Abstract 33rd Annual Symposium on NHP Models for AIDS

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Section 2 – Session Preference/Poster Only
#1 Virology and Pathogenesis

Section 3 – Abstract Title: Reference values for Macrophages in Skeletal Muscle and Heart in Rhesus Macaques (Macaca mulatta)

Section 4 – Author Information
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Section 5 – Abstract Text

Background: Cardiomyopathy is a major cause of morbidity in HIV-infected individuals undergoing cART and appears to be associated with macrophage activation and inflammation. We previously reported that increased turnover of blood monocytes and death of tissue macrophages, such as interstitial macrophages (IM) of lung, correlated with progression to AIDS in SIV-infected adult rhesus macaques better than declining numbers of CD4+ T cells. The focus of this study was to characterize macrophages of myocardium to then determine if SIV-induced damage to macrophages in myocardium also contributes to cardiomyopathy in SIV/HIV infection.

Methods: Tissues from skeletal muscle (rectus femoris) and heart from SIV-infected and non-SIV infected macaques that have received BrdU intravenously (i.v.) and unlabeled 10000 MW dextran i.v., intrathecally, and via inhalation were analyzed by immunohistochemistry (IHC) or flow cytometry (FC). Phenotypic markers examined were for monocyte/macrophages (CD11b, CD45, HAM56, CD163, CD206) and T and B cells (CD3, CD4, CD8 CD20). BrdU and dextran staining was used to characterize shorter- and longer-lived macrophages, respectively.

Results and Conclusions: Proportion of CD45+ cells (0.081-1.21%) in non-enriched, single-cell preparation from heart from macaques were similar to levels reported in murine studies. Within population CD45+ cells, approximately 66% were CD11b+ and CD163+. By IHC, ~2% of cells in muscle tissue sections expressed either CD68 or CD163, corroborating flow cytometry results. Staining for HAM56 and CD206 identified proportion of macrophages in muscle tissue that may represent the longer-lived...
macrophages analogous to alveolar macrophages of lung. In addition, subset of macrophages in muscle stained with BrdU or dextran following in vivo injection further supporting presence of shorter-lived and longer-live macrophages, respectively in muscle of SIV-infected and uninfected animals, similar to what was described in lung. This work will lead to more detailed characterization of macrophages in muscle that may lead to better understanding of pathogenesis of AIDS related cardiomyopathy.

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Section 7 – Early Investigator Awards
NA