

S. MONIS ALI, JAMES WALTERS, Dept. of Applied Science and Mathematics, Bluefield State College, Bluefield, WV 24701. Effects of CHD8 mutations on the intestinal dysmotility and peristalsis rate in a larval zebrafish (*Danio rerio*) model of autism

Autism Spectrum Disorder (ASD) is one of the fastest-growing disorders in America today. While ASD is primarily known as a developmental disorder that affects communication and behavior, comorbidities like constipation from restrictive gut movement also exist. Our work explores gut motility and quantifies the difference in the rate of flow of food in the gut and the smooth muscle movement. Many genes have been associated with ASD our lab is focused on CHD8 as it is one of the prevalent mutated genes. *CHD8* is a chromatin helicase involved in brain development and nerve cells, which affects communication and proliferation. To study the CHD8 mutation, we are using Zebrafish to model Autism Disorder. With an intestinal transit assay 7 days post-fertilization larvae are fed with a diet containing fluorescent beads for 1.5 hours and imaged it for five different time points over the next 24 hours. With videography we blindly recorded the larvae for 5 min at one frame/sec and capture the peristaltic events in the gut. Intestinal measurements of regions of interest were quantified for peristalsis timing and sequence. Larvae were then genotyped. *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.*