

STEPHANIE BRYANT*, ELIZABETH WALTERS*, JAMES WALTERS*, *Dept. of Applied Science and Mathematics, Bluefield State College, Bluefield, WV 24701. Gene Expression of the Reactive Oxygen Species Gene SLC25A33 to a High Fat and Cholesterol Dietary Challenge in Zebrafish (*Danio rerio*) Larvae.

Gene SLC25A33 is a mitochondrial gene that is known to be linked to cardiovascular diseases, diabetes, and cancers that are caused by obesity. SLC25A33 is a solute carrier that is involved in the transport of pyrimidine nucleotide. SLC25A33 is also known to be involved in mitochondrial biogenesis and when expressed, ROS levels have been known to increase. The objective is to determine if expression of SLC25A33 will be upregulated in larval zebrafish when introduced to a high fat and cholesterol dietary challenge. Using RNASeq results done previously by our lab, SLC25A33 was found by uploading a list of 57 genes from the RNASeq results into Cytoscape software. Cytoscape was then used to data mine the RNAseq results and create a network which revealed SLC25A33 to have a known links to the original 57 genes. We predict that SLC25A33 will be upregulate in a high fat diet as well. To model the human intestinal tract, zebrafish larvae were used as model organisms. Larval zebrafish were fed three different dietary challenges, a negative control consisting of 2% BSA, a diet containing 2% BSA and oleic acid, and a diet containing 2% BSA, oleic acid, and cholesterol. After feeding for 3 hours, dissection of the larval zebrafish's intestines and RNA extraction of the intestinal tissue was done. RT-PCR will then be performed using a SLC25A33 primer for analysis of gene expression. *This work was supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence and NIH Grant P20GM103434 awarded to Bluefield State College.*