



# ISNV

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*International Society for NeuroVirology*

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## Science News

page 2

### A Note from NIMH

page 2

### Conference of the Society on NeuroImmune Pharmacology

page 3

### ISNV Highlight

#### Michal Toborek, Ph.D.

page 4

### ISNV Highlight

#### Marcus Kaul, Ph.D.

page 5

### International NeuroInfectious Disease Conference Addis Ababa, Ethiopia

page 5

### Upcoming Conferences

page 5

### Committee Reports

page 7

### 10th International Society for NeuroVirology Symposium, Milan, Italy

page 8

## A Note from the President Lynn Pulliam



ISNV members Gene Major, Joan Berman, Joe Berger, Lynn Pulliam, David Clifford, Peter Kennedy, & Avi Nath enjoyed site-seeing in Addis Ababa during a break from the International NeuroInfectious Disease Conference.

The ISNV's involvement in the International NeuroInfectious Disease Conference in Addis Ababa, Ethiopia was very successful (see report on page 5) with the ISNV donating funds for 30 Ethiopian physician/researchers to attend. Plans for our International Symposia in Milan in October are underway and the call for abstracts and other meeting information can be found on our website [www.isnv.org/info/symposia.php](http://www.isnv.org/info/symposia.php). The venue is beautiful and we anticipate a very exciting meeting! We will continue to reach out to our international colleagues to encourage them to attend our

meetings. Conferences held abroad may be easier for our international colleagues to attend, and in this way, will facilitate expanded collaborations. Our next two symposia meeting sites have been chosen and they are New York City in 2012 and Honolulu, Hawaii in 2014. By selecting our meeting venues well in advance, we are better able to design our workshops, schedule speakers and plan events and activities. Please contact me, Avi Nath or the Meetings Committee with your thoughts or suggestions. I look forward to seeing you in Milan in October.

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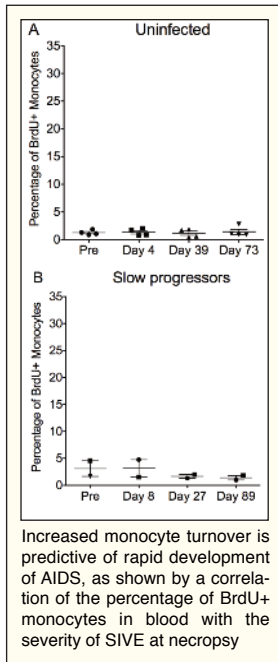
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# Science News

## Monocyte Turnover Predicts Speed and Severity of AIDS and Onset of Brain Disease

Dianne Langford



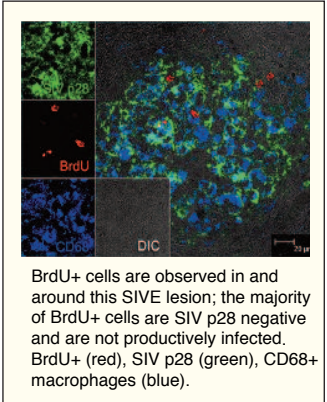
Monocyte/macrophages exit the bone marrow, transit through the blood and enter the CNS, but triggers for cell trafficking are undefined. It is known however, that trafficking of monocytes from the bone marrow to the CNS occurs in the absence of infection at a rate that is accelerated upon viral infection. Cells of the myeloid lineage are significant targets for HIV and SIV and play critical roles in innate and adaptive immunity during inflammation. In this regard, HIV and SIV infect monocyte/macrophages, which enter and accumulate in the brain leading to neuronal dysfunction.

Recent studies by Burdo et al. provide new insights into the development of HIV-related CNS disease and underscore the importance of monocyte/macrophage recruitment from the bone marrow as an AIDS defining event (Burdo et al., 2010

*PLoS Pathogens*, 6(4):e10000842).

In a longitudinal study of SIV-infected CD8+ T-lymphocyte depleted macaques, monocytes that recently emigrated from bone marrow were identified by 5-bromo-2'-deoxyuridine (BrdU) labeling. These studies report that the percentage of BrdU+ monocytes leaving the bone marrow 24 hours after infection was increased in animals that rapidly succumbed to AIDS and correlated with the severity of SIV encephalitis (SIVE). Differences in the percentages of BrdU labeled monocytes in slow and rapid progressors were observed as early as 8 days post infection. Soluble CD163, shed by activated monocyte/macrophages, directly correlated with BrdU+ monocyte expansion.

These studies suggest that an increased rate of monocyte recruitment from bone marrow into the blood correlates with rapid progression to AIDS, and the magnitude of BrdU+ monocytes correlates with the severity of SIVE.



## NIH News

### A Note from NIMH

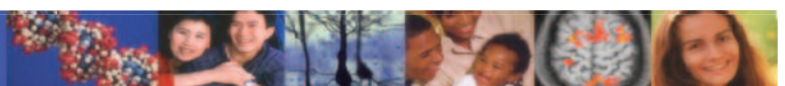
Jeymohan Joseph, David Stoff & Dianne Rausch

The Division of AIDS Research (DAR) at the National Institute of Mental Health (NIMH) supports an integrated program of studies to elucidate the pathophysiology of HIV-related neurologic and neuropsychiatric dysfunction; discover novel treatment approaches to mitigate CNS complications of HIV infection; and develop interventions targeting HIV infection among people with mental illness. The Division currently invests approximately 47 million dollars supporting over 120 grants in the NeuroAIDS portfolio. These grants are spread amongst 4 major programs and include: 1) Mechanisms of HIV Neuropathogenesis, 2) Viral and Host Genetics, 3) Neuropsychology/Neuropsychiatry of HIV infection, and 4) HIV NeuroAIDS Therapeutics.

The NeuroAIDS program at NIMH has identified the following as emerging scientific priority areas:

- Study the impact of aging and associated co-morbidities in pathophysiology of HIV-associated CNS disease
  - Explore the role of global clade diversity and host genetic factors in HIV neuropathogenesis
  - Develop novel therapeutics emerging from HIV neuropathogenesis research
  - Explore novel approaches for eradication of HIV/CNS reservoirs
  - Develop effective approaches and mechanisms to move novel NeuroAIDS therapies to the clinic
- In addition to promoting the scientific areas described above, the DAR of NIMH also supports research training programs in both preclinical and clinical aspects of NeuroAIDS. These training programs are designed to fill the need to build capacity for high quality, NeuroAIDS research in diverse racial

- Define novel biomarkers linked with evolving mechanisms of HIV neuropathogenesis in the post-HAART era



and ethnic communities disproportionately impacted by HIV/AIDS, particularly those conducted by investigators from diverse underrepresented backgrounds. To obtain a balanced NeuroAIDS research training portfolio that will inform the development of new and innovative treatments, we have utilized both the generic T32 and more specialized R25 training mechanisms.

In an effort to stimulate research in scientific and training related priority areas, NIMH has issued or is in the process of issuing the following announcements:

#### **Novel NeuroAIDS Therapeutics: Integrated Preclinical/Clinical Program (P01)**

The aim of this PAR is to support research focused on accelerating basic and translational scientific discoveries with a plan to advance drug therapeutics for HIV-Associated Neurocognitive Disorders (HAND). Recent clinical observations indicate that over 50% of HIV infected patients manifest HAND despite receiving HAART. These clinical observations inform the need to obtain a better understanding of HAND and to develop novel therapeutic drug candidates to prevent or interfere with progression of HAND. Applicants are invited to develop a multidisciplinary program with a minimum of three highly integrated Research Projects and one Administrative Core focused on research and development of novel therapeutics for HAND. At least one component (research project) may be derived from industry (i.e., pharmaceutical, chemical, bioengineering or biotechnological companies).

#### **Viral and Host Genetic Factors Regulating HIV-Associated CNS Disease (R01, R21)**

The aims of this RFA are to support studies focused on viral and host genetic factors involved in HAND in the setting of HAART. The goal of this initiative is to encourage studies to discover novel genetic paradigms that may account for the interactions between host, virus, and therapeutic drugs in the CNS that result in the pathogenesis, progression, and clinical manifestations of HAND. The use of state-of-the-art genetic approaches (including transcriptomics, phenomics, epigenomics, whole genome association studies, deep sequencing, exome sequencing, & systems biology) to identify and validate (in vitro models, animal models, & human samples) viral and host genetic factors that influence the pathophysiology of HAND are encouraged.

#### **AIDS-Related Mental Health Research Programs (AMHRP) at RCMI-Eligible Institutions (R21/R33)**

This RFA invites milestone-driven Exploratory/ Developmental Phased Innovation (R21/R33) research grant applications from Research Centers for Minority Institutions (RCMIs) that propose to develop AIDS-Related Mental Health Research Programs (AMHRP). By using the R21/R33 mechanism, this program (whose grants are intended to encompass two studies, a partnership component, and thematic and translational approaches), seeks to foster the introduction of innovative and novel scientific ideas, model systems, tools, agents, targets, and technologies that have the potential to substantially advance AIDS mental health-related research. This RFA aims to help RCMI-supported scientists forge into new and more advanced HIV studies in the behavioral, clinical and neuroscience disciplines.

## **Update from the 16th Annual Conference of the Society on NeuroImmune Pharmacology**

**Tom Rogers & Guy Cabral**

The 16th annual conference of the Society on NeuroImmune Pharmacology (SNIP) was held April 14-17, 2010 at the Manhattan Beach Marriott Hotel, Manhattan Beach, CA, USA. Plenary Lectures were presented by Stuart Lipton, M.D., Ph.D., Scientific Director of the Burnham Center for Neuroscience, Aging, and Stem Cell Research, and by Vincenzo Di Marzo, from the Istituto di Chimica Biomolecolare Nazionale delle Ricerche, Pozzuoli, Italy. A main focus of the SNIP Conference was HIV infection and drugs of abuse as modulators of the neuroimmune process. HIV and drug abuse-related symposia included three main topics:

- i) Effects of HIV-1 in Promoting Alcohol Addiction and Mechanisms of Associated Neurodegeneration
- ii) Opiates, Other Drugs of Abuse and Co-Infections
- iii) Epigenomic Regulation in Neuroscience and HIV-Infection

A special symposium entitled, "HIV and Host Immunity in the Design of Novel Therapeutic Approaches" was hosted

by the UCLA Center for AIDS Research and the UCLA AIDS Institute. Other symposia addressed Tobacco and Nicotine, Neuroimmunopharmacology and the Cannabinoid System, and Nanomedicine and Drug Delivery.

Events highlighting young investigators were also held and included the "Young Investigator Poster Session" followed by a "Meet the Mentors" session where young investigators interacted with senior investigators from academia, the National Institutes of Health, and industry to discuss career opportunities. Two post-doctoral and two pre-doctoral students were selected from among the poster presenters to give oral presentations at a special session.

A luncheon and technical workshop sponsored by the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism addressed new initiatives at the National Institutes of Health, grant writing, and the grant review process.

Abstracts from the 16th annual meeting of the Society are published in the *Journal of Neuroimmune Pharmacology* (2010) 5 (Supple 1) S3-S59.

## ISNV Highlight - Michal Toborek, Ph.D.

Dianne Langford



**D**r. Michal Toborek earned both his Ph.D. (in Biochemistry) and M.D. from the Silesian School of Medicine in Katowice, Poland. In the early 90's, Michal completed five years of post-doctoral training at the University of Kentucky in Lexington, KY. Since then, he has risen through the ranks to become full professor in the

Graduate Center for Nutritional Sciences, Markey Cancer Center and the Department of Molecular and Cellular Biochemistry, and the Department of Neurosurgery, where he serves as Associate Chair for Research.

A main focus of Dr. Toborek's research is the blood brain barrier (BBB) and endothelial cell dysfunction in the context of HIV infection of the CNS and other toxic insults. Recently, studies from his lab report that simvastatin attenuated HIV-1-induced receptor for advanced glycation end products (RAGE) expression that reg-

ulates A $\beta$  transport across the BBB (András et al., *Mol Cell Neurosci*, 2010, 43 (2): 232). These results suggest that HIV-1 may directly contribute at the BBB level to A $\beta$  accumulation. Other recent studies from the Toborek group show that inhibition of telomerase activity alters tight junction protein expression and induces transendothelial migration of HIV-1-infected cells (Huang et al., *Am J Physiol Heart Circ Physiol*, 2010, 298(4): H1136).

Dr. Toborek's laboratory consists of a diverse group of 6 postdoctoral fellows, 2 graduate students and an always-changing number of undergraduate students. The lab traditionally grows during summer months, when several undergraduate students are joining the lab to gain research experience. The lab members frequently hold social gatherings to maintain a friendly and supportive atmosphere.

Apart from his research activities, Dr. Toborek is a member of the Honorable Order of Kentucky Colonels. The title "Kentucky Colonel" originated after War of 1812 when the Kentucky Militia fought a successful campaign to restore control over the Northwest United States. In present times, the title is purely honorary and Kentucky Colonels do not serve any military roles. The list of Kentucky Colonels includes several US Presidents, Pope John Paul II, and a variety of entertainers and athletes. Another well-known Kentucky Colonel was Colonel Sanders, the founder of Kentucky Fried Chicken.

## Letter from the Editor:

Dear ISNV Members,

Since the publication of the first issue in May 1999, the ISNV NewsLetter has held to its original goal "to increase communication among members and interactions with other investigators in the field of virology," that was set forth by the founding editors, Gene Major, Steven Jacobson, and Tom Weber. In keeping with the mission of the ISNV to advance collaboration among scientists in all aspects of NeuroVirology and related disciplines, we are enjoying our second decade of the ISNV NewsLetter circulation.

During the past year or so, I have enjoyed (for the most part) serving as Editor for the Newsletter. Recently, Michael Nonemacher, PhD from Drexel University College of Medicine agreed to serve as Associate Editor and Raphael Lukov and others at Drexel University College of Medicine have continued to play leading roles in bringing together a cohesive well-planned document. Our Publications/Communications Committee, chaired by Shilpa Buch, continues to foster interactions among members allowing for the establishment of new collaborative research programs. Members of the committee include: Bruce Brew, Janice Clements, Pasquale Ferrante, Kamel Khalili, Fred Krebs, and myself. I am also particularly appreciative of Lynn Pulliam's active role in making the newsletter a success.

This past year we have expanded the ISNV NewsLetter to encompass new sections that include "Upcoming Conferences" and "Classifieds" sections. Looking ahead to the upcoming year, I am

reaching out to our members for their suggestions of new directions that will expand our NewsLetter readership. First and foremost, I invite members' contributions, suggestions, and ideas for enriched content and special emphasis sections. In addition, we are currently looking for an Assistant Editor from among the membership to assist us with copy-editing and section management. If you or someone in your group is interested, please contact me directly for more information.

Sincerely,

T. Dianne Langford, PhD  
Assistant Professor  
Department of Neuroscience  
Temple University School of Medicine  
tdl@temple.edu

## ISNV Highlight - Marcus Kaul, Ph.D.

Dianne Langford

**D**r. Kaul's laboratory studies how infectious agents, their components and the immune response can induce inflammation and degenerative diseases at the cellular and molecular level. A major focus of the Kaul laboratory's work is the role of chemokines and other pro- and anti-inflammatory cytokines and their receptors in HIV-associated injury of the CNS. More recently, the laboratory expanded its research interests into drugs of abuse and antiretroviral therapies since both are important co-factors influencing the overall picture of NeuroAIDS.

Marcus received his Ph.D. from the Departments of Medical Microbiology & Hygiene and Pharmaceutical Chemistry at the Johannes Gutenberg-University, Mainz, Germany. He joined Dr. Stuart Lipton's laboratory as a post-doctoral fellow first at Harvard and then at the Sanford-Burnham Medical Research Institute (SBMRI). Dr. Kaul was appointed to Research Assistant Professor in the Center for Neuroscience & Aging Research at SBMRI in 2001. In 2006, he accepted a position as Assistant Adjunct Professor in the Department of Psychiatry at UCSD, and in 2007 he was recruited as a tenure track Assistant Professor to the Infectious & Inflammatory Disease Center at SBMRI. Dr. Kaul is also a project principal investigator of the Translational Methamphetamine AIDS Research Center, directed by Dr. Igor Grant at UCSD.

In recent collaborations with behavioral scientists at the Scripps Research Institute and UCSD, Dr. Kaul's lab investigated the potential interactions of methamphetamine with HIV-gp120.

These studies report that the viral envelope protein alters acute stereotypic and locomotion behavior in response to methamphetamine in the gp120 transgenic mouse model (Roberts et al., *J Neurosci Methods*, 2009 186(2): 222-225). Dr. Kaul's laboratory is also actively pursuing the identification of novel neuroprotective mechanisms that may be used as therapeutic interventions.

With over 35 peer-reviewed publications, Marcus has received support from the German Research Foundation, the American Foundation for AIDS Research and NIH (NIMH, NINDS and NIDA). He is a reviewer for several scientific journals and funding agencies, both nationally and internationally. Since the completion of his Ph.D., Marcus has enjoyed training students, and he currently participates in the 'Bridges to Stem Cell Research' program of the California Institute for Regenerative Medicine, which supports two members of his laboratory with fellowships.



## The International NeuroInfectious Disease Conference, Addis Ababa, Ethiopia

Avindra Nath

**T**he International NeuroInfectious Disease Conference was held February 27-28, 2010 at the United Nations Conference Center in Addis Ababa, Ethiopia. Two hundred delegates from Ethiopia and several from Kenya were involved in the scientific forum. Participants also included neurology residents-in-training and the first graduating class of neurologists from Addis Ababa University. Presentations focused on diseases prevalent in Africa such as neurological complications of HIV/AIDS, tuberculosis, malaria, leprosy, meningitis, viral encephalitis, opportunistic infections of the brain and trypanosomiasis. Two special topics workshops were held. The first dealt with training and education of physicians and researchers in neuroinfectious diseases. The second special topics workshop examined both opportunities for and barriers to research in Ethiopia. Fifteen speakers from United States, Ethiopia, and the

United Kingdom were featured at the conference. Details of the scientific program, summaries of the workshops and several of the lectures presented are archived on the ISNV website. Sponsors awarded travel grants to 30 delegates representing each of the regions in Ethiopia. The conference drew the attention of the local media, the Health Ministry, and even the President of Ethiopia, who hosted all of the speakers at his palace prior to the meeting. The International NeuroInfectious Disease Conference provided a venue for local artists to exhibit their work featuring photographs and paintings representing the devastating effects of AIDS in Africa. The conference was an outstanding success due to the sponsorship and unflagging effort and expertise of several organizations and individuals who worked behind the scenes.

**ABSTRACT SUBMISSION**  
 10TH INTERNATIONAL SYMPOSIUM ON  
**NEUROVIROLOGY**  
 CONFERENCE ON HIV IN THE NERVOUS SYSTEM  
**DEADLINE FOR ABSTRACT SUBMISSION IS SUNDAY, AUGUST 1ST**

# Upcoming Conferences

## August

**14<sup>th</sup> International Congress of Immunology: August 22-27, 2010 in Kobe, Japan**

(For more information go to [www.ici2010.org/](http://www.ici2010.org/))

## September

**17<sup>th</sup> International Congress of Neuropathology: September 11-15, 2010 in Salzburg, Austria**

(For more information go to [www.icn2010.org/online/page.php?P=16](http://www.icn2010.org/online/page.php?P=16))

**American Neurological Association: September 12-15, 2010 in San Francisco, CA**

(For more information go to [www.aneuroa.org/index.php?src=gendocs&link=FutureMeetings](http://www.aneuroa.org/index.php?src=gendocs&link=FutureMeetings))

## October

**10<sup>th</sup> International Congress of Neuroimmunology: October 25-30, 2010 in Barcelona, Spain**

(For more information go to [www.thaineurology.com/meetings.htm](http://www.thaineurology.com/meetings.htm))

**1<sup>st</sup> International Workshop on HIV + Aging: October 4-5, 2010 in Baltimore, Maryland**

(For more information go to <http://www.virology-education.com>)

## November

**Society for Neuroscience: November 13-17, 2010 in San Diego, CA**

(For more information go to [www.sfn.org/am2010/](http://www.sfn.org/am2010/))

## February

**Neurodegenerative Diseases: The Molecular and Cellular Basis for Neurodegeneration**

**Feb 21-26, 2011 in Taos, New Mexico**

(For more information go to <http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=1122/>)

## March

**Gordon Research Conferences, Glial Biology : Functional Interactions Among Glia & Neurons**

**March 6-11, 2011 in Ventura, CA**

## Sites of General Interest

**HIV/AIDS Conferences Worldwide: Upcoming events in HIV/AIDS, immunology and related fields**

(For more information go to <http://www.conferencealerts.com/aids.htm>)



## INTERNATIONAL SOCIETY FOR **NEUROVIROLOGY**

**WHO WILL RECEIVE THE NEXT  
PIONEER IN NEUROVIROLOGY AWARD?**

ANNOUNCEMENT WILL BE MADE AT THE 10TH INTERNATIONAL SYMPOSIUM ON NEUROVIROLOGY  
IN MILAN, ITALY ON FRIDAY, OCTOBER 15

# Committee Reports

## Women in Neurovirology (WIN)

Joan W. Berman

The ISNV WIN committee has been very active this year! At the June 2009 ISNV conference in Miami, we held a WIN networking event and over 70 members, including many graduate students and postdoctoral fellows, attended. By providing a venue for female scientists to meet with one another, a WIN mentoring program was established where junior scientists were paired with more senior investigators to discuss gender issues such as promotions, negotiation skills, and sustaining career success. The presence and importance of women in the workplace continues to raise many issues such as achiev-

ing leadership positions and balancing work/home responsibilities. We anticipate that the WIN reception at future ISNV meetings and our mentoring program will facilitate awareness and discussion of these and other topics. All interested ISNV members are invited to join our "Women in Neurovirology" group and junior female scientists are strongly encouraged to participate.

## Investigators in Training

Robert S. Fujinami

The ISNV Investigators in Training Program is an important part of our Society that promotes the next generation of researchers in NeuroVirology and related fields. To provide junior investigators with the opportunity to gain valuable experience in presenting their work and answering questions at special sessions, the ISNV awards "Investigators in Training" travel grants. To help defray the cost of airfare and lodging to attend the upcoming ISNV conference in Milan, Italy in October

2010, a limited number of travel grants will be awarded this year. Outstanding Investigators in Training will be selected from among those presenting. At the 2010 Gala Dinner in Milan, recipients will be awarded plaques, each of which will be given in honor of one of our Pioneers in NeuroVirology. I encourage all students and trainees to participate. Applications are available online at the ISNV website under the link for the conference registration. See you in Milan!!

### Women in NeuroVirology

Joan W. Berman (Chair)  
Jennifer Gordon  
Ruth Brack-Werner  
Lynn Pulliam

### Investigators in Training

Robert S. Fujinami (Chair)  
Antonina Dolei  
Lynn Pulliam  
Walter Royal, III  
Ruth Brack-Werner



# 10th International Society for NeuroVirology Symposium, Milan, Italy

Brian Wigdahl

The 10th International Symposium for NeuroVirology will be convened in Milan, Italy, on October 12-16, 2010. The 10th Symposium will be held in conjunction with the 2010 Conference on HIV in the Nervous System. The joint meeting will be held on the beautiful campus of the University of Milan. A special Satellite Workshop sponsored by the ISNV, titled "Clinical and Diagnostic Topics on CNS and Inflammation", will precede the opening of the 10th International Symposium and 2010 Conference on HIV in the Nervous System. The Workshop will focus on the most intriguing and challenging topics in the field of CNS inflammatory diseases. The Workshop is being held as an independent event structured to complement both the Symposium and Conference. Overall, these meetings will involve more than 350 basic and clinical scientists and trainees working in the areas of neurology, neuropathology, neuropathogenesis, neurobiology, neuroimmunology, neurochemistry, and molecular virology. The overall goal of these concurrent events is to provide investigators working in the field of neurovirology and related areas with leading edge information so that important gaps in knowledge can continue to be identified. Armed with this information, attendees of both events will work toward formulating questions and experimental directions that will enhance the development of new preventative and therapeutic strategies

effective against neurologic diseases associated with prions, HIV, and other viral and non-viral pathogens. The 10th International Symposium will be highlighted by a series of special lectures including the Paradigm Builder, Women in Neuroscience, Bill Narayan, and Neurological Infections Lectureships culminating in the presentation of the 2010 Pioneer in NeuroVirology Award. An International Leadership Committee consisting of Drs. Lynn Pulliam, Avindra Nath, Pasquale Ferrante, Brian Wigdahl, Giorgio Palu, and Olimpia Meucci guides the scientific framework of the joint meeting. The Local Organizing Committee for the joint effort is being chaired by Pasquale Ferrante and consists of Rossana Cavallo, Serena Delbue, Antonina Dolei, Enrico Marchioni, Giulia Morace, Annateresa Palamara, Valeria Pietropaolo, and Sara Tremolada. We are pleased to announce that the 2010 Conference on HIV in the Nervous System will be sponsored to a great extent by an R13 grant from the National Institute for Mental Health. To date, Biogen Idec has provided generous support for the 10th International Symposium for NeuroVirology with additional support provided by Temple University School of Medicine and Drexel University College of Medicine, Department of Microbiology and Immunology and Institute for Molecular Medicine and Infectious Disease.

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