INFECTIOUS DISEASES

Experts Dismiss Pig Flu Scare as Nonsense

It could be the result of an embarrassing lab escape or a vaccine study gone awry; it could even be the smoking gun from a secret biowarfare program.

But then, it could be nothing at all.

For 4 months now, a series of strange influenza sequences has been sitting in GenBank, the U.S. National Institutes of Health's DNA database, that seems to suggest that pigs in South Korea have become infected with a flu strain used for research in labs around the world but not known to occur in nature. The World Health Organization (WHO) in Geneva has dismissed the snippets as the result of a lab error. But the Korean scientist who posted them insists they are real—and troubling—and he is hoping that two renowned flu labs will prove him right.

Meanwhile, speculation about the case has been fueled relentlessly on the Internet by an outsider to the influenza world. Henry Niman, the president of a Pittsburgh, Pennsylvania–based company called Recombinomics and the operator of a mailing list about flu, believes that the virus, called WSN/33, poses a grave danger to human health. Recently, his views have begun to draw attention—much to the chagrin of those scientists who think the whole story is nonsense.

The bizarre case started on 24 October when Sang Heui Seo, a researcher at Chungnam National University in Daejeon, deposited in GenBank partial RNA sequences from a series of viruses isolated from pigs. Niman, a molecular biologist and former Harvard surgery instructor with an intense interest in virus evolution, discovered them soon after they were made public in late November. He noticed that six of the viruses appeared to be hybrids; in addition to genes from H9N2, an avian flu virus that previously circulated in Korean pigs, they had between three and seven genes with WSN/33-like sequences.

WSN/33 was produced in 1940 by infecting mice with the first human flu virus ever isolated, in London in 1933. It's a mystery how it got into the pigs, says Niman, who proffers scenarios ranging from a lab accident to illicit experiments to create a deadly flu strain for biowarfare—neighboring North Korea comes to mind, he says. Niman believes the spread of the virus should be thoroughly investigated, because WSN/33, which infects mice's brains, is distantly related to the 1918 pandemic virus, and if it infects pigs, it may infect humans as well. That's why he immediately alerted WHO in December.

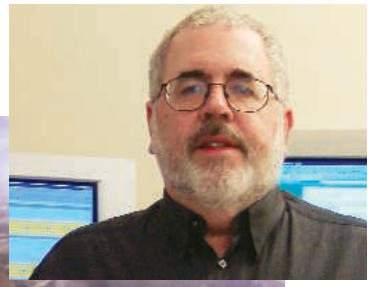
But WHO is unimpressed. The agency discussed Niman's claims by e-mail with its flu advisers in December, says Klaus Stöhr, WHO's global influenza coordinator. They quickly concluded that the results were lab contamination. Such mix-ups can happen easily when researchers use the polymerase chain reaction to amplify bits of genetic material, says Robert Webster of St. Jude Children's Research Hospital in Memphis, Tennessee, one of Stöhr's advisers. Contamination was likely, says Webster, because Seo had previously received WSN/33 from Webster's own lab. (Seo also worked at Webster's lab between 1999 and 2002, and the two published seven papers together.)

But in an interview, Seo denied ever having received the WSN/33 from Memphis or anywhere else. What's more, "I have many scientific data that can rebut WSN contamination," he wrote in a follow-up e-mail. But he declined further comment until his results are published. Seo says *Science* rejected his paper describing the discovery of WSN in pigs but may reconsider the manuscript if the findings are backed up by a well-established flu lab.

Seo hopes that Malik Peiris at the University of Hong Kong and Yoshi Kawaoka at the University of Wisconsin, Madison, who both have samples from Korea, can confirm WSN's presence. Both Peiris and Kawaoka declined to comment for this story, but Stöhr says the results from the Kawaoka lab will be out soon. The Korean National Veterinary and Quarantine Services also told *Science* it has been unable to replicate the findings, despite testing hundreds of pigs.

Molecular biologist and flu expert Ron Fouchier of Erasmus University Medical Center in Rotterdam, the Netherlands, says the sequences definitely contain WSN's genetic signature. But he says the fact that the six controversial isolates have varying numbers of WSN fragments points to lab contamination: "If this was an endemic pig virus, I'd expect all viruses to have the same WSN gene segments."

Even if WSN were circulating in Korean pigs, Stöhr says, that wouldn't spell disaster. There's no evidence that WSN is still dangerous to humans, he says; indeed, Fouchier adds, many labs use it without taking special safety precautions.



Agitator. Henry Niman (*top*) is worried that pigs on Korean farms (shown here being sanitized for foot-and-mouth disease) may harbor a strange flu virus, posing a threat to human health.

Determined to draw attention to the case, Niman, who has also criticized WHO extensively for its handling of the severe acute respiratory syndrome and avian influenza outbreaks, has posted more than 50 messages about the case on his site since December, with some success: Infectious-disease specialist Laurie Garrett of the Foreign Relations Council in New York City wrote about the case in an online article on 16 February—although she dismissed it as a "scary near-miss"—and last week, *Nature* reported Niman's claims.

That attention irks Stöhr, who points out that Niman has not published in the scientific literature since 1996 and is not a flu expert. WHO will not issue an official statement about the case, he says: "We're not going to bother 6.5 billion people with something that's of no public health importance." Webster, too, says any publicity is too much: "It's so easy these days for somebody with a Web site to create a lot of panic."

Being an expert doesn't always mean being right, counters Niman, who adds that when the truth comes out, "WHO and Webster will look very ridiculous."

—MARTIN ENSERINK

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