AMERICAN SOCIETY FOR MICROBIOLOGY | Journal of Virology®

CONTENTS • JUNE 2019 • VOLUME 93, NO. 11

COVER IMAGE

Cover photograph: Influenza viruses replicate within and transmit between a wide range of avian and mammalian host species. Here, some of these species have gathered to commiserate. A common feature of influenza virus infection is the production of defective interfering particles (DIPs) that harbor large deletions in one or more genome segments. The causes and consequences of DIP formation remain poorly understood. Alnaji et al. developed a next-generation sequencing pipeline to facilitate high-resolution analysis of DIPs present in influenza A and B virus populations. (*See related article at e00354-19.*) (Courtesy of Allegra Raff; reprinted with permission.)

SPOTLIGHT

Articles of Significant Interest in This Issue **e00552-19**

GEMS

The Transcriptome of Latent Human Cytomegalovirus **e00047-19**
Michal Schwartz, Noam Stern-Ginossar

***In Vivo* Models of Oncoproteins Encoded by Kaposi's Sarcoma-Associated Herpesvirus** **e01053-18**
Ariana G. Bravo Cruz, Blossom Damania

STRUCTURE AND ASSEMBLY

Conformational Engineering of HIV-1 Env Based on Mutational Tolerance in the CD4 and PG16 Bound States **e00219-19**
Jeremiah D. Heredia, Jihye Park, Hannah Choi, Kevin S. Gill, Erik Procko

Sequence Determinants in Gammaretroviral Env Cytoplasmic Tails Dictate Virus-Specific Pseudotyping Compatibility **e02172-18**
Yul Eum Song, Grace Y. Olinger, Sanath Kumar Janaka, Marc C. Johnson

GENOME REPLICATION AND REGULATION OF VIRAL GENE EXPRESSION

Cellular DNA Topoisomerases Are Required for the Synthesis of Hepatitis B Virus Covalently Closed Circular DNA **e02230-18**
Muhammad Sheraz, Junjun Cheng, Liudi Tang, Jinhong Chang, Ju-Tao Guo

GENETIC DIVERSITY AND EVOLUTION

Fecal Viral Diversity of Captive and Wild Tasmanian Devils Characterized Using Virion-Enriched Metagenomics and Metatranscriptomics **e00205-19**
Rowena Chong, Mang Shi, Catherine E. Grueber, Edward C. Holmes, Carolyn J. Hogg, Katherine Belov, Vanessa R. Barrs

Antarctic Penguins as Reservoirs of Diversity for Avian Avulaviruses **e00271-19**
Michelle Wille, Malet Aban, Jing Wang, Nicole Moore, Songhua Shan, John Marshall, Daniel González-Acuña, Dhanasekaran Vijaykrishna, Jeff Butler, Jianning Wang, Richard J. Hall, David T. Williams, Aeron C. Hurt

Sequencing Framework for the Sensitive Detection and Precise Mapping of Defective Interfering Particle-Associated Deletions across Influenza A and B Viruses **e00354-19**
Fadi G. Alnaji, Jessica R. Holmes, Gloria Rendon, J. Cristobal Vera, Christopher J. Fields, Brigitte E. Martin, Christopher B. Brooke

Instructions to Authors are available on the journal website.

Evolution of the HIV-1 Rev Response Element during Natural Infection Reveals Nucleotide Changes That Correlate with Altered Structure and Increased Activity over Time e02102-18
Chringma Sherpa, Patrick E. H. Jackson, Laurie R. Gray, Kathryn Anastos, Stuart F. J. Le Grice, Marie-Louise Hammarskjold, David Rekosh

VIRUS-CELL INTERACTIONS

The Infectious Bronchitis Coronavirus Envelope Protein Alters Golgi pH To Protect the Spike Protein and Promote the Release of Infectious Virus e00015-19
Jason W. Westerbeck, Carolyn E. Machamer

Contribution of the Cytoplasmic Determinants of Vpu to the Expansion of Virus-Containing Compartments in HIV-1-Infected Macrophages e00020-19
Olivier Leymarie, Leslie Lepont, Margaux Versapuech, Delphine Judith, Sophie Abelanet, Katy Janvier, Clarisse Berlioz-Torrent

The N Terminus of Human Cytomegalovirus Glycoprotein O Is Important for Binding to the Cellular Receptor PDGFRα e00138-19
Cora Stegmann, Franziska Rothemund, Kerstin Laib Sampaio, Barbara Adler, Christian Sinzger

Human Cytomegalovirus DNA Polymerase Subunit UL44 Antagonizes Antiviral Immune Responses by Suppressing IRF3- and NF-κB-Mediated Transcription e00181-19
Yu-Zhi Fu, Shan Su, Hong-Mei Zou, Yi Guo, Su-Yun Wang, Shu Li, Min-Hua Luo, Yan-Yi Wang

Cell Entry-Independent Role for the Reovirus μ1 Protein in Regulating Necroptosis and the Accumulation of Viral Gene Products e00199-19
Katherine E. Roebke, Pranav Danthi

By Binding CD80 and CD86, the Vaccinia Virus M2 Protein Blocks Their Interactions with both CD28 and CTLA4 and Potentiates CD80 Binding to PD-L1 e00207-19
Patricia Kleinpeter, Christelle Remy-Ziller, Eline Winter, Murielle Gantzer, Virginie Nourtier, Juliette Kempf, Julie Hortelano, Doris Schmitt, Huguette Schultz, Michel Geist, Catherine Brua, Chantal Hoffmann, Yasmin Schlesinger, Dominique Villeval, Christine Thioudellet, Philippe Erbs, Johann Foloppe, Nathalie Silvestre, Laetitia Fend, Eric Quemeneur, Jean-Baptiste Marchand

Antibody-Induced Internalization of HIV-1 Env Proteins Limits Surface Expression of the Closed Conformation of Env e00293-19
Sai Priya Anand, Jonathan R. Grover, William D. Tolbert, Jérémie Prévost, Jonathan Richard, Shilei Ding, Sophie Baril, Halima Medjahed, David T. Evans, Marzena Pazgier, Walther Mothes, Andrés Finzi

Modulation of Sialic Acid Dependence Influences the Central Nervous System Transduction Profile of Adeno-associated Viruses e00332-19
Blake H. Albright, Katherine E. Simon, Minakshi Pillai, Garth W. Devlin, Aravind Asokan

The Membrane-Spanning Peptide and Acidic Cluster Dileucine Sorting Motif of UL138 Are Required To Downregulate MRP1 Drug Transporter Function in Human Cytomegalovirus-Infected Cells e00430-19
Christopher B. Gelbmann, Robert F. Kalejta

Chicken Organic Anion-Transporting Polypeptide 1A2, a Novel Avian Hepatitis E Virus (HEV) ORF2-Interacting Protein, Is Involved in Avian HEV Infection e02205-18
Huixia Li, Mengnan Fan, Baoyuan Liu, Pinpin Ji, Yiyang Chen, Beibei Zhang, Yani Sun, Baicheng Huang, Yuchen Nan, Zhenzhao Sun, James P. Stewart, Julian A. Hiscox, Qin Zhao, En-Min Zhou

Modeling HIV-1 Latency Using Primary CD4$^+$ T Cells from Virally Suppressed HIV-1-Infected Individuals on Antiretroviral Therapy e02248-18
Hiroshi Takata, Cari Kessing, Aaron Sy, Noemia Lima, Julia Sciumbata, Luisa Mori, R. Brad Jones, Nicolas Chomont, Nelson L. Michael, Susana Valente, Lydie Trautmann

The C-Terminal End of HIV-1 Vpu Has a Clade-Specific Determinant That Antagonizes BST-2 and Facilitates Virion Release e02315-18
Shilpi Sharma, Moein Jafari, Amandip Bangar, Karen William, John Guatelli, Mary K. Lewinski

CELLULAR RESPONSE TO INFECTION

Foot-and-Mouth Disease Virus Antagonizes NOD2-Mediated Antiviral Effects by Inhibiting NOD2 Protein Expression e00124-19
Huisheng Liu, Zixiang Zhu, Qiao Xue, Fan Yang, Weijun Cao, Keshan Zhang, Xiangtao Liu, Haixue Zheng

Kinetics of Early Innate Immune Activation during HIV-1 Infection of Humanized Mice e02123-18
Jessica Katy Skelton, Ana Maria Ortega-Prieto, Steve Kaye, Jose Manuel Jimenez-Guardeño, Jane Turner, Michael H. Malim, Greg J. Towers, Marcus Dorner

VACCINES AND ANTIVIRAL AGENTS

Mutations That Increase the Stability of the Postfusion gp41 Conformation of the HIV-1 Envelope Glycoprotein Are Selected by both an X4 and R5 HIV-1 Virus To Escape Fusion Inhibitors Corresponding to Heptad Repeat 1 of gp41, but the gp120 Adaptive Mutations Differ between the Two Viruses e00142-19
Min Zhuang, Russell Vassell, Chen Yuan, Paul W. Keller, Hong Ling, Wei Wang, Carol D. Weiss

Two Coselected Distal Mutations in HIV-1 Reverse Transcriptase (RT) Alter Susceptibility to Nonnucleoside RT Inhibitors and Nucleoside Analogs e00224-19
Paul L. Boyer, Kevin Melody, Steven J. Smith, Linda L. Dunn, Chris Kline, Douglas K. Fischer, Richa Dwivedi, Pat Clark, Stephen H. Hughes, Zandrea Ambrose

Atovaquone Inhibits Arbovirus Replication through the Depletion of Intracellular Nucleotides e00389-19
Angelica Cifuentes Kottkamp, Elfie De Jesus, Rebecca Grande, Julia A. Brown, Adam R. Jacobs, Jean K. Lim, Kenneth A. Stapleford

Design and Characterization of Cholesterylated Peptide HIV-1/2 Fusion Inhibitors with Extremely Potent and Long-Lasting Antiviral Activity e02312-18
Yuanmei Zhu, Huihui Chong, Danwei Yu, Yan Guo, Yusen Zhou, Yuxian He

PATHOGENESIS AND IMMUNITY

An Immunodominant and Conserved B-Cell Epitope in the Envelope of Simian Foamy Virus Recognized by Humans Infected with Zoonotic Strains from Apes e00068-19
Caroline Lambert, Damien Batalie, Thomas Montange, Edouard Betsem, Augustin Mouinga-Ondeme, Richard Njouom, Antoine Gessain, Florence Buseyne

Cell-to-Cell Spread Blocking Activity Is Extremely Limited in the Sera of Herpes Simplex Virus 1 (HSV-1)- and HSV-2-Infected Subjects e00070-19
Elena Criscuolo, Matteo Castelli, Roberta A. Diotti, Virginia Amato, Roberto Burioni, Massimo Clementi, Alessandro Ambrosi, Nicasio Mancini, Nicola Clementi

A Novel Murine Model Expressing a Chimeric mSCARB2/hSCARB2 Receptor Is Highly Susceptible to Oral Infection with Clinical Isolates of Enterovirus 71 e00183-19
Cheng-Hung Yang, Chung-Tiang Liang, Si-Tse Jiang, Kuan-Hsing Chen, Chun-Chiao Yang, Mei-Ling Cheng, Hung-Yao Ho

Herpes Simplex Virus 2 in Autonomic Ganglia: Evidence for Spontaneous Reactivation e00227-19
Julianna R. Pieknik, Andrea S. Bertke, Philip R. Krause

Modulation of the CCR5 Receptor/Ligand Axis by Seminal Plasma and the Utility of *In Vitro* versus *In Vivo* Models e00242-19
Jennifer A. Juno, Kathleen M. Wragg, Anne B. Kristensen, Wen Shi Lee, Kevin J. Selva, Renee M. van der Sluis, Anthony D. Kelleher, Benjamin R. Bavinton, Andrew E. Grulich, Sharon R. Lewin, Stephen J. Kent, Matthew S. Parsons

Viral Factors Important for Efficient Replication of Influenza A Viruses in Cells of the Central Nervous System e02273-18
Jurre Y. Siegers, Marco W. G. van de Bildt, Zhanmin Lin, Lonneke M. Leijten, Rémon A. M. Lavrijssen, Theo Bestebroer, Monique I. J. Spronken, Chris I. De Zeeuw, Zhenyu Gao, Eefje J. A. Schrauwen, Thijs Kuiken, Debby van Riel

LETTERS TO THE EDITOR

TIM1 (HAVCR1): an Essential "Receptor" or an "Accessory Attachment Factor" for Hepatitis A Virus? e01793-18
Anshuman Das, Wendy Maury, Stanley M. Lemon

Reply to Das et al., "TIM1 (HAVCR1): an Essential 'Receptor' or an 'Accessory Attachment Factor' for Hepatitis A Virus?" e02040-18
Maria Isabel Costafreda, Gerardo Kaplan

AUTHOR CORRECTION

Correction for Khan et al., "Targeting the HIV-1 Spike and Coreceptor with Bi- and Trispecific Antibodies for Single-Component Broad Inhibition of Entry" e00391-19
Salar N. Khan, Devin Sok, Karen Tran, Arlette Movsesyan, Viktoriya Dubrovskaya, Dennis R. Burton, Richard T. Wyatt