Boost for Covid antibody treatments

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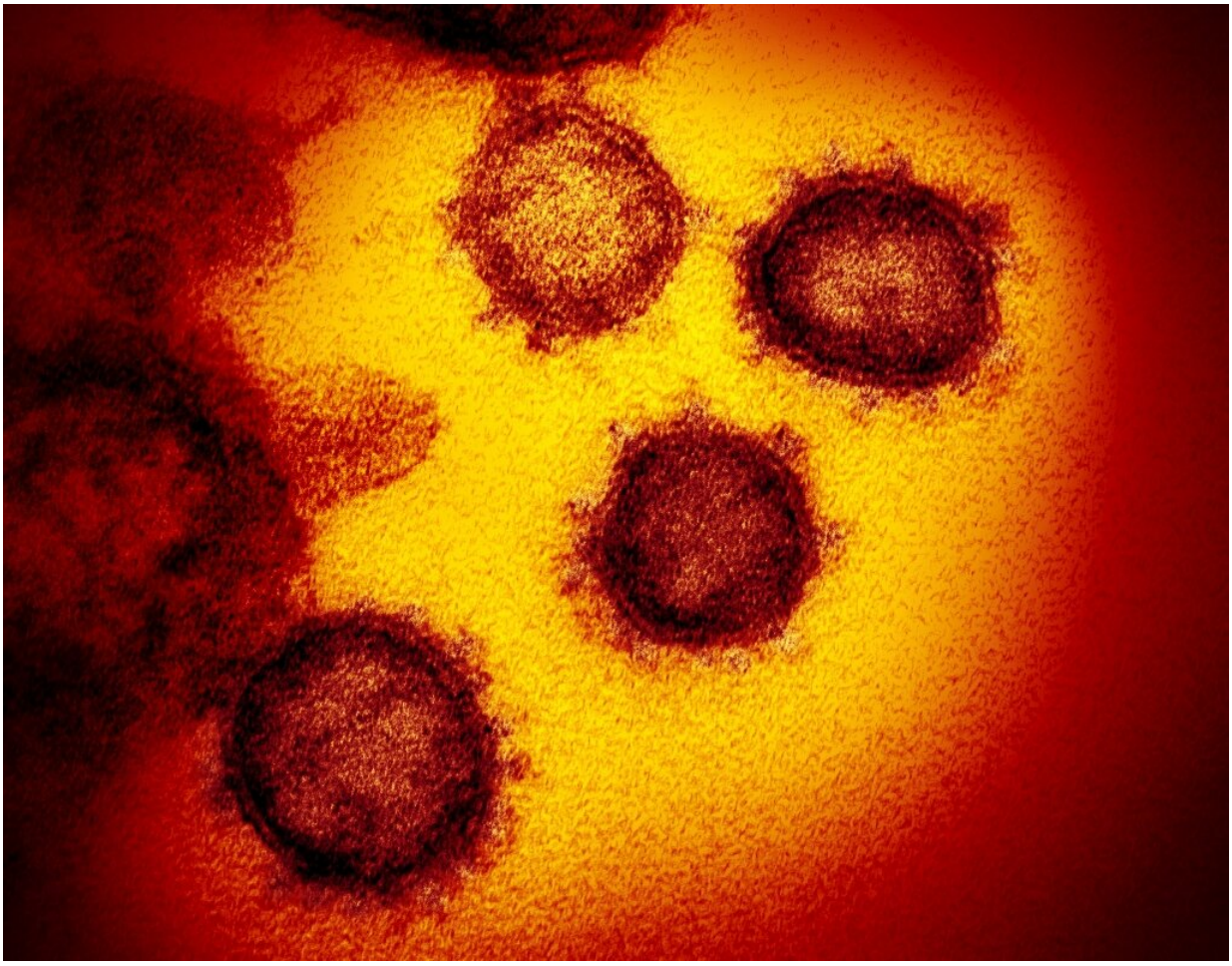

An electron microscopic image that shows SARS-CoV-2, the virus that causes COVID-19

Could treatments using lab-made versions of the body's natural infection-

fighting defences become a crucial tool in the pandemic fight, alongside vaccines?

There have been encouraging signs in recent days that synthetic versions of antibodies—one of the building blocks of our immune system—can help the body tackle Covid-19.

What are they?

Our bodies develop antibodies in response to pathogens.

Monoclonal antibodies—which recognise a specific molecule of the target virus or bacteria—are synthetic copies of those natural proteins that can be reproduced and administered as a treatment.

This is different from a vaccine, which stimulates the body to produce its own immune response.

Synthetic antibodies are administered to people already infected, to make up for deficiencies in the immune system.

They can help those who are at high risk of severe disease because of weak immunity or underlying conditions.

One synthetic antibody treatment, from US biotech firm Regeneron, was used to treat former US President Donald Trump after he contracted coronavirus last year.

Is it new?

Not at all.

"Monoclonal antibodies are one of the most powerful tools in modern

medicine," says Britain's Wellcome charity.

Over the past three decades, more than a hundred of them have been licensed, it says, adding they are "transforming the way doctors treat, prevent and even cure serious non-communicable diseases".

Until recently, however, monoclonal antibodies have been mainly used for illnesses like cancers and autoimmune disorders, rather than viruses.

But they have "always had enormous potential to directly combat an infection," said British immunologist Alexander Edwards of the University of Reading.

The pandemic may therefore herald a "breakthrough" for this type of medicine as a treatment for viral infection, he added.

How effective?

There are currently four main developers at advanced stages: British pharmaceutical giant GlaxoSmithKline (GSK) and California's Vir Biotechnology; Regeneron in the US; another American firm Eli Lilly; and Celltrion from South Korea.

Celltrion reported favourable results in trials of its regdanvimab antibody in January, followed by Regeneron for its REGN-COV2 treatment, a cocktail of antibodies casirivimab and imdevimab.

This week, the other two released encouraging announcements from their final stage phase 3 clinical trials.

On Wednesday, Eli Lilly said that the combination of two antibodies, bamlanivimab and etesemivab, reduced hospitalisations and deaths in high-risk patients recently diagnosed with Covid-19 by 87 percent in

trials.

On Thursday, GSK and Vir said results from their trials showed the monoclonal antibody known as VIR-7831 had an 85 percent efficacy in reducing hospitalisation or death from Covid-19 compared to a placebo.

Are they authorised?

So far the only treatments allowed for use are from Regeneron, Eli Lilly and—only in South Korea—Celltrion.

Several countries have issued emergency use authorisations, ahead of final results from clinical trials.

The US-based Food and Drug Administration in November approved emergency use of REGN-COV2, experimentally used to treat Trump.

In February, the European Medicines Agency (EMA) gave its provisional approval to the treatment for patients who do not require supplemental oxygen and who are at high risk of progressing to severe Covid-19.

Lilly's bamlanivimab meanwhile is authorised in the United States and France for those over 80 years of age.

This week the EMA said it had started a "rolling review" of Lilly's cocktail of bamlanivimab and etesemivab, as well as bamlanivimab used alone.

It has also started evaluating Celltrion's drug.

GSK and Vir have said they will seek authorisation for emergency use of their treatment in the US and other countries.

What's the downside?

As with other aspects of the pandemic response, the emergence of new variants of the coronavirus has caused concerns.

Sophie Muller, medical director of GSK France, told AFP that their treatment targets a region of the virus' spike proteins—also called S proteins—that is "not affected by the current variants of the coronavirus, hence its interest".

But what if future variants are possibly resistant?

With this in mind, some research is focusing on the development of "polyclonal" antibodies, able to identify many more molecules of the virus.

There are more immediate limitations however: price and availability.

Production capacity still needs to be ramped up before the treatments could be used at scale.

As for cost, the price tag for a Lilly antibody injection is around 1,000 euros ($1,200).

But doctors argue that this is still far cheaper than the cost of hospitalisation.