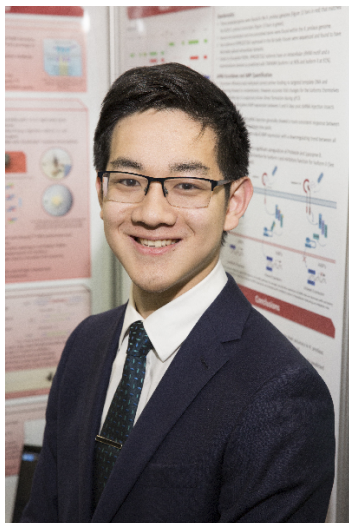


# CWSF 2019 - Fredericton, New Brunswick



## Charley Cai

### Chagas Disease: Decoding Vector-Based Pathogen Recognition

**Challenge:** Discovery

**Category:** Senior

**Region:** Greater Vancouver

**City:** Burnaby, BC

**School:** Burnaby North Secondary

**Abstract:** Chagas disease is a human tropical disease commonly spread by kissing bugs. While this insect can defend itself from some pathogens, the Chagas parasite seems to elude its immune system. This project investigated new components within kissing bug's immune system and determined their role in pathogen recognition. This knowledge may help future scientists exploit the insect's immune mechanisms to reduce the transmission of the disease.

#### Biography

Charley is a concurrent student and volunteer researcher at Simon Fraser University while completing his studies as a grade 12 student in Burnaby. Although Charley has had a keen interest in many fields of science, his passion for Molecular Biology and academic research stemmed from his prior experience at the University of California, Santa Barbara where he explored the genetic basis for ribosome biogenesis in nematode *C. elegans* as well as his ongoing project investigating immunology in *Rhodnius prolixus*. Outside the laboratory, he enjoys helping other people as an academic and piano tutor, in addition to helping the impoverished in Vancouver through founding his branch of the Hygiene for the Homeless charity organization in Burnaby. Furthermore, he enjoys music and sports, playing percussion, piano, badminton and glides recreationally in his free time. As he progresses into post-secondary education, Charley hopes to continue his research endeavours and wishes to pursue a MD/Ph.D. as a physician-scientist.

#### Awards

#### Value

Canadian Young Researcher Award - Senior Sponsor: Canadian Science Publishing and STEM Fellowship	\$1 000
Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
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 New Brunswick Canada-Wide Science Fair Scholarship Silver Medallist - \$2500 Entrance Scholarship Sponsor: University of New Brunswick	\$2 500
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
<b>Total</b>	<b>\$12 000</b>