News in brief

ASTRONOMERS WANT GLOBAL DEBATE ON SATELLITE SWARMS

Aerospace companies have launched about 2,000 Internet satellites into orbit around Earth over the past 2 years, sparking concerns among astronomers and other skygazers over interference with observations of the night sky.

In what would be the biggest international step yet towards addressing these worries, diplomats at a United Nations forum next month might discuss whether humanity has a right to 'dark and quiet skies'.

Astronomers have been working through the International Astronomical Union to raise awareness of how these satellite networks, or 'megaconstellations', are affecting scientists and members of the public. They are pushing for the UN Committee on the Peaceful Uses of Outer Space to take up the topic at its next meeting, which begins on 25 August.

They say the goal is not to pit astronomers against satellite companies, but to develop a vision of how to use the shared realm of outer space fairly. "The consensus has to come from all the countries," says Connie Walker, an astronomer at NOIRLab based in Tucson, Arizona, an umbrella organization for several US-funded observatories.

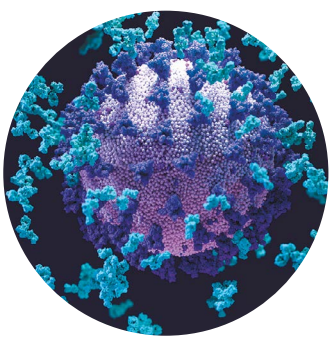
'SUPER ANTIBODY' FIGHTS OFF MANY CORONAVIRUSES

Scientists have uncovered an antibody that can fight off not only a wide range of SARS-CoV-2 variants, but also closely related coronaviruses (T. N. Starr *et al*. *Nature* https://doi.org/gpqn; 2021).

Researchers examined antibodies isolated from people who had been infected with either SARS-CoV-2 or its close relative SARS-CoV. One antibody, S2H97, stood out for its capacity to adhere to a protein fragment known as the receptor binding domain on multiple SARS-CoV-2 variants and dozens of coronaviruses belonging to a group called the sarbecoviruses.

S2H97 was able to prevent a range of SARS-CoV-2 variants and other sarbecoviruses from spreading among cultured cells. It was also powerful enough to protect hamsters against SARS-CoV-2 infection. A closer examination of its molecular structure revealed that it targets a previously unseen and well-hidden region of the binding domain (pictured, artist's impression of antibodies swarming a viral particle).

Molecules targeting this binding-domain region could provide protection against multiple viruses, and might one day be used to produce broad-ranging vaccines and treatments, the researchers say.



HOW THE DELTA CORONAVIRUS VARIANT ACHIEVES ITS ULTRAFAST SPREAD

Since it first appeared in late 2020, the Delta variant of SARS-CoV-2 has become the predominant strain in much of the world. Researchers might now know why Delta has been so successful: people infected with it produce many more virus particles than do those infected with the original version of SARS-CoV-2, making it very easy to spread.

According to current estimates, the Delta variant could be more than twice as transmissible as the original strain. To find out why, epidemiologist Jing Lu at the Guangdong Provincial Center for Disease Control and Prevention in Guangzhou, China, and his colleagues tracked 62 people who were quarantined after exposure to COVID-19 and who were some of the first people in mainland China to become infected with the Delta strain.

The team tested study participants' 'viral load' — a measure of the density of viral particles in the body — every day throughout the course of infection to see how it changed over time. They then compared participants' infection patterns with those of 63 people who contracted the original SARS-CoV-2 strain in 2020.

The virus was first detectable in people with the Delta variant four days after exposure, compared with an average of six days among people with the original strain, suggesting that Delta replicates much faster (B. Li *et al*. Preprint at medRxiv https://doi.org/gk78tn; 2021). People infected with Delta also had viral loads up to 1,260 times higher than did people infected with the original strain.

This combination of a high number of virus particles and a short incubation period could explain Delta's heightened transmissibility, scientists say.

Other questions about the variant remain unanswered. It's still unclear, for instance, whether Delta is more likely to cause severe disease than the original strain, and how good it is at evading the immune system.

L TO R: PAUL HENNESSY/NURPHOTO/GETTY; DESIGN CELLS/SPL; JUNI KRISWANTO/AFP/GETTY