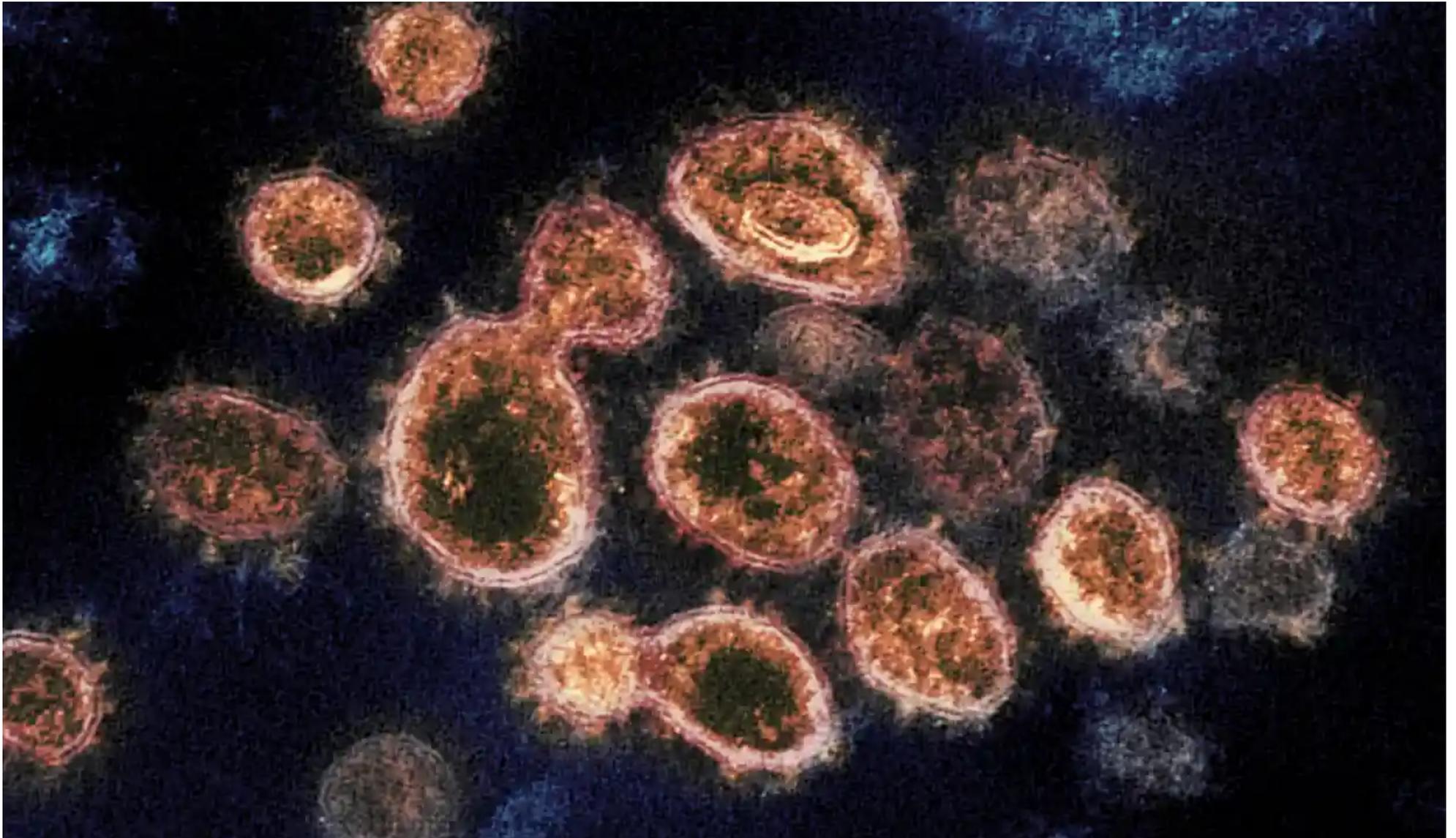


## Trial of Covid-19 drug given via inhaler 'very promising', say scientists

Researchers say SNG001 can reduce need for ventilation and improve survival chances

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The team said the coronavirus (pictured) appears to suppress the body's production of interferon beta, a protein that forms part of the immune response. Photograph: AP

## Nicola Davis

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Trials of an experimental drug inhaled by patients have found a significant reduction in hospital patients with Covid-19 needing to be put on a ventilator or dying from the disease, according to researchers

The drug, called SNG001, is delivered via an inhaler and is based on interferon beta, a protein produced naturally in the body that plays an important role in coordinating the body's antiviral response.

Researchers have announced the results of an initial trial which found the odds of Covid-19 patients needing ventilation, or dying, while being treated in hospital were reduced by 79% among those given SNG001 compared with those given a placebo.

What is more, the team behind the trial say those given the drug were just over twice as likely to show "no limitation of activities" or "no clinical or virological evidence of infection" during the 16-day study period - in other words, the chance of recovery was boosted. Those given the drug also showed a reduction in breathlessness.

Tom Wilkinson, a professor of respiratory medicine at the University of Southampton and the trial's chief investigator, said the results were promising.

"The initial results are very positive and provide a strong platform to take this drug forward in clinical development, working closely with an international regulatory framework to try and get this drug into patient care as soon as is possible," he said, adding that the drug can be manufactured at scale.

However some experts have urged caution. "This trial is too small to draw firm conclusions. The headline reduction in progression to severe disease comes with huge statistical uncertainty. It is good to see new treatments being developed and evaluated - but there is a big difference between encouraging early results and definitive evidence that transforms clinical practice," said Martin Landray, a professor of medicine and epidemiology at the University of Oxford.

SNG001 is produced by the Southampton-based biotech firm Synairgen, a spin-out company from the University of Southampton, with University Hospital Southampton the lead centre for the trial, which involved nine UK hospitals.

The trial, which was given the green light in March, involved about 100 patients who had been admitted to hospital with Covid-19. While half were given SNG001, the other half were given a placebo - neither the patients nor the doctors were aware at the time who was in which group.

Patients were given the drug for up to 14 days, with post-treatment data collected on days 15 and 16, and patients further tracked up to day 28. Over the course of the trial, three patients in the placebo group died; there were no deaths among those given SNG001.

Injections of interferon beta are already used to help treat multiple sclerosis. However, SNG001 was formulated to allow the drug to be given via inhalation - an approach originally developed to treat other conditions including chronic-obstructive pulmonary disorder (COPD).

But the Southampton team realised the formulation might also bring benefits for Covid-19 patients: not only do patients with worse symptoms tend to be those with a deficiency of interferon beta, said Wilkinson, but it appears the coronavirus itself suppresses the body's production of interferon beta.

"A combination of those two effects, we think, has led to the severity of disease in certain populations, and hence why this drug might have a double, synergistic, effect - patching over the natural immune response and reducing the ability of the virus to subvert innate immunity," said Wilkinson, adding that inhalation of interferon beta means the drug is delivered directly to the lungs, where the virus is replicating.

The team is also conducting a trial of SNG001 in Covid-19 patients in the community who are at increased risk of severe disease. Wilkinson said they were hopeful the drug could not only reduce the chance of such patients becoming gravely ill, but also speed up their recovery, noting that even among mild cases of Covid-19, some people have reported symptoms that go on for months.

SNG001 is not the first drug to show promise in treating coronavirus patients: a cheap steroid called dexamethasone has previously been shown to reduce deaths in those requiring help with breathing, while the antiviral drug remdesivir cuts recovery time.

But Wilkinson said that while remdesivir was thought to be focused on coronaviruses, SNG001 has a more general effect, meaning it may also benefit patients with winter viruses such as flu.

Danny Altmann, a professor of immunology at Imperial College London, welcomed the findings.

"This is promising and interesting, adding to the positive news about use of dexamethasone," he said.

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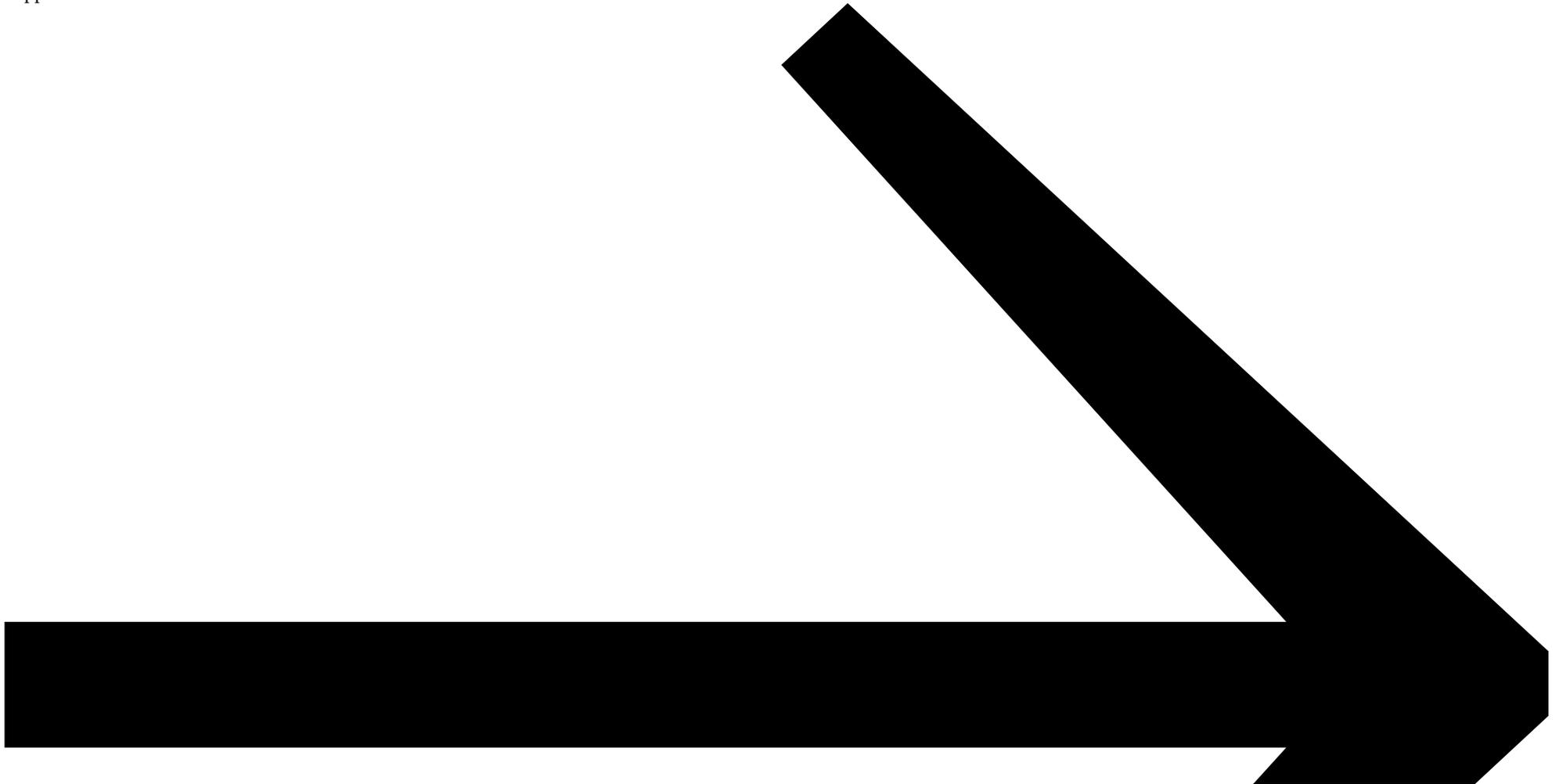
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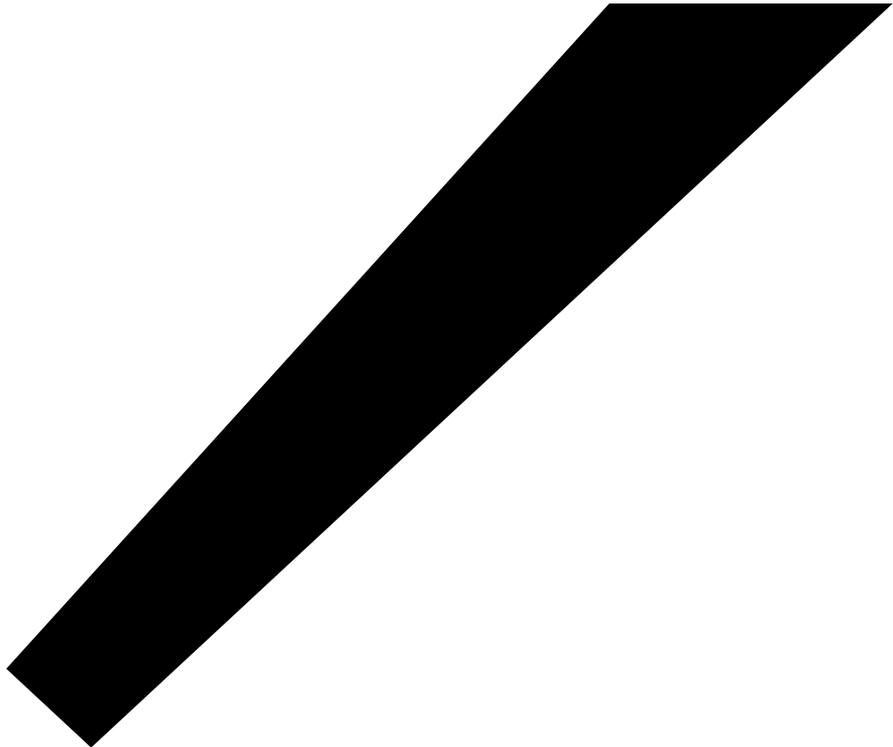
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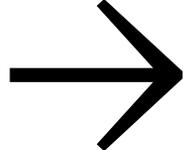


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