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# New vaccine to treat global viruses

LONDON, PTI: In a discovery that may lead to a vaccine against Zika, dengue and Hepatitis C viruses, scientists have found that our body's key immune cells can recognise many different viruses through a single receptor.

The findings by researchers at University of Southampton in the UK could change the way viruses are targeted by vaccines.

Researchers have shown that natural killer cells (NK cells), which are a fundamental part of the body's immune system, can recognise many different viruses including global pathogens such as Zika,

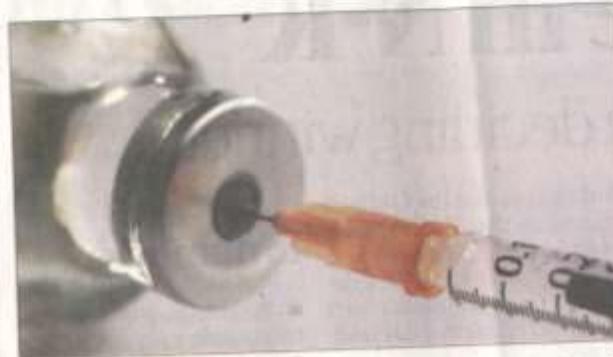
dengue and Hepatitis C viruses, through a single receptor called KIR2DS2.

According to Salim Khakoo, professor at University of Southampton, animal studies/clinical trials will be needed to test the findings.

Vaccines work by stimulating the immune response to the coat of proteins on the virus enabling the body to fight off the virus and recognise it in the future.

However, the viruses are able to change their coat proteins, helping the virus to evade the antibodies, meaning some viruses can be very hard to vaccinate against.

Researchers have shown that this NK cell receptor is



able to target a non-variable part of the virus called the NS3 helicase protein, which is essential in making the virus work properly.

Unlike other proteins, the NS3 helicase protein does not change, which allows the im-

mune system to grab hold of it and let the NK cells deal with the threat.

"The NS3 helicase protein could be the key in unlocking the defence of lethal viruses that affect so many people around the world," said Kha-

koo, lead researcher of the study published in the journal Science Immunology.

"It is very exciting to discover that other viruses similar to Hepatitis C, such as Zika virus, dengue virus, yellow fever virus, Japanese encephalitis virus and in fact all flaviviruses, contain a region within their NS3 helicase proteins that is recognised by exactly the same KIR2DS2 receptor," said Khakoo.

"We believe that by targeting this NS3 helicase region, we could make a new type of vaccine based upon natural killer cells, which can be used to help protect people from these infections," he said.

The study analysed DNA

from more than 300 patients exposed to the Hepatitis C virus, which showed that the KIR2DS2 receptor was associated with successfully clearing the virus.

The researchers then identified that the immune system targeted the NS3 helicase protein of this using the receptor and found that it prevented the virus multiplying.

They demonstrated that this same mechanism could be important for many different viruses for example the Zika and dengue viruses, which also contain a region within their NS3 helicase protein that is recognised by the KIR2DS2 receptor.

PTI