

12 August 2008

This supplement has been prepared to present scientific and technical news items that may be of more interest to technical personnel at RDT&E activities and the labs, or the medics rather than the broader readership of the basic CB Daily. Due to the nature of the material, the articles, if available online, are usually only available through subscription services thus making specific links generally unavailable. Thus, usually only the bibliographic citation is available for use by an activity's technical library.

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Chem-Bio News – Pandemic Influenza Supplement #23

1. CONTACT WITH BIRDS NOT REQUIRED TO CONTRACT BIRD FLU INFECTION: *"In one quarter or more of patients with influenza A (H5N1) virus infection, the source of exposure is unclear, and environment-to-human transmission remains possible," the researchers wrote.*

2. EXPERTS: PNEUMONIA WAS REAL KILLER IN 1918 FLU PANDEMIC: *"John Brundage, a medical microbiologist at the Armed Forces Health Surveillance Center in Silver Spring, Md., has concluded that the majority of 20 to 100 million victims of the 1918-1919 Spanish flu outbreak actually died from pneumonia, the British magazine New Scientist reported."*

3. H5N1 AND 1918 PANDEMIC INFLUENZA VIRUS INFECTION RESULTS IN EARLY AND EXCESSIVE INFILTRATION OF MACROPHAGES AND NEUTROPHILS IN THE LUNGS OF MICE: *"These results together indicate that infection with HP influenza viruses such as H5N1 and the 1918 pandemic virus leads to a rapid cell recruitment of macrophages and neutrophils into the lungs, suggesting that these cells play a role in acute lung inflammation associated with HP influenza virus infection."*

4. NEW BIRD FLU STRAIN FOUND IN NIGERIA, UN'S FAO SAYS: *"The detection of a new avian influenza virus strain in Africa raises serious concerns as it remains unknown how this strain has been introduced to the continent," said Scott Newman, International Wildlife Coordinator of FAO's Animal Health Service."*

5. INDUCTION OF CYTOTOXIC T-LYMPHOCYTE AND ANTIBODY RESPONSES AGAINST HIGHLY PATHOGENIC AVIAN INFLUENZA VIRUS INFECTION IN MICE BY INOCULATION OF APATHOGENIC H5N1 INFLUENZA VIRUS PARTICLES INACTIVATED WITH FORMALIN: *"These results suggest that formalin-inactivated virus particles of apathogenic strains are effective for induction of both cytotoxic T-lymphocyte and antibody responses against highly pathogenic avian influenza viruses in vivo, resulting*

in protection from infection by a highly pathogenic H5N1 virus."

6. FEDERAL CDC DIRECTOR TO SPEAK AT PANDEMIC CONFERENCE: *"Dr. Julie Gerberding, director of the federal Centers for Disease Control and Prevention, will be the keynote speaker at a pandemic flu preparedness conference Logistics Health Inc. will host at its La Crosse headquarters from 10 to 3 p.m. Sept. 4."*

CB Daily Report

Chem-Bio News

CONTACT WITH BIRDS NOT REQUIRED TO CONTRACT BIRD FLU INFECTION

Natural News
August 9, 2008

"The World Health Organization (WHO) has warned that it may be possible to contract the avian flu without coming into direct contact with infected poultry.

In a report published in the New England Journal of Medicine, WHO researchers examined all 350 known cases of infection with the H5N1 strain of influenza, known popularly as "bird flu." Approximately three-quarters of these cases could be attributed to close contact with infected birds, often by poultry workers. A very few cases of human-to-human transmission are suspected, always between family members who came into close contact with each other. But the rest of the cases were more ambiguous.

"In one quarter or more of patients with influenza A (H5N1) virus infection, the source of exposure is unclear, and environment-to-human transmission remains possible," the researchers wrote."

The full article can be found at: <http://www.naturalnews.com/023815.html>

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EXPERTS: PNEUMONIA WAS REAL KILLER IN 1918 FLU PANDEMIC

FoxNews.com
August 5, 2008

"Government efforts to prepare for a modern day influenza pandemic should include a stockpile of antibiotics because bacteria, not the flu virus, were the real killers in 1918, researchers say.

John Brundage, a medical microbiologist at the Armed Forces Health Surveillance Center in Silver Spring, Md., has concluded that the majority of 20 to 100 million victims of the 1918-1919 Spanish flu outbreak actually died from pneumonia, the British magazine New Scientist reported.

The team came to its conclusion after combing through first-hand accounts, medical records and infection patterns from 1918 and 1919.

Furthermore, a journal article from researchers with the National Institute of Allergy and Infectious Disease (NIAID) in Bethesda, Md., set to be released next month, reaches the same conclusion.

"We agree completely that bacterial pneumonia played a major role in the mortality of the 1918 pandemic," Anthony Fauci, author of next month's article and NIAID director, told *New Scientist*."

The full article can be found at: <http://www.foxnews.com/story/0,2933,398282,00.html>

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H5N1 AND 1918 PANDEMIC INFLUENZA VIRUS INFECTION RESULTS IN EARLY AND EXCESSIVE INFILTRATION OF MACROPHAGES AND NEUTROPHILS IN THE LUNGS OF MICE

By Lucy A. Perrone, Julie K. Plowden, Adolfo García-Sastre, Jacqueline M. Katz, Terrence M. Tumpey

PLoS Pathogens

August 12, 2008

"Fatal human respiratory disease associated with the 1918 pandemic influenza virus and potentially pandemic H5N1 viruses is characterized by severe lung pathology, including pulmonary edema and extensive inflammatory infiltrate. Here, we quantified the cellular immune response to infection in the mouse lung by flow cytometry and demonstrate that mice infected with highly pathogenic (HP) H1N1 and H5N1 influenza viruses exhibit significantly high numbers of macrophages and neutrophils in the lungs compared to mice infected with low pathogenic (LP) viruses. Mice infected with the 1918 pandemic virus and a recent H5N1 human isolate show considerable similarities in overall lung cellularity, lung immune cell sub-population composition, and cellular immune temporal dynamics. Interestingly, while these similarities were observed, the HP H5N1 virus consistently elicited significantly higher levels of pro-inflammatory cytokines in whole lungs and primary human macrophages, revealing a potentially critical difference in the pathogenesis of H5N1 infections. Primary mouse and human macrophages and dendritic cells were also susceptible to 1918 and H5N1 influenza virus infection in vitro. These results together indicate that infection with HP influenza viruses such as H5N1 and the 1918 pandemic virus leads to a rapid cell recruitment of macrophages and neutrophils into the lungs, suggesting that these cells play a role in acute lung inflammation associated with HP influenza virus infection."

The full article can be found at: <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1000115;jsessionid=99B24400B6DA30BA52F8CD07D240C9A7>

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NEW BIRD FLU STRAIN FOUND IN NIGERIA, UN'S FAO SAYS

Reuters

August 11, 2008

"A new strain of H5N1 bird flu has shown up among birds in Africa in a worrying development, the United Nations Food and Agriculture Organization reported on Monday.

The new strain of H5N1 avian influenza is genetically different from the strains that circulated in Nigeria during earlier outbreaks in 2006 and 2007 and is new to Africa, the FAO said.

"It is more similar to strains previously identified in Europe (Italy), Asia (Afghanistan) and the Middle East (Iran) in 2007," the FAO said in a statement.

"The detection of a new avian influenza virus strain in Africa raises serious concerns as it remains unknown how this strain has been introduced to the continent," said Scott Newman, International Wildlife Coordinator of FAO's Animal Health Service.

"It seems to be unlikely that wild birds have carried the strain to Africa, since the last migration of wild birds from Europe and Central Asia to Africa occurred in September 2007 and this year's southerly migration into Africa has not really started yet," Newman added."

The full article can be found at: <http://www.reuters.com/article/healthNews/idUSN1139457720080811>

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INDUCTION OF CYTOTOXIC T-LYMPHOCYTE AND ANTIBODY RESPONSES AGAINST HIGHLY PATHOGENIC AVIAN INFLUENZA VIRUS INFECTION IN MICE BY INOCULATION OF APATHOGENIC H5N1 INFLUENZA VIRUS PARTICLES INACTIVATED WITH FORMALIN

Immunotherapy Weekly

August 13, 2008

"We investigated whether a vaccine derived from an apathogenic reassortant type A H5N1 influenza strain could induce immune responses in vivo that mediated protection from highly pathogenic avian influenza virus infection in mice. After two subcutaneous immunizations with formalin-inactivated H5N1 whole virus particles (whole particle vaccine), significant killing specific for cells presenting a nucleoprotein peptide from the vaccine strain of the virus was observed."

"Similar vaccination with viruses treated with ether and formalin, which are commonly used for humans as ether-split vaccines, induced little or no cytotoxic T-cell response. Furthermore, whole particle vaccines of the apathogenic H5N1 strain were more effective than ether-split vaccines at inducing antibody production able to neutralize a highly

pathogenic H5N1 strain. Finally, whole particle vaccines of H5N1 protected mice against infection by an H5N1 highly pathogenic avian influenza virus more effectively than did ether-split vaccines."

"These results suggest that formalin-inactivated virus particles of a pathogenic strains are effective for induction of both cytotoxic T-lymphocyte and antibody responses against highly pathogenic avian influenza viruses in vivo, resulting in protection from infection by a highly pathogenic H5N1 virus."

The full article can be found at: (T. Sawai, et. al., "Induction of cytotoxic T-lymphocyte and antibody responses against highly pathogenic avian influenza virus infection in mice by inoculation of a pathogenic H5N1 influenza virus particles inactivated with formalin". Immunology, 2008; 124(2): 155-165). Link not available.

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FEDERAL CDC DIRECTOR TO SPEAK AT PANDEMIC CONFERENCE

LaCrosseTribune.com

August 11, 2008

"Dr. Julie Gerberding, director of the federal Centers for Disease Control and Prevention, will be the keynote speaker at a pandemic flu preparedness conference Logistics Health Inc. will host at its La Crosse headquarters from 10 to 3 p.m. Sept. 4.

Other speakers will include LHI President Tommy Thompson, former Wisconsin governor and former U.S. secretary of Health and Human Services; Dr. William Winkenwerder, former assistant secretary of defense for health affairs; and Lisa Koonin, senior adviser with the CDC's Influenza Coordination Unit.

Participants will learn the latest on the pandemic threat, corporate antiviral distribution strategies, public and private sector partnerships, and various legal implications. LHI offers pandemic preparedness services.

The conference is targeted at business continuity planners, corporate security specialists, public health officials and human resource professionals. Others interested also are invited to attend the free event in person or by Web cast. Register at <http://conference.logisticshealth.com>.

The conference is cosponsored by the La Crosse Medical Health Science Consortium and the Coulee Region Public Health Consortium."

The full article can be found at: <http://www.lacrossetribune.com/articles/2008/08/11/news/z05pandemic11.txt>

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