



PRESS RELEASE

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ZICCUM AB produces Proof of Concept data in four major Covid-19 vaccine platforms

Ziccum has successfully carried out tests which confirm that its air-drying technology could be used to produce thermostable dry powder vaccines across four major platforms – Protein Subunits (PS), Viral Vectors (VV), Inactivated Virus (IV) and Virus Like Particles (VLP). 70% of Covid-19 vaccines approved (Phase IV) and 67% in clinical studies use one of these four platforms (WHO[1]). Ziccum is carrying out ongoing studies to produce corresponding data around the mRNA vaccine platform.

The Proof of Concept data have been generated in a range of *in vitro* preclinical assays carried out at the company's labs in Lund. Results point clearly to LaminarPace, Ziccum's ambient air-drying platform, having the capability of formulating dry powder vaccines that meet the WHO CTC[2] (Control Temperature Chain) requirement of being able to tolerate temperatures of 40°C for three days. Corresponding studies around the mRNA vaccine platform continue, with results expected in H1 2022.

Ziccum concentrated on two key metrics in its Proof of Concept studies: yield and thermostability. In both metrics, results were within the limits that qualify for Proof of Concept. Yield is a crucial metric as it measures the amount of substance the LaminarPace system delivers after drying, compared to the amount loaded into the machine at the beginning of testing. Data were encouraging, confirming that LaminarPace typically delivers yields of between 30% up to 90+% in all four platforms. High yield, low waste formulation offers substantial economic benefits to vaccine developers in a competitive market where raw vaccine costs are high and the demand for volume is constantly increasing.

Thermostability results indicate that dry powder vaccines formulated using LaminarPace could comfortably meet the WHO CTC (Control Temperature Chain) requirement of being able to tolerate temperatures at 40°C for three days (or outperform it). Samples were typically tested after air-drying at +4°C, +20°C and +40°C for a range of time periods. Currently 2.7 billion people lack access to vaccines specifically due to cold chain-related logistics problems and insufficient supply chains, with the Africa Development Bank recently announcing plans to substantially increase its domestic vaccine manufacturing capacity. Thermostable vaccines that did not require cold chain storage or transport and could be formulated regionally would enable vaccines and vaccine manufacture to play a significant role in driving sustainable growth.

Whilst every individual vaccine needs to be separately analyzed and developed when approaching air-drying, the Proof of Concept results in four very different platforms underlines the strong potential of LaminarPace and ambient air drying as a robust and reliable methodology.

CEO Göran Conradson: "60% of the world's population still remain unvaccinated or not fully vaccinated against Covid-19 - despite 6.7 billion doses having already been administered. At the same time 2.7 billion people still lack access to vaccines due to cold chain-related logistics problems and insufficient supply chains. Ambient air-drying offers innovative vaccine manufacturers a unique way of closing that gap and taking the lead. These results confirm that our offering around Covid-19 vaccines could be formidable. We are now accelerating and intensifying our research and discussions around Covid-19 vaccines with our current and upcoming partners."

[1] <https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines>

[2] <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/ctc/>

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About Ziccum

Ziccum develops new thermostable versions of the world's most urgently needed, life-saving vaccines. The Company's patented technology, LaminarPace, enables the production of new, gently air-dried formulations that can be transported easily and cost-effectively, with no need for a costly and complicated cold chain, all the way from the factory to the last child in the last mile of the supply chain.

Attachments

[ZICCUM AB produces Proof of Concept data in four major Covid-19 vaccine platforms](#)