

# CWSF 2017 - Regina, Saskatchewan



## Melanie Jonnalagadda

### Glucose-Induced Expression of Endothelin1 & its Relation to Diabetic Retinopathy

**Challenge:** Health

**Category:** Senior

**Region:** Thames Valley

**City:** London, ON

**School:** Catholic Central H.S.

**Abstract:** Diabetic retinopathy is the leading cause of vision loss around the world. Glucose-induced expression of Endothelin-1, a vasoconstrictor, was studied in human retinal endothelial cells (HREC). This study shows that ET-1 expression was greater in the high glucose sample of HREC compared to the normal glucose samples, making it a suitable diagnostic marker for type 1 and 2 diabetic retinopathy.

#### Biography

I am Melanie Jonnalagadda, a grade 11 student in the International Baccalaureate program with a passion for Sciences and Social Justice. My project, which focuses on diabetic retinopathy, was inspired upon seeing my grandmother cope with type 2 diabetes and its secondary complications. In the future, I hope to test different herbal extracts that inhibit the expression of ET-1 under hyperglycemic stress. Apart from science fair, I play competitive Basketball and Badminton and play piano. As part of my global and local community involvement, I support an international NGO, which alleviates poverty in slum areas and I raise funds for the local breakfast program. I volunteer at the London Interfaith Peace camp and also do math tutoring after school. I have received several school awards for highest grade averages, honors roll, and I am the co-founder of the STEM club at my high school. Recently, I was accepted into the prestigious SHAD valley program at the University of Waterloo. For those interested in doing a science project, my advice would be to choose a study you are passionate about, one that you will not give up on despite setbacks.

#### 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
<b>Total</b>	<b>\$2 000</b>