



Ontario students win five of eight Ernest C. Manning Innovation Awards at 2013 Canada Wide Science Fair

LETHBRIDGE, AB, May 16, 2013 /CNW/ - Five Ontario projects captured the majority of Young Innovator prize money from the Ernest C. Manning Innovation Awards Foundation at the 52nd annual Canada Wide Science Fair held this week at the University of Lethbridge campus.

Ground-breaking Gold medal winning projects by Adam Noble, who also won BEST PROJECT AWARD, a 19 year old student at Lakefield District Secondary School near Peterborough and Meagan Fabel, a 17-year-old Grade 11 student at Walkerville Collegiate Institute in Windsor each earned \$4,500 for being named Ernest C. Manning Young Canadian Innovators, as well as a trip to the Foundation's National Innovation Awards Gala to be held in Calgary October 16.

Winners of \$500 Ernest C. Manning Innovation Awards went to three exhibitors also from Ontario. Gold medalist Samantha Stuart, 17, Grade 11 student at Collingwood's Pretty River Academy was joined on the podium by Gold medalist Varsha Jayasankar, Grade 11 student at St. Catherine's Sir Winston Churchill Secondary School and Silver medalist Kanata's Brian Laight, 18, a Grade 12 student at All Saints Catholic High School.

The Canada Wide Science Fair this year attracted more than 480 Junior, Intermediate and Senior age exhibitors in 400 projects that showcased bright minds that are innovating for Canada.

"Canada's bright minds need the encouragement of organizations like Youth Science Canada and the Ernest C. Manning Innovation Awards Foundation, if they are to help society realize the economic and social opportunities that innovative minds create for Canada, and indeed globally. We are pleased to begin our third decade of recognizing and fostering that mindset among Canadian youth," said John Read, Chairman of the Ernest C. Manning Innovation Awards Foundation's Board of Trustees.

Adam Noble, Lakefield -- \$4,500

Adam Noble has spent half of his teenage years probing both the positive aspects and potential harm of nanosilver. Enroute, he has been continuously rewarded for his innovative research, including a repeat as an Ernest C. Manning Young Canadian Innovator, a rarity in the 21-year history of the Foundation's involvement with the Canada Wide Science Fair. This year, Noble's efforts focused on silver nano-particle therapy as a new cure for cancer.

"In my research, I have been investigating a new therapy that tested successfully on four cancer cell types - Neuroblastoma Cells, Cervical Cancer Cells, Lung Cancer Cells and Basal Carcinoma Cells. The silver nano-particles targeted the cancer containing tumours, shrinking their size and preventing metastasis, full maturation of the tumour. This therapy offers new treatment options and resolves many problems associated with other nano-particle therapies currently in use. One example of a current such treatment is the gold nano-particle drug-delivery platform," explained Noble. His past nano-silver research won him Canadian, American and European accolades, as well as an opportunity to present his research to Nobel Laureates at the 2012 Nobel Prize symposium and ceremony in Sweden.

Meagan Fabel, Windsor -- \$4,500

True to the innovator's age-old mantra of building a better mousetrap, Meagan Fabel focused her research efforts on enhancing the low-cost electrical energy output of the Gratzel solar cell, named after Michael Gratzel, who discovered this new type of solar cell. It uses organic dyes that mimic photosynthetic chemicals in plants, nanostructured titanium dioxide and an electrolyte solution to produce electricity. Fabel evaluated the concept of using Synedra diatoms' frustules made of Titanium Dioxide in place of Silicon Dioxide to improve the efficiency of the Gratzel cell. She tested six independent variables to optimize voltage and current produced and concluded that the addition of the special diatoms' frustules to the Gratzel solar cell (in place of normal powdered titanium dioxide) increased electricity production by almost 600%. Other results led Fabel to conclude that the diatom-enhanced Gratzel cell is a much more efficient and eco-friendly alternative to current commercial solar cells.

"Gratzel cells have many advantages, including translucent properties and coloration, making them ideal for use in windows. The cells can be made in a flexible form for use in portable devices. Gratzel cells can work in ambient light conditions, unlike silicon based solar cells, and produce little waste energy in the form of heat. Although more research is needed, the addition of diatom frustules into the current Gratzel cell can provide a more efficient, low-cost, environmentally friendly alternative to silicon solar cells," explained Fabel. A better mousetrap indeed!

Samantha Stuart - Collingwood - \$500

Samantha Stuart responded to a plea for help at the 2012 national science fair where she was presenting a project that measured behavioral motivation on social-networking sites. The plea came from a PhD candidate who was so dependent on Facebook that he couldn't complete his thesis. The result was her current Gold medal project in which she developed a novel psychometric screener which was designed to quantify Facebook overuse. She developed the screener, statistically validated it, and built it into a web application. It is based upon two psychometric scales - one that innovatively measures the intensity of an individual's psychogenic needs on Facebook, and second, to measure their level of usage. Ms. Stuart feels this screener has additional applications in clinical psychology and behavioral addictions. It could even be expanded to assist the diagnoses of social disorders.

Varsha Jayasankar - St. Catherines - \$500

Varsha Jayasankar investigated Mango Ginger as a possible natural replacement option for the growing restrictions on the domestic use of pesticides and antibiotics. After questioning her grandfather about the traditional Indian spice, she was informed of its properties as a preservative and began wondering about potential antibiotic properties. She prepared an extract of the Mango Ginger named Curcuma Amada Chloroform Extract, or CACE, to test against plant as well as human pathogenic bacteria. CACE was found to be extremely effective in inhibiting the growth of two plant and two human pathogens including Clostridium Difficile, a very dangerous and multi antibacterial resistant pathogen. Jayasankar's efforts merited a Gold medal and a \$500 Manning Innovation Achievement Award.

Brian Laight - Kanata \$500

Silver Medalist Brian Laight turned his fascination with the human immune system -- and cancer-related experiences within his own family - into an ongoing focus on the potential for using oncolytic viruses in the treatment of human cancer. Oncolytic viruses are engineered for the sole purpose of selectively infecting and destroying cancer cells/tumours in patients. Working with the Ottawa Hospital Research Institute, Laight is part of the search for safer methods of treating cancer.

"The types of oncolytic viruses that are used are usually weak viruses so that minimal damage is done to the patient's normal cells. The viruses are only able to infect cancerous cells, leaving healthy tissue untouched, thereby limiting negative effects to healthy cells," explained Laight. While oncolytic viruses can be very effective, there are still

many cancers that are resistant to them. A new area of research, involving Brian Laight's work, is targeting oncolytic virus resistant cancers by building better bugs.

The Ernest C. Manning Innovation Awards Foundation introduced its Young Canadian Program in 1992 to recognize innovative Canada-Wide Science Fair projects. Each year a judging team selects eight winning projects, four of which earn the \$4,500 Manning Young Canadian Innovator Awards, and four others earn \$500 Manning Innovation Achievement Awards. For more information about the Foundation and its awards visit www.manningawards.ca Follow on Twitter @ManningAwardsCA Like on Facebook/Manning Awards.