Clinical trial data shows Oxford University's COVID-19 vaccine produces strong immune response

July 20, 2020

Vaccitech Ltd, a clinical-stage biopharmaceutical company developing immunotherapies to treat and prevent infectious diseases and cancer, announces that Oxford University's Jenner Institute and Oxford Vaccine Group have taken the next step towards the discovery of a safe, effective and accessible vaccine against coronavirus. The vaccine, ChAdOx1 nCoV-19, now known as AZN1222, was co-invented by Vaccitech and Oxford University's Jenner Institute.

The results of the Phase I/II trial published today in the scientific journal, The Lancet, indicate no early safety concerns and the induction of strong immune responses in both parts of the immune system.

The vaccine provoked a T cell response within 14 days of vaccination (a cellular immune response, it could find and attack cells infected with the SARS-CoV-2 virus), and an antibody response within 28 days (humoral immune response, it could find and attack the virus when it was circulating in the blood or lymphatic system).

During the study, participants who received the vaccine had detectable neutralising antibodies, which have been suggested by researchers as important for protection, and these responses were strongest after a booster dose, with 100% of participants' blood having neutralising activity against the coronavirus. The next step in studying the vaccine is to confirm that it can effectively protect against SARS-CoV-2 infection.

"The Phase I/II data for our coronavirus vaccine shows that the vaccine did not lead to any unexpected reactions and had a similar safety profile to previous vaccines of this type. The immune responses observed following vaccination are in line with what we expect will be associated with protection against the SARS-CoV-2 virus, although we must continue with our rigorous clinical trial programme to confirm this," says Professor Andrew Pollard, Chief investigator of the Oxford Vaccine Trial at Oxford University and co-author of the study.

"We saw the strongest immune response in the 10 participants who received two doses of the vaccine, indicating that this might be a good strategy for vaccination," Professor Pollard continues.

A UK Phase I/II trial began in April testing the Oxford coronavirus vaccine ChAdOx1 nCoV-19. The team started working to develop a vaccine against the global threat that is COVID-19 in January 2020 and has been working with unprecedented urgency in a race against COVID-19.

During the Phase I/II trial the vaccine has been given to more than 1,000 healthy adult volunteers aged between 18 and 55 years in a randomised controlled trial. A subset of these volunteers (10 people) received two doses of the vaccine. Between April 23, 2020 and May 21, 2020, 1077 volunteers, received the vaccine ChAdOx1 nCoV-19 or a placebo MenACWY vaccine. There were no serious adverse health events related to ChAdOx1 nCoV-19.

"These encouraging results support further evaluation of this candidate vaccine in our ongoing large scale Phase III programme, that is still needed to assess the ability of the vaccine to protect people from COVID-19," says Professor Sarah Gilbert, Professor of Vaccinology, at the University of Oxford Jenner Institute and co-author of the study.

"We are excited by these promising Phase I/II results for the COVID-19 vaccine, which we believe further validates the ChAdOx platform technology that underpins several products we are developing to treat and prevent infectious diseases and cancer. The speed at which the vaccine is being developed and tested is truly world-leading in the response to overcoming this unprecedented global pandemic," says Bill Enright, CEO of Vaccitech.

The University of Oxford is working with the UK-based global biopharmaceutical company AstraZeneca for the further development, large-scale manufacture and potential distribution of the Covid-19 vaccine, with plans for clinical development and production of the Oxford vaccine progressing globally. The project has been further spurred by £84 million of Government funding to help accelerate the vaccine's development.

"We are encouraged by the Phase I/II interim data showing AZD1222 was capable of generating a rapid antibody and T-cell response against SARS-CoV-2. While there is more work to be done, today's data increases our confidence that the vaccine will work and allows us to continue our plans to manufacture the vaccine at scale for broad and equitable access around the world," says Mene Pangalos, Executive Vice President of BioPharmaceuticals Research and Development at AstraZeneca.

Oxford and AstraZeneca are collaborating with clinical partners around the world as part of a global clinical programme to trial the Oxford vaccine. The global programme is made up of a Phase III trial in the US enrolling 30,000 patients, a paediatric study, as well as Phase III trials in low-to-middle income countries including Brazil and South Africa which are already underway.

AstraZeneca remain committed to fulfilling their commitment for broad and equitable access to the vaccine, should late-stage clinical trials prove successful. So far, commitments to supply more than 2 billion doses of the vaccine have been agreed with the UK, US, Europe's Inclusive Vaccines Alliance (IVA), the Coalition for Epidemic Preparedness (CEPI), Gavi the Vaccine Alliance and Serum Institute of India.

About the Oxford COVID-19 vaccine

ChAdOx1 nCoV-19, now known as AZD1222 co-invented by University of Oxford and its spin-out company, Vaccitech is being trialled by the University's Jenner Institute and Oxford Vaccine Group. The team started working to develop a vaccine against coronavirus in January 2020.

Developed at the Jenner Institute, ChAdOx1 nCoV-19 uses a viral vector based on a weakened version of the common cold virus (adenovirus) containing the genetic material of SARS-CoV-2 spike protein. After vaccination, the surface spike protein is produced, which primes the immune system to attack COVID-19 if it later infects the body. The recombinant adenovirus vector (ChAdOx1 nCoV-19) was chosen to generate a strong immune response from a single dose and it is not replicating, so cannot cause an ongoing infection in the vaccinated individual. Vaccines made from the ChAdOx1 nCoV-19 virus have been given to more than 4,000 people to date and have been shown to be safe and well tolerated, although they can cause temporary side effects, such as a temperature, flu-like symptoms, headache or sore arm.

The potential vaccine entered Phase III clinical trials in May to study safety and efficacy in healthy volunteers aged 18 to 55 years, across 19 trial sites in the UK. The University of Oxford is also working with research partners at a number of clinical trial sites around the world as part of this late stage trial.

Further information about the vaccine trial can be found at: https://covid19vaccinetrial.co.uk/home