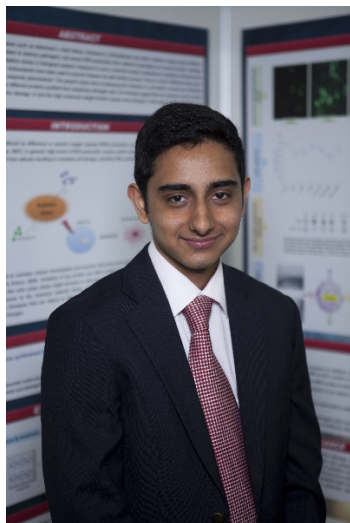


CWSF 2013 - Lethbridge, Alberta



Shreyas Devalapurkar

Effect of Differential Molecular Weight Proteins in Rescue of Oxidative Damage

Challenge: Health

Category: Senior

Region: Manitoba Schools Science Symposium

City: Winnipeg, MB

School: Dakota Collegiate

Abstract: Oxidative stress is associated with diseases such as Alzheimer's and heart failure. This study investigates the variations in cell health in normal and oxidatively damaged cells under the influence of two proteins purified from damage-inflicted cells. Our findings suggest that low molecular weight protein can rescue cells from oxidative damage whereas the high molecular weight fraction elicits further damage to cells exposed to oxidative stress.

Biography

I am currently a Grade 11 student attending Dakota Collegiate Institute in Winnipeg, Manitoba. My interest in the topic of oxidative stress began two years back when I saw a half-cut apple on my dining table that was slowly rotting and turning all brown. After understanding that there was actually a phenomenon called oxidation behind this finding, I researched further into the matter and came across several intriguing facts. I discussed these findings with my mentor Dr. Ashim Bagchi and he being in the field of cardiac research himself, became quite interested in the topic. Gratefully, he helped me find lab space and also provided me with his valuable guidance and suggestions. This began my long course of research in the topic of oxidative stress and the effects it has on healthy cells. Oxidative stress is associated with many life threatening diseases such as Alzheimer's, Diabetes and even Cancer. There are methods of trying to reduce oxidative stress within cells but all of the known methods have proved to be ineffective. My project suggests that modulating a cell's protein synthesis machinery to produce more recovery proteins than damage-causing ones may hold the key to a sustainable therapy.

Awards

Value

Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	\$300
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 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
Total	\$8 800