

## 2<sup>nd</sup> International Conference on Hematology & Blood Disorders September 29-October 01, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

## Tris-hydroxymethyl-based nitrone derivatives reduce radical-induced cell death

Maria Corfias The Ohio State University, USA

Overproduction of reactive oxygen species (ROS), chemically reactive molecules containing oxygen important to cell signaling and homeostasis, have been associated with health conditions including inflammation, cardiovascular and neurodegenerative disorders, ischemia and stroke induced brain injury. Due to the possible medical implications, the development of compounds that can effectively reduce ROS concentrations in biological systems has become a major interest. Nitrones have the capability to undergo an addition reaction with free radicals to form stable products. This capability, known as spin trapping, has led to the synthesis of nitrones as possible therapeutic agents for conditions resulting from oxidative stress like brain injury, ischemia/reperfusion-induced myocardial infarction, visual loss, neuronal damage and stroke.  $\alpha$ -phenyl-N-tert-butyl nitrone (PBN), is a linear nitrone that has proven to serve as a therapeutic nitrone in some cancers, and has been studied heavily due in part to the success of the PBN derivative NXY-059. NXY-059 is a neuroprotectant for acute ischemic stroke. NXY-059 is the first drug to reach phase III clinical trials in the US for the treatment of acute ischemic stroke. Also, previous reports have shown that PBN has beneficial effects on chronic obstructive pulmonary disease (COPD) caused by cigarette smoke and carbonyl/oxidative stress. Using this information we studied the effects of seven novel PBN derivatives ( $\beta$ -OCONHMe-PBN,  $\beta$ -OH-PBN,  $\beta$ -OAc-PBN,  $\beta$ -NHAc-PBN,  $\alpha$ -OCNH2-PBN, Di- $\beta$ -OH-PBN,  $\alpha$ -OCOEt-PBN) and PBN on bovine aortic endothelial cells (BAEC), and are investigating its ability to protect BAEC from hydrogen peroxide induced oxidative stress. Preliminary study of these compounds revealed that intramolecular reactions in solution yield hydroxylamines.

## Biography

Maria Corfias is currently a 4<sup>th</sup> year undergraduate majoring in Neuroscience at Ohio State University. She has completed research on the role of linear nitrones on oxidative stress, the protective role of miRNA on breast cancer and is currently researching the effects of dim light at night and obesity in hamsters. She has been selected to present the findings of her research at three different conferences, one international. She plans to continue her education and attain her PhD in Cellular and Molecular Neuroscience where she hopes to study movement disorders and the role of the immune system on common neurological disorders.

corfias.4@buckeyemail.osu.edu