

Indian Scientists Discover Coronavirus Engineered With HIV (AIDS) Like Insertions

GAIN OF FUNCTION ACHIEVED BY COMBINING SARS WITH HIV?

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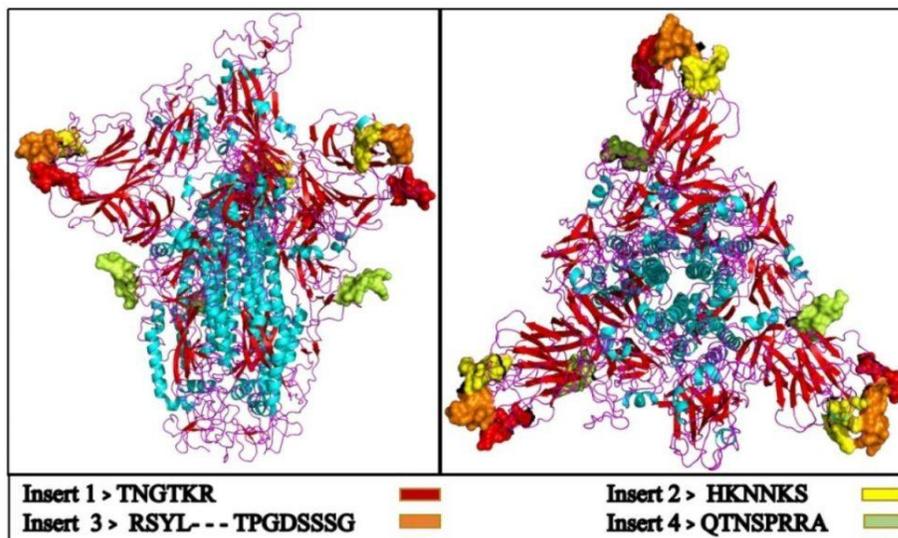
<https://greatgameindia.com/indian-scientists-discover-coronavirus-engineered-with-aids-like-insertions/>

A group of Indian scientists have discovered that Wuhan Coronavirus has been engineered with AIDS like insertions. The study concludes that it is unlikely for a virus to have acquired such unique insertions naturally in a short duration of time. Meanwhile, China has started using AIDS drug for Coronavirus treatment.

Indian Scientists Discover Coronavirus Engineered With AIDS Like InsertionsThe [study](#) was undertaken by scientists from Indian Institute of Technology, Acharya Narendra Dev College and University of Delhi and has been published under the title [Uncanny similarity of novel inserts in the 2019-nCoV spike protein to HIV-1 gp120 and Gag](#).

The [study found](#) 4 new AIDS like insertions in the Coronavirus which were absent from other Coronaviruses. This finding the [study states](#) is “unlikely to be fortuitous in nature”, meaning that it is not a naturally occurring phenomenon.

We are currently witnessing a major epidemic caused by the 2019 novel coronavirus (2019-nCoV). The evolution of 2019-nCoV remains elusive. We found 4 insertions in the spike glycoprotein (S) which are unique to the 2019-nCoV and are not present in other coronaviruses. Importantly, amino acid residues in all the 4 inserts have identity or similarity to those in the HIV-1 gp120 or HIV-1 Gag.

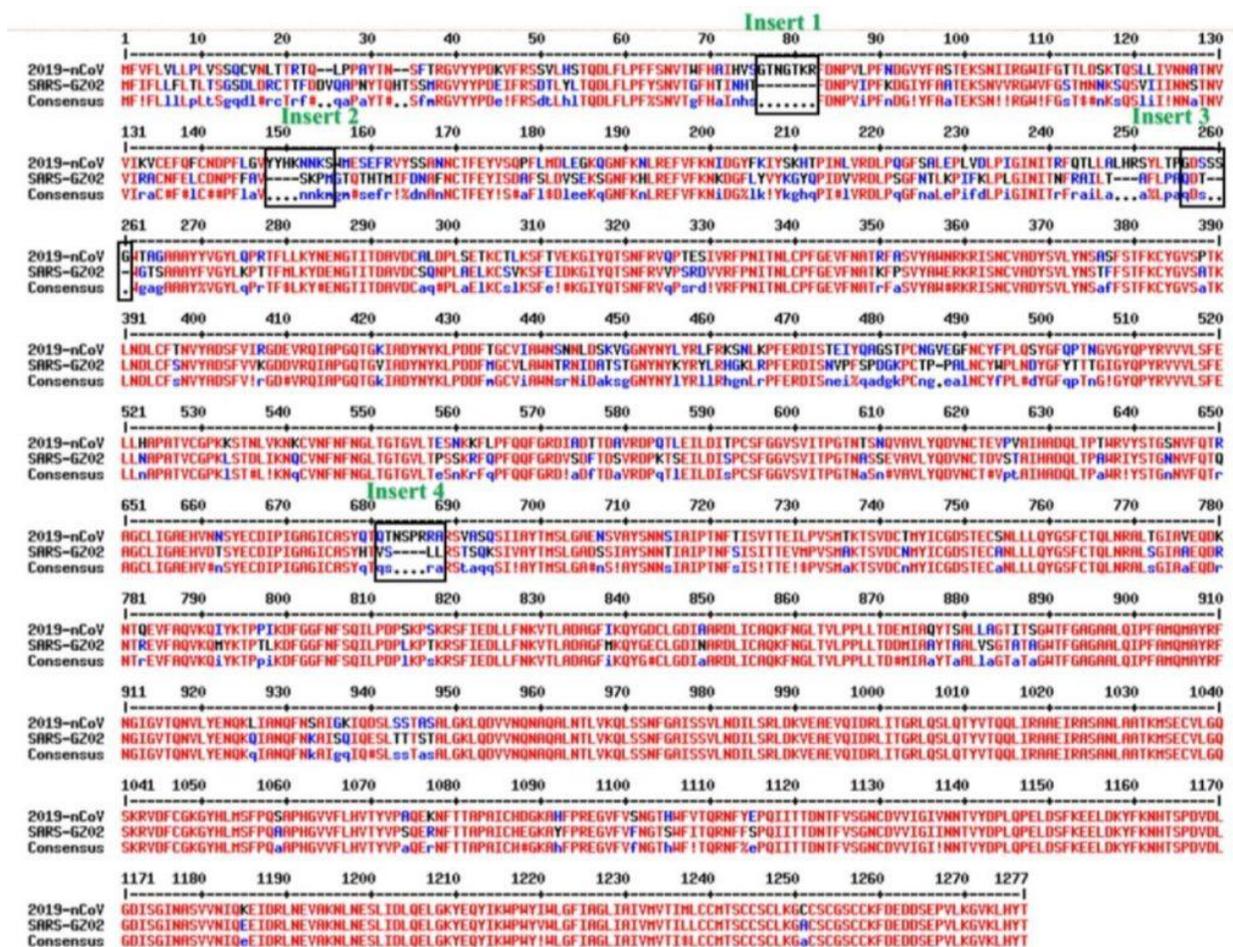


Modelled homo-trimer spike glycoprotein of 2019-nCoV virus. The inserts from HIV envelop protein are shown with colored beads, present at the binding site of the protein.

Interestingly, despite the inserts being discontinuous on the primary amino acid sequence, 3D-modelling of the 2019-nCoV suggests that they converge to constitute the receptor binding site. The finding of 4 unique inserts in the 2019-nCoV, all of which have identity /similarity to amino acid residues in key structural proteins of HIV-1 is unlikely to be fortuitous in nature. This work provides yet unknown insights on 2019-nCoV and sheds light on the evolution and pathogenicity of this virus with important implications for diagnosis of this virus.

The scientists were [surprised to observe](#) such insertions and were startled “as it is quite unlikely for a virus to have acquired such unique insertions naturally in a short duration of time”.

Since the S protein of 2019-nCoV shares closest ancestry with SARS GZ02, the sequence coding for spike proteins of these two viruses were compared using MultiAlin software. We found four new insertions in the protein of 2019-nCoV- “GTNGTKR” (IS1), “HKNNKS” (IS2), “GDSSSSG” (IS3) and “QTNSPRRA” (IS4).



Multiple sequence alignment between spike proteins of 2019-nCoV and SARS Figure 2: Multiple

sequence alignment between spike proteins of 2019-nCoV and SARS. The sequences of spike proteins of 2019-nCoV (Wuhan-HU-1, Accession NC_045512) and of SARS CoV (GZ02, Accession AY390556) were aligned using MultiAlin software. The sites of difference are highlighted in boxes.

To our surprise, these sequence insertions were not only absent in S protein of SARS but were also not observed in any other member of the Coronaviridae family (Supplementary figure). This is startling as it is quite unlikely for a virus to have acquired such unique insertions naturally in a short duration of time.

The [study concludes](#) that it is because of these 4 new AIDS like insertions that Wuhan Coronavirus has jumped to humans originally known only to infect animals.

These proteins are critical for the viruses to identify and latch on to their host cells and for viral assembly. Since surface proteins are responsible for host tropism, changes in these proteins imply a change in host specificity of the virus. According to reports from China, there has been a gain of host specificity in case 2019-nCoV as the virus was originally known to infect animals and not humans but after the mutations, it has gained tropism to humans as well.

The study gives credence to [GreatGameIndia](#)'s earlier reports on [Coronavirus Bioweapon](#). Meanwhile, China has started using [AIDS drugs for Coronavirus treatment](#). China is using AbbVie Inc's HIV drugs as an ad-hoc treatment for pneumonia caused by the novel coronavirus while the global search for a cure continues.

The Beijing branch of China's National Health Commission said that a combination of lopinavir and ritonavir, sold under the brand name Kaletra by AbbVie, is part of its latest treatment plan for patients infected by the virus, which has killed at least 56 people in China and sickened more than 2,000 worldwide.

The NHC said that while there is not yet any effective anti-viral drug, it recommends patients are given two lopinavir and ritonavir tablets twice a day and a dose of alpha-interferon through nebulization twice daily.