

Is COVID-19 a Chinese bio-weapon?

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The rumour is that a virology institute in Wuhan developed coronavirus in their own lab. Firstly, it is important to understand that Wuhan just happens to have a virology institute, just like every other country. For instance, India has one in Pune, Maharashtra. Pune's National Institute of Virology has all kinds of live viruses including human-pathogenic ones like Nipah and Corona, among many others for research. They will have in their vaults almost all those deadly viruses that have been eradicated from amidst us. The institute in Wuhan is a similar one – a research institute, not a bio-weapon producing institute.

However, one could still wonder if someone actually created something there. Evolutionary genetics and biologists from the USA, led by Dr. Andersen and others, have looked into this question scientifically, not as a supposition. Their research was recently reported by a journal called *Nature Medicine*. What this group did was to study the genetic sequence of COVID-19, to develop countermeasures like vaccines, drugs, antibodies, etc. This genetic sequence was released within a few weeks after it was understood that the virus could cause serious damage to humans. It was made public and China did not withhold any information. The genetic material was made available to researchers across the world to study and develop drugs and vaccines against. Scientists everywhere have been receiving information about it and even collaborating with Chinese scientists since the outbreak of the pandemic.

Several academic articles regarding COVID-19 have been published since the outbreak. It was due to the information that China released (which they should and did) that countries like Italy, to an extent, could tackle the issue when it started becoming a threat there too. China should not be blamed if a particular country failed to take their warnings seriously and let the virus pass spread. In fact, China had also released the protocol they evolved under the aegis of WHO, to treat the COVID-19 patient.



Dr. Andersen and Team

Dr. Andersen and his team compared the COVID-19 gene-sequence with seven other coronavirus gene-sequences that can affect humans and other animals, particularly bats and pangolins.

They found two important results:

(a) COVID-19 was the least virulent one of the eight sequences. So this is useless for bio-war purposes. If one really wanted to create a bio-weapon, they would have created a highly virulent one. A laboratory manipulation of the COVID19 is analogous to forging a better knife. But the COVID-19 virus was much less efficient. If it was engineered, then it is like making a blunt knife.

(b) Imagine a lock and key situation by which virus receptors attach themselves to human receptors. The COVID-19 binding port ('key') fits well with the human receptors ('lock'), and this kind of 'perfection' is achieved by natural selection and cannot be man-made. Moreover, despite the efficient binding, the interaction is not optimal. If a human created this virus, he/she would have created something that is optimal! Other coronavirus genes that were compared are much more optimal than the COVID-19 sequence. So this cannot be a purposefully manipulated virus. It has naturally evolved.

Racism Against China

There is still no evidence to indicate that coronavirus originated in China. The virus could have evolved anywhere in the world and there is also a possibility that the transfer of the virus from animals to animals, and then to humans, could have also happened anywhere

in the world. We do not know anything for sure, so we shouldn't speculate its origins. Building any kind of fantasy theory at this point is not helpful. The evolution of the virus has to be fully studied, and researchers are working on it. Sure, their proximity to wet markets does increase the chance that it might have taken place in Wuhan, but it could also happen just about any place with many other animals too (swine flu, recent chicken flu, other bird flus, etc start in other countries too). From now on, we all, and not just the Chinese, need to rethink our behaviour with nature.

The Spanish flu pathogen that killed millions in India had originated in the USA, as per studies. Despite its name, a hypothesis says that the virus strain originated at Fort Riley, Kansas, USA. It came towards the end of WW-I and easily spread to other countries. Since Spain's position was neutral, they could afford to test and report many cases (more than other countries), leading to the name 'Spanish flu' coming about.

Racism is a crime, and COVID-19 should not be a reason to practice it. There is ample proof that this is a natural virus, and not man made. Although the first human manifestation of it was found in China, the original zoonotic strain could have emerged just about anywhere. Even its jump from animals to humans could have occurred anywhere else. The evolution of the virulent strain was first reported in China, but it was neither caused by the Chinese, nor by their government. Our governments, along with its healthcare plans, should also ensure the safety of students and people coming from these regions.

There is no proof that eating meat could cause diseases either, as most viruses die out during the process of cooking the meat. Proximity to wildlife, or even domesticated animals could cause the virus to jump to us.



Transmission of the Virus

The coronavirus family is huge, similar to how in what we consider the 'cat family', we have house cats, lions, tigers, etc. Some coronaviruses only affect other animals, and would do no harm to humans (ie. not pathogenic for humans). One coronavirus, the COVID-19, mutated (and most likely transmitted from bat/pangolin, and possibly to another intermediate host to humans), so as to attach itself to humans and survive. One theory is that even after attaching itself to humans, the COVID-19 might initially (sometimes even for years) not show any effect on humans. That would have been the non-virulent or non-pathogenic version, which would have later have developed virulence and turned itself into a pathogenic version, thereby affecting humans then. So according to this theory, the virulence evolved within humans. An alternative theory, however, is

that the pathogenic version occurs in animals and then comes to humans. The now well-known SARS virus jumped to humans in this fashion.

For now, regarding this COVID-19, we still don't know which of these two actually took place. If the evolution of this COVID-19's virulent version happened amidst humans, then a recurrence is not possible because having a same evolutionary pathway has extremely low probability, but if the virulent version had occurred among the animal populations (and then jumped to humans), then there is a reservoir of a virulent COVID-19 out there that can affect us again in future. Researchers are therefore at work to find out if the virulent version evolved in humans (as in the case of Ebola) or in animals (like the case of SARS).

Even though dengue is transmitted via mosquitoes, it goes from one human to another. The novel coronavirus COVID-19 is transmitted via the droplets that come out of our noses. Sneezing may expel large quantities of the virus to the atmosphere. These droplets settle on various surfaces such as door handles. When we touch them, it travels to us. Further, when an infected person sneezes or coughs without covering their mouths, it could directly come to us if we are less than one-meter away.

For around 14 days, the virus can reside inside a person it infects. After that, it cannot survive in the body of that person because that person would develop antibodies to destroy the virus. Once a person is infected, generally they cannot be infected again, at least for years to come. Then how does the virus survive? It survives by spreading from one person another, for it needs new hosts.



President Xi inspects prevention & control work in Beijing on Feb. 10. Pang Xinglei/Xinhua via Getty Images

Each virus has a specific infection pattern. Every infected person can spread it to about 2.6 persons on an average, within a period of 14 days. After that, the person can neither host nor transmit the virus.

Now imagine an uncontrolled situation: One person is infected, that person transmits the virus to 2.6 or lets us say 2, then these two transmit it to 2 others each. Therefore, in total, $4 + 1 = 5$ are infected. The four persons transmit it to 8, these 8 to another 16, and so on.

On the 16th transmission, it will have infected 65536. This growth rate is called 'exponential'.

All these 16 chains of transmission would happen in a matter of a few weeks. Now, on the 17th transmission, the newly infected number will be, hold your breath, 1, 31, 070. What's interesting is that not all those infected will exhibit extreme ill-health. Only about 4.7% will develop serious health conditions requiring medical attention. The value 4.7% of 1, 31, 070 is 6160. This means that new patients who need medical attention would have reached 6160. On that day alone, the number will double. If this continues, one need not tell, but all medical facilities will be suffocated and there will be no room for providing treatment. Studies have shown that this will exponentially rise each day and with every contact.



Masked dogs with owner at Shanghai, China

This has to be stopped and the growth curve has to become flattened or at the least, should start dropping. Data from China and Korea show how physical distancing drastically helps. We need to 'Break the Chain' of the virus from spreading. One of the important ways by which one can achieve this is by physical distancing and this can be done by simply staying indoors.

Work From Home: A Privilege

We need to work to survive. Not everyone is privileged to work from home. The poor are always the worst affected when such calamities occur. Travelling and living in miserable conditions, exposing them to the virus is to say the least, inhumane and insensible. Asking them to leave work without pay cannot be tolerated either, because studies show how healthcare and income are directly proportional to each other. Pathogens affect all humans equally, and only by providing equal healthcare opportunities to each and everyone, can we save our entire herd.

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