

GAIN-OF-FUNCTION RESEARCH: THE EYE OF THE STORM- THE UNIVERSITY OF WISCONSIN STORY

Rebecca Moritz MS, CBSP, SM(NRCM)



Lack of transmission of H5N1 avian-human reassortant influenza viruses in a ferret model

Taronna R. Maines*, Li-Mei Chen*, Yumiko Matsuoka*, Hualan Chen**, Thomas Rowe**, Juan Ortin⁵, Ana Falcón⁵, Nguyen Tran Hien¹, Le Quynh Mai¹, Endang R. Sedyaningsih**, Syahril Harun**, Terrence M. Tumpey*, Ruben O. Donis*, Nancy J. Cox*, Kanta Subbarao**†, and Jacqueline M. Katz***

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Communicated by Peter Palese, Mount Sinai School of Medicine, New York, NY, June 23, 2006 (received for review May 23, 2006)

Lack of transmission of a human influenza virus with an avian receptor specificity between ferrets is due to decreased virus shedding but rather a lack of infectivity *in vivo*

Kim L. Roberts,¹ Holly Shelton,¹ Margaret Scull,^{2,3,4,5} Raymond S. Gold,¹ and Wendy S. Barclay¹

JOURNAL OF VIROLOGY, July 2007, p. 6890–6898
 0022-538X/07/\$08.00+0 doi:10.1128/JVI.00170-07
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Inefficient Transmission of H5N1 Influenza Viruses in a Ferret Contact Model[▽]

Hui-Ling Yen,¹ Aleksandr S. Lipatov,^{1¶} Natalia A. Ilyushina,¹ Elena A. Govorkova,¹ John Franks,¹ Neziha Yilmaz,² Alan Douglas,³ Alan Hay,³ Scott Krauss,¹ Jerold E. Rehg,⁴ Erich Hoffmann,¹ and Robert G. Webster^{1*}

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REPORT OF THE BLUE RIBBON PANEL ON INFLUENZA RESEARCH



WHO PUBLIC HEALTH RESEARCH AGENDA FOR INFLUENZA

Version 1, 2009



September 11-12, 2006

Experimental adaptation of an influenza H5 HA confers respiratory droplet transmission to a reassortant H5 HA/H1N1 virus in ferrets

Masaki Imai¹, Tokiko Watanabe^{1,2}, Masato Hatta¹, Subash C. Das¹, Makoto Ozawa^{1,3}, Kyoko Shinya⁴, Gongxun Zhong¹, Anthony Hanson¹, Hiroaki Katsura⁵, Shinji Watanabe^{1,2}, Chengjun Li¹, Eiryō Kawakami², Shinya Yamada⁵, Maki Kiso⁵, Yasuo Suzuki⁶, Eileen A. Maher¹, Gabriele Neumann¹ & Yoshihiro Kawaoka^{1,2,3,5}

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journal homepage: www.elsevier.com/locate/yviro



H5N1

REPORT

In vitro evolution of H5N1 avian influenza virus toward human-type receptor specificity

Li-Mei Chen^{a,1}, Ola Blixt^{b,d,1,2}, James Stevens^{a,c}, Aleksandr S. Lipatov^a, Charles T. Davis^a, Brian E. Collins^{b,d}, Nancy J. Cox^a, James C. Paulson^{b,d,1}, Ruben O. Donis^{a,*,1}

Airborne Transmission of Influenza A/H5N1 Virus Between Ferrets

Sander Herfst¹, Eefje J. A. Schrauwen¹, Martin Linster¹, Salin Chutinimitkul¹, Emmie de Wit^{1,*}, Vincent J. Munster^{1,*}, Erin M. Sorrell¹, Theo M. Bestebroer¹, David F. Burke², Derek J. Smith^{1,2,3}, Guus F. Rimmelzwaan¹, Albert D. M. E. Osterhaus¹, Ron A. M. Fouchier^{1†}

University of Wisconsin

- 13 Schools and Colleges
- FY'15 \$1.19 billion in extramural awards
- Long history of influenza research
- Select Agent Program
 - 7 Select Agent PIs
 - Roughly 200 registered individuals
 - Multiple registered areas per PI
 - 2 full-time and three part-time staff

Facility: Influenza Research Institute

- ❑ Specifically built for influenza research
- ❑ BSL-3, ABSL-3, and BSL-3Ag*



IRI Redundancies and Backups

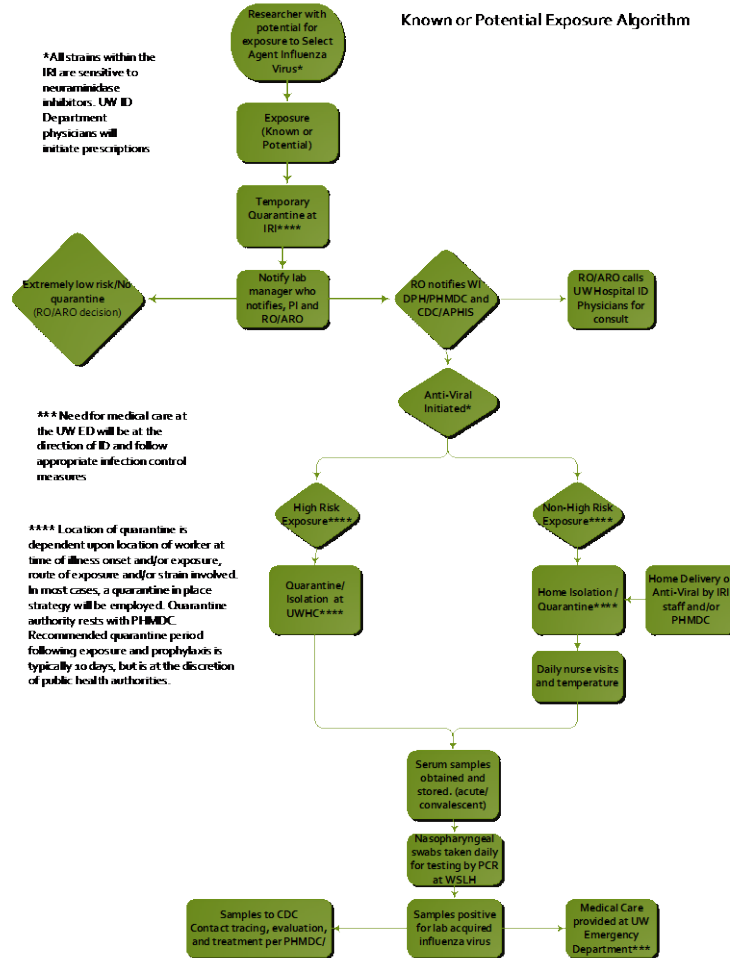
- **Redundancies** are built into ALL physical aspects
 - Two dedicated supply and exhaust fans
 - Two air compressors, steam boilers, chillers
 - Two HEPA filters everywhere filters are needed
 - Two effluent sterilization tanks
- **Back-up resources:**
 - Two power feeds to the building
 - Emergency generator in case of a power failure
 - Other physical containment measures in facility that operate without power

IRI Training Program

- Mentor/mentee program
- Tiered
- Written and oral exams
- Emergency scenarios
- Refresher training



Exposure Control Plan



Additional Risk Mitigation Measures

- Additional containment
- Experimental groups
- Higher risk procedures
- *NIH Guidelines* revisions

Institutional Research Oversight

The background of the slide is a light gray color with a pattern of various microorganisms and viruses. These include spherical particles with spikes (resembling coronaviruses or influenza), larger spherical particles with textured surfaces, and elongated, spindle-shaped structures. The overall aesthetic is scientific and related to biology or medicine.

- IBC
- Biosecurity Task Force
- Select Agent Program

Communication





MARION COTILLARD MATT DAMON LAURENCE FISHBURNE JUDE LAW GWYNETH PALTROW KATE WINSLET

NOTHING SPREADS LIKE FEAR

CONTAGION

WARNER BROS. PICTURES PRESENTS

IN ASSOCIATION WITH PARTICIPANT MEDIA AND IMAGINATION ABU DHABI A DOUBLE FEATURE FILMS / GREGORY JACOBS PRODUCTION "CONTAGION" MARION COTILLARD MATT DAMON LAURENCE FISHBURNE JUDE LAW GWYNETH PALTROW KATE WINSLET BRYAN CRANSTON JENNIFER EHLE SANAA LATHAN CASTING CARMEN CLIBA, C.S.A. COSTUME DESIGNER HOUSE FROGLEY MUSIC BY CLIFF MARTINEZ EDITOR STEPHEN MIRRIONE, A.C.E. PRODUCTION DESIGNER HOWARD CUMMINGS EXECUTIVE PRODUCERS JEFF SKOLL MICHAEL POLAIRE JONATHAN KING WRITTEN BY SCOTT Z. BURNS PRODUCED BY MICHAEL SHAMBERG STACEY SHER GREGORY JACOBS DIRECTED BY STEVEN SODERBERGH

participant imagination

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SEPTEMBER 9

IN THEATERS AND IMAX

www.contagionmovie.com



Communication

- 
- Briefed administration and partners
 - Developed press release and talking points
 - Appointed spokespeople
 - Publicity

Contagion: Controversy Erupts over Man-Made Pandemic Avian Flu Virus

Two teams of scientists have independently constructed a deadly strain of flu. Some say the results should never be published

Babbage

Science and technology

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Flu research and public safety Too dangerous for words

Jan 31st 2012, 18:23 by C.H. | NEW YORK



Pathogenic H5N1 avian influenza has led to the culling of hundreds of millions of birds. A human-transmissible form could have much worse consequences.

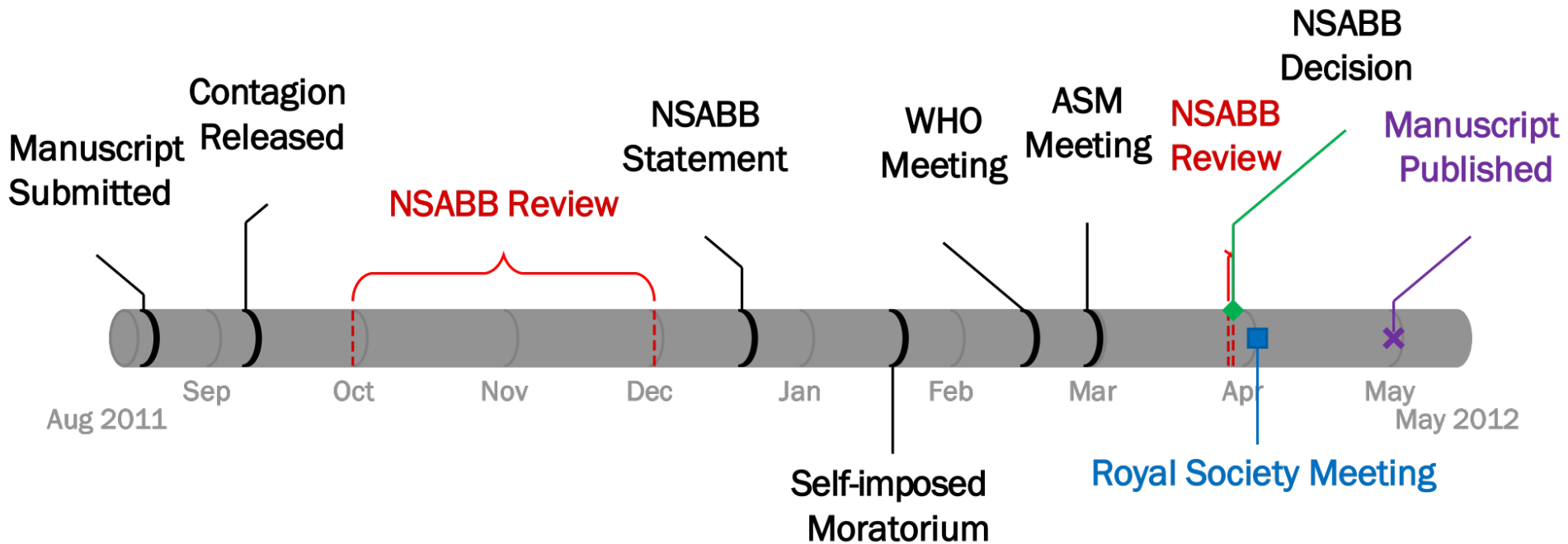
Adaptations of avian flu virus are a cause for concern

Members of the US National Science Advisory Board for Biosecurity explain its recommendations on the communication of experimental work on H5N1 influenza.

H5N1: the lab-made virus the U.S. fears could be made into a biological weapon.

By Carl Zimmer | Posted Thursday, Dec. 22, 2011, at 2:43 PM ET
| Posted Thursday, Dec. 22, 2011, at 2:43 PM ET

Timeline of Events



Communication

- 
- Briefed administration
 - Media and elected official inquiries
 - PR Tours
 - FOIA requests

