

## CWSF 2016 - Montreal, Quebec



### Lucas Penny

#### Salivary microRNAs as a Novel Tool for Microfluidic Detection of Breast Cancer

**Challenge:** Health

**Category:** Senior

**Region:** Niagara

**City:** Grimsby, ON

**School:** Grimsby S.S.

**Abstract:** A successful, low-cost system for detecting breast cancer in its early stages is proposed. This study utilized a microRNA profile from saliva breast cancer samples to test early disease onset. A microfluidic device using saliva was then developed to test microRNA profile. The use of salivary microRNAs for diagnosing cancer is a novel, non-invasive technique that would reduce cost and risk for patients and doctors.

#### Biography

Lucas is a passionate Grade 11 student, scientist, and volunteer. He is a competitive athlete, passionate musician, and is always looking to apply STEM in new ways. Lucas' past scientific work has ranged from discovering new molecular pathways in Alzheimer's disease to developing a new method for diagnosing breast cancer using saliva. Out of school, he is the chair of logistics for his region's mental health walk, a member of the Education Minister's Student Advisory Council, and is completing his Grade 8 RCM for piano. Lucas has been actively involved in sports all of his life, but developed a passion for rowing in high school. Over his high school career, he placed first with his crew at the American Scholastic National and Canadian Secondary Rowing competition. Currently, Lucas does research with microfluidics as a potential diagnostic platform for cancer. He is hoping that this technology will lead to improved patient care and will eventually be commercialized. At school, Lucas is the Student Council Vice President and DECA club President, a member of prefects, and his school's Student Senate representative. In his spare time, Lucas enjoys playing the piano and soccer.

#### Awards

#### Value

Canadian Society for Clinical Chemists Award - Senior Sponsor: Canadian Society for Clinical Chemists	\$1 000
The Manning Innovation Achievement Award - Senior Sponsor: Ernest C. Manning Awards Foundation	\$500
The Manning Innovation Achievement Award and \$4000 Manning Young Canadian Innovation Award and also receive an additional \$3000 towards their post-secondary education. Sponsor: Ernest C. Manning Awards Foundation	\$4 000
S.M. Blair Family Foundation Award - Senior Sponsor: S.M. Blair Family Foundation	\$1 000
Excellence Award - Senior - Gold Medal Sponsor: Youth Science Canada	\$250
Dalhousie University Faculty of Science Entrance Scholarship Senior Gold Medallist - \$5000 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$5 000
UBC Science (Vancouver) Entrance Award Senior Gold Medallist - \$4000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$4 000
University of Manitoba Entrance Scholarship Senior Gold Medallist - \$5000 Entrance Scholarship Sponsor: University of Manitoba	\$5 000
University of Ottawa Entrance Scholarship Senior Gold Medallist - \$4,000 Entrance Scholarship Sponsor: University of Ottawa	\$4 000
Western University Scholarship Gold Medallist - \$4000 Entrance Scholarship Sponsor: Western University	\$4 000
<b>Total</b>	<b>\$28 750</b>