

## SARS-like virus reignites ownership feuds

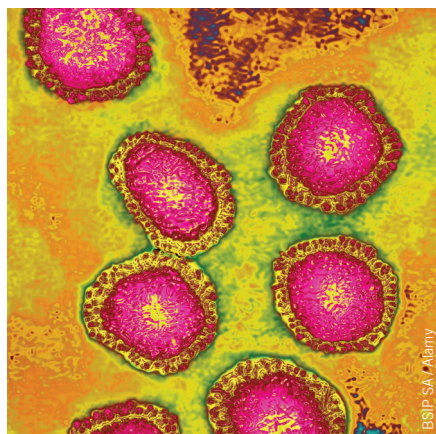
A new human coronavirus isolated from a patient in Saudi Arabia is raising questions over how to handle the intellectual property (IP) of newly emerging infectious diseases. As *Nature Biotechnology* went to press, the World Health Organization (WHO) had been notified of 81 cases and 45 deaths globally since September 2012 attributed to the Middle East respiratory syndrome coronavirus, (MERS-CoV). Ali Mohamed Zaki, a microbiologist at Soliman Fakeeh Hospital in Jeddah, Saudi Arabia, who isolated the virus from a patient, has lost his job after announcing the existence of the virus through a public medium. Saudi officials accuse him of mailing a virus sample to a laboratory in The Netherlands without permission. They also claim that patents filed by the Dutch researchers have delayed the Saudi health response.

Back in June 2012, Zaki sent samples from a patient with a severe respiratory infection to both the Saudi Ministry of Health and the laboratory of Ron Fouchier of Erasmus Medical Center in Rotterdam, The Netherlands, for routine help diagnosing the isolates. The Saudi Ministry of Health told Zaki that the virus did not match any pathogens in their screen. In early September, Fouchier's lab told Zaki that the sample was a new kind of coronavirus, similar to the severe acute respiratory disease (SARS) that killed at least 774 people in 2003 and infected over 8,000. On September 15 Zaki posted the news to ProMED, an email listserv hosted by the International Society for Infectious Diseases.

Zaki's employer soon asked for his resignation. Saudi Deputy Minister for Public Health Ziad Memish wrote in October 2012 to ProMED that "internal reporting mechanisms were either intentionally or inadvertently circumvented" and warned that panicked reporting on SARS had harmed Canada's economy in 2003. Saudi Arabia hosts several million religious pilgrims in Mecca each year.

Erasmus researcher Fouchier says that Zaki's ProMed post was "a little surprising" but "defensible" because the Saudi government had not made an official announcement.

Fouchier's laboratory—which last year published a controversial paper describing mutations in H5N1 avian influenza virus that allowed it to spread among ferrets by airborne droplets—meantime sequenced the virus and applied for patents on potential tests, vaccines and drugs based on the virus genome sequence. Future diagnostics or treatments could be "partially dependent on our patents," Fouchier says, but "the IP we filed at no point in time has



A coronavirus isolated from a patient in Saudi Arabia is posing questions on IP ownership.

stood in the way of test development." By May 2013 at least 20 people had died of the virus. At the World Health Assembly held in Geneva that month, Memish said that "patenting of the virus" was causing diagnostics delays, even though patent applications are unenforceable while pending. And as the application listed investigators from both Erasmus Medical Center and Soliman Fakeeh Hospital as inventors, it would normally be managed by their host institutions, Fouchier says, meaning the Saudis would have had a hand in controlling the IP until Zaki left.

If the Saudis do not find a way to co-manage the patent application through Zaki and Soliman Fakeeh Hospital, they may be able to claim ownership under the Convention on Biological Diversity (CBD). In a 2007 outbreak of avian influenza (H5N1), Indonesia claimed ownership of virus under the CBD and demanded fair access to any vaccines that resulted from sharing virus samples. The WHO issued a resolution covering influenza samples, but the resolution does not apply to MERS, a coronavirus. So far, Saudi Arabia has not yet made a similar demand. In fact, Fouchier says the Saudis have not asked for help or material, which he has given free of charge to researchers in over 100 countries.

In response to Memish's statement, however, WHO director-general Margaret Chan called on researchers not to let IP slow health-care. The WHO has also asked governments in MERS-CoV host countries to share epidemiology data. So far, fewer people have been harmed by MERS-CoV than by SARS, Memish notes. Animal screening and risk profiling is underway in partnership with the US National Institutes of Health.

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