
Science & Technology Briefs

Three More COVID-19 Variants Emerge

There are three new COVID-19 variants on the radar screen, all currently categorized as “cousins” of Omicron.

Since February, the primary variant in the U.S. has been BA.2. Spreading about 30% faster than its cousin, BA.1 (the original Omicron variant), BA.2 recently accounted for nearly 37% of all new U.S. COVID-19 cases according to estimates from the Centers for Disease Control and Prevention (CDC). At the time of this report it may be the majority COVID virus in the U.S.

Two additional new variants, tagged BA.4 and BA.5, are now dominating transmission in South Africa. Taken together, they accounted for almost 60% of all new COVID-19 cases there by the end of April, according to South Africa’s National Institute of Communicable Diseases. As of May 10, BA.4 sequences have been reported in 17 countries and 17 U.S. states, and BA.5 in 19 countries and 13 U.S. states.

A new study of BA.4 and BA.5 reports that these variants can evade antibodies generated by previous, BA.1 infections. Laboratory studies indicate that (a) the group of people who had been vaccinated, but also had a “breakthrough” infection afterwards which produced antibodies, had one-third the protection against BA.4 and BA.5 (that is, less ability of their antibodies to neutralize BA.4 and BA.5 viruses) than their protection against BA.1, and (b) those who were never vaccinated,

but had derived some protection from a recent bout with a BA.1 infection, had less than one-seventh the protection against BA.4 and BA.5, than against BA.1. This caused the researchers to conclude that “BA.4 and BA.5 have potential to result in a new infection wave,” making COVID-19 vaccinations and booster shots a crucial contribution toward stopping the next wave.

Afghan Government Launches Canal Project

On March 30, the Taliban government began construction of the Qosh Tapa irrigation canal. At 280 km long, 100 meters wide, and 8.5 meters deep, it will be the largest canal project in Afghanistan when completed 5 years from now, providing irrigation for 3 million acres of land in the provinces of Faryab, Balkh, and Jawzjan.

Speaking at the launching ceremony, First Deputy Prime Minister Mullah Abdul Ghani Baradar called the canal project a priority of the government:

“With the construction of this canal, the country will reach self-sufficiency in agriculture. We will not be begging other countries to help us. A country cannot be developed via aid.”

Tolo News estimates that 200,000 jobs will be created by the project. The government is providing financing, but acting Minister of Economy Nooruddin Azizi also issued a call at the ceremony for “our investors to come to their own country here.”

On March 26, the Ministry of Energy and Water announced that work on three major dams—Shah-Aros,

Kajaki, and Kamal Khan—has resumed, with the Kajaki dam in Helmand province already 80% complete, and projected to be finished within 2 months.

New Research Questions Climate-Change Models

A new study conducted at the University of Wisconsin at Madison has concluded that, according to a new climate simulation model, Arctic ice cap melt may not affect climate at all.

As [reported](#) April 9 by Phys.org, researchers Feng He, an associate scientist at UW-Madison’s Center for Climatic Research, and Oregon State University paleoclimatologist Peter Clark, reported that “we’ve all been taught” that the biggest impact on climate was the Atlantic Meridional Overturning Circulation (AMOC):

“It’s built into many [climate] models. Future global warming from increasing carbon dioxide in the atmosphere melts sea ice, and the freshwater from the melting ice is believed to cause the AMOC to weaken.”

This axiom showed a drastic global temperature increase when the AMOC stalled due to increased fresh water from melting glaciers, reflecting a real event, the Bølling-Allerød warming (from 14,690 to 12,890 years ago) which was a sharp global temperature hike after the last Ice Age.

But then, the standard models break down, predicting a continued warming trend, while in reality, temperatures steadily cooled globally. So, Dr. He removed the assumption in the model that increased fresh water would stall the AMOC.

“Without the freshwater coming in, making the AMOC slow down in the model, we got a simulation with much better, lasting agreement with the temperature data from the climate record. The important result is that the AMOC appears to be less sensitive to freshwater forcing than has long been thought, according to both the data and model.”

Other recent [studies](#) have examined the effect of the warming of the Indian Ocean on driving the AMOC. The AMOC (or any large ocean current) shouldn't therefore be viewed as a simple “conveyor belt,” mixing the waters from the equator to the poles, but a dynamic process which also affects the amount of rainfall on different areas of the planet, which in turn affects the salinity of the ocean.

The study of He and Clark was [published](#) April 7 in *Nature Climate Change*.

A Physical-Economic Valuation of Money and Credit

Lyndon LaRouche's closing remarks to a June 29, 2005 EIR-sponsored seminar in Berlin are essential today as many countries and political forces around the world consider how to put together a viable new financial architecture, including a common currency, to replace the bankrupt trans-Atlantic system. LaRouche said,

“The value of money should be determined by a scientific principle, not an accounting principle. And the scientific principle is: What is a physically defensible determination of the will of governments and the ability of governments to perform in creating credit, over the long term, for the development of their economies and their productivities? Nations should recognize this process, use this process, and set values in terms of credit, and exchange, on the basis of those determinations, which must be physical, scientific determinations. The

crucial thing is, what is the physical life of the investment? How is it going to be maintained? How long is it, and what's its quality? Those are the bases on which you should issue credit: on knowledge of the determination and competence of the government to create value, to create wealth, and to have sufficient wealth, to repay the debt you are creating, in a timely fashion.”

In a 2004 [essay](#), “On the Subject of Tariffs and Trade,” he wrote that the purpose of using credit to increase national productivity, is to achieve a higher future standard of living and skill, available to the households of the national workforce:

“[T]he standard of measure to be used in national-economic estimates intended for crafting policy, is a certain kind of normative standard of physical family income, including all participation in essential public services of basic economic infrastructure. The average of actual data is not to be used for the purpose of defining policy; instead, we must use a *standard ... chosen for a household whose employment expresses a specified level of development of technology employed in production.*” [Emphasis in original.]

LaRouche had [written](#) in 2000, in “On a Basket of Hard Commodities: Trade Without Currency,” on why the dollar served successfully as the gold-reserve basis for the Bretton Woods system from 1945 through the 1960s, and as the basis for the largest share of the productive credit generated internationally. He wrote that this was not due to the international market values of any major American commodities or the power of Wall Street finance, but it performed that role because of the U.S.' strong economic infrastructure and physical-economic productivity achieved during Franklin Roosevelt's long presidency, through to John F. Kennedy's space and nuclear crash programs.

Hubble Detects Earliest Known Star

The Hubble Space Telescope has spotted a star 12.9 billion light years away from Earth, the oldest and most distant object ever recorded, NASA reported March 30.

NASA scientists were able to single out the star by looking at it through space warped by a galaxy cluster that acted as a “natural magnifying glass” that amplified light from the star, NASA said in a release. Researchers compared the warping to a ripple in the surface of a swimming pool that increases magnification and brightness on the pool's floor.

The scientists who discovered the star, nicknamed Earendel, [wrote](#) about it in the journal *Nature*. They believe Earendel is 50 times the mass of our Sun and millions of times brighter.

Cosmic Rays a Boon to Crop Seed Breeding

Global Times reported April 27 that when China's spacecraft Shenzhou-13 safely returned its human crew to Earth April 16, it also brought back 12,000 seeds—clover, oats, rice, edible mushrooms, and cabbage—after being subjected to cosmic radiation in space for 183 days.

One of the well-known dangers of cosmic radiation in space is that it can damage DNA and cause undesired mutations. Chinese scientists are turning this danger into an advantage by subjecting the seeds to that cosmic radiation, then comparing them to a control group on the ground to see if any beneficial mutations occurred, and thus rapidly create new species of greater, more useful varieties.

In the 35 years since China's first space seed breeding effort in 1987, nearly 1,000 new species have been created, of which 200 have displayed outstanding performance, according to media reports.