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Sotrovimab: The first monoclonal antibody active against all SARS-CoV-2 variants of concern

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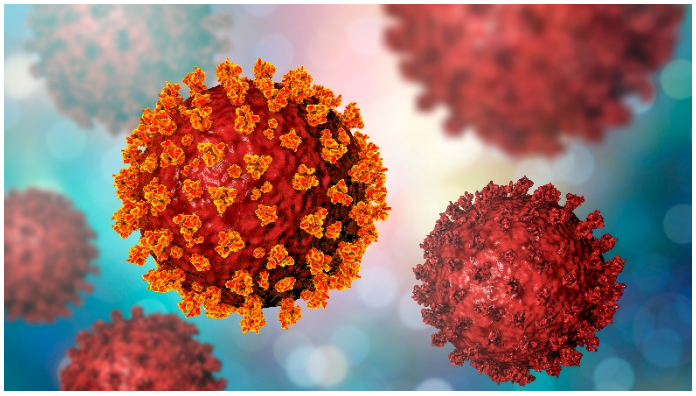
Sotrovimab (Xevudy), developed by GlaxoSmithKline and Vir Biotechnology, is the second monoclonal antibody (mAb) to be approved for the treatment of COVID-19 infection (MHRA 2021) and the first to show activity against all SARS-CoV-2 variants of concern tested, including Mu (B.1.621), Omicron (B.1.1.529) and the highly contagious Delta variants (GSK 2021).



Sotrovimab offers potential benefit to people with suppressed immune systems and those who have an inadequate response to vaccines. Not only does sotrovimab reduce the risk of hospitalisation and death by 79% (95% CI, 50% to 91%; *P*<.001) in people with mild to moderate COVID-19 infection who are at an increased risk of developing severe disease (Gupta 2021), but new evidence from an *in vitro* study shows that sotrovimab was effective against all 37 mutations in the omicron spike protein identified to date (GSK 2021). As with other mAbs (AstraZeneca's tixagevimab and cilgavimab combination, Eli Lilly-AbCellera's LY-CoV1404, and Roche-Regeneron's casirivimab and imdevimab), a decrease in neutralisation was seen against omicron but the level of efficacy against this variant is still expected to be substantial, especially as higher levels can be dosed if required (Bloomberg 2021).

With the mass-production of recombinant mAbs now capable of meeting demand, and at a cost that is competitive with other treatments (Taylor 2021), this line of potential therapy has generated much interest amongst developers. There are now some 25 Anti-SARS-CoV-2 mAbs currently at various stages of clinical development (The Antibody Society 2021).

Whilst only a handful of repurposed therapeutics have been approved to treat COVID-19 (favilavir in China, Italy and Russia, remdesivir in the US, UK and Japan, and molnupiravir in the UK), there are approximately 58 non-mAb therapeutics in development (Regulatory Affairs Professionals Society 2021) including antivirals such as Pfizer's Paxlovid which, if approved, will be the first oral antiviral, Molecular Partners/Novartis' Ensovibep, a molecule capable of neutralising SARS-CoV-2 through multiple mechanisms of action, and Synairgen's inhaled interferon beta, SNG001, which has shown promising readouts in both its hospital and home cohort studies.

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