

Secrets of new SARS-like virus uncovered (Update)

March 13 2013, by Barbara Bronson Gray, Healthday Reporter



Finding shows how it enters cells, could lead to vaccine, researchers report.

A discovery that shows how a novel—and often fatal—virus infects cells may help fight a health threat that has recently emerged on the world stage, researchers report.

A unique coronavirus was identified as the cause of severe respiratory illness in 14 people from Jordan, Qatar, Saudi Arabia and the United Kingdom between April 2012 and February 2013, according to the U.S. Centers for Disease Control and Prevention. Eight people have died after contracting the virus.

Coronaviruses—named for their crown-like projections visible under a microscope—are causes of the common cold but also are associated with more severe illness, such as SARS (Severe Acute Respiratory



Syndrome), which killed hundreds of people worldwide in 2003.

Although no deaths have been reported in the United States, the fact that there were clusters of people infected in the United Kingdom shows the new virus can be transmitted between humans, according to the CDC.

Now there's a possible clue on how to stop the virus, which was first identified last September. Dutch researchers said they've identified the receptor that is used by the coronavirus to invade cells.

Approaches to preventing the virus from binding to the receptor and gaining entry to cells may help combat infection, said study author Bart Haagmans, a virologist at the Erasmus Medical Center, in Rotterdam. "These findings provide further insight into how the virus causes severe pneumonia, as the receptor is present in the lower respiratory tract [trachea, airways or lungs]," he explained.

The research was published in the March 14 issue of the journal Nature.

The severity of the disease appears to vary, mirroring minor flu-like infections in some people and becoming life-threatening in others. Those with the most serious infections seem to have had other viral or bacterial infections at the same time, which may help explain the more severe cases, experts said.

The virus doesn't seem as contagious as seasonal flu, and Haagmans said this appears to confirm the role of the receptor he identified. "This may be due to the fact that the receptor is minimally expressed in cells of the upper respiratory tract," he said. "Therefore, it is also unlikely that the virus can become much more capable of spreading more universally."

The discovery of the receptor could potentially help researchers inhibit the spread of the virus, said Haagmans. One approach would be to



develop a vaccine that securely locked the cell door to the coronavirus receptor, preventing the virus from being able to storm the cell.

Haagmans said he doesn't know why the virus seems to be deadly. He said it's possible that scores of people with a less harmful form of the disease have not been identified, due to limited testing in the Arabian Peninsula, where the disease seems to have originated.

Analysis of the virus's genome showed that it is related to coronaviruses found in bats. Coronaviruses can infect a wide range of mammals and birds, and are considered to have what is called "zoonotic potential," which means they can be transmitted to people.

Dr. Susan Gerber, a medical epidemiologist with the division of viral diseases at the CDC, said she thinks Haagmans's research will be valuable because it helps scientists understand what happens at the cellular level of the disease. "This is going to be very important in the treatment of the virus," she said.

Yet Gerber stressed that there is still much to learn about the virus and the infection it causes. "There are so few cases that have been identified of this virus infection," she said. "We need more information."

The CDC is advising people who develop severe acute lower respiratory illnesses, such as pneumonia, within 10 days after traveling from the Arabian Peninsula or neighboring countries to see their health provider.

The agency also recommended that those who haven't traveled to the Arabian Peninsula but come into close contact with someone who has should be evaluated if they develop a severe acute lower respiratory illness.

More information: Paper: <u>dx.doi.org/10.1038/nature12005</u>



Learn more about the new coronavirus from the <u>U.S. Centers for</u> <u>Disease Control and Prevention</u>.

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