



Scientists and Health Care Workers  
Committed to HIV/AIDS

# 4th International AIDS Society Conference on **HIV** Pathogenesis and Treatment

Sydney, Australia - July 22 - 25, 2007

## MACROPHAGE INFILTRATION IS NOT ENOUGH FOR THE DEVELOPMENT OF DEMENTIA IN HIV PATIENTS: EVIDENCE FOR MID-BRAIN INVOLVEMENT IN HIV-D

*IAS Conf HIV Pathog Treat 2007 Jul 22-25;4th: Abstract No. MOAA205*

Zhou J.<sup>1</sup>, Ng T.<sup>2</sup>, Brew B.<sup>3</sup>, Saksena N.<sup>1</sup>

<sup>1</sup>Westmead Millennium Institute, Retroviral Genetics, Westmead, Sydney, Australia, <sup>2</sup>ICPMR, Anatomical pathology, Westmead, Sydney, Australia, <sup>3</sup>St. Vincents Hospital, Neurology, Darlinghurst, Australia

---

**OBJECTIVE:** Our main objective was to analyze cellular infiltration of macrophages and CD8+ T cells in relation to HIV-1 in diverse regions of the brain of patients with and without dementia.

**METHODS:** Autopsy tissues from 41 CNS regions from 2 patients with dementia and 48 CNS regions from 7 patients without dementia were analyzed using PCR, histopathology and immunohistochemistry. Fresh tissues, where available, were used for PCR and sequencing of HIV *env*, *RT-pol* and *nef* genes. The paraffin embedded tissues were used for histological and immunohistochemical analysis using anti-p24 antibody for HIV and CD8 and macrophage infiltration using anti-CD8 and anti-CD68 antibodies, respectively. Deletion of primary antibodies served as controls. Data were analyzed using SPSS 11.0 with Student's *t* test for comparisons and ANOVA. P value <0.05 was considered significant.

**RESULTS:** Macrophage infiltration was not enough to cause neurological impairment, but co-localization of macrophages according to the CNS region particularly in relation to HIV was critical determinant of dementia. This was consistent with regionalization of HIV-specific neuropathology in the CNS. HIV+ patients without dementia showed variable degrees of MQ infiltration characterized by marked absence actively replicating HIV and only provirus was found in the CNS of these patients.

**CONCLUSIONS:** HIV infected/possibly activated macrophages were unique to patients with HIV-D, whereas only provirus was found in patients without dementia and this presence of provirus in diverse areas of the CNS had no correlation with MQ infiltration and neurocognitive impairment. Actively replicating HIV in the CNS in concomitance with HIV-infection of the macrophages appears to be the

key determinant of progressive HIV-D. Middle part of the brain appears to be more involved in development of dementia. This study allows the supposition that regionalization of HIV pathology in the CNS have a strong bearing on neurocognitive impairment in HIV patients.

2007-07-22

MOAA205

HIV Diversity, Tropism and Compartmentalization

---

Copyright © 2007 - [International AIDS Society](#) (IAS). All information and content relating to the abstracts from the 3rd International AIDS Society Conference on HIV Pathogenesis and Treatment, such as text, graphics, logos, button icons, images, audio clips, and software is protected by copyright. Permission is hereby granted for the non-commercial use or reproduction of the information on this web site, provided that the use of such information is accompanied by an acknowledgement that IAS is the source of the information and the name of the author of the article.

AEGiS is made possible through unrestricted grants from [Boehringer Ingelheim](#), [Bridgestone/Firestone Charitable Trust](#), [Bristol-Myers Squibb Company](#), [Elton John AIDS Foundation](#), the [National Library of Medicine](#), and [donations](#) from users like you. **Always watch for outdated information. This article first appeared in 2007. This material is designed to support, not replace, the relationship that exists between you and your doctor.**

AEGiS presents published material, reprinted with permission and neither endorses nor opposes any material. All information contained on this website, including information relating to health conditions, products, and treatments, is for informational purposes only. It is often presented in summary or aggregate form. It is not meant to be a substitute for the advice provided by your own physician or other medical professionals. **Always discuss treatment options with a doctor who specializes in treating HIV.**

Copyright ©1980, 2007. AEGiS. All materials appearing on AEGiS are protected by copyright as a collective work or compilation under U.S. copyright and other laws and are the property of AEGiS, or the party credited as the provider of the content. Permission is hereby granted for the non-commercial use or reproduction of the information herein, provided that the use of such information is accompanied by an acknowledgement that IAS is the source of the information and the name of the author of the article.