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CureVac Preclinical Data Demonstrates Significant Reduction of Liver Fibrosis with mRNA Therapeutic

CureVac N.V. (Nasdaq: CVAC), a global biopharmaceutical company developing a new class of transformative medicines based on messenger ribonucleic acid ("mRNA"), today announced the publication entitled "Therapeutic HNF4A mRNA attenuates liver fibrosis in a preclinical model" in the peer-reviewed Journal of Hepatology. The study was conducted in collaboration with experts of the highly renowned REBIRTH-Research Center for Translational Regenerative Medicine and Department of Gastroenterology, Hepatology and Endocrinology at the Hannover Medical School, Hannover (Germany), which allowed access to well-established preclinical liver disease models. It provides the first preclinical data demonstrating the therapeutic applicability of mRNA-encoded HNF4A (hepatocyte nuclear factor 4 alpha) transcription factor in the treatment of liver fibrosis and cirrhosis.

Liver fibrosis is characterized by the formation of scar tissue in the liver, causing gradual impairment of liver function. This process can evolve into irreversible and advanced stage cirrhosis, resulting in liver failure or cancer. HNF4 alpha is an important regulator and key factor in liver metabolism, which has been shown to gradually decrease with disease progression. In this study, four independent mouse models of the disease were treated with mRNA encoding HNF4A. The treatment was able to restore HNF4A levels and thereby significantly reduced liver injury.

"Liver fibrosis and cirrhosis contribute to millions of deaths annually and represent a major health care burden worldwide," said Dr. Igor Splawski, Chief Scientific Officer of CureVac. "The results of our study provide the first direct preclinical evidence that HNF4A mRNA therapeutics have the potential to treat liver fibrosis. Within our diverse Protein Therapy pipeline, in which we focus on optimized mRNAs to trigger the production of antibodies or therapeutic proteins, we will continue our collaboration with Hannover Medical School to optimize further HNF4A mRNA therapeutic candidates for liver-specific disorders."

"The lack of approved drugs that robustly inhibit liver fibrosis necessitates rapid development of new anti-fibrotic therapies," adds Dr. Amar Deep Sharma, lead author of the study. "Our study provides the first experimental proof that mRNA therapeutics can indeed serve as potential treatment option for fibrosis. Follow up research is already underway to work toward key milestones that may facilitate the use of HNF4 alpha and other mRNAs as therapeutics for lethal liver diseases."

Within the study, lipid nanoparticles formulated to contain human HNF4A mRNA were injected repeatedly via intravenous administration in four independent mouse models of the disease. Eight repeated injections of 1 and 2 mg/kg of formulated mRNA demonstrated the ability to significantly reduce liver fibrosis/injury and restore cellular processes necessary to recover normal liver function. Future research will focus on optimizing the mRNA for further non-clinical and clinical development.

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 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. In February 2021, this collaboration was extended to the development of second-generation COVID-19 vaccine candidates. 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.

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