

COVID-19
VS
NATURAL DISASTERS
-THE REAL TREMOR

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Covid -19 is a all new word that originates in the last year and this word is taking the whole world in its deadly grasp. The word Covid-19 stands for the following-

'Co'- Corona

'Vi'- Virus

'd'- Disease

'19'- Origination in 2019

The origination of this coronavirus is ancient although the newly mutated coronavirus and its wide spread tremor is new. As we all know that viruses are different than that of a bacteria because they are known as the dawn of living and non-living. They gets activated when they enters a living body otherwise they remain inactive outside. Viruses are nothing but some protein and lipid molecule which contain some nucleic acids (DNA or RNA). In case of Coronavirus, a RNA virus, they have a crown or halo- like appearance and are enveloped glycoproteins (David A.J. Tyrrell and Steven H. Myint). Most of the human coronaviruses fall into these two serotypes mainly- OC43-like and 229E-like. The envelope is studded with projecting glycoproteins, and surrounds a core consisting of matrix protein enclosed within which is a single strand of positive-sense RNA ($Mr\ 6 \times 10^6$) associated with nucleoprotein. The envelope glycoproteins are responsible for attachment to the host cell and also carry the main antigenic epitopes, particularly the epitopes recognized by neutralizing antibodies. OC43 also possesses a haemagglutin.

Coronaviruses of both both mammalian and other animals are antigenically related. Coronaviruses were first discovered in the 1930s when an acute respiratory infection of domesticated chickens was shown to be caused by infectious bronchitis virus (IBV). Arthur Schalk and M.C. Hawn described in 1931 a new respiratory infection of chickens in North Dakota. The infection of new-born chicks was characterized by gasping and listlessness. The chicks' mortality rate was 40–90%. Fred Beaudette and Charles Hudson six years later successfully isolated and cultivated the infectious bronchitis virus which caused the disease. In the 1940s, two more animal coronaviruses, mouse hepatitis virus (MHV) and transmissible gastroenteritis virus (TGEV), were isolated. It

was not realized at the time that these three different viruses were related. Human coronaviruses were discovered in the 1960s.

The virus was not able to be cultivated using standard techniques which had successfully cultivated rhinoviruses, adenoviruses and other known common cold viruses. In 1965, Tyrrell and Byone successfully cultivated the novel virus by serially passing it through organ culture of human embryonic trachea. The new cultivating method was introduced to the lab by Bertil Hoorn. The isolated virus when intra-nasally inoculated into volunteers caused a cold and was inactivated by ether which indicated it had a lipid envelope. Around the same time, Dorothy Hamre and John Procknow at the University of Chicago isolated a novel cold virus 229E from medical students, which they grew in kidney tissue culture. The novel virus 229E, like the virus strain B814, when inoculated into volunteers caused a cold and was inactivated by ether.

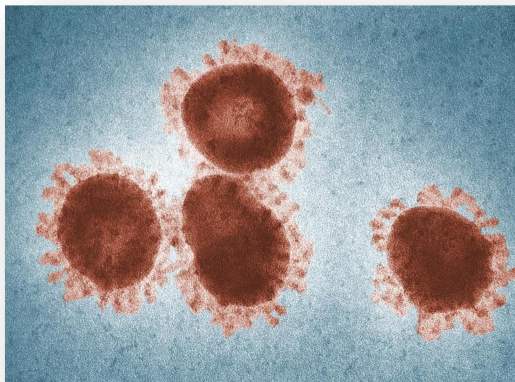


Fig- TEM of infectious bronchitis viruses

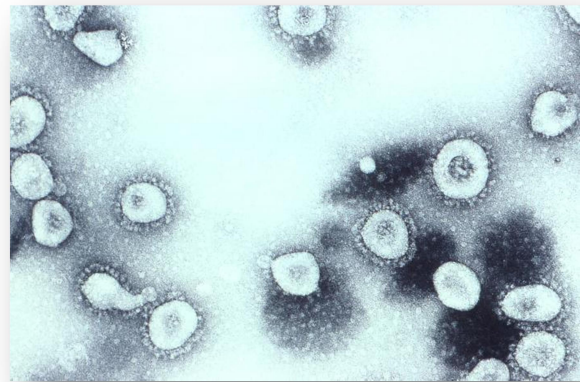


Fig- TEM of organ cultured coronavirus OC43

The two novel strains B814 and 229E were subsequently imaged by electron microscopy in 1967 by Scottish virologist June Almeida at St. Thomas Hospital in London. Almeida through electron microscopy was able to show that B814 and 229E were morphologically related by their distinctive club-like spikes. Not only were they related with each other, but they were morphologically related to infectious bronchitis virus (IBV). A research group at the National Institute of Health the same year was able to isolate another member of this new group of viruses using organ culture and named the virus strain OC43 (OC for organ culture).

The newly mutated nCoV-19 or the SARS CoV-2 are the novel strains of coronaviruses that are originated in China in a city named as Wuhan. The world has been affected by the epidemic situation in every 100 years where in

1720- Great Plague of Marseille

1820- Savannah yellow fever epidemic

1920- 1918 flu pandemic

2020- Coronavirus pandemic.

Coronavirus were previously categorised as SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome).

As this nCoV-19 affects the respiratory system, the trachea and finally the lungs therefore it is categorised as a respiratory syndrome, most commonly the upper respiratory tract and in more severe condition the lower and the middle respiratory tracts too.

Symptoms of Covid-19

The most common symptoms of COVID-19 are fever, dry cough, and tiredness. Other symptoms that are less common and may affect some patients include aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell or a rash on skin or discoloration of fingers or toes. These symptoms are usually mild and begin gradually. Some people become infected but only have very mild symptoms. Most people (about 80%) recover from the disease without needing hospital treatment. Around 1 out of every 5 people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart and lung problems, diabetes, or cancer, are at higher risk of developing serious illness. However, anyone can catch COVID-19 and become seriously ill. People of all ages who experience fever and cough associated with difficulty breathing/shortness of breath, chest pain/pressure, or loss of speech or movement should seek medical attention immediately. If possible, it is recommended to call the health care provider or facility first, so the patient can be directed to the right clinic.

Disasters Created By Covid-19

The effect of coronavirus on our society when we say about the effect of coronavirus on our society then we can we have to mention that there is a strict lockdown strategy in our country because of the outbreak of this pandemic of coronavirus in a tremendous way at first was to stay at home and not to move out after lockdown 1.0, gradually lockdown 2.0, 3.0 and 4.0 has been started and is presently continuing. Lockdown 1.0 was started on March 25, 2020 up till 14 April 2020 that was successful, in lockdown 1.0 the Government of India has restricted the whole country citizens itself not to move out of their homes and to lock down every public and private Institutions school colleges in equities market small salons, parlors, market and it was a very disastrous condition for those who are living an underprivileged life. Those people who are below the poverty line and have to earn their every meal with their daily income have to undergo a very tough period due to the lockdown strategy because as they are not moving out of their homes their income sources are also shut off.

Socio-economic and Cultural disaster

The first case of the COVID-19 pandemic in the Indian state of Assam was reported on 31 March 2020. The COVID-19 outbreak in Assam has been traced to persons who attended the conference of the Tablighi Jamaat religious organisation at Nizamuddin Markaz (Delhi) and did not report to the authorities after their return to Assam.[15][16] Out of the total patients of COVID-19 in Assam – 37 are either attendees or contacts of Tablighi Jamaat. The COVID-19 tally in Assam also shoots up due to some pilgrims of Ajmer Sharif Dargah (Rajasthan), who arrived in the Silchar city of Cachar district by bus on 6 May. Later on, 10 pilgrims tested positive for coronavirus and the others were sent to quarantine as per guidelines. The state has also begun witnessing a spike in the number of Covid-19 cases as the migrant workers and many people of Assam stranded in other parts of the country returned to Assam. Many of them tested positive for coronavirus when they were in quarantine in the respective quarantine centres of the state.

From the perspective of the people of Assam, we could not celebrate our annual Rongali bihu this time as this was the high time of the Covid outbreaks and the social distancing is applied and no mass gatherings are allowed and being a responsible citizen we had to sacrifice the annual bihu celebration. For which various business of laru, pithas and other bihu stuffs are having a zero graded economical starvation this time and therefore the state assam possessed a great socio-economic loss. Niva Saikia from Sivasagar, who usually sells neatly packed pitha during Bhogali Bihu and Rongali Bihu melas explains that “pitha, despite its very fragile quality, is surprisingly durable”. “If stored properly, they can be served till a month of their preparation,” she added. Saikia said that it is a double whammy for the industry which also suffered in the wake of the protests against the Citizenship Amendment Act. The unorganized sector is believed to be covered as many as 25,000 workers and traders who are either directly or indirectly involved in the trade. “The trend of people buying readymade pitha, laru and sandoh are rising as they don’t have time or the skill to make the traditional food items relished during the harvest festival,” said Narji Khandakar a homemaker of Baihata Charali in Kamrup(Rural). Assam health and finance minister Himanta Biswa Sarma also visited the doctors and nurses at Hotel Taj Vivanta in Guwahati on Tuesday who is under mandatory quarantine at the hotel after treating COVID19 patients. Minister Sarma met the 43 doctors and nurses and expressed his gratitude to them for their dedicated service. He also offered them Bihuwan, Laru-Pitha on the occasion of Rongali Bihu and Assamese New Year. Also the Eid had to go in lesser celebration due to the outbreaks. The months of February and March are especially hectic for handloom workers in Assam as April (Bohag) is the month that marks the beginning of the Assamese New Year. But this year, there have been no celebrations. The markets that are usually full of mekhela sadors, gamosas, dokhonas, and other handloom products are all closed. Because of the COVID-19 pandemic, the handloom industry in Assam is facing an unprecedented crisis. And most weavers fear the worst – that they will never recover from this. The model that many weavers in Assam follow is that of home-based weaving. They weave in their spare time in their homes. And unsurprisingly, most of these weavers are women, especially in rural areas. Around 77.94 percent of the total are women weavers in Assam. It is a common sight to see women working on their taant xaals (looms) in the

afternoon. In the past, weaving was seen as a desirable quality for a girl to get married. The daughter-in-law of the family was expected to weave gamosas and bihuwaan (new gamosas that are gifted to family and relatives in Bihu) during Bohag Bihu. This is still very much in existence in rural Assam. Wearing new hand-woven clothes in Bohag Bihu is part of Assam's culture. As such, most women are taught to weave in Assam's rural areas. While some of them are non-commercial weavers and weave only for personal consumption, most of them use weaving as a source of income. The average annual income from handloom activities for weavers ranges around Rs. 20000-30000. However, the composition of women weavers drastically changes in the commercial setting like in most jobs. Women constitute only 49.10 percent of the total weavers in Sualkuchi – the commercial weaving centre in Assam. The slightly greater proportion of male weavers in Sualkuchi highlight the domesticated role of weaving for women. It is difficult for them to leave their homes and come out to work. Even of the total women weavers, very few have the independence and choice to make decisions regarding the production or investment. There is also a huge gap of ownership indicating biased power relations as well as control over income and assets. In India, The Kiran Nadar Museum of Art in Delhi closed on 14 March, two days before Shripad Naik, minister for culture and tourism, ordered the closure of all "monuments and museums protected by the Archaeological Survey of India across the country, including the Taj Mahal mausoleum in Agra. Also if we want to showcase the foreign cultures then Empty UNESCO World Heritage sites, cultural events cancelled, cultural institutions closed, community cultural practices suspended, heightened risk of looting of cultural sites and poaching at natural sites, artists unable to make ends meet and the cultural tourism sector greatly affected. The impact of the COVID-19 on the cultural sector is being felt around the world. This impact is social, economic and political. In Germany, On 16 March 2020, the German chancellor Angela Merkel announced in a press conference that the government and minister-presidents had together agreed upon guidelines to limit social contacts in public spaces, noting that theatres, opera houses, concert halls, museums, exhibition spaces, cinemas, amusement parks and zoos needed to close. After six weeks, in early-May, cultural institutions cautiously reopened their buildings with various measures in place to reduce

the likelihood of virus transmission (such as restricting the number of simultaneous visitors and mandatory face-masks).

The impact of Migration

Migration because of coronavirus is a matter of concern nowadays. When we people migrate to some places that are affected with coronavirus and are having a good and decent decent frequency of COVID-19 patients and they are also not correctly maintaining social distancing. When we get migrated to such kind of place then there is a very much high scope of infection of the coronavirus. Usually, those people who are living at a distant place from their homes and they are willing to return to their homes are prioritized to bring them home as soon as possible by the government authorities but if those people that are staying at those places where there are a high-frequency coronavirus attacks and they are also having the coronavirus as I have already mentioned that this disease can also be asymptomatic and therefore they can have those viruses in their body without having any symptoms and they can be a carrier of coronavirus. If those persons get in contact with other healthy persons in those areas then it can be e a disastrous condition who are there will be a lot of COVID-19 patients. Ultimately it can be concluded that if we are not maintaining the rules and regulations and the preventive measures that are instructed by our government and World Health Organisation then migration can be a causative agent of COVID-19. If we are not careful enough when we are migrating to other places and when we are traveling to those areas where there are a lot more infections then there is a quite good chance of getting infected. When we are migrating and we are in contact in contact with public masses then we should follow strict social distancing wearing our masks and utilizing hand sanitizers as well as frequently washing our hands also not to bring our hands to the facial parts like knows eyes and mouth. Also, we should restrict unnecessary and Idle loiters. Unnecessary traveling to infected places public gatherings markets can be a causative agent of the COVID-19. For example, in Assam there were very very few cases of COVID-19 back in a month where the figure runs about 50 and 60 but after migration of various peoples from various States to their hometown Assam, the cases have increased to the mark of 1000 and also exceeded the mark. Because of the migrants and their infected cases, the number of Total cases of

Assam has increased. Also, I'd like to mention one important point here which is the violation of government rules and regulations. Violation of lockdown and cheat on the rules and regulations can be a disastrous condition and the causative agent for a number of cases of COVID-19 which can be a tremor to Assam. As of May 17 as found on the internet there were a hundred number of cases of coronavirus virus presence in Assam whereas of now has touched the mark of 1000 in 5.42 days and death is only because of the migrants and the increasing number of coronavirus patients.

Science and technology against COVID-19 and preventive measures to stop the spread of COVID-19

As there is no vaccination and curable measures are discovered, therefore a healthier source of alternative of changing our daily lifestyles and habits can be a good preventive measure for to stop spreading this pandemic.

- Cleaning our hands often. Using soap and water, or an alcohol-based hand rub.
- Maintaining a safe distance from anyone who is coughing or sneezing.
- Don't touching our eyes, nose or mouth.
- Cover our nose and mouth with our bent elbow or a tissue when we cough or sneeze.
- Stay home if we feel unwell.
- If we have a fever, cough and difficulty breathing, we should seek medical attention and call in advance.
- Following the directions of our local health authority.

Some scientific advancements to track and ease the outbreak tracking China has discovered some robotics, artificial intelligence, autonomic cars, drones, positioning technologies, satellite monitoring etc.

It is known that positioning technologies play a crucial role during the time of crisis and disasters. Government agencies and first responders on the ground require precise positions to accurately assess the situation, pinpoint the most risky areas and carry out relief and rehabilitation efforts accordingly. In the case of epidemics and outbreaks too, GNSS comes in quite handy. In China,

BeiDou, the country's own GNSS constellation, helped track patients and affected places, thus containing the virus, apart from analyzing the pattern of the outbreak. With the help of reliable data and precise mapping and imagery, China could build thousands of new makeshift hospitals across the country. BeiDou is being used by decision-makers for transportation planning. Logistics companies are using GNSS terminals to help ply essential relief goods faster. BeiDou also has a RDSS (Radio Determination Satellite Service) that is relaying information real-time. According to reports, the Chinese government was able to hasten the construction of two new hospitals in Wuhan mainly due to BeiDou. In Ruichang, Jiangxi province, the police forces are using BeiDou-enabled drones for monitoring congested public areas. The Chinese Ministry of Transportation was able to swiftly send emergency messages to over 6 million connected vehicles using BeiDou. The Chinese e-commerce giant JD also delivered medical equipment in remote hospital areas in Wuhan with the help of robots based on BeiDou.



Fig- Positioning technology



Fig- Satellite Monitoring

Natural disaster Tremors Vs Covid-19

Although natural disasters like floods, Storms, Hurricanes, Tsunamis cause a devastation all around and causes a lot of damage on every and each sector namely socio-economic and natural abiotic and biotic factors but they are often regional and effect a particular region but the COVID-19 is a pandemic or can be summarised as a Global epidemic which has out-broken to almost whole of the world causing a global devastation of economy, social and cultural practices and the global health.

Globally, as of 4:30pm CEST, 30 May 2020, there have been 5,817,385 confirmed cases of COVID-19, including 362,705 deaths, reported to WHO.

In India, as on : 30 May 2020, 08:00 IST (GMT+5:30),

86422 – Active cases, 82369- Cured/ Discharged, 4971- Death.

In Assam, 1024- Total Cases, 895- Active cases, 125- Discharged/Cured, 4- Deaths.

The 2-4% of mortality rate of this COVID-19 disease has a greater potency of contamination and spreading which is far more dangerous than that of a natural disaster.

As said by Dr. Saibal Ghosh in Financial express, Covid-19 disasters have already taught us the most fundamental lesson that a massive scale of preparedness in the health infrastructure is essential in any country to tackle such types of disasters, which emerged suddenly and affected a large number of people irrespective of geographic boundaries, wealth, caste, creed and religion with tremendous pace and virulence. For landslides, due to gaps in historic data, prediction of its time of occurrence is difficult and that is why India is still not ready yet with any operational temporal prediction model for landslides to be used for early warning. However, for 60% of landslide-prone areas (2.55 lakh km²), India is now aware of the fact about the spatial locations where future landslides are likely to occur due to the presence of a trigger, which in most cases are the higher amount of monsoon rainfall. GSI, being the nodal agency for landslides has already prepared and uploaded such geo-information on landslide susceptibility maps on its Bhukosh web portal for use by all in 17 landslide-prone States. Apart from the earthquake (and the resultant tsunamis if any), all other common natural disasters in India are mostly influenced by the monsoon rainfall and also by a large number of weather disturbances developed over the oceanic surfaces surrounding the Indian sub-continent. India must be prepared like earlier years for any such hydro-meteorological disasters (e.g., Flood, Cyclone, Landslides, etc.), which are very common in this country mostly during such active monsoon period in almost every year. Due to the possible continuance or uncertainty in the continuance of the effect of COVID-19, maintaining social distance (a basic requirement in case of COVID-19) would be an issue in such shelter homes. This may result in an obvious space crunch in such shelter homes and may lead to additional expenditure in acquiring and managing more number of temporary shelters. While planning, such parameters should always be taken into consideration.

References-

- 1) Medical Microbiology. 4th edition, (David A.J. Tyrrell and Steven H. Myint)
- 2) Gwaltney JM Jr. Virology and immunology of the common cold. *Rhinology*. 1985;23:265. [[PubMed](#)]
- 3) Myint S, Johnstone S, Sanderson G, Simpson H. An evaluation of 'nested' RT-PCR methods for the detection of human coronaviruses 229E and OC43 in clinical specimens. *Mol Cell Probes*. 1994;8:357–364. [[PMC free article](#)] [[PubMed](#)]
- 4) Sanchez CM, Jimenez G, Laviada MD. et al. Antigenic homology among coronaviruses related to transmissible gastroenteritis virus. *Virology*. 1990;174:410. [[PMC free article](#)] [[PubMed](#)]
- 5) Schmidt OW, Allan ID, Cooney MK. et al. Rises in titers of antibody to human coronaviruses OC43 and 229E in Seattle families during 1975–1979. *Am J Epidemiol*. 1986;123:862. [[PMC free article](#)] [[PubMed](#)]
- 6) Spaan W, Cavanagh D, Horzinek MC. Coronaviruses: structure and genome expression. *J Gen Virol*. 1988;69:2939. [[PubMed](#)]
- 7) Tyrrell DAJ, Cohen S, Schlarb JE. Signs and symptoms in common colds. *Epidemiol Infect*. 1993;111:143–156. [[PMC free article](#)] [[PubMed](#)]
- 8) Estola T (1970). "Coronaviruses, a New Group of Animal RNA Viruses". *Avian Diseases*. 14 (2): 330–336. doi:10.2307/1588476. ISSN 0005-2086. JSTOR 1588476.
- 9) Fabricant J (1998). "The Early History of Infectious Bronchitis". *Avian Diseases*. 42 (4): 648–650. doi:10.2307/1592697. ISSN 0005-2086. JSTOR 1592697.
- 10) Decaro N (2011). "Gammacoronavirus". In Tidona C, Darai G (eds.). *Gammacoronavirus†: Coronaviridae*. The Springer Index of Viruses. Springer. pp. 403–413. doi:10.1007/978-0-387-95919-1_58. ISBN 978-0-387-95919-1. PMC 7176155.
- 11) McIntosh K (1974). "Coronaviruses: A Comparative Review". In Arber W, Haas R, Henle W, Hofschneider PH, Jerne NK, Koldovský P, Koprowski H, Maaløe O, Rott R (eds.). *Current Topics in Microbiology and Immunology / Ergebnisse der Mikrobiologie und Immunitätsforschung*. Current Topics in Microbiology and Immunology / Ergebnisse der Mikrobiologie und Immunitätsforschung. Berlin, Heidelberg: Springer. p. 87. doi:10.1007/978-3-642-65775-7_3. ISBN 978-3-642-65775-7.
- 12) "Il était une fois les coronavirus". *Réalités Biomédicales* (in French). 2020-03-27. Retrieved 2020-04-18.
- 13) Kahn JS, McIntosh K (November 2005). "History and recent advances in coronavirus discovery". *The Pediatric Infectious Disease Journal*. 24 (11 Suppl): S223–7, discussion S226. doi:10.1097/01.inf.0000188166.17324.60. PMID 16378050.
- 14) Mahase E (April 2020). "The BMJ in 1965". *BMJ*. 369: m1547. doi:10.1136/bmj.m1547. PMID 32299810.
- 15) Monto AS (1984). "Coronaviruses". In Evans AS (ed.). *Viral Infections of Humans*. Viral Infections of Humans: Epidemiology and Control. Springer US. pp. 151–165. doi:10.1007/978-1-4684-4727-9_7. ISBN 978-1-4684-4727-9.
- 16) Kendall EJ, Bynoe ML, Tyrrell DA (July 1962). "Virus isolations from common colds occurring in a residential school". *British Medical Journal*. 2 (5297): 82–6. doi:10.1136/bmj.2.5297.82. PMC 1925312. PMID 14455113.
- 17) Richmond C (2005-06-18). "David Tyrrell". *BMJ : British Medical Journal*. 330 (7505): 1451. doi:10.1136/bmj.330.7505.1451. PMC 558394.

- 18) "Obituary Notices: Malcom Byone". *British Medical Journal*. 2 (5660): 827–829. 1969-06-28. doi:10.1136/bmj.2.5660.827.
- 19) Tyrrell DA, Bynoe ML (June 1965). "Cultivation of a Novel Type of Common-Cold Virus in Organ Cultures". *British Medical Journal*. 1 (5448): 1467–70. doi:10.1136/bmj.1.5448.1467. PMC 2166670. PMID 14288084.
- 20) Tyrrell DA, Fielder M (2002). *Cold Wars: The Fight Against the Common Cold*. Oxford University Press. pp. 93–95. ISBN 978-0-19-263285-2.
- 21) Hagan WA, Bruner DW, Gillespie JH, Timoney JF, Scott FW, Barlough JE (1988). *Hagan and Bruner's Microbiology and Infectious Diseases of Domestic Animals: With Reference to Etiology, Epizootiology, Pathogenesis, Immunity, Diagnosis, and Antimicrobial Susceptibility*. Cornell University Press. p. 440. ISBN 978-0-8014-1896-9.
- 22) Knapp, Alex. "The Secret History Of The First Coronavirus". *Forbes*. Retrieved 2020-05-06.
- 23) Hamre D, Procknow JJ (January 1966). "A new virus isolated from the human respiratory tract". *Proceedings of the Society for Experimental Biology and Medicine*. Society for Experimental Biology and Medicine. 121 (1): 190–3. doi:10.3181/00379727-121-30734. PMID 4285768.
- 24) "The woman who discovered the first coronavirus".
- 25) Almeida J (2008-06-26). "June Almeida (née Hart)". *BMJ*. 336 (7659): 1511.1–1511. doi:10.1136/bmj.a434. ISSN 0959-8138. PMC 2440895.
- 26) Almeida JD, Tyrrell DA (April 1967). "The morphology of three previously uncharacterized human respiratory viruses that grow in organ culture". *The Journal of General Virology*. 1 (2): 175–8. doi:10.1099/0022-1317-1-2-175. PMID 4293939.

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