1

Save the Date!

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH TABLE OF CONTENTS

Previous Article | Next Article >

Journal of

Virology

Journal of Virology, May 2009, p. 4287-4296, Vol. 83, No. 9

0022-538X/09/\$08.00+0 doi:10.1128/JVI.02399-08 Copyright © 2009, American Society for Microbiology. All Rights Reserved.

Experimental Infection of Pigs with the Human 1918 Pandemic Influenza Virus[♥]

Hana M. Weingartl,^{1,2*} Randy A. Albrecht,³ Kelly M. Lager,⁴ Shawn Babiuk,^{1,5} Peter Marszal,¹ James Neufeld,¹ Carissa Embury-Hyatt,¹ Porntippa Lekcharoensuk,^{4,10} Terrence M. Tumpey,⁶ Adolfo García-Sastre,^{3,7,8} and Jürgen A. Richt^{4,9*}

National Centre for Foreign Animal Disease, Canadian Food Inspection Agency, Winnipeg, Manitoba, Canada,¹ Department of Medical Microbiology,² Department of Immunology, University of Manitoba, Winnipeg, Manitoba, Canada,⁵ Department of Microbiology,³ Department of Medicine, Division of Infectious Diseases,⁷ Emerging Pathogens Institute, Mount

This Article

- Full Text
- Full Text (PDF)
- Alert me when this article is cited
- Alert me if a correction is posted

Services

- Similar articles in this journal
- Similar articles in PubMed
- Alert me to new issues of the journal
- Download to citation manager
- **Reprints and Permissions**
- Copyright Information
- Books from ASM Press
- MicrobeWorld

Google Scholar

- Articles by Weingartl, H. M.
- Articles by Richt, J. A.

PubMed

- PubMed Citation
 Articles by Weingartl, H. M.
- Articles by Richt, J. A.

Sinai School of Medicine New York, New York,⁸ National Animal Disease Center, ARS-USDA, Ames, Iowa,⁴ Centers for Disease Control and Prevention, Influenza Division, Atlanta, Georgia,⁶ Kansas State University, College of Veterinary Medicine, Manhattan, Kansas,⁹ Department of Microbiology and Immunology, Faculty of Veterinary Medicine, Kasetsart University, Bangkok, Thailand,¹⁰

Received 19 November 2008/ Accepted 6 February 2009

Swine influenza was first recognized as a disease entity during the 1918 "Spanish flu" pandemic. The aim of this work was to determine the virulence of a plasmid-derived human 1918 pandemic H1N1 influenza virus (reconstructed 1918, or 1918/rec, virus) in swine using a plasmid-derived A/swine/Iowa/15/1930 H1N1 virus (1930/rec virus), representing the first isolated influenza virus, as a reference. Four-week-old piglets were inoculated intratracheally with either the 1930/rec or the 1918/rec virus or intranasally with the 1918/rec virus. A transient increase in temperature and mild respiratory signs developed postinoculation in all virus-inoculated groups. In contrast to other mammalian hosts (mice, ferrets, and macaques) where infection with the 1918/rec virus was lethal, the pigs did not develop severe respiratory distress or become moribund.

Virus titers in the lower respiratory tract as well as macro- and microscopic lesions at 3 and 5 days postinfection (dpi) were comparable between the 1930/rec and 1918/rec virus-inoculated animals. In contrast to the 1930/rec virus-infected animals, at 7 dpi prominent lung lesions were present in only the 1918/rec virus-infected animals, and all the piglets developed antibodies at 7 dpi. Presented data support the hypothesis that the 1918 pandemic influenza virus was able to infect and replicate in swine, causing a respiratory disease, and that the virus was likely introduced into the pig population during the 1918 pandemic, resulting in the current lineage of the classical H1N1 swine influenza viruses.

* Corresponding author. Mailing address for Hana M. Weingartl: National Center for Foreign Animal Disease, Canadian Food Inspection Agency, 1015 Arlington St., Winnipeg, Manitoba R3E 3M4, Canada. Phone: (204) 789 2027. Fax: (204) 789-2038. E-mail: <u>hweingartl@inspection.gc.ca</u>. Mailing address for Jürgen A. Richt: College of Veterinary Medicine, K224B Mossier Hall, Kansas State University, Manhattan, KS 66506. Phone: (785) 532-2793. Fax: (785) 532-4039. E-mail: <u>jricht@vet.k-state.edu</u>

^VPublished ahead of print on 18 February 2009.

Journal of Virology, May 2009, p. 4287-4296, Vol. 83, No. 9 0022-538X/09/\$08.00+0 doi:10.1128/JVI.02399-08 Copyright © 2009, American Society for Microbiology. All Rights Reserved.

HOME HELP FEEDBACK SU	BSCRIPTIONS	ARCHIVE	SEARCH	TABLE OF CONTENTS
J. Bacteriol. Mol. Ce		ll. Biol.	Micro	obiol. Mol. Biol. Rev.
Clin. Vaccine Immunol.		ALL ASM JOURNALS		

<u>Copyright © 2009</u> by the <u>American Society for Microbiology</u>. All rights reserved.