

JOSH DOUD and JAMES WALTERS, Dept of Applied Science, Bluefield State College, Bluefield, WV 24701. Using zebrafish (*Danio rerio*) larvae to compare the activation threshold of cholesterol uptake in diets supplemented with alpha-linolenic acid (C18:3) or oleic acid (C18:1).

Dietary omega-3 fatty acids are associated with mitigation of cardiovascular disease factors such as high serum cholesterol. The American diet is low in omega-3 fatty acids, but prevalent in oleic acid (OA) (C18:1). Preliminary data shows a concentration threshold of cholesterol uptake into intestinal enterocytes to be 200  $\mu$ M in larvae fed oleic acid. We hypothesized that alpha-linolenic acid (ALA) will decrease cholesterol uptake as compared to oleic acid. We fed 6-day post fertilization larval zebrafish for 3 hours in increasing concentrations of ALA and fluorescent cholesterol to test the activation threshold of cholesterol uptake with an omega-3 fatty acid (C18:3). Fluorescence within enterocytes will be imaged with a confocal microscope and quantified using NIH ImageJ. Our current results show that 100% of larvae fed the ALA diets expired before imaging as compared to control unfed or 5% egg yolk fed larvae. After the first trial, pH of the diet was tested and brought to 7.3. A second trial was conducted and results were the same as the previous trial. We are testing alternate administration of the ALA diets to determine the cause of larval death.

**Acknowledgements:** Supported by NIH Grant 2P20GM1.343\_14 P1500699 to the West Virginia IDEA Network for Biomedical Research Excellence.