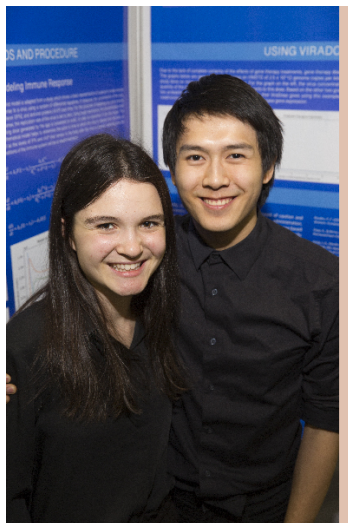


CWSF 2019 - Fredericton, New Brunswick



Josh Lien, Oana Binder

ViraDose: A Novel Application for Facilitating Gene Therapy Dosing

Challenge: Innovation

Category: Senior

Region: Waterloo-Wellington

City: Waterloo, ON

School: Laurel Heights S.S.

Abstract: Gene therapy is a treatment option for genetic disorders that involves delivering correctional genes to a patient. For our project, we created an application that calculates a starting dose for gene therapy in humans and then uses the dose in mathematical models to predict the patient's immune response. We believe that our app will assist in making gene therapy more viable in mainstream medicine.

Biographies

Josh - Hi, my name is Josh Lien. I'm a grade 11 student living in Waterloo Ontario. Last time I did science fair was when I was in grade 7 on how light effects ice cubes. I've grown a lot since then. This year my partner Oana Binder and I made an app that calculates a starting dose for human gene therapy trials and then uses the dose in mathematical models to predict the patient's immune response. Due to the uncertainty of gene therapy, we believe that a project like ours is the key to bringing gene therapy into mainstream medicine. Outside of science fair, my interests mainly lie in coding and music. I began coding fairly recently in grade ten and

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Oana - My name is Oana Binder, and I'm a grade 11 student at Sir John A. Macdonald Secondary School in Waterloo, Ontario. For our project, my partner Josh Lien and I worked on creating an app that makes gene therapy dosing easier, safer and more predictable. The app calculates a recommended starting dose of adeno-associated virus vectors to be used in a gene therapy clinical trial. The app then implements the dose into mathematical models in order to make predictions about the patient's immune response and the amount of gene expression that will be achieved. In the future, we would definitely like to continue exploring more about this exciting field...

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