

CEPI partners with Ethris to increase access to RNA vaccines through spray-dry technique

11 February 2025; OSLO; PLANEgg: The Coalition for Epidemic Preparedness Innovations (CEPI) today announced a US\$5 million funding award to Ethris, a clinical-stage biotechnology company pioneering next-generation RNA therapeutics and vaccines. The funding will support proof-of-concept research to develop spray-dried RNA vaccines that remain stable at room temperature and are suitable for mucosal delivery. The approach could make RNA vaccines more accessible and help to end future disease outbreaks faster.

Spray-drying—the process of rapidly drying liquid with hot gas—is a widely used technique in asthma treatments such as dry powder inhalers and is a proven method for creating stable powders for respiratory delivery. Applying this approach to RNA vaccines could address major challenges, including the dependence on ultra-low-temperature storage and complex delivery systems. While RNA-based vaccines played a pivotal role in fighting COVID-19, their cold-chain requirements limit equitable access in low-resource settings. A spray-dried RNA vaccine could provide room-temperature stability and simplify distribution. Further, the nasal administration could help to achieve mucosal immunity which scientists believe is key for reducing virus transmission.

Dr Raafat Fahim, Interim Executive Director of Manufacturing and Supply Chain, CEPI, said, “Spray drying techniques and nasal delivery medicines are well-established; however, their application to RNA-based vaccines represents an innovative approach. If successful, this method would enhance access to RNA-based vaccines by increasing their thermostability and offering an alternative for individuals with needle phobia. Additionally, it may elicit a more robust immune response and potentially reduce transmission. Collectively, this technology may improve our ability to contain future epidemic or pandemic threats, compared to current RNA vaccines.”

“Spray-drying for RNA-based vaccines could make them more practical and accessible similar to the established standards in respiratory medicine,” added **Christian Plank, Chief Technology Officer at Ethris.** “With CEPI’s support, we aim to demonstrate the feasibility of spray-drying for RNA formulations, enabling vaccines to remain stable at room temperature while allowing for simpler, needle-free administration. If successful, this approach has the potential to transform vaccine delivery and accessibility on a global scale.”

The CEPI-funded project will focus on two key objectives:

- Developing a spray-dried mucosal RNA vaccine platform that is stable at room temperature and capable of generating a localized immune response;
- Establishing an automated RNA manufacturing process that simplifies production, reduces costs, and supports rapid, scalable vaccine development.

Both advancements aim to address key challenges in RNA vaccine accessibility, particularly in low-resource settings. Spray-dried vaccines eliminate the need for cold-chain logistics, facilitating distribution to regions lacking the necessary infrastructure. Furthermore, automated manufacturing

processes will shorten production timelines, enabling faster responses to outbreaks and reducing costs to ensure affordability.

If successful, the technology will be advanced in accordance with Good Manufacturing Practice (GMP) standards—guidelines that ensure vaccines are made safely, consistently, and with high quality—and tested with a specific RNA-based vaccine candidate, initially targeting influenza as a proof-of-concept, if proven effective.

Commitment to equitable access

CEPI and Ethris are committed to enabling equitable access to the outputs of this CEPI-supported programme, in line with CEPI's Equitable Access Policy. This ultimately includes a commitment to vaccines being available first to populations at risk when and where they are needed at an affordable price should a related vaccine be developed further using CEPI funding. Project results, including data generated as part of this project, will be published open access for the benefit of the global scientific community.

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About CEPI

CEPI is an innovative partnership between public, private, philanthropic and civil organisations. Its mission is to accelerate the development of vaccines and other biologic countermeasures against epidemic and pandemic threats so they can be accessible to all people in need. CEPI has supported the development of more than 50 vaccine candidates or platform technologies against multiple known high-risk pathogens or a future Disease X. Central to CEPI's pandemic-beating five-year plan for 2022-2026 is the '100 Days Mission' to compress the time taken to develop safe, effective, globally accessible vaccines against new threats to just 100 days.

About Ethris

Ethris, a clinical-stage biotechnology company, has paved a new path from genes to therapeutic proteins, using its proprietary RNA and lipidoid nanoparticle technology platform to discover, design and develop innovative therapies. With more than a decade as an mRNA pioneer, Ethris is a global leader in delivering stabilized mRNAs directly to the respiratory system via optimised formulation and nebulisation technologies. The company is rapidly advancing its mRNA pipeline of immuno-modulation, protein replacement therapies, and differentiated vaccines, with the ultimate goal of improving patients' lives.

For more information, visit www.ethris.com

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