

RETRO-ACTIVE NEWS

Newsletter of the Center for Retrovirus Research
Volume 26 Spring 2007

**The Center for Retrovirus Research
Distinguished Research Career Award**

New Grants, Publications, Upcoming Conferences and More

The Center for Retrovirus Research Distinguished Research Career Award 2007

Dr. Kuan-Teh Jeang, M.D., Ph. D. Head, Molecular Virology Section, Laboratory of Molecular Microbiology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland was the eighth recipient of the annual award for his original and significant research contributions to retrovirology.

A prolific leader in the field of molecular virology, Dr. Jeang has contributed significantly to understanding of gene regulation of human immunodeficiency virus (HIV-1) and carcinogenic mechanisms of human T-cell leukemia virus type 1 (HTLV-1). Among his notable scientific findings are elucidation of a mechanism for suppression of p53, defining virally-encoded factors that select against HIV-1 CXCR4-tropism, and identification of a mitotic checkpoint protein whose function is abrogated by HTLV-I Tax oncoprotein. His recent pioneering research has demonstrated that deletion of mitotic arrest-deficient protein 1 (MAD1) increases the incidence of tumors in a mouse model, identified that the HIV-1 Tat protein binds Dicer, a key regulator of small interfering RNA, and described a role for Akt/protein kinase B and activator protein-1 in cellular proliferation induced by HTLV-1 Tax.

Dr. Jeang's visit was sponsored jointly by the Center for Retrovirus Research and the Department of Veterinary Biosciences, Department of Molecular Virology, Immunology and Medical Genetics, and the Comprehensive Cancer Center program in Viral Oncogenesis.

See a summary of the previous award winners at the archive:
<http://www.vet.osu.edu/302.htm>



Dr. Michael Lairmore (right) presents the crystal 2007 award engraved with the retrovirus particle. From left, Drs. Patrick Green, Kathleen Boris-Lawrie, K-T Jeang. Dr. Jeang presented the keynote lecture "HTLV-1, Adult T-cell Leukemia, and Mechanisms of Cellular Transformation".



Dr. Jeang presenting a "chalktalk" lecture entitled "HIV-1 and Small RNAs: What We are Learning", at the College of Veterinary Medicine.

Selected Recent Publications

Subunit specific protein footprinting reveals significant structural rearrangements and a role for N-terminal LYS-14 of HIV-1 integrase during viral DNA binding. Zhao A, McKee CJ, Kessl JJ, Santos WL, Daigle JE, Engelman A, Verdine G, Kvaratskhelia M. *J Biol Chem.* 2007.

The HIV-1 Central DNA Flap Region Contains a “Flapping” Third Strand. Besik I. Kankia and Karin Musier-Forsyth (2007) *Biophys. Chem.* 127, 64-68 (2007).

Deaminase-independent inhibition of HIV-1 reverse transcription by APOBEC3G. Yasumasa Iwatani, Denise S.B. Chan, F. Wang, Kristen Stewart Maynard, Wataru Sugiura, Angela Gronenborn, Ioulia Rouzina, Mark C. Williams, Karin Musier-Forsyth, and Judith G. Levin (2007) *Nucleic Acids Research*, in press. doi: 10.1093/nar/gkm750.

Critical Role of Helix 4 of HIV-1 Capsid C-terminal Domain in Interactions with Human Lysyl-tRNA Synthetase. Brandie J. Kovaleski, Robert Kennedy, Ahmad Khorchid, Lawrence Kleiman, Hiroshi Matsuo, and Karin Musier-Forsyth (2007). *J Biol Chem.*, 282: 32274 - 32279.

RNA helicase A interacts with divergent lymphotropic retroviruses and promotes translation of human T-cell leukemia virus type 1. Bolinger, C., Yilmaz, A., Roberts Hartman, T., Butsch Kovacic, M., Fernandez, S., Ye, J., Forget, M., Green, P.L., Boris-Lawrie, K. 2007. *Nucleic Acids Research*;35(8):2629-42.

Bridging fundamental RNA biology, retroviral replication, and oncogenesis: Karen Beemon wins the 2007 Retrovirology Prize Boris-Lawrie, K. *Retrovirology* 4:88.

Human T-Lymphotropic Virus Type 1 p30II Expression Alters Cell Cycle G2 Regulation in T Lymphocytes. Datta A, Silverman L, Phipps A, Hiraragi H, Ratner L, and Lairmore M. 2007. *Retrovirology* 4:49.

Adult T-Cell Leukemia and Strongyloides Infection. 2007. Ratner L, Grant C, Zimmerman B, Fritz J, Weil G, Denes A, Rama S, Campbell N, Jacobson S, and Lairmore M. *Amer. J. Hematol.* 82(10):929-31.

PS-341 and Zoledronic Acid Reduce Tumor Burden and Humoral Hypercalcemia of Malignancy in a Novel Bioluminescent Mouse Model of Human Adult T-Cell Leukemia/Lymphoma. 2007. Shu S, Nadella M, Dirksen W, Fernandez S, Thudi N, Werbeck J, Lairmore M, and Rosol T. *Cancer Res.* 67(24):11859-66.

Mucosal administration of low dose cell-associated feline immunodeficiency virus promotes viral latency. 2007 Assogba BD, Leavell SE, Porter K, Burkhard MJ. *J Infect Dis.* 195:1184-1188.

FIV infection induces unique changes in phenotype and cellularity in the medial iliac lymph node and intestinal IEL. Howard KE, Burkhard MJ. *2007 AIDS Res Hum Retroviruses*, 23:720-8.

Estimating true antimalarial efficacy by heteroduplex tracking assay in patients with complex Plasmodium falciparum infections. 2007 Kwiek JJ, Alker AP, Wenink EC, Chaponda M, Kalilani LV, Meshnick SR. *Antimicrob Agents Chemother.* Feb;51(2):521-7. Epub 2006 Nov 20.

Selected Invited Presentations

Karin Musier-Forsyth presented Nucleic Acid Chaperone Activity of Retroviral Nucleocapsid Proteins at the National American Chemical Society Meeting, Boston and at the HIV DRG Symposium, VA.

Kathleen Boris-Lawrie presented at the NCI Workshop, Virus-Host Standoff, Bethesda, MD, and at the HIV DRG Symposium, VA. She was appointed member in NIH Virology B study section 2007-2011.

Patrick Green presented at Vanderbilt University; University of California-Los Angeles; and Syracuse University on various roles of Human T cell Leukemia Virus Regulatory and Accessory Proteins.

Michael Lairmore and Patrick Green were invited speakers: Thirteen International Retrovirology Meeting: HTLV and Related Retroviruses “Molecular Pathogenesis of HTLV-1”. Tokyo, Japan.

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Awards

Michael Lairmore, Director and Tom Rosol, Co-director, 2007-2012 National Institutes of Health, National Center for Research Resources Training Grant: “Mouse Pathobiology: Models Of Human Disease”

Jesse Kwiek, K99/R00 award from NIH/NICHD: “Viral and Placental Determinants of HIV-1 Subtype C Mother-to-Child Transmission”.

Jesse Kwiek, PI and Mary Jo Burkhard, Co-PI pilot award from the OSU Public Health Preparedness in Infectious Diseases program: “Do placental viral sequestration and changes in toll-like receptor expression promote HIV-1 mother-to-child transmission in Malawi?”

Doctoral Graduates

Alper Yilmaz, “Translational control of mRNAs transcribed from HIV-1 provirus and HIV-1 based lentiviral vectors.” Postdoc at The Ohio State University with Erich Grotewold.

Antara Data, “Human T-Lymphotropic Virus Type I Accessory Protein p30 Modulates Cell Cycle and DNA Damage Signaling.” Dr. Data is currently at the Cancer Institute of New Jersey, part of the University of Medicine and Dentistry of New Jersey, and her PI is Dr. Michael Reiss.

My Nuong Vo “Mechanistic Studies of HIV-1 Nucleocapsid Protein”. Postdoc at The Scripps Research Institute with Paul Schimmel.

Mithun Mitra “Mechanistic Studies of Retroviral Nucleocapsid Proteins”. Postdoc at NCI-Frederick with Judith Levin.

