

HEATHER PRICE, ELIZABETH WALTERS, JAMES WALTERS, Department of Applied Science and Mathematics, Bluefield State College, Bluefield, WV. Differential Expression of Phosphoenolpyruvate carboxykinase 1 in a High Fat diet versus a Low Fat diet.

Phosphoenolpyruvate carboxykinase 1 is a mitochondrial-associated gene that regulates gluconeogenesis from acetyl coA fatty acids, working in conjunction with the citric acid cycle. The objective of this experiment was to assess the differential expression of PCK1 in larvae zebrafish which were fed a diet of cholesterol. The chosen gene was found due to its association with a list of 57 different genes which were retrieved from an RNAseq experiment performed by Elizabeth Walters at Bluefield State College. These genes were subsequently mapped using Cytoscape and the network was extended by **means** of other available databases. We found that PCK1 is predicted to be linked to this network and we hypothesize that PCK1 will be up-regulated in a high fat diet. For the experiment, the model organism, larval zebrafish, were fed three dietary challenges. 2% BSA was used as a negative control, while a diet of 2% BSA and Oleic Acid, and 2% BSA, Oleic Acid and Cholesterol were also created. Feedings were staggered and dissections were performed to extract the intestinal cells so that they were processed through RNA extraction to assess the differential gene expression. RT-PCR remains to be performed on the pellets retrieved from the RNA extraction process which are stored at -80°C. Once this process is completed, the data will be analyzed to prove or disprove the hypothesis which has been presented for this experiment.

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