Fenofibrate and SAARS CoV2

A study conducted by professor Yaakov Nahmias at Hebrew University in Israel has found that an existing cholesterol drug, fenofibrate, could 'downgrade' Covid-19 threat level to that of a common cold.

HOW?

The findings allegedly come from lab tests on human lung tissue infected with SARS-CoV-2, the virus that causes Covid-19.

According to the research, the virus leads to deposits of lipids in the lungs.

The researchers observed that the virus changes lipid metabolism in human lungs. **They believe that halting this process could help prevent the onset of problems that increase the severity of the disease.**

While SARS-CoV-2 hinders the ability of the body to break down fat, fenofibrate starts this process by binding and activating the DNA site that is blocked by the virus.

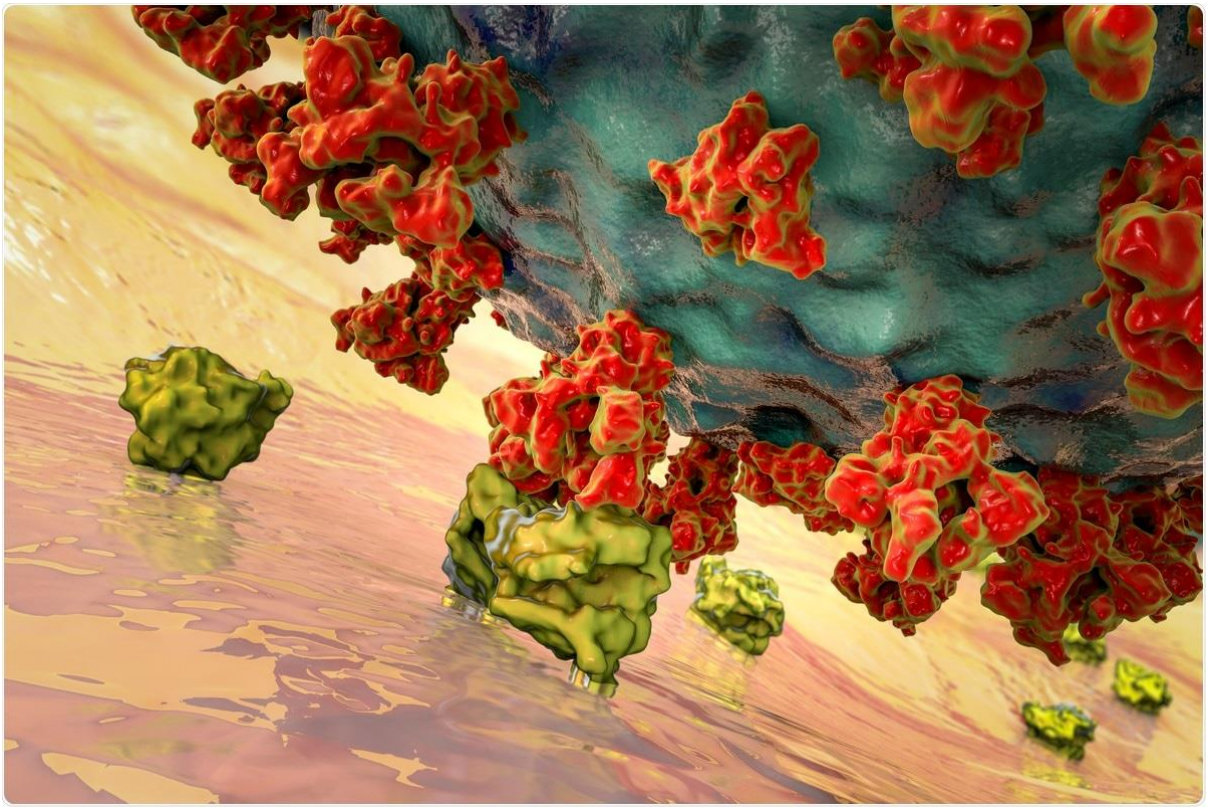
Nahmias was quoted by The Times of Israel as saying: "The interesting thing about our study is that fenofibrate actually binds and activates the very site on the DNA that the virus shuts down — a part of our DNA that allows our cells to burn fat.

"Virus infection causes the lung cells to start building up fat, and fenofibrate allows the cells to burn it."

This mechanism of the drug could reduce the virus' ability to reproduce or even make it disappear.

Nahmias added: "Your body can easily deal with the virus.

All we need to do is deal with the symptoms. We need to give the body time to clear the virus without going into respiratory failure.**And it's by doing this that I think we can transform it into something far less serious, something like the common cold.**



Study: ***The hyperlipidaemic drug fenofibrate significantly reduces infection by SARS-CoV-2 in cell culture models****. Image Credit: Kateryna Kon / Shutterstock*

As I said its (fenofibrate role was seen in in vitro studies.

Another principle way of action

The spike RBD-ACE2 binding to help identify binding inhibitors that act through novel mechanisms, and might therefore escape recognition. ACE2 is a dimer, and multiple RBDs may interact with each ACE2 molecule. It is also a flexible protein, enabling binding between more than one dimeric ACE2 with a single trimeric spike. If ACE2 dimerization is affected, therefore, the avidity of binding to RBD is possibly impaired.

With other receptors, dimer formation has been found to increase internalization. This could therefore be a promising target for antiviral drugs. The researchers developed another assay that measures dimerization of ACE2 using the NanoBIT interaction system.

The system contains two components, LgBIT and SmBIT, which are individually inactive but are activated when they combine to form an active luciferase enzyme. Thus, they can be fused to the ACE2 monomer so that their association in dimer form allows the formation of active luciferase.

Fenofibrate promotes ACE2 dimerization

This was then used to look through a library of a hundred already approved drugs to identify potential inhibitors of ACE2 dimerization. They found that fenofibric acid, which is the active form of the cholesterol synthesis inhibitor fenofibrate, led to twice as much ACE2 dimer formation, which prevented RBD-ACE2 binding by destabilizing the spike RBD. Both fenofibrate and fenofibric acid reduced the thermal stability of RBD, though fenofibric acid was active at a much lower drug concentration. The fenofibric acid had a modest but significant inhibitory effect on RBD-ACE2 binding, as did fenofibrate.

NB : Remember these are in vitro concepts.