



PRESS RELEASE

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Ziccum investigates significant increase in mRNA activity achieved with LaminarPace

Ziccum AB (publ) announces important findings on an increase in mRNA drug activity after LaminarPace treatment and the investigations of the potential mechanisms behind this effect, including the development of a new, unique analytical method to generate further proof for this effect.

Ann Gidner, CEO: “This potential effect after LaminarPace processing is of great significance and we have made rather extensive testing to verify it. With this potential for *increasing* mRNA activity, Ziccum may progress into a new value proposition for LaminarPace for certain formulations. This is in addition to the already proven benefits unlocking new treatments on the booming RNA platform, as well as for biopharmaceuticals in general. We are thrilled to investigate this further”.

Fabrice Rose, Scientific Director: “We found it important to determine not only the protein expression increase, but also the potential reasons behind it. Drug delivery mechanisms are always complex, but now we have a clear hypothesis, and we have developed a new method to investigate this further. I am very proud of the team efforts and the results this far”.

In Ziccum’s internal Master Plan work, several different formulation options for mRNA have been tested for optimization during spring 2024. The lipid nanoparticle (LNP) formulation field is currently subject to intense development, as the industry is rapidly advancing new RNA treatments. Ziccum has performed a successful development plan, assessing improved LNP compositions to work well with LaminarPace processing.

During this work, a special effect has been discovered for certain lipid compositions, where the drug product mRNA activity is not only preserved, but significantly increased after LaminarPace treatment. The effect is studied by measuring protein expression in live cells treated with mRNA.

At the present time the following has been established:

1. A very significant increase in mRNA protein expression occurs after LaminarPace processing for several different lipid formulations.
2. The protein expression is multiplied in the best cases.
3. The increase effect only occurs for certain variants of lipid nanoparticle compositions.
4. An LNP structural phenomenon involved has been identified.
5. This special LNP structure is well described in scientific literature.
6. Ziccum has identified a potential mechanism on cellular level for the resulting protein expression increase.

The industrial value of increased mRNA activity as a consequence of LaminarPace processing can potentially be significant for several reasons.

- Cost: If this increase in effectiveness can be translated into lower mRNA drug and vaccine doses, the consumption of very expensive mRNA substances can be reduced.
- Dose barrier: The current LNP formulations which have enabled vaccines and therapies based on mRNA have a limitation regarding mRNA content. With increased activity through LaminarPace processing, it may be possible to break these barriers and create more efficient new treatments.

The understanding of the mechanism underlying this increase is of importance for Ziccum to better understand the potential value to the pharmaceutical industry.

Ziccum therefore has developed a specific, proprietary analytical method to study nanoparticle (mRNA/LNP) trafficking from the cellular uptake to the mRNA release and to the translation to the protein. This analytical method has now been established and tested.

The next step is to apply the new analytical tool for continued investigation of the increase mechanism, with the aim of creating a clear explanation for the effect taking place. This work will be pursued with high priority in the coming months.

There will also be a need for stability testing further on. It should be noted that the current effect is noted directly after treatment, while the long-term effects remain to be studied.

The current findings have been established in cell-based testing, not yet in animal studies.

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About Ziccum

Ziccum is developing LaminarPace™, a unique 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, LaminarPace™ 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.

This information is information that Ziccum is obliged to make public pursuant to the EU Market Abuse Regulation. The information was submitted for publication, through the agency of the contact persons set out above, at 2024-08-16 13:57 CEST.

Attachments

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