SYED MONIS ALI & JAMES WALTERS, Dept. of Applied Science and Mathematics, Bluefield State College, Bluefield, WV, 24701. CHD8 mutation in larval Zebrafish (*Danio rerio*) Impacting Peristalsis rate and total coordination of the gut.

Patients with Autism Spectrum Disorder (ASD) often have a comorbidity that includes GI distress, including constipation. We used zebrafish (*Danio rerio*) to model ASD gastrointestinal (GI) constipation as their optical transparency allowed use to readily observe intestinal peristalsis by stereo microscope. Our hypotheses were that ASD gene CHD8-/- mutants would a) have a slower intestinal transit rate due to reduced peristalsis; b) CHD8-/- larvae would have an overall lower peristaltic activity; and c) CHD8-/- larvae would have uncoordinated peristaltic waves. To determine the rate of food transit through the larval intestine and to visualize the intestinal tract, larvae were fed with fluorescent beads mixed with a regular diet. We then measured the intestinal transit rate; peristaltic wave activity; and coordination of peristaltic movement down the length of the intestine. Our study demonstrates that the presence of food inside the gut after 24-hour post feeding is because of the inability of CHD8-/- mutant larvae to pass food at a standard rate. Surprisingly, peristalsis in CHD8 -/- larvae had a higher mean rate of muscle movement as compared to wildtype siblings. Data suggest that uncoordinated peristaltic contractions in CHD8-/- mutants lead to this phenotype and the contractions are also less effective which leads to slow down of food passage. *WV-INBRE Grant# 2P20GM1.3434_14 P1500699. NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence. The Marshall University Molecular and Biological Imaging Center. WV-INBRE grant P20GM103434*