BRIANNA PUNTURI, ELISHA MARTIN, TESFAYE BELAY. Bluefield State College. Bluefield, WV Gene expression profiles T helper cell chemokines, cytokines and transcription factors in the genital tract of a stress mouse model during Chlamydia muridarum infection

A stress mouse model established in our laboratory showed that prolonged exposure of mice to cold water-induced stress results in elevated plasma norepinephrine levels, increased intensity of *Chlamydia muridarum* genital infection, and decreased functions of the immune system. The current study was designed to test whether Active Hexose Correlated Compound (AHCC) modulates the gene expression profiles of chemokines associated with either Thelper 1 (Th1) or Th2 in the stress model. We hypothesized that oral administration of AHCC feeding up-regulates the gene expression profiles of Th1 chemokines and Th1 transcription factors and increases the secretion of cytokines in Th cells and lysates of the genital tract. During the stressing period of 21 days, we mice either 300 mg/kg of AHCC or PBS per day using a gavage feeding technique. We used real PCR to determine gene expression of chemokines favoring Th1 or Th2 chemokines and cytokines. We used ELISA to assess cytokine production in the genital tract lysates. Oral administration of AHCC to stressed mice resulted in the up-regulation of Th1 chemokines. The level of mRNA fold-changes of CXCL10 (+2.2 fold), CXCL9 (+1.8 fold), and CCL5 (+2.fold) was observed. Moreover, AHCC feeding resulted in a significant increase in productions of interleukin-1β, and interleukin 10(IL-10) in the genital tract of stressed mice. However, the production of TNF-α and IL-6 were undetectable by ELISA. Although further study is needed, preliminary data suggest that AHCC feeding favors the production of protective cytokines in our stress mouse model. (**Supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence and NIH Grant P20GM103434 awarded to Bluefield State College**).