PRESS RELEASE

March 20, 2023

Ziccum reports positive results from drying of active mRNA and promising mRNA activity after powder reconstitution

Ziccum today announces an update of the latest stage of its ongoing in-house mRNA/LNP project, last reported on October 24, 2022. In the previous stage, an mRNA-like molecule in LNP formulation was successfully nebulized and dried. The current stage has proceeded to nebulization and drying using active mRNA. The update also includes promising, commercially viable results in mRNA activity.

Results from this stage confirm and strengthen findings from the previous stage: encapsulation efficiency (how much mRNA is kept inside the particles) and particle size preservation (keeping the right size of LNP particles, without aggregation) were excellent.

Furthermore, mRNA activity testing has now been initiated, using a cell-based *in vitro* assay. Initial results are promising, with a commercially viable level of mRNA activity demonstrated in the material, after LaminarPace drying and reconstitution to liquid.

Ziccum's inhouse mRNA project aims to explore and evaluate the capabilities of its unique mass transfer drying technology, LaminarPace, in drying RNA materials to a thermostable dry powder form that could ultimately be more easily handled and transported by the industry, as well as prove suitable for novel administration routes such as inhalation.

CEO Ann Gidner: "these are very important readouts, and not just for Ziccum. Development of RNA treatments is accelerating all over the industry – from cancer therapies to pandemic vaccines. Our results strongly suggest that mRNA material dried using LaminarPace could not only be kept in good condition in high yields, but also deliver a commercially viable level of mRNA activity. It is still early days, and work will continue with further confirmation and studies, but we expect to see keen interest in these findings from our colleagues in the field."

About mRNA

The mRNA / LNP vaccine platform was the key enabler of the rapid development of Covid-19 vaccines. Interest and investment in the platform continue to grow significantly – with mRNA vaccines being developed now for a wide range of conditions. In 2022, 90 lead developers of mRNA vaccines operated globally, with approx. 137 mRNA vaccine candidates in the pipeline. (1) Furthermore, there are significant efforts in pharmaceutical industry to develop other therapies based on RNA technology. With further advancements in delivery and stability, the mRNA platform has the potential to become the cornerstone treatment across a broad range of therapeutics areas (2).

(1)
https://www.nature.com/articles/d41573-022-00035-z
(2)
Evolution of the market for mRNA technology Wen Xie, Baiping Chen and John Wong

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About Ziccum

Ziccum is developing LaminarPaceTM, a unique ambient drying method for biopharmaceuticals and vaccines based on mass transfer, not heat transfer. The technology is offered by licensing to vaccine and biologics developers and manufacturers in the global pharmaceutical industry. By reducing drying stress to the active ingredient, LaminarPaceTM uniquely enables particle-engineered, thermostable dry powder biopharmaceuticals which can be easily handled and transported and are highly suitable for novel administration routes. The technology has been successfully applied to mRNA, peptides, proteins, antibodies, lipids and enzymes as well as excipients and adjuvants, and is well suited for industrial application. Ziccum is listed on the Nasdaq First North Growth Market.

Attachments

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