

YEAR-END REPORT

1 JANUARY - 31 DECEMBER 2022

Q4 2022

- ▶ The result for the quarter amounted to -8 021 kSEK (-6 450 kSEK)
- ▶ Cash flow for the quarter amounted to -6 642 kSEK (-7 291 kSEK)
- ▶ Cash and cash equivalents at the end of the quarter amounted to 22 951 kSEK (12 273 kSEK)

Summary Financial Highlights kSEK	Oct-Dec 2022	Oct-Dec 2021	Jan-Dec 2022	Jan-Dec 2021
Net revenue	0	0	0	0
Operating result	-8,067	-6,474	-28,955	-21,117
Result for the period	-8,021	-6,450	-28,788	-21,136
Balance sheet total	33,285	36,900	33,285	36,900
Cash flow for the period	-6,642	-7,291	10,678	-21,347
Cash and cash equivalents	22,951	12,273	22,951	12,273
Equity ratio %	88%	81%	88%	81%

Data per share SEK

Number of shares at the end of the period	13,806,142	11,006,056	13,806,142	11,006,056
Result per share before and after dilution*	-0.58	-0.65	-2.09	-2.17
Cash flow per share	-0.48	-0.73	0.78	-2.19
Equity per share	2.12	2.70	2.12	2.70

* Dilution effects is not calculated when the result is negative



Q4 Oct-Dec

Significant events

- ▶ On October 24, Ziccum announced proof of successful nebulization and drying of vaccine lipid nanoparticles (LNP) in its in-house mRNA project. This was carried out using LaminarPace, the company's ambient drying technology. LNP is the preferred drug delivery component in today's mRNA Covid-19 vaccines. The study resulted in a defined knowledge-space, defining the best operating conditions, and key read-out parameters were encapsulation efficiency, yield and particle size. The trials were repeated for confirmation.
- ▶ On December 8, it was announced that Ziccum 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. 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.
- ▶ On December 14, Ziccum launched a new, expanded website. With a new brand platform, the expanded site aims to strengthen the company's dialogue with biopharmaceutical partners and prospects. It includes new technological, scientific and business content, and improved navigability.
- ▶ On December 16, it was announced that Ziccum has been awarded a contribution of 10 mSEK by Eurostars for a joint grant application with ZHAW. Eurostars is the largest international funding programme for SMEs wishing to collaborate on R&D projects, and is co-funded by the EU Horizon 2020 Framework Programme and EUREKA. Ziccum will receive payments of 5 mSEK from the national funding body Vinnova during the project, they are consented to cover up to 50% of a project's costs. The rest of the contribution will go into the project and reduce the total project cost for Ziccum. The three year long project (LaPaSim) starts February 1 2023, and is to apply 3D-modelling to Ziccum's ambient drying system for biopharmaceuticals, LaminarPace, resulting in a digital twin. International competition for the funding was intense, and the proposal was one of the highest-ranked applications.
- ▶ During the fourth quarter CEO Ann Gidner bought 45,000 shares in Ziccum.

Q1

Jan-March

Significant events

- ▶ On January 18, an Extraordinary General Meeting was held, in addition to approving the Board's proposal, it was decided to increase the limit on the number of shares and the size of the share capital in the Articles of Association, to enable the issue of the remaining 933 362 units in the private placement.
- ▶ On January 18, an additional 2 800 086 shares and 1 866 724 warrants were registered, and all shares and warrants in the private placement are thus registered.
- ▶ The last payments from the directed share issue were received by the company in January and February 2022, a total of 40 mSEK was added to the company after deduction of issue costs.
- ▶ On February 7, Ziccum announced that it has become a member of the United Nations Global Compact, the world's largest corporate sustainability initiative.
- ▶ On February 22, it was announced that the employment of the CEO Göran Conradson was terminated. The company's CFO, Frida Hjelmberg was appointed acting CEO.
- ▶ On March 3, the Board released an update on strategy, goals and priorities. The company's strategy for entering into commercial agreements with industrial players was defined, based on four key priority activities:
 1. **Drive an active business development agenda** that proactively prepares for collaboration with existing and potential partners. This to offer the opportunity to evaluate specific projects in combination with Ziccum's technology, and to understand the requirements placed on the technology before a decision on a license agreement can be made.
 2. **Generate laboratory data** that manifest and confirm the technology's capacity to dry different types of vaccines, so-called proof of concept.
 3. **Develop the company's technology** to adapt its functionality, capacity and quality to the licensees' required specifications.
 4. **Develop conceptual plans** for how Ziccum's drying technology can be adapted to the commercial scale and integrated into a commercial production environment.

With a new CEO, the Board's goal is to increase the pace of, above all, business development work – with the goal of entering into more industrial collaborations in order to evaluate LaminarPace and advance existing collaborations into negotiations on commercial terms and license agreements.

Q2

April-June

Significant events

- ▶ On April 25, a strategic sharpening was announced informing the market that Ziccum is now targeting three key vaccine platforms in its research and development work through 2022 and 2023 – driven by input from external collaborations and new internal technology capabilities.

1. Viral vector platform using Adenovirus - Four major Covid-19 vaccines already use adenovirus vaccine vectors as a platform. The platform enables efficient gene transduction and research is ongoing in a wide range of indications.

2. Subunit vaccine (adjuvanted) platform - This platform is also being used in major Covid-19 vaccine candidates. Instead of using the whole pathogen, protein-based adjuvant vaccines use a defined protein antigen from the pathogen which can be recognized by the body's immune system to provoke an immune response.

3. mRNA/LNP vaccine platform - Generating data on dry-formulated mRNA/LNP materials is a key strategic priority for Ziccum. Covid-19 has highlighted the efficacy of mRNA/LNP as a vaccine platform enormously.

- ▶ On April 27, Ziccum informed about the selected key targeted technology developments of the LaminarPace system, the fourth generation in development - some underway, and some recently completed:

1. New powder collector - A new sealed, contained collection unit is installed that enables the inhouse study of a wider range of test substances. The new unit increases safety, reduces humidity and enables quicker, more efficient collection of drier formulations.

2. New nitrogen usage - Ziccum has now introduced Nitrogen gas (N₂) into the drying column to replace air. N₂ is a highly efficient remover of moisture. The first nitrogen-based generation of LAPA is installed and has performed well in tests.

3. New nebulizer - The LAPA system's nebulizer feature is a key component in optimizing the system's capacity, reproducibility and reliability.

4. New membrane - Intensive work is currently underway in optimizing the membrane for future GMP compatibility – examining its porosity, mounting and materials for industrial setting.

- ▶ On May 6, the Board of Ziccum published the decision to officially change the company's language to English for all external communications.
- ▶ On May 9, it was announced that Ziccum has been elected onto the Technical Activities Committee of the US National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL). NIIMBL, co-funded by the US Department of Commerce, funds and initiates a wide range of public-private research projects throughout the US.
- ▶ On May 9, Ann Gidner took office as new CEO. Ann has 25+ years of experience from Life Science management internationally, with a significant track record in strategic development, focused leadership, deal making and sales growth.
- ▶ On June 3, it was announced that Ziccum has extended an ongoing pilot evaluation study agreement with a leading pharmaceutical corporation following the completion of the latest stage of the project.
- ▶ On June 22, the company informed that the installation of a new cell lab was completed, enabling in-house in vitro research. Ziccum has significantly expanded its lab facilities and capabilities, particularly in the area of mRNA/LNP. Strategic investments in addition to the new cell lab are for example a system for manufacturing and evaluating dry formulations of mRNA/LNP materials.
- ▶ During the second quarter CEO Ann Gidner bought 15,000 shares in Ziccum. In addition, the Board members Andreas Pettersson Rohman also bought 39,333 shares and Fredrik Sjövall 10,000 shares in the Company.



Q3

July-Sep

Significant events

- ▶ On July 19, Ziccum published the selected partner for the development of its crucial new nebulizer component for the LaminarPace system. The chosen partner TEKCELEO is an innovative mechatronic manufacturer with advanced knowledge of nebulizers. The component is central to the advanced drying capabilities and scaleup of Ziccum's LaminarPace system.
- ▶ On July 21, it was announced that Ziccum together with the Zurich University of Applied Sciences (ZHAW) are applying for funding from the Eurostars funding body for a joint project that will develop the 3D modelling stage of LaminarPace. The project aims to strengthen, support and accelerate the development of LaminarPace – offering high-value insights into its unique particle properties, and accelerating and optimizing industrialization.
- ▶ On August 2, Ziccum informed about a reorganisation aiming to facilitate and accelerate its new strategic focus on key projects and vaccine platforms. As part of the reorganization, Senior Formulation Specialist Fabrice Rose was appointed Scientific Director. The reorganization was implemented on August 1, 2022.
- ▶ On September 1, Ziccum announced that the company will be intensifying its partnering and networking dialogues by attending major industry events across Europe.
- ▶ On September 14, Ziccum and Zurich University of Applied Sciences's School of Engineering (ZHAW) did submit a joint application for Eurostars funding. The proposed project will develop 3D modelling, and ultimately a Digital Twin, of LaminarPace (LAPA) that will accelerate development and scale-up and promote tech transfer, partnering and ultimately sales.
- ▶ On September 23, Ziccum received results from evaluation study with leading Pharmaceutical corporation, analyzing LaminarPace's ability to dry four test substances. Data demonstrated excellent results on thermostability, positive results on particle appearance but significant loss of infectivity, requiring further development. The client has paused assessment of LaminarPace on the current vaccine platform, but will consider the technology in regard to other vaccine platforms, where dry formulation could be a higher priority.
- ▶ On September 27, It was announced that Ziccum has reopened its application process for CEPI's Call for Proposals from companies developing innovative technologies to improve vaccine thermostability. Ziccum will submit an Expression of Interest with a new partner – a well-established, innovative biotechnology company.
- ▶ During the third quarter CEO Ann Gidner bought 35,000 shares in Ziccum. In addition, the Chairman of the Board Fredrik Sjövall bought 40,000 shares in the company.

Significant events after the reporting period

- ▶ On January 18, Ziccum announced that the company on 24 - 26 January will attend the mRNA-based Therapeutics Summit in Berlin, the leading European event for mRNA innovation expertise in Europe. On the event, CEO Ann Gidner will present LaminarPace with a presentation titled *LaminarPace: a novel unit operation successfully drying mRNA/LNP by mass transfer* to an audience of senior Pharmaceutical industry decision makers, scientists and key opinion leaders.
- ▶ On January 23, Ziccum announced that the company has submitted its Expression of Interest application for CEPI's Call for Proposals for funding of innovations that improve vaccine thermostability. The Coalition for Epidemic Preparedness (CEPI), in 2022 invited players developing innovative technologies to improve vaccine thermostability to apply for a funding opportunity.