As we enter the 4th decade of the HIV pandemic, investigations into the diagnosis, prevention and treatment of the virus’s effects on the nervous system continue to evolve.

Despite substantive positive outcomes seen in disease morbidity and morality as a consequence of combination antiretroviral therapy, viral infection continues to affect the nervous system.

In addition to the neurocognitive, motor, behavioral and sensory deficits resulting from HIV itself, the now chronic nature of HIV infection can intersect with other comorbid infections as well as diseases influenced by aging, such as neurodegenerative disorders.

Animal models have contributed greatly to advances in knowledge about HIV pathobiology and its effects on the immune and nervous system.

This symposium will highlight the current issues in neuroAIDS research where animal models are critical in meeting gaps in our overall knowledge.

Join this conference in person or via a webinar – see page 3 for registration details.
SYMPOSIUM SPEAKERS

Shilpa Buch, Ph.D.
University of Nebraska Medical Center
“Administration of HIV proteins into the CNS of rodents”
Dr. Buch, Professor, is a faculty member at UNMC whose research interests span the area of HIV neuropathogenesis and drugs of abuse using complementary model systems such as cell cultures and animal models. She uses rodent models administered HIV proteins into the CNS to recapitulate aspects of HIV-associated neurocognitive disorders (HAND). She runs an active research program that is well-funded and backed with significant publications in peer-reviewed journals.

Sulie Chang, Ph.D.
Seton Hall University
“HIV-1 Transgenic Rat: Feedback Interaction Between Addictive Substances and HIV Viral Proteins”
Dr. Chang is a Professor and Director of the Institute of Neurommune Pharmacology at Seton Hall University. She received her Ph.D. in biochemistry at The Ohio State University. Her research focuses on the feedback interactions between addictive substances and microbial infections on the CNS using the transgenic rat model. Dr. Chang has been a standing and ad hoc member of various NIH Study Sections, is on the Editorial Board of the Journal of Neuroimmune Pharmacology and the Journal of NeuroVirology, and has served as an ad hoc reviewer for many scientific journals.

Janice Clements, Ph.D.
Johns Hopkins School of Medicine
“The SIV Macaque Model: Unraveling Mechanisms of HIV CNS Disease”
Dr. Clements began her career in neurovirology with Richard T. Johnson and Bill Narayan in the department of Neurology and continued on the faculty of Johns Hopkins School of Medicine. She co-authored studies demonstrating that HIV was a lentivirus and pioneered molecular pathogenesis studies using the simian immunodeficiency virus model. She directs the Retrovirus Laboratory that developed an accelerated SIV model used to demonstrate the role of neurovirulent strains, CD4-independent virus infection, innate immune control of virus in the CNS and miRNA regulation of immune responses in macrophages and brain in the pathogenesis of HIV/SIV CNS disease. A SIV HAART model is currently being used to study HIV/SIV latency and eradication.

Howard S. Fox, M.D., Ph.D.
University of Nebraska Medical Center
“Chronic SIV infection of monkeys”
Following education and training at Johns Hopkins, Cold Spring Harbor and the University of California, San Diego, Dr. Fox began his independent research career at The Scripps Research Institute. Beginning in immune studies, his work soon evolved to center on the effects of HIV on the brain, modeled in SIV infected rhesus monkeys. He integrates many modalities into this work, from behavior and physiology to neuroimmunology and pathology, leading the way in the application of the latest “omic” based technology and systems biology approaches. He moved to the University of Nebraska Medical Center in 2008 to expand this work in the rich neuroAIDS research environment.

Howard E. Gendelman, M.D.
University of Nebraska Medical Center
“Rodent models for testing adjunctive HAND therapies”
Dr. Gendelman is the Larson Professor of Internal Medicine and Infectious Diseases, Chair of the Department of Pharmacology and Experimental Neuroscience at UNMC. Dr. Gendelman is well recognized for his contributions in understanding how alterations in mononuclear phagocyte function induce metabolic changes in the brain and ultimately lead to neural cell damage. The discoveries have broad implications in preventing infectious and degenerative disorders of the nervous system. Immunotherapy, nanomedicine and other adjunctive strategies were developed in animal models of HIV-1 and Parkinson’s diseases made possible by novel therapeutic designs.

Johnny He, Ph.D.
Indiana University School of Medicine
“Inducible and brain-specific Tat transgenic mouse model for HIV/neuroAIDS research”
Dr. He was recruited from Dana Farber Cancer Institute of Harvard Medical School to join the Department of Microbiology and Immunology at Indiana University School of Medicine in 1997 and has served as the Director of the Indiana University Center for AIDS Research since 2007. He is a leader in elucidating the molecular mechanisms of HIV neuropathogenesis and has made extremely novel observations. His development of an HIV Tat transgenic mouse model has allowed numerous research laboratories across the world to make advances in HIV neuropathogenesis research.

Marcus Kaul, Ph.D.
Sanford Burnham Medical Research Institute
“HIV co-receptors in models of HIVgp120-induced brain injury”
Dr. Kaul and his group study pathological mechanisms that link HIV infection and neurodegeneration. The viral envelope protein gp120 provides the point of first contact with the host, mediates infection and can be released by infected cells. Furthermore, soluble HIV gp120 triggers in vitro and in vivo neuronal injury and death. They recently characterized the neuropathological and protective role of HIV co-receptors using genetic knockout models of the chemokine receptor proteins CCR5 and CXCR4. For in vivo experiments, they cross-bred CCR5-deficient animals and transgenic mice that express HIV gp120 in the brain.

Rick Meeker, Ph.D.
University of North Carolina
“FIV infection of cats”
Dr. Meeker received a Ph.D. in physiological psychology in 1976 followed by postdoctoral training in the use of large animal models and molecular pharmacology. He has been an academic research scientist since 1983. In 1994 he began to pursue his current interest in the mechanisms of HIV associated neural damage using the feline immunodeficiency virus (FIV) model. He is currently working on improving the utility of the FIV model and on the development of a new p75 neurotrophin receptor ligand that may reduce CNS damage and macrophage-associated inflammation.
Larisa Poluektova, M.D., Ph.D.
University of Nebraska Medical Center
“HIV infection of humanized immunodeficient mice”
Following education and work at the Latvian Medical Academy and Latvian Center of Hepatology, Riga, Latvia, Dr. Poluektova immigrated to the USA and began her research career at Creighton University then at UNMC, Omaha, Nebraska. Beginning in immune studies, her work soon evolved to center on the effects of HIV on the brain, modeled in severe immunodeficient mice by their “humanization.” She integrates many modalities into this work, from simple temporal transplantation of human peripheral blood cells to “permanent” engraftment of human hematopoietic stem cells and expansion of the human immune system in mice. The work is applied to therapeutics for neuroAIDS.

Christopher Power, M.D., F.R.C.P(C)
University of Alberta, Canada
“Use of transgenic mice in studies of HIV-associated neurologic disorders”
Dr. Power is a Professor of Neurology at the University of Alberta, Edmonton Alberta and holds a Canada Research Chair in Neurologic Infection and Immunity. He is an internationally-recognized physician-scientist dedicated to investigating the disease mechanisms, diagnosis, treatment and prevention of inflammatory neurodegenerative diseases including multiple sclerosis and neuroAIDS. His laboratory and clinical activities have focused on utilizing clinical samples to guide experimental inquiries using different models of disease including both in vitro models of primary neural cells together with in vivo models of viral infection and transgenic models for both diseases.

David J. Volsky, Ph.D.
Columbia University
“Neurocognitive Disease in Mice Infected with Chimeric HIV”
Dr. Volsky received a Ph.D. degree in biochemistry at Hebrew University in Jerusalem and currently is Director of the Molecular Virology Division and Professor of Pathology and Cell Biology at Columbia University. Dr. Volsky has investigated many aspects of HIV biology and viral pathogenesis focusing on HIV interactions with brain-derived cells and molecular mechanisms of viral neuropathogenesis, both in human systems and in the recently developed model of infection of mice with chimeric HIV.

Ken Williams, Ph.D.
Boston College
“A CD8-lymphocyte depletion model of SIV neuropathogenesis”
Dr. Williams received his Ph.D. in neuroimmunology from McGill University, Montreal, Quebec, Canada and currently is Professor of Biology at Boston College. His research focuses on the role of CNS macrophages and CD8 T lymphocytes in the pathogenesis of lentiviral infection. The work uses a monkey model of rapid, consistent AIDS and neuroAIDS, CD8 T lymphocyte depletion, MR spectroscopy, monocyte/macrophage biology and immunology. Using this model, and observations in humans, his work has underscored the importance of monocyte traffic from bone marrow, expansion in blood and accumulation in the brain in AIDS pathogenesis.

March 24, 2011
Durham Research Center, Room 1002
University of Nebraska Medical Center
550 South 45th Street
Omaha, Nebraska
7:30 a.m. - 3 p.m. (Central Daylight Time)

Attend in person
or participate via a
Webinar
(register early, limited space)

Registration required

Cost - FREE!

To attend in person, e-mail: neuroaidsmodels@unmc.edu

To attend via Adobe® Connect Webinar, register at:
Animal Models for NeuroAIDS Research Symposium
http://breeze.unl.edu/neuroaids_models/event/
(Webinar through the University of Nebraska, Lincoln)

Registration deadline:
March 18, 2011

Direct questions to:
neuroaidsmodels@unmc.edu
402-559-3549
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
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<tbody>
<tr>
<td>7:30 - 8 a.m.</td>
<td>Breakfast Continental Breakfast</td>
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<tr>
<td>8 a.m.</td>
<td>Welcome</td>
<td>Howard S. Fox, M.D., Ph.D. University of Nebraska Medical Center</td>
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<td>Lunch On your own (For UNMC attendees, vendors will be available in Durham Research Center)</td>
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<td>Panel discussion</td>
<td>All presenters Moderators: Howard Fox and Howard Gendelman</td>
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<tr>
<td>2:45 p.m.</td>
<td>Summary</td>
<td>Howard E. Gendelman, M.D. University of Nebraska Medical Center</td>
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**Conference Organizers:**
Howard S. Fox, M.D., Ph.D. Professor  
Howard E. Gendelman, M.D. Professor and Chair  
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**Sponsored by:**
Department of Pharmacology and Experimental Neuroscience  
University of Nebraska Medical Center, Omaha, Nebraska

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