Local

Citadel High student creates cancer detection software

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Om Agarwal, a Grade 10 student at Citadel High, speaks to judges about his biotechnology project for the Atlantic Sanofi Biogenius Canada competition on Monday, April 9.

Nick Pearce, Dalhousie University

It would not be surprising to hear about someone who has made a significant impact in TED Talks and at national and international conferences, or even someone whose research and contributions to the scientific community has garnered them praise and meetings with the national Chief Science Advisor, Dr. Mona Nemer, Canadian Minister of Science Kirsty Duncan, Nobel Prize laureate Dr. Arthur B. McDonald and Prime Minister Justin Trudeau.

What is pretty extraordinary is that this person is only in Grade 10.

Om Agarwal is already a highly sought-after speaker who has been featured by the CBC, CTV, Global TV, Canadian Geographic and Eastlink TV, to name just a few. The Citadel High student is involved in STEM, an interdisciplinary and applied learning approach based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics. STEM integrates the four subjects into a cohesive learning paradigm, based on real-world applications, and so far, Agarwal's accomplishments are a great indication of how he is fairing in the program.

Agarwal's newest initiative landed him a spot in the Atlantic Sanofi Biogenius Canada (SBC) regional science competition at Dalhousie University on Monday, April 9. Eight of Atlantic Canada's most brilliant high-school science students were chosen to compete in the prestigious event. Each was paired with a local mentor and given hands-on experience in a professional lab setting. The students then compiled their findings and presented their ground-breaking biotechnology projects at regional competitions.

"I've been part of the science community for a while now and attending various science fairs, and at last year's national science fair one of the ambassadors told me about this program [SBC] and how it is specifically geared around biotechnology," says Agarwal, who adds this was his first time working on a biotechnology project.

The idea for his project, Computerized Comprehension for a Curable Cancer, actually came to him after his own experience with a biopsy that was inconclusive. After speaking to his doctor about the results, Agarwal says he began wondering about the potential value of a software that could simply tell a patient if a tumour is cancerous or benign.

According to Agarwal, "... the least invasive and most affordable diagnostic test currently available to detect pancreatic cancer is the Fine Needle Aspirate, which also has a very high rate of false-positives/false-negatives that makes it highly dangerous [since it can lead to a delay in an appropriate diagnosis]."

Agarwal says his software, which he worked on for about six months, aims to change this.

"If it is not accepted into the medical community, I plan to release it as a web application so that it can be used as a resource to provide a second opinion for a patient," he adds.

As it turns out, Agarwal's project received third place in the SBC competition, which is pretty impressive by any standards. And while Agarwal is still a few years from graduating high school, he has already developed a number of software applications, such as his Automotive Collision Detection Network, an anti-bullying database application, an animal deterrent system and a greenhouse monitoring system to name just some.

As for the future, Agarwal says, "... I hope that one of my projects will be turned into a company and that it can actually help people."

To learn more about Agarwal, visit his website: www.omagarwal-.net. You can get more information on Sanofi Biogenius Canada at biogenius.ca.