Active Hexose Correlated Compound as a Countermeasure against Cold-induced Stress during *Chlamydia muridarum* Genital Infection in Mice. **Emily Shupe**, Tesfaye Belay. Dept of Applied Science and Mathematics. Bluefield State University. Bluefield, WV 24701

Chronic stress is known to suppress the immune system, but the influence of stress on the pathogenesis of *Chlamydia trachomatis* genital infection and host immune response remains unexplored A stress mouse model has been developed in our lab and we have demonstrated that cold-induced stress (CIS) suppresses the immune system and subsequently leads to increased intensity of *Chlamydia muridaum* in mice. We have started feeding mice with Active hexose correlated compound (AHCC) that may restore the function of the immune system and result in reduced *C. muridarum* shedding from the genital tract. During the feeding of stressed mice with AHCC, dendritic cells (DCs) and macrophages bring the AHCC to T cells in the lymph node; however, the specific functions of DCs subsets in our stress model are not defined. We determined the production of cytokines by macrophages, CDs, and CD4+T in the AHCC-fed stress mice during *C. muridarum* genital infection. CD4+ T cells isolated from the spleen or lymph node of stressed-AHCC-fed, PBS-stressed, or non-stressed mice proliferated, and cytokine secretion was measured by ELISA. AHCC-feeding led to lower production of IL-5, IL-13, IL-10 and higher IL-12 ($P<0.01$) and IFN-γ ($P<0.01$) in the stressed AHCC-fed mice. AHCC-feeding to stressed and non-infected mice showed a similar pattern of cytokine production to that of infected mice. Overall, we have observed AHCC-feeding leads to enhanced Th1 cytokine production associated with significant suppression of Th2 cytokine production. Because DCs as antigen-presenting cells play a pivotal role to stimulate naïve T cells.
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