

Avian flu breakthrough raises question of potential risk

December 19 2011, By Don Walker and Karen Herzog

A University of Wisconsin-Madison scientist who is an expert on the avian flu virus is under federal scrutiny because of concerns his new research may fall into the wrong hands.

The scientist is Yoshihiro Kawaoka, an eminent professor of virology in the School of Veterinary Medicine who has done research on H5N1, also known as avian or [bird flu](#). His work and similar research independently done by a Dutch scientist have raised concerns in science journals and on an NBC News report that aired Thursday night that touched on such controversial issues as bioterrorism and scientific freedom.

Kawaoka has created a contagion virus in his lab, a UW official confirmed. But the official said he couldn't discuss the nature of the virus because it would compromise the publication of Kawaoka's research.

A Science magazine report detailing the work done by Dutch scientist Ron Fouchier of the Erasmus Medical Center in the Netherlands reported that Fouchier had developed a man-made H5N1 avian influenza strain that had been genetically altered and is now easily transmissible between ferrets. Fouchier reported that studies show that any influenza strain passed among ferrets has also been transmissible among humans and vice versa.

The Science report, which focused on Fouchier's studies, said Kawaoka's research came up with comparable results.

"The research by the Kawaoka and Fouchier teams set out to answer a question that has long puzzled scientists. Does H5N1, which rarely causes human disease, have the potential to trigger a pandemic?" the magazine reported.

In response, UW spokesman Terry Devitt said Science magazine had not seen Kawaoka's research. "Equating the two ... is a mistake," Devitt said in an email.

Devitt said Kawaoka's work was no longer under review by the National Science Advisory Board for Biosecurity. That board provides advice to the National Institutes for Health regarding research that may pose a threat to public health and/or national security.

Devitt said the board "made recommendations regarding the contents of the manuscript and those recommendations will be respected as we work with the journal," Devitt said.

A spokesman for the advisory board was not available for comment.

Interim UW Chancellor David Ward said he had been briefed about Kawaoka's research about a month ago and said he was confident that the level of security involving Kawaoka's research was adequate.

"In general, I am very comfortable with the way the university has created security around this. ... We do deserve questions from the public about the fact that this could potentially, you know, be a problem. But the people doing the research were conscious of this right from the start, evaluated the trade-offs and I think my conclusion was there is really no public threat with what has happened."

Ward added that he supported the publication of Kawaoka's findings.

Devitt added that the H5N1 virus had been studied on campus and elsewhere for years. He said it would be inaccurate to describe H5N1 as a pandemic virus.

"We have comprehensive and stringent biosafety and biosecurity measures in place," Devitt said. "Those measures are constantly reviewed and updated. Also, the university is subject to federal oversight of work with this and other agents, including unannounced inspections."

Nevertheless, the leaders of the Center for Biosecurity at the University of Pittsburgh Medical Center raised questions about the research.

"We are playing with fire," said an editorial published online Thursday by the center.

The editorial warned that researchers went too far when they genetically engineered an [avian flu](#) strain that could be spread quickly among humans.

"There are no guarantees that such a deadly strain of avian flu would not escape accidentally from the laboratory," said the editorial in the peer-reviewed journal Biosecurity and Bioterrorism.

The article was written in response to the Dutch research, but it also applies to avian flu research at UW, a spokeswoman for the Center for Biosecurity said Friday.

The Dutch experiment was performed by internationally respected scientists in biosafety conditions considered top of the line, the editorial noted. "The risk of a person accidentally becoming infected and starting an outbreak with this strain is low. But it is not zero," it said.

An accidental escape of an [influenza strain](#) from a lab in 1977 led to

widespread flu epidemics, the editorial says. "Given the potential global consequences of an accident with the newly modified strain of avian flu, we are playing with fire."

The Center for Biosecurity said in its editorial that it didn't oppose research in high-containment labs using dangerous pathogens, including H5N1, but research to develop diagnostics, medicines and vaccines for the most threatening infectious diseases does not require engineering lethal viruses to make them more transmissible between humans.

A critical tenet of the advancement of science is the publication of new research in a form that allows other scientists to reproduce the work, the editorial notes, adding: "This principle should be followed in almost all conceivable circumstances. But in this circumstance, it shouldn't."

"Publishing the methods for transforming the H5N1 virus into a highly transmissible strain would show other scientists around the world how to do it in their own labs," it continued. "One concern is the possibility that the strain would be recreated for malevolent purposes. Even disregarding this risk (which we shouldn't), scientific publication would encourage others that this is a research initiative worthy of additional exploration. ... Whether this experiment is published or not, it is a reminder of the power of biology and its potential. We need new approaches for the rapid development of large quantities of medicines or vaccines to protect us against new emerging viruses. But engineering highly transmissible strains of avian flu is not the way to get us there."

Devitt added that UW officials feel publishing Kawaoka's work won't pose a risk beyond what is already known about influenza viruses.

"For example, the genome of the 1918 flu virus, which is far more pathogenic than the virus in question, is already publicly available," he said.

Devitt said Kawaoka's research and the work of other scientists is the best defense against a virus that could become pandemic in nature.

"Based on a review of the research by the National Science Advisory Board for [Biosecurity](#) and at their recommendation, any publication will be crafted to minimize the opportunity for misuse," Devitt said.

(c)2011 the Milwaukee Journal Sentinel
Distributed by MCT Information Services

Citation: Avian flu breakthrough raises question of potential risk (2011, December 19) retrieved 20 March 2024 from

<https://medicalxpress.com/news/2011-12-avian-flu-breakthrough-potential.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--