in biotechnology, healthcare, agriculture, and the environment.

More than 100 organizations Canada-wide are partnered in this educational outreach initiative.

National competition supporters:

- **Sanofi-aventis**
- **Sanofi Pasteur Limited**
- **BioTalent Canada**
- National Research Council of Canada
- Genome Canada
- VWR International
- Canadian Institutes for Health Research; and

- the Canadian Foundation for Innovation



The project is funded in part by the Government of Canada's Sector Council Program.

Winning student teams share their cash prize with their school. In some cities, regional winners also receive university scholarships or summer jobs.

The competition mirrors the real world of scientific research by:

- Requiring students to submit research proposals for evaluation by a scientific evaluation committee;
- Providing up to \$200 in advance funding to approved student projects;
- Assigning mentors to each team to provide expert advice and access to equipment and supplies; and
- Having each student project judged by fellow students (peer review) and by judges representing government, business, academia and the education community.

A distinguishing characteristic of the competition is the emphasis judges place on the competitors' communication of science ideas.

Many regional competition events include lectures by leading local biotechnology researchers, science workshops for students and teachers, and exhibits on biotechnology.

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### **About sanofi-aventis & sanofi pasteur**

Sanofi-aventis, a leading global pharmaceutical company, discovers, develops and distributes therapeutic solutions to improve the lives of everyone. Sanofi-aventis is listed in Paris (EURONEXT: SAN) and in New York (NYSE: SNY).

Sanofi Pasteur, the vaccines division of sanofi-aventis Group, provided more than a 1.6 billion doses of vaccine in 2007, making it possible to immunize more than 500 million people across the globe. A world leader in the vaccine industry, sanofi pasteur offers the broadest range of vaccines protecting against 20 infectious diseases. The company's heritage, to create vaccines that protect life, dates back more than a century. Sanofi Pasteur is the largest company entirely dedicated to vaccines. Every day, the company invests more than EUR1 million in research and development. For more information, please visit: [www.sanofipasteur.com](http://www.sanofipasteur.com) or [www.sanofipasteur.ca](http://www.sanofipasteur.ca)

### **About BioTalent Canada**

BioTalent Canada helps Canada's bio-economy industry thrive globally. As a non-profit national organization of innovators leading our bio-economy, BioTalent Canada anticipates needs and creates new opportunities, delivering human resources tools, information and skills development to ensure the industry has access to job-ready people. BioTalent Canada is a Canadian sector council—one of many partnership organizations created to address skills-development issues in key sectors of the economy. For more

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