

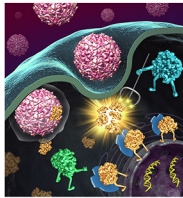


AMERICAN  
SOCIETY FOR  
MICROBIOLOGY

Journal of  
Virology®

## CONTENTS • SEPTEMBER 2019 • VOLUME 93, NO. 18

### COVER IMAGE



*Cover photograph:* DNAJA3 plays an important host antiviral role in foot-and-mouth disease virus (FMDV) infections. DNAJA3 (blue) was found to interact with FMDV VP1 (gold) and trigger its degradation via the lysosomal pathway. As a fightback, VP1 (gold) suppresses the beta interferon signaling pathway by inhibiting the phosphorylation, dimerization, and nuclear translocation of IRF3 (green) to evade the innate immune response. These events shape the landscape of host-pathogen interactions. (See related article in July 2019, vol. 93, no. 13, e00588-19.) (Copyright © 2019 American Society for Microbiology. All Rights Reserved.)

### SPOTLIGHT

#### Articles of Significant Interest in This Issue

e01136-19

#### GENOME REPLICATION AND REGULATION OF VIRAL GENE EXPRESSION

##### Determination of Critical Requirements for Classical Swine Fever Virus NS2-3-Independent Virion Formation

e00679-19

*D. Dubrau, S. Schwindt, O. Klemens, H. Bischoff, N. Tautz*

##### Comparative Analysis of Gene Expression in Virulent and Attenuated Strains of Infectious Bronchitis Virus at Subcodon Resolution

e00714-19

*Adam M. Dinan, Sarah Keep, Erica Bickerton, Paul Britton, Andrew E. Firth, Ian Brierley*

##### Design and Use of Chikungunya Virus Replication Templates Utilizing Mammalian and Mosquito RNA Polymerase I-Mediated Transcription

e00794-19

*Age Utt, Kai Rausalu, Madis Jakobson, Andres Männik, Luke Alphey, Rennos Fragkoudis, Andres Merits*

#### GENETIC DIVERSITY AND EVOLUTION

##### A Zoonotic Adenoviral Human Pathogen Emerged through Genomic Recombination among Human and Nonhuman Simian Hosts

e00564-19

*Shoaleh Dehghan, Jason Seto, Elizabeth B. Liu, Ashrafali M. Ismail, Ramana Madupu, Albert Heim, Morris S. Jones, David W. Dyer, James Chodosh, Donald Seto*

##### Cell-Fusing Agent Virus Reduces Arbovirus Dissemination in *Aedes aegypti* Mosquitoes *In Vivo*

e00705-19

*Artem Baidaliuk, Elliott F. Miot, Sebastian Lequime, Isabelle Moltini-Conclois, Fanny Delaigue, Stéphanie Dabo, Laura B. Dickson, Fabien Aubry, Sarah H. Merkling, Van-Mai Cao-Lormeau, Louis Lambrechts*

##### Changes in Endogenous and Exogenous Koala Retrovirus Subtype Expression over Time Reflect Koala Health Outcomes

e00849-19

*Bonnie L. Quigley, Samuel Phillips, Olusola Olagoke, Amy Robbins, Jonathan Hanger, Peter Timms*

#### VIRUS-CELL INTERACTIONS

##### Model System for the Formation of Tick-Borne Encephalitis Virus Replication Compartments without Viral RNA Replication

e00292-19

*Wai-Lok Yau, Van Nguyen-Dinh, Elin Larsson, Richard Lindqvist, Anna K. Överby, Richard Lundmark*

- Newcastle Disease Virus V Protein Degrades Mitochondrial Antiviral Signaling Protein To Inhibit Host Type I Interferon Production via E3 Ubiquitin Ligase RNF5** e00322-19  
*Yingjie Sun, Hang Zheng, Shengqing Yu, Yunlei Ding, Wei Wu, Xuming Mao, Ying Liao, Chunchun Meng, Zaib Ur Rehman, Lei Tan, Cuiping Song, Xusheng Qiu, Fengyun Wu, Chan Ding*
- High-Throughput Screening Identifies Mixed-Lineage Kinase 3 as a Key Host Regulatory Factor in Zika Virus Infection** e00758-19  
*Hua Xu, Min Cheng, Xiaojing Chi, Xiuying Liu, Jia Zhou, Tianli Lin, Wei Yang*
- HIV Infection Stabilizes Macrophage-T Cell Interactions To Promote Cell-Cell HIV Spread** e00805-19  
*Paul Lopez, Wan Hon Koh, Ryan Hnatiuk, Thomas T. Murooka*
- Transforming Growth Factor  $\beta$  Acts as a Regulatory Molecule for Lipogenic Pathways among Hepatitis C Virus Genotype-Specific Infections** e00811-19  
*Tapas Patra, Reina Sasaki, Keith Meyer, Ratna B. Ray, Ranjit Ray*
- Dual Recognition of Sialic Acid and  $\alpha$ Gal Epitopes by the VP8\* Domains of the Bovine Rotavirus G6P[5] WC3 and of Its Mono-reassortant G4P[5] RotaTeq Vaccine Strains** e00941-19  
*Mia Madel Alfajaro, Ji-Yun Kim, Laure Barbé, Eun-Hyo Cho, Jun-Gyu Park, Mahmoud Soliman, Yeong-Bin Baek, Mun-Il Kang, Soo Hyun Kim, Geun-Joong Kim, Sang-Ik Park, Jacques Le Pendu, Kyoung-Oh Cho*
- Marek's Disease Virus RLORF4 Inhibits Type I Interferon Production by Antagonizing NF- $\kappa$ B Activation** e01037-19  
*Yongzhen Liu, Li Gao, Zengkun Xu, Dan Luo, Yu Zhang, Yulong Gao, Changjun Liu, Yanping Zhang, Xiaole Qi, Hongyu Cui, Kai Li, Xiaomei Wang*
- CELLULAR RESPONSE TO INFECTION**
- Characterization of Novel Splice Variants of Zinc Finger Antiviral Protein (ZAP)** e00715-19  
*Melody M. H. Li, Eduardo G. Aguilar, Eleftherios Michailidis, Jonathan Pabon, Paul Park, Xianfang Wu, Ype P. de Jong, William M. Schneider, Henrik Molina, Charles M. Rice, Margaret R. MacDonald*
- HLA-F on Autologous HIV-Infected Cells Activates Primary NK Cells Expressing the Activating Killer Immunoglobulin-Like Receptor KIR3DS1** e00933-19  
*Zahra Kiani, Julie Bruneau, Daniel E. Geraghty, Nicole F. Bernard*
- VACCINES AND ANTIVIRAL AGENTS**
- Antiretroviral Therapy Administration in Healthy Rhesus Macaques Is Associated with Transient Shifts in Intestinal Bacterial Diversity and Modest Immunological Perturbations** e00472-19  
*Alexandra M. Ortiz, Jacob K. Flynn, Sarah R. DiNapoli, Ornella Sortino, Ivan Vujkovic-Cvijin, Yasmine Belkaid, Irini Sereti, Jason M. Brenchley*
- Adaptive Mutations in Replicase Transmembrane Subunits Can Counteract Inhibition of Equine Arteritis Virus RNA Synthesis by Cyclophilin Inhibitors** e00490-19  
*Adriaan H. de Wilde, A. Linda Boomaars-van der Zanden, Anja W. M. de Jong, Montserrat Bárcena, Eric J. Snijder, Clara C. Posthuma*

- Alternate NF- $\kappa$ B-Independent Signaling Reactivation of Latent HIV-1 Provirus** e00495-19  
*Chiara Acchioni, Anna Lisa Remoli, Giulia Marsili, Marta Acchioni, Ilenia Nardolillo, Roberto Orsatti, Stefania Farcomeni, Enrico Palermo, Edvige Perrotti, Maria Letizia Barreca, Stefano Sabatini, Silvia Sandini, Cristina Parolin, Rongtuan Lin, Alessandra Borsetti, John Hiscott, Marco Sgarbanti*
- Pentagalloylglucose Inhibits the Replication of Rabies Virus via Mediation of the miR-455/SOCS3/STAT3/IL-6 Pathway** e00539-19  
*Zhongzhong Tu, Mengxian Xu, Jian Zhang, Ye Feng, Zhuo Hao, Changchun Tu, Yan Liu*
- Xenoantigen-Dependent Complement-Mediated Neutralization of Lymphocytic Choriomeningitis Virus Glycoprotein-Pseudotyped Vesicular Stomatitis Virus in Human Serum** e00567-19  
*Lisa Pipperger, Iris Koske, Nicole Wild, Brigitte Müllauer, Daniela Krenn, Heribert Stoiber, Guido Wollmann, Janine Kimpel, Dorothee von Laer, Zoltán Bánki*
- Dynamics of the Humoral Immune Response to a Prime-Boost Ebola Vaccine: Quantification and Sources of Variation** e00579-19  
*Chloé Pasin, Irene Balelli, Thierry Van Effelterre, Viki Bockstal, Laura Solforosi, Mélanie Prague, Macaya Douoguih, Rodolphe Thiébaud, for the EBOVAC1 Consortium*
- A *Caulobacter crescentus* Microbicide Protects from Vaginal Infection with HIV-1<sub>JR-CSF</sub> in Humanized Bone Marrow-Liver-Thymus Mice** e00614-19  
*Christina Farr Zuend, John F. Nomellini, John Smit, Marc S. Horwitz*
- Chikungunya Virus Vaccine Candidates with Decreased Mutational Robustness Are Attenuated *In Vivo* and Have Compromised Transmissibility** e00775-19  
*Lucía Carrau, Veronica V. Rezelj, María G. Noval, Laura I. Levi, Daniela Megrian, Herve Blanc, James Weger-Lucarelli, Gonzalo Moratorio, Kenneth A. Stapleford, Marco Vignuzzi*
- Extending the Stalk Enhances Immunogenicity of the Influenza Virus Neuraminidase** e00840-19  
*Felix Broecker, Allen Zheng, Nungruthai Suntronwong, Weina Sun, Mark J. Bailey, Florian Krammer, Peter Palese*
- PATHOGENESIS AND IMMUNITY**
- Disrupted CXCR2 Signaling in Oligodendroglia Lineage Cells Enhances Myelin Repair in a Viral Model of Multiple Sclerosis** e00240-19  
*Brett S. Marro, Dominic D. Skinner, Yuting Cheng, Jonathan J. Grist, Laura L. Dickey, Emily Eckman, Colleen Stone, Liping Liu, Richard M. Ransohoff, Thomas E. Lane*
- Immune-Mediated Control of a Dormant Neurotropic RNA Virus Infection** e00241-19  
*Katelyn D. Miller, Christine M. Matullo, Katelynn A. Milora, Riley M. Williams, Kevin J. O'Regan, Glenn F. Rall*
- Simian-Human Immunodeficiency Virus SHIV.CH505 Infection of Rhesus Macaques Results in Persistent Viral Replication and Induces Intestinal Immunopathology** e00372-19  
*Katharine J. Bar, Ernesto Coronado, Tiffany Hensley-McBain, Megan A. O'Connor, Jessica M. Osborn, Charlene Miller, Toni M. Gott, Solomon Wangari, Naoto Iwayama, Chul Y. Ahrens, Jeremy Smedley, Cassie Moats, Rebecca M. Lynch, Elias K. Haddad, Nancy L. Haigwood, Deborah H. Fuller, George M. Shaw, Nichole R. Klatt, Jennifer A. Manuzak*
- The Nucleoprotein and Phosphoprotein Are Major Determinants of the Virulence of Viral Hemorrhagic Septicemia Virus in Rainbow Trout** e00382-19  
*Vikram N. Vakharia, Jie Li, Douglas G. McKenney, Gael Kurath*

**Crimean-Congo Hemorrhagic Fever Mouse Model Recapitulating Human Convalescence** e00554-19

*David W. Hawman, Kimberly Meade-White, Elaine Haddock, Rumi Habib, Dana Scott, Tina Thomas, Rebecca Rosenke, Heinz Feldmann*

**Blockade of PD-1 and LAG-3 Immune Checkpoints Combined with Vaccination Restores the Function of Antiviral Tissue-Resident CD8<sup>+</sup> T<sub>RM</sub> Cells and Reduces Ocular Herpes Simplex Infection and Disease in HLA Transgenic Rabbits** e00827-19

*Soumyabrata Roy, Pierre-Gregoire Coulon, Swayam Prakash, Ruchi Srivastava, Roger Geertsema, Nisha Dhanushkodi, Cynthia Lam, Vivianna Nguyen, Elyssa Gorospe, Angela M. Nguyen, Stephanie Salazar, Nuha I. Alomari, Wasay R. Warsi, Lbachir BenMohamed*

**AUTHOR CORRECTION**

**Correction for Evans et al., "Human Papillomavirus 16 E2 Regulates Keratinocyte Gene Expression Relevant to Cancer and the Viral Life Cycle"** e01067-19

*Michael R. Evans, Claire D. James, Molly L. Bristol, Tara J. Nulton, Xu Wang, Namsimar Kaur, Elizabeth A. White, Brad Windle, Iain M. Morgan*