CWSF 2016 - Montreal, Quebec

Micah Windsor-Freeman

Learning from Flint: Is NaOH the Solution to Pb-Contaminated Drinking Water?

Challenge: Environment
Category: Junior
Region: Northwestern Ontario
City: Shuniah, ON
School: Claude E. Garton

Abstract: In response to a local pilot study in which sodium hydroxide is being added to drinking water to neutralize lead, I compared the effects of lead- and sodium-hydroxide-contaminated water to uncontaminated drinking water on plant growth. After four weeks I observed that sodium hydroxide is an effective method of neutralizing lead and therefore may be less harmful than leaving lead-contaminated water untreated.

Biography

I am Micah Windsor-Freeman and I go to Claude E. Garton Public School. This is my second time at CWSF. I am very interested in chemistry (reactions, nuclear transmutation), cell biology (cell structure, mitochondrial ATP production) and quantum physics (quantum computing, quantum key distribution). In the future, I hope to get a job at the Thunder Bay Regional Research Institute as a research data analyst or cytologist. I did this project because of the problem in Thunder Bay with lead service pipes leaching into the drinking water, and the Current River pilot study. I have already mentioned my career plans, but specifically, as a cytologist, I would like to study mitochondria, ATP, ADP and the ATP synthase enzyme. For anyone thinking about doing a project, don't give up just because it takes a lot of time and effort and hard work. Once it's completed, you will be left with the feeling that you can accomplish anything (which is mostly true anyway).

Awards	Value
Excellence Award - Junior - Gold Medal Sponsor: Youth Science Canada	$250
Western University Scholarship Gold Medallist - $4000 Entrance Scholarship Sponsor: Western University	$4 000
Total	$4 250

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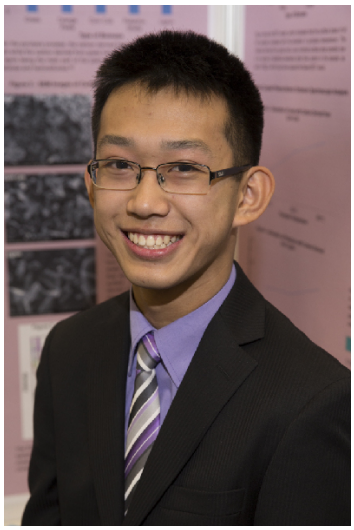

Jay Chen

Biomass Derived Carbon for Innovative Water Purification and Metal Extraction

Challenge: Environment
Category: Senior
Region: Northwestern Ontario
City: Thunder Bay, ON
School: Sir Winston Churchill C.V.I.

Abstract: Adsorption, the adhesion of molecules in a liquid to a surface of a solid, is an effective water purification process. In this project, biomasses are converted into carbon materials through pyrolysis to increase their surface areas, become efficient adsorbents, and used to purify water contaminated with pollutants. The results indicated that biomass derived carbons can effectively remove ions, promising for wastewater treatment and metal extraction.

Biography

My name is Jay Chen, and I am a Grade 11 student attending the IB program at Sir Winston Churchill C.V.I. in Thunder Bay, Ontario. At school my favourite subjects include mathematics and music. I enjoy figure skating, and I have reached Level 10 piano. Another hobby of mine is volunteering, and I have volunteered at various events around the city, as well as ventured to Ecuador to help build a school. In the future, I wish to go into the medical field, though I am still unsure of what specific program and career to choose. This project was inspired after realizing how much biomass is produced in my home alone and I wanted to find a use for it. I combined this with my previous researched knowledge of adsorption and created this project. For future experiments, I plan to test even more different biomasses with different ions, and perhaps expand to adsorbing organic compounds as well. My advice to any student thinking about doing a project would be to pursue a project that truly interests you. This way, the entire scientific process will feel more like a fun hobby, rather than work.

Awards	Value
Excellence Award - Senior - Bronze Medal Sponsor: Youth Science Canada	
University of Ottawa Entrance Scholarship Senior Bronze Medallist - $1000 Entrance Scholarship Sponsor: University of Ottawa	$1 000
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$2 000

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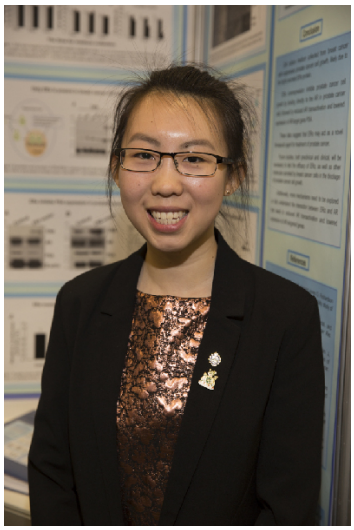

Kelly Yang

Let Cancer Kill Cancer: A novel therapeutic strategy

Challenge: Health
Category: Senior
Region: Northwestern Ontario
City: Thunder Bay, ON
School: Sir Winston Churchill C.V.I.

Abstract: Although cancer is a prevalent issue, it is uncommon for two primary cancers to develop simultaneously, suggesting that one cancer may prevent the growth of another. In cancer cells, mutated genes secrete molecules that promote cell growth and migration. This experiment discovered that breast cancer cell excretions inhibit prostate cancer cell growth through a variety of molecular pathways, without adverse effects to normal cell viability.

Biography

As a grade 11 IB student attending Sir Winston Churchill high school in Thunder Bay Ontario, I am highly involved in the community around me. I recently represented my riding in the Legislative Assembly of Ontario's Model Parliament program, where I voiced my concerns for the future of my province. Additionally, I am involved with Student Council and I serve as the Marketing Chair for my chapter of Sustainable Youth Canada. As for extra curricular activities, I am a violinist in the Thunder Bay Symphony Youth Orchestra, I enjoy photography, playing soccer, snowboarding and running. In the future, I would like to pursue a career in medicine or business. Surprisingly, the initial inspiration for my project came from a history assignment. In writing a historical investigation on Frederick Banting and the discovery of insulin, I became intrigued with the concept of cellular excretions. This lead me to my current project: investigating the effects of cancer cell excretions. In further investigations, I hope to delve deeper into the mechanisms behind my findings, and perhaps eventually move to in vivo testing. To other students thinking about doing a project, my only advice is to start early and be prepared for the unexpected.

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Total	$2 000