Ziccum in brief

Ziccum's patented technology LaminarPace air-dries liquid vaccine into a thermostable powder vaccine. Before the vaccine is administered, the vaccine powder is mixed with liquid and can then be injected in exactly the same way as a liquid solution vaccine. The LaminarPace technology is gentle, air drying takes place at room temperature, resulting in powder vaccines becoming thermostable. This means that the vaccine can be transported and stored at room temperature, unlike today's vaccines that require costly, complex logistics with an unbroken freezer or cold chain.

Vision

Ziccum's vision is to increase vaccination coverage worldwide. This can be made possible by minimizing dependence on expensive, impractical, and energy-intensive refrigerated and frozen transport systems and storage.

Business model

Ziccum’s business model is to offer licenses and tech transfers to vaccine companies based on Ziccum's patent portfolio. A strategically important milestone is the establishment of a Fill and Finish production facility containing LaminarPace technology.

History

LaminarPace was developed by Inhalation Sciences Sweden AB (publ) to generate small amounts of micronized material for aerosolization. However, the many additional high-potential areas the technology could be applied to soon became apparent, and for that reason, Inhalation Sciences carried out a spin-out of LaminarPace into a subsidiary, Ziccum AB, which since mid-2017 has been developing and commercializing the technology on its own. Ziccum's shares were listed on Spotlight Stock Markets on October 25, 2018. On December 1 2020, Ziccum moved to Nasdaq First North Growth Market.

Market

Ziccum focuses on applying LaminarPace technology to already approved vaccines, or to vaccines that are under development. The vaccine market has seen very strong growth recently, driven by COVID-19. But even apart from COVID-19, the WHO predicts growth for almost all vaccines. In 2019, the global vaccine market was worth 33 BUSD, divided into 5.5 billion doses, excluding military and travel vaccines (WHO Global vaccine market report 2020). Global vaccine production for 2021 is forecast at about 20 billion doses. Future growth largely depends on how COVID-19 develops in terms of booster jabs and mutations.

LaminarPace technology

Ziccum has developed a method for the gentle air drying of biological drugs. The company's patented technology, LaminarPace, dries at room temperature, which provides a unique opportunity to develop stable, dry formulations of primarily sensitive biological substances.

The basic principle of LaminarPace's function is countercurrent spray drying with separate flows. The constituent liquid is nebulized, i.e. distributed in the inner column in a mist of very small droplets. The size of these can be controlled by a special net.

During the downward flow, the liquid droplets are vaporized, and the moisture is transported through a paper-based membrane which allows evaporation. The external upward flow of very dry air collects the evaporation which is then transported to the absorption column where the air is dried again.

The dry, micronized substance is retained inside the column and collected on a filter in the filter container. The drying cycle is a so-called semi-continuous process. The system not only retains all the properties of sensitive substances, but also allows great possibilities to control certain properties of the particles, e.g. particle size.

The powder produced during the process is normally very easy to dissolve, which enables flexible application possibilities, e.g. vials of intravenously administered drugs, inhalable drugs and even for topical application of single particles through the skin.

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