

SESSION IV: Therapy-Viral Persistence and Reservoirs

ABSTRACT NUMBER FORTY-ONE	
Abstract Title	<i>Chronic Delta-9-Tetrahydrocannabinol Administration Lowers Viral Load in Reservoir Tissues in Rhesus Macaques</i>
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Abstract Text	<p>Our ongoing studies have demonstrated that simian immunodeficiency virus (SIV)-infected rhesus macaques chronically administered to delta-9-tetrahydrocannabinol (THC) have increased survival and lower plasma viral loads. SIV is known to persist in viral reservoirs - latently infected cells and immune system tissues such as spleen and lymph nodes. Control of this latent virus may contribute to improved survival. Clinical and pre-clinical studies have demonstrated that the spleen accumulates more THC than other organs and is a long-term THC storage site. Therefore, we hypothesized that THC may affect levels of viral integration and activation in tissues that could impact disease outcome. We measured proviral DNA and gagRNA in the spleens and lymph nodes of rhesus macaques treated chronically with THC (0.32 mg/kg; 2x daily, i.m.) or vehicle for 15-18 months prior to inoculation with SIV. Tissues were collected at necropsy approximately 4 months post inoculation. Chronic THC-treatment showed a significant correlation with lower levels of proviral DNA (Spearman's rho=-0.805, p=0.014) and viral gagRNA (Spearman's rho=-0.748, p=0.038) in the spleens of SIV-infected macaques. Additionally, although these values failed to reach statistical significance, THC-treated animals had lower plasma viral load at necropsy (5.75 vs. 6.36 log copies of gagRNA/ml), lower lymph node proviral DNA (1.57 vs. 2.23 log copies/10,000 cells, inguinal and 2.33 vs. 2.84 log copies/10,000 cells, mesenteric) and lower lymph node viral gagRNA (1.30 vs. 3.23 log copies/total RNA, inguinal and 2.33 vs. 2.84 log copies/total RNA, mesenteric), as compared to vehicle-treated animals. These data indicate that chronic THC administration may reduce viral loads in reservoir tissues and ameliorate disease progression.</p>
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