Second-Generation mRNA COVID-19 Vaccine Candidate, CV2CoV, Demonstrates Improved Immune Response and Protection in Preclinical Study

- *Preclinical study provides evidence for strongly improved immune responses with second-generation mRNA backbone jointly developed by CureVac and GSK compared to CureVac's first-generation mRNA backbone*
- *Data demonstrate high protective efficacy of second-generation lead candidate, CV2CoV, in animal model during SARS-CoV-2 challenge study*
- *Neutralizing capacity of induced antibodies tested against a range of variants, including the Beta, Delta and Lambda variant*

TÜBINGEN, Germany/ BOSTON, USA/ LONDON, United Kingdom – August 16, 2021 – CureVac N.V. (Nasdaq: CVAC), a global biopharmaceutical company developing a new class of transformative medicines based on messenger ribonucleic acid ("mRNA"), and GSK today announced the publication of preclinical data investigating immune responses as well as the protective efficacy of CureVac's first-generation vaccine candidate, CVnCoV, and second-generation vaccine candidate, CV2CoV, against SARS-CoV-2 challenge in non-human primates. The study assessed cynomolgus macaques vaccinated with 12µg of either the first or second-generation vaccine candidate. Better activation of innate and adaptive immune responses was achieved with CV2CoV, resulting in faster response onset, higher titers of antibodies and stronger memory B and T cell activation as compared to the first-generation candidate, CVnCoV. Higher antibody neutralizing capacity was observed with CV2CoV across all selected variants, including the Beta, Delta and Lambda variants. During challenge with the original SARS-CoV-2 virus, animals vaccinated with CV2CoV were found to be better protected based on highly effective clearance of the virus in the lungs and nasal passages. The full manuscript of the preclinical data is available on the preprint server bioRxiv.

"In this animal model, CV2CoV is shown to induce broad antibody and cellular immune responses very similar to the breadth of the immune responses observed after infection with SARS-CoV-2," said Dr. Igor Splawski, Chief Scientific Officer of CureVac. "The current study shows that the immune responses and resulting protection produced by our second-generation candidate, based on our mRNA technology featuring targeted optimizations, are substantially improved in non-human primates against both the original SARS-CoV-2 virus as well as the Beta and Delta Variants of Concern and the Lambda Variant of Interest."

Dr. Rino Rappuoli, Chief Scientist and head of GSK Vaccines R&D said: "The mRNA technology is a key strategic priority for us, and we are investing significantly in a number of mRNA programs focused on the collaboration with CureVac. The strong immune response and protection in pre-clinical testing of this second-generation mRNA backbone are very encouraging and represent an important milestone for its further development."

Within the study, CVnCoV and CV2CoV were tested in cynomolgus macaques immunized with a 12µg dose of the respective candidate on day 0 and day 28. Induction of innate immunity was investigated via specific cytokine markers. Adaptive immune responses were assessed based on receptor binding domain specific antibodies and neutralizing antibodies as well as memory B and T cells. Impact of Variants of Concern and Variants of Interest on neutralizing antibody titers was tested against the

Alpha, Beta, Delta, Kappa and the Lambda variant. Clearance of the virus in the lungs and nasal passages of the animals was tested following challenge infection with the original virus.

The CureVac-GSK COVID-19 collaboration announced in February 2021 extends the existing strategic mRNA technology partnership both companies started in July 2020, which focuses on the development of new products based on CureVac's second-generation mRNA technology for different targets in the field of infectious diseases. The optimized mRNA backbone that is being used in this collaboration also has the potential for a multivalent or combination approach to address multiple emerging variants in one vaccine. Following the current preclinical development of CV2CoV, a Phase 1 clinical trial is expected to start in Q4 2021.

About CV2CoV

CV2CoV is CureVac's first candidate based on the advanced second-generation mRNA backbone currently developed in collaboration with GSK. The vaccine candidate, presently at a preclinical development stage, is a non-chemically modified mRNA, encoding the prefusion stabilized full-length spike protein of the SARS-CoV-2 virus, and formulated within Lipid Nanoparticles (LNPs). CV2CoV was engineered with specifically optimized non-coding regions to exhibit improved mRNA translation for increased and extended protein expression compared the first-generation mRNA backbone. Preclinical studies in different animal models demonstrate CV2CoV's ability to induce earlier and stronger immune responses. The first clinical trial of CV2CoV is expected to start in Q4 2021.

About CureVac

CureVac is a global biopharmaceutical company in the field of messenger RNA (mRNA) technology, with more than 20 years of expertise in developing and optimizing the versatile biological molecule for medical purposes. The principle of CureVac's proprietary technology is the use of non-chemically modified mRNA as a data carrier to instruct the human body to produce its own proteins capable of fighting a broad range of diseases. Based on its proprietary technology, CureVac has built a deep clinical pipeline across the areas of prophylactic vaccines, cancer therapies, antibody therapies, and the treatment of rare diseases. CureVac had its initial public offering on the New York Nasdaq in August 2020. It is headquartered in Tübingen, Germany, and employs more than 700 people at its sites in Tübingen, Frankfurt, and Boston, USA. Further information can be found at www.curevac.com.

About GSK

GSK is a science-led global healthcare company with a special purpose: to help people do more, feel better, live longer. For further information please visit www.gsk.com/about-us.

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For further information, please reference the company's reports and documents filed with the U.S. Securities and Exchange Commission (SEC). You may get these documents by visiting EDGAR on the SEC website at www.sec.gov.