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Study finds weakness in SARS virus

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WASHINGTON, Agencies

Researchers in Germany said on Tuesday they had found a weakness in the SARS virus and said a drug being tested against the common cold could be modified to battle the deadly illness.

While stressing that no one yet has a drug that will cure SARS, they said their findings could be used as a starting point. Such a drug could be designed in a matter of months, the researchers said.

Severe acute respiratory syndrome has killed 580 people and infected more than 7,000 worldwide since it emerged in southern China in late November. Carried around the world by air travelers, it is caused by a never before-seen strain of coronavirus.

But this new virus has a weak point called a protease, the researchers report in this week's issue of the journal Science. A protease is key to the replication of the virus. If the virus cannot replicate, it cannot cause illness.

"If you hit this target successfully you have hit the Achilles heel of the virus," said Rolf Hilgenfeld of the University of Luebeck in Germany, who led the study.

The researchers have been working with relatives of the SARS virus -- one that causes the common cold in people and another that causes diarrhea in pigs.

The protease used by these two SARS cousins is very similar to that used by SARS, Hilgenfeld said.

Hilgenfeld's lab has a drug that blocks the protease, but it is too toxic to use in people. But they found a similar drug being tested against a rhinovirus -- another cause of the common cold. Made by drug giant Pfizer Inc's San Diego drug unit, Agouron, this other drug blocks the rhinovirus protease.

The compound, known by its laboratory name AG7088, is in final clinical trials for use against the common cold and does not seem to be harmful to humans so far.

"We can superimpose the two structures. They are very similar," Hilgenfeld told reporters in a telephone briefing.

"Therefore we conclude that a drug that was originated to target a rhinovirus might be a good starting point for the development of drugs against coronaviruses, including the SARS virus."

But this drug itself is not likely to be the cure. "We do see that the drug does not fit perfectly and so ... it most likely will not be a useful drug to treat SARS."

Protease inhibitors are the ingredients in the "cocktail" of drugs that control the AIDS virus so well that patients who take them, while not cured, can lead normal lives.

The researchers said coronavirus proteases are slightly different and even more vulnerable to drugs. Blocking this particular protease, they said, should completely stop the SARS virus. "It would probably be a matter of a few months until one can come up with an improved compound which should be a good inhibitor blocking the coronavirus main proteinase (protease)," Hilgenfeld said.

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