CureVac and GSK's Bivalent Second-Generation mRNA Vaccine Candidate Shown to be Highly Effective Against SARS-CoV-2 Variants in Preclinical Study

- *Vaccine candidate combining Beta- and Delta-specific mRNAs shows strong protection and immune responses during preclinical challenge study*
- *Demonstrated neutralizing capacity against the Omicron variant in vaccinated animals*
- *Technology adaptation for bivalent approach for COVID-19 vaccines potentially allows for broader protection against emerging variants*

TÜBINGEN, Germany/ BOSTON, USA – April 21, 2022 – CureVac N.V. (Nasdaq: CVAC), a global biopharmaceutical company developing a new class of transformative medicines based on messenger ribonucleic acid ("mRNA"), today announced preclinical data demonstrating immune responses and protective efficacy of a bivalent second-generation COVID-19 vaccine candidate jointly developed with GSK, combining two mRNAs encoding for the Beta and the Delta variant.

The preclinical study, conducted in collaboration with the Friedrich-Loeffler-Institut, Germany, assessed the bivalent candidate in comparison to the corresponding monovalent candidates targeting either variant in a mouse model. Despite containing only half the dose per variant-mRNA, the combined Beta/Delta candidate elicited neutralizing antibody titers fully comparable to the monovalent candidates of the respective variant. During exposure of the vaccinated animals to either the Beta or the Delta variant, the bivalent mRNA vaccine significantly reduced the viral load in the animals. High neutralizing antibody titers were accompanied by robust T cell responses. Notably, the bivalent Beta /Delta vaccine candidate induced two-fold higher virus neutralizing antibody titers against the Omicron variant than against the Delta variant in a rat model. This finding provides evidence for a potentially increased breadth of immune responses of the bivalent approach. The full manuscript of the preclinical data is available on the preprint server bioRxiv.

"Since the beginning of the pandemic, new COVID-19 variants have continued to evolve, each characterized by different virulence and transmissibility," said Dr. Igor Splawski, Chief Scientific Officer of CureVac. "New vaccine strategies, such as multivalent approaches, combining several variant-specific mRNAs within one vaccine, can be essential to take control over the COVID-19 virus dynamic and set new standards for broadly effective vaccines against other infectious diseases. Following our recent multivalent approach for influenza, we are now taking advantage of this advanced technology approach in our COVID-19 vaccine program."

Within the study, transgenic mice expressing the human ACE2 receptor were immunized on day 0 and day 28 with a 0.5 µg dose of the monovalent second-generation vaccine candidate against either the ancestral virus (CV2CoV), the Beta (CV2CoV.351) or the Delta (CV2CoV.617.2) variant, or with a 0.5 µg dose of the bivalent vaccine candidate combining the Beta and Delta variant (CV2CoV.351+ CV2CoV.617.2). Vaccinated animals were challenged on day 56 with either the Beta or the Delta virus variant. Vaccine induced T cells, including lung-resident memory $CD8^+$ T cells, were characterized by flow cytometry. Additionally, the neutralizing capacity of the mono-

and bivalent candidates was tested against multiple virus variants, including Omicron in serum samples of immunized Wistar rats.

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, optimizing and manufacturing this versatile biological molecule for medical purposes. The principle of CureVac's proprietary technology is the use of optimized mRNA as a data carrier to instruct the human body to produce its own proteins capable of fighting a broad range of diseases. In July 2020, CureVac entered in a collaboration with GSK to jointly develop new products in prophylactic vaccines for infectious diseases based on CureVac's second-generation mRNA technology. This collaboration was later extended to the development of second-generation COVID-19 vaccine candidates, and modified mRNA vaccine technologies. 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 900 people at its sites in Tübingen, Frankfurt, and Boston, USA. Further information can be found at www.curevac.com.

CureVac Investor Relations Contact

Dr. Sarah Fakih, Vice President Corporate Communications and Investor Relations
CureVac, Tübingen, Germany
T: +49 7071 9883-1298
M: +49 160 90 496949
sarah.fakih@curevac.com

CureVac Media Contact

Bettina Jödicke-Braas, Manager Communications
CureVac, Tübingen, Germany
T: +49 7071 9883-1087
bettina.joedicke-braas@curevac.com

Forward-Looking Statements CureVac

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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.