

Science & Technology Briefs

Yes, SARS-CoV-2 Can Create Nasty Variants, But HIV Can Too

Investigations have been underway in South Africa regarding the origins of the Beta and Omicron variants of the coronavirus, SARS-CoV-2. In particular, the 8 million cases of HIV there make for a significant reservoir of immune-compromised individuals, where the coronavirus might mutate over longer periods of time.

A new [study](#) published Feb. 3 in Science indicates that human immunodeficiency virus (HIV) itself has created a nasty variant, a “virulent subtype B” (VB) variant of HIV. Researchers from the University of Oxford’s Big Data Institute have identified 109 cases of VB among 6,700 positive samples. “Individuals with the VB variant had a viral load between 3.5 and 5.5 times higher.” It is also more transmissible.

Most concerning is that CD4 cell decline, the key marker for immune system damage, “occurred twice as fast ... placing [individuals] at risk of developing AIDS much more rapidly.” While the standard therapeutics seem to work equally well against the VB variant, the faster deterioration of the immune system makes it critical that individuals infected with the variant are discovered early on and start treatment as soon as possible.

NeoCoV Bat Coronavirus Shows High Fatality, Rapid Human Spread Are Possible

A newly discovered coronavirus, NeoCoV, found by a team of Chinese scientists in South African bats, poses

the possibility of a more transmissible version of the virulent MERS-CoV-2 (a precursor of SARS-CoV-2). This discovery comes out of ongoing scientific work monitoring and investigating mutations and variations among other living species that may breed a viral strain that can cross over into humans. It is exactly the sort of collaborative work among nations and their scientists called for in February 2020 by a joint team of WHO and Chinese scientists investigating the SARS-CoV-2 that hit Wuhan, China.

The lead author of “Close relatives of MERS-CoV-2 in bats use ACE2 as their functional receptors,” is Qing Xiong, from the Institute for Vaccine Research and the Modern Virology Research Center at Wuhan University’s College of Life Sciences. The paper has just been entered into the [bioRxiv](#) electronic library and has not yet been peer-reviewed.

The scientists find that the coronavirus in the South African bats is closely related to the MERS coronavirus; however, no previous MERS-like coronavirus—that is, before NeoCoV—has employed, for a receptor, the bat Angiotensin-converting enzyme 2 (ACE2). NeoCoV prefers the bat ACE2, but also “less favorably, human ACE2” for entry. Hence the study’s conclusion: “Our study demonstrates the first case of ACE2 usage in MERS-related viruses, shedding light on a potential biosafety threat of the human emergence of an ACE2-using ‘MERS-CoV-2’ with both high fatality and transmission rate.” (See related article, “Human SARS-CoV-2 Virus in White-Tailed Deer and Other Animal Species,” *EIR*, Vol. 49, No. 5, Feb. 4, 2022, p. 45.)

Argentine Mini-Satellite Launched into Polar Orbit

SpaceX launched an Argentine

mini-satellite into polar orbit on Jan. 13, one of 105 small satellites launched from the Cape Canaveral Space Force Station in Florida. The Argentines are particularly excited about the launch of the MDQubeSAT1 San Martín—measuring 10x10x10 cm and weighing 461 grams—whose applications will be particularly important for Argentina’s agricultural and cattle-raising industry. This “pico-satellite” was a joint effort between the Ministry of Productive Development and the private-sector Innova Space Co. Innova’s CEO, Alejandro Cordero, worked with his students at Mar del Plata’s Technical School No. 5 to develop the project, which was then funded by the Ministry of Productive Development.

The first satellite of its size and kind from Ibero-America, its purpose is to improve IOT (Internet Of Things) connectivity—the digital interconnection of everyday objects with the Internet without human mediation. It is the first of a constellation of satellites known as the “Liberators of America” that Argentina intends to launch. Among other things, it will allow for permanent and remote monitoring of crop development and harvesting, drought, and other meteorological variables. Cordero predicts it will “revolutionize satellite technology,” because of its size, the low cost of launching it, and the types of services it can provide—“with infinite applications.” While it is initially focused on agriculture, Cordero explained that it can also be applied to “maritime, mining, oil and gas activities.”

China Opens 11 km Submarine Highway

The Taihu Tunnel, China’s longest submarine highway tunnel, opened to traffic on Dec. 30 in Jiangsu Province,

whose capital is Nanjing, Xinhua reports.

The 11 km tunnel runs under Taihu Lake, China's third-largest freshwater lake, from Mashan to Nanquan. It is part of the 44 km Changzhou-Wuxi Highway, which now also open to traffic. Construction of the underwater tunnel began in Jan. 2018. The project utilized automatic steel-handling equipment and intelligent systems that ensure zero discharge of sewage and dust.

The tunnel cuts by half the travel time between the lakeside subdistricts of Wuxi. The operation of Taihu tunnel also strengthens connectivity among the cities of Suzhou, Wuxi and Changzhou in southern Jiangsu, and helps promote the integrated development of the Yangtze River Delta region, which encompasses Jiangsu, Zhejiang and Anhui provinces and Shanghai municipality. "In the Yangtze River Delta region, it rarely takes more than one hour to travel between a prefecture-level city and a county in its jurisdiction," said Chen Degang, director of the publicity department at CCCC Third Harbor Engineering Co. The project brings the cities of Shanghai, Nanjing, Suzhou and Wuxi closer together and boosts the regional economy.

Bolivia Inaugurates First Nuclear Medicine Center

On March 6, Bolivia's President Luis Arce inaugurated the country's first nuclear medicine center in El Alto, the country's most populous city, the first of three being built in the country. The other two will be located in the capital of La Paz and in the southeastern city of Santa Cruz. It was a momentous day, described by Health Minister Jeyson Auza as "historic," and filled with "joy and hope," as Bolivia will now have cancer treatment centers with advanced technology previously unavailable. These state-of-the-art centers are a joint effort by the Bolivian Nuclear Energy Agency and the Argentine state-run high-tech company INVAP.

Major Medical Center Proposed for Urumqi, Capital of Xinjiang

Kaiser Abdukerim, a Deputy in China's National People's Congress and the President of Xinjiang Medical University (XJMU) has submitted a proposal to the People's Congress to build an international medical center in Urumqi, the capital of Xinjiang. More than 600 international students study medicine at this university, which occupies a central place on the New Silk Road.

XJMU has already provided most of the medical personnel in the Xinjiang region, has established cooperation agreements with 252 Xinjiang hospitals, has initiated cooperation with many counties in the region to improve their services, and has already treated 100 Afghan children suffering from congenital heart disease. Abdukerim's proposal would turn one of the university's hospitals into a high-level medical service demonstration center to fully leverage its medical resources and strengths.

Pasteur, Vernadsky, LaRouche

In the course of a 1981 discussion on the topic, "The Tragedy of U.S. Education," with a group of academicians in Poland, Lyndon LaRouche provided an idea useful for the next ecumenical and scientific step to advance the recent proposal made by President Xi Jinping for an international collaboration of scientists and economists to fight the coronavirus:

"Now, we have a case of a very famous Ukrainian-Russian scientist, who probably is one of the most important figures for the 21st Century, Academician [Vladimir] Vernadsky. Vernadsky was a student of Curie (the son of Curie, the son-in-law of Pasteur), as well as of [Dmitri] Mendeleev. Vernadsky went beyond this, but [he was] in

the same school of Mendeleev, of Pasteur, and actually the French school of Arago before them. He went through this, to develop a conception of what he called 'biogeochemistry.'

"By working in the school of Mendeleev—[Vernadsky] studied originally under Mendeleev in Petrograd—[he] showed a way of thinking about the relationship between living processes and what we call non-living processes. He demonstrated, for example, that the atmosphere, the oceans, and most of the area on which we live on the surface of the Earth, is a biosphere. These things he called the 'natural products of life.' That is, one could measure a change in the characteristic of the planet, produced by the continuous action of life, or life transforming the planet. He went further, in his work during the 1930s, and defined what he called the 'noosphere,' that is, the action of human cognition in transforming the biosphere, and transforming the relationship of man to the universe.

"Vernadsky was also the founder of nuclear science in Russia and Ukraine...."

Can the investigation of the work of Vernadsky, and of Lyndon LaRouche's observations on Vernadsky from the standpoint of physical economy, provide a way to initiate an international dialogue that takes up the method of inquiry required to make breakthroughs in the field of biology and medicine, the harnessing of thermonuclear power, and the redefinition of the presently bankrupt notions of ecology and environment, from the standpoint of investigating Vernadsky's scientific conception of the noosphere? How might that dialogue be proposed by a "Committee for the Coincidence of Opposites" in terms of the collaborations among people in many different nations, and across disciplines, to address both the short-term emergency of saving humanity from an onslaught of infectious disease, and the long-term investigation of the very nature of life, and of creativity as a unique form of life distinct from all others?