

## COVID Escaped from a Lab

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We can say with high confidence that COVID-19 originated in a lab, and somehow got into the human population. Multiple lines of evidence support this conclusion. That's not news. The news is that we can say it without fear (or maybe only a little fear). Although the official position of the Office of the President is that there is no consensus on the origin of the virus, The Director of the FBI, Christopher Wray, stated in a February 28 interview with Fox News, "The FBI has for quite some time now assessed that the origins of the pandemic are most likely a potential lab incident in Wuhan. Here you are talking about a potential leak from a Chinese government-controlled lab." A few days prior to this the Energy Department had offered a similar opinion, couched in more tentative language. Since anyone interested can hear lots of opinions on the subject, I would like to offer a succinct version of the scientific evidence.

I first became convinced that the COVID virus was engineered when I read an article entitled, "Uncanny similarity of unique inserts in the 2019-nCoV spike protein to HIV-1...." This article, which has since been withdrawn for no clear reason, was posted to bioRxiv on January 31, 2020. In it the authors state that the 'spike protein' of COVID is similar to the original SARS spike protein, and differs in only 4 small areas, where additional genetic material has been inserted (naturally or not). It is these areas that account for COVID being contracted much more easily than the original SARS. In their conclusion the authors state, "First, we identified 4 unique inserts in the 2019-nCoV spike glycoprotein that are not present in any other coronavirus reported [to] date. To our surprise, all the 4 inserts in the 2019-nCoV mapped [only] to short segments of amino acids in the HIV-1 gp120 and Gag among all annotated virus proteins in the NCBI database. This uncanny similarity of novel inserts in the 2019-nCoV spike protein to HIV-1 gp120 and Gag is unlikely to be fortuitous." In other words, they thought it would be highly unlikely that over the space of a few years a coronavirus evolved to have these 4 insertions that just happened to look exactly like the portion of the HIV virus molecule which binds to a human cell, and not like anything else in the extensive database of viral genomes.

A few months later I learned something even more striking, from a Wall Street Journal article, "The Science Suggests a Wuhan Lab Leak." (June 6, 2021) What I learned is that not only was the original SARS virus changed so that it looked more like the HIV virus, the way that it was changed was... unique. The particular amino acid sequence, arginine-arginine, has been inserted in the COVID spike protein, and it is crucial to the enhancement in infectivity, relative to the original SARS. However, there are literally three dozen ways that a genome can specify this. One way is with the sequence genetic sequence CGG-CGG\*, but, "...in the entire class of coronaviruses that includes CoV-2, the CGG-CGG combination has never been found naturally. That means the common method of viruses picking up new skills, called recombination, cannot operate here. A virus simply cannot pick up a sequence from another virus if that sequence isn't present in any other virus. Although the double CGG is suppressed naturally, the opposite is true in laboratory work. The insertion sequence of choice is the double CGG. That's because it is readily available and convenient, and scientists have a great deal of experience inserting it.... Proponents of zoonotic origin must explain why the novel coronavirus, when it mutated or recombined, happened to pick its least favorite combination... Why did it replicate the choice the lab's gain-of-function researchers would have made?"

One last point is this: Coronaviruses, including COVID-19, are positive sense RNA viruses. The protein structure has some similarities to the structure of HIV-1, but HIV is a retrovirus and it cannot directly share sequences with coronaviruses. Even though the structure of COVID has some similarity to HIV, catching COVID does not mean that you have been exposed to HIV.

\*CGG stands for the ribonucleic acid (RNA) sequence cytosine-guanine-guanine.

Medicine, Science and Culture is a regular feature, written by Bradly Bundrant MD, MPH [bbundrant@hawc4rc.org](mailto:bbundrant@hawc4rc.org). The intent is not to be provocative, but to improve the health of individuals and communities. Sometimes a new way of viewing the world is necessary, in order to be ready to respond to what may soon develop. To see previous articles and to learn more about our efforts to improve individual and community health, go to [www.hawc4rc.org](http://www.hawc4rc.org).