

CWSF 2018 - Ottawa, Ontario



Aryan Singh

A Novel Colourimetric Lateral Flow Immunoassay for Breast Cancer Diagnostics

Challenge: Health

Category: Senior

Region: Ottawa

City: Ottawa, ON

School: Longfields-Davidson Heights Secondary School

Abstract: A novel cost-effective lateral flow-based immunochromatographic device for the early detection of breast cancer through the molar measurement of the HER2 bio-marker is presented. This simple and light-weight device is minimally-invasive and can provide a user with a colourimetric result in under 30 seconds. This innovative aptamer and gold nanoparticle-based biosensor offers an inexpensive solution to cancer diagnosis at the earliest stage.

Biography

Hello! My name is Aryan Singh, and I am a 16-year-old high school student who has a genuine passion for STEM. I am heavily involved in my community, as I run multiple clubs in and outside of my school. It has always been a childhood dream of mine to become a medical doctor because it incorporates two of my favourite things: science and helping people. I was inspired to do this project soon after a family member was diagnosed with breast cancer at a late stage. Realising the ineffectiveness of current breast cancer diagnostics, it became evident to me that it is imperative to create a cost-effective and rapid device for the early detection of breast cancer. This unfortunate event had given me the motivation to try to solve this problem. I plan on continuing my research on cancer by perfecting my device and hopefully making it available to people who do not have easy access to health care. If I were to give one piece of advice to someone who is thinking of doing a science project, it would be to choose an exiting topic that you are passionate about because the best projects are always developed through passion.

Awards

Value

Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
Carleton University Entrance Award Senior Silver Medallist - \$2,000 Entrance Award Sponsor: Carleton University	\$2 000
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$2 500
UBC Science (Vancouver) Entrance Award Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$2 000
University of Ottawa Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: University of Ottawa	\$2 000
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$10 500