



PRESS RELEASE

December 8, 2022

Ziccum signs agreement with Zurich University of Applied Sciences on advanced 3D-modeling project

Ziccum AB has signed an agreement contracting the ICP Institute of Computational Physics at the Zurich University of Applied Sciences' School of Engineering (ZHAW) for the next phase of the project developing 3D modelling of LaminarPace - Ziccum's unique ambient drying system for biopharmaceuticals. The project aims to accelerate industrial development of LaminarPace and will run over three years. The team at ZHAW is one of the most recognized internationally within industrial simulation and modelling.

Ziccum has now signed an agreement contracting the Research Area Multiphysics Modeling and Imaging team of the ICP at ZHAW to begin the next phase of an ongoing project developing 3D modelling, and ultimately Digital Twin capabilities for LaminarPace, Ziccum's unique ambient drying system for biopharmaceuticals. The ICP team is made up of 20 simulation experts, physicists, mathematicians and engineers led by Prof. Dr. Gernot Boiger and has carried out projects modeling particle flow across industries including pharmaceuticals, aerospace, energy, automotive and more.

LaminarPace is developed as a unit for unique ambient drying that can be integrated into the pharmaceutical manufacturing process. This project will significantly accelerate that industrial development, tech transfer and scaleout. With 3D modelling, Ziccum can provide its clients with the optimal process and material parameters for LaminarPace to be integrated into their existing manufacturing processes as quickly and cost-effectively as possible.

A cloud-enabled Digital Twin, the planned final stage of the project, will apply the ZHAW team's machine learning algorithms to process thousands of data points from LaminarPace's historic sensor data. This will produce multiple models of optimized manufacturing volumes, flows and outcomes that will reduce risk, increase cost-efficiency and enable partners to predict what will happen to their product or campaign when a parameter is changed in real-time.

On September 14th 2022, Ziccum and ZHAW announced that they had applied for joint funding towards the project from the Eurostars funding body. The results of that application are expected in December 2022.

Ziccum Project Director Stefan Qvarnström: "With this technology we will ultimately be able to offer customers a detailed, responsive, three-dimensional picture of how LaminarPace will perform in their manufacturing environment. These capabilities will be major drivers for industrial partnership."

Prof. Dr. Gernot Boiger, ZHAW: "We have already made great progress with an excellent collaboration and are looking forward to moving onto the next phase. With 3D modelling, Ziccum will be able to provide partners with the optimal tech transfer parameters needed for their product. 3D modelling will make these adaptations faster and more cost-effective."

Ziccum CEO Ann Gidner: "The industrial development of LaminarPace is core for Ziccum. This project is clearly the most cost-effective and efficient way of achieving that. In today's sophisticated manufacturing landscape the Pharma industry is fully embracing digital innovation, and I am delighted to move forward with this cutting-edge technology. The project also significantly increases commercial applicability for manufacturers of next-generation vaccines and biotherapeutics. We are delighted to continue this productive partnership."

About LaminarPace

LaminarPace is unique. Its ambient drying process for pharmaceuticals eliminates extreme temperatures and heat stress. LaminarPace formulates next-generation biomolecules at room temperature as particle-engineered powders that are thermostable and also highly suitable for novel administration routes. LaminarPace has formulated biomolecules from mRNA to proteins, peptides, antibodies, lipids and enzymes - and worked successfully with a range of excipients, adjuvants and antigens. Ziccum has continuously developed LaminarPace to be integrated into the pharmaceutical manufacturing process as a high-yield unit of industrial production.

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About Ziccum

Ziccum is developing new thermostable versions of vaccines and biologic materials for licensing to vaccine providers, developers and manufacturers in the global pharmaceutical industry. Ziccum's patented drying technology, LaminarPace, is unique. It formulates next-generation biomolecules at room temperature as particle-engineered powders that are thermostable and also highly suitable for novel administration routes. LaminarPace has formulated biomolecules from mRNA to proteins, peptides, antibodies, lipids and enzymes - and worked successfully with a range of excipients, adjuvants and antigens. Ziccum is listed on the Nasdaq First North Growth Market.

Attachments

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