News in brief

FAST RADIO BURSTS COME IN TWO TYPES

A bumper crop of fast radio bursts shows that the mysterious signals exist as two distinct types.

The Canadian Hydrogen Intensity Mapping Experiment (CHIME) radio telescope has detected 535 fast radio bursts — quadrupling the known tally of these powerful cosmic flashes, which flare for just milliseconds.

Most of the bursts are one-off events, but a minority repeat periodically and last at least ten times longer, on average, than do single bursts. The findings, announced during a virtual meeting of the American Astronomical Society on 9 June, suggest that fast radio bursts might originate from at least two distinct astrophysical phenomena.

Repeaters could occur when a highly magnetized neutron star circles around an ordinary star in an elongated orbit. As the neutron star periodically gets closer to its companion, bursts could result from its magnetic field scattering the highly energetic stellar wind.

One-off bursts, by contrast, could be the result of cataclysmic events, such as collisions between neutron stars, or magnetic storms in young neutron stars called magnetars.

The CHIME team reported that the bursts' sources seemed to be evenly spread across the sky. Only a handful could be traced to any particular galaxy.

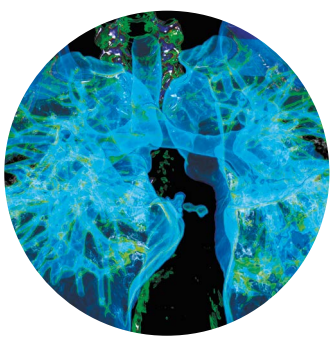
ALPHA VARIANT BLUNTS IMMUNE DEFENCES

A fast-spreading coronavirus variant blunts the body's first line of defence, which could explain why it is more transmissible than previously circulating variants.

Since it was first detected in the United Kingdom late last year, B.1.1.7 — also called Alpha — has whizzed around the world to become the dominant form of SARS-CoV-2. Some studies suggest that Alpha's increased transmissibility could stem from mutations in its spike protein that allow it to enter cells more efficiently.

But a preprint posted on 7 June suggests that Alpha also has tricks linked to mutations beyond the spike protein (L. G. Thorne *et al*. Preprint at bioRxiv https://doi.org/ghkf; 2021). These mutations probably mean that within hours of infecting a person, Alpha suppresses the body's rapid-response defences.

Researchers examined how cells from the human airway produced interferon, an immune protein that kick-starts the body's defences on the arrival of a pathogen. They found that cells infected with Alpha produce much less interferon than do cells infected with earlier variants. Alpha's suppression of interferon production helps the variant to stay in the body for longer.



China is vaccinating 20 million people a day

For more than a week, an average of about 20 million people have been vaccinated against COVID-19 every day in China. At this rate, the nation could have vaccinated the UK population in little more than six days. China accounts for more than half of the 35 million people globally getting a COVID-19 shot each day.

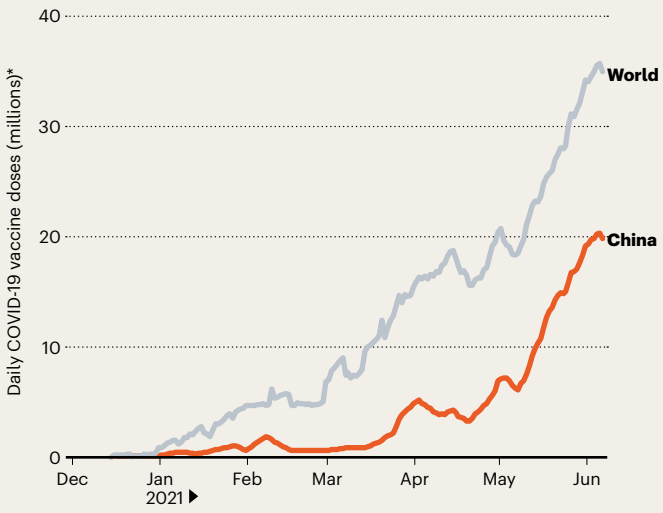
Zoltán Kis, a chemical engineer in the Future Vaccine Manufacturing Research Hub at Imperial College London, doesn't know of "anything even close to those production scales" for a vaccine. "The manufacturing efforts required", he says, "are tremendous."

Most of the doses given in China are of one of two vaccines, both approved for emergency use worldwide by the World Health Organization (WHO): CoronaVac, produced by Sinovac in Beijing, and another jab developed in Beijing by state-owned firm Sinopharm.

China's vaccine-production rate could make a significant dent in global demand, says Kis; that would be "a huge step in reducing the health-care and economic burden of the COVID-19 pandemic". China has supplied 350 million doses of the two vaccines to more than 75 nations, and WHO approval should trigger further distribution to low-income countries.

DAILY VACCINE DOSES ADMINISTERED

China is vaccinating so many people against COVID-19 each day that it accounts for nearly 60% of all doses given globally.



*Seven-day rolling average

L TO R: ANDRE RENARD/CHIME COLLABORATION; VSEVOLOD ZVIRYK/SPL; SOURCE: OUR WORLD IN DATA