30+ genes identified that could protect us from COVID, opening door to gene therapy prevention solutions

The goal was two-fold: to identify the genes that make human cells more resistant to SARS-CoV-2 virus; and test existing drugs on the market that may help stop the spread of the disease.

The breakthrough comes at a time when drug makers such as Pfizer, Oxford-AstraZeneca and Moderna are fast-forwarding vaccine and therapeutics to treat Covid-19.

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After intensive research, the scientists and doctors claim they have found 30 genes that block the virus from infecting human cells including RAB7A, a gene that seems to regulate the ACE-2 receptor that the virus binds to and uses to enter the cell. The spike protein's first contact with a human cell is through ACE-2 receptor.

"Our findings confirmed what scientists believe to be true about ACE-2 receptor's role in infection; it holds the key to unlocking the virus," said [virologist Dr. Benjamin] tenOever. "It also revealed the virus needs a toolbox of components to infect human cells. Everything must be in alignment for the virus to enter human cells."

The research team also identified drugs that are currently on the market for different diseases that they claim block the entry of Covid-19 into human cells by increasing cellular cholesterol. In particular, they found three drugs currently on the market were more than 100-fold more effective in stopping viral entry in human lung cells.

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