



## CWSF 2016 - Montreal, Quebec



## **Jack Edward Mogus**

## GRAPHENE REINFORCED GUAYULE RUBBER Conductive Hypoallergenic SUPER-NANOCOMPOSITE

Challenge: Innovation
Category: Intermediate
Region: Bay Area
City: Oakville, ON

School: Garth Webb Secondary School

**Abstract:** Guayule is the only source of natural rubber that has antibacterial/antifungal

properties and is free of latex proteins responsible for TYPE 1 (Hev-b) and TYPE IV hypersensitivity. By infusing graphene into guayule rubber, I fabricated the world's first nanocomposite material that is hypoallergenic, antibacterial, antifungal and electrically conductive with enhanced mechanical properties for a wide range of medical applications; including

biosensors for cardio function.

Awards	Value
Australian National Youth Science Forum Award - Intermediate	\$1 000
Sponsor: National Youth Science Forum Australia	
Excellence Award - Intermediate - Silver Medal	
Sponsor: Youth Science Canada	
Western University Scholarship	\$2 000
Silver Medallist - \$2000 Entrance Scholarship	
Sponsor: Western University	
Total	\$3 000

## **Biography**

My name is Jack Mogus and I am a grade 10 student at Garth Webb Secondary School. I have always been fascinated by the practical application of using scientific principles in solving everyday problems. My motivation comes from looking at a problem and then thinking ?how can I fix this'. In 2003 my mother was diagnosed with TYPE 1 (Hev-b latex proteins) hypersensitivity with anaphylactic response to exposure. I was compelled to discover a new nanocomposite material that would one day replace medical equipment made from the potentially deadly proteins found in natural rubber latex with a mechanically superior hypoallergenic engineered material that is electrically conductive with antibacterial and antifungal properties. During my free time I actively volunteer in my community and oversee an organization I founded in 2012 called ?Change by YOUth' which ignites positive change locally and globally through volunteerism, leadership and peace. I was recently featured in a documentary for Charity Village (unsung heroes). I love playing hockey and am currently completing my black belt in Taekwondo. The best advice I can give to anyone interested in entering a science fair is to never give up trying, no matter how many obstacles you may face.



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