



# Ziccum AB (publ)

## Year-end report

1 Jan – 31 Dec 2022



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# 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)

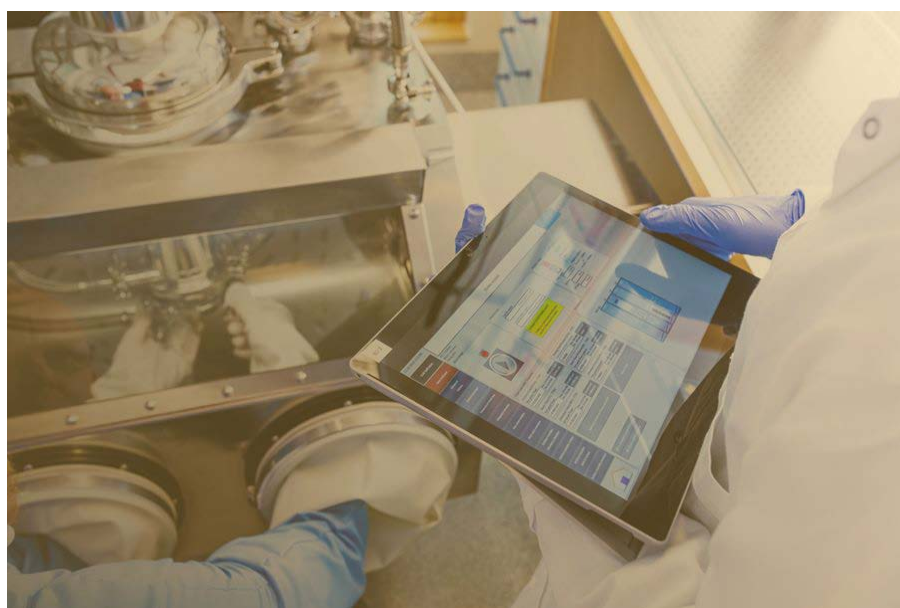
Summary Financial Highlights kSEK	Oct-Dec 2022	Oct-Dec 2021	Jan-Dec 2022	Jan-Dec 2021
Net revenue	0	0	0	0
Operating result	-8,067	-6,474	-28,955	-21,117
Result for the period	-8,021	-6,450	-28,788	-21,136
Balance sheet total	33,285	36,900	33,285	36,900
Cash flow for the period	-6,642	-7,291	10,678	-21,347
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 (N<sub>2</sub>) into the drying column to replace air. N<sub>2</sub> 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.



## CEO statement

### Creating a strong industry position in a booming market

It has been a very rewarding year for Ziccum (or eight months for my part), making such big strides towards a position as a top rank provider of game-changing technology to the international pharmaceutical industry, where achieving thermostable vaccines is highly desirable.



### Setting the Ziccum direction

Defining a sharper strategy with selected vaccine platforms, and most importantly the high value next-generation mRNA vaccines and RNA therapeutics as top priority, has given consistent positive confirmations - from partnering dialogues, from our Biopharma licensing mRNA Market study and from our own internal trial results. We are confident going forward with this key focus.

The new business model defined, a classical Pharma out-licensing model starting with feasibility studies, has been well received and gives crisp clarity to business development efforts ahead. Given the strong interest in partnering dialogues, we have the Pharmaceutical Platform technology company business model strongly confirmed, giving licenses internationally, not producing as a contractor.

### Pivotal transformation of the vaccine field and new applications of mRNA technology

Externally, the vaccine industry has gone through a complete transformation. From being a conservative, low margin segment of the Pharma industry, it has become a hot spot for rapid development, where existing players increase efforts significantly, and numerous new players want to enter the market. The Covid pandemic brought completely new insights, fuelling a strong industry desire for new vaccine development as well as for applying the novel mRNA approach in a range of new fields, like cancer vaccines and personalized therapeutics.

### Business development progress

The booming market demand for new vaccine technology in combination with Ziccum's unique drying concept enabling thermostable vaccines, now proven in a number of steps, makes for a great opportunity. Thanks to a clearly business-driven approach and an extensive industry network we are taking advantage of this, generating a significant number of partnering dialogues at four international conferences during fall. These are now pursued with in-depth dialogues going forward.

### Proving the LaminarPace ability for mRNA/LNP

Getting the proof of successful drying of vaccine LNP particles at this point was most welcome. The LaminarPace drying has given good read-outs in terms of encapsulation, yield and particle preservation: keeping the LNP particles nicely in good shape and staying the correct size. We are delighted to bring these results to our business dialogues, and we are now setting up continued trials regarding vaccine activity; the verification that dried vaccine material is not only kept in good condition in high yields, but also giving a similar vaccine activity effect.

### **Developing ground-breaking technology, the smartest way**

As novel, unique technology certainly needs development efforts, we took the important decision to run a multi-year 3D-Modelling project with a leading partner, the Zurich Institute of Applied Sciences. This way we efficiently come forward using the latest digital methods. We can run all the trials we want digitally, instead of a few selected, time-consuming physical trials. Ultimately, the project will also result in a Digital twin which can serve efficiently in tech transfer for successful process integration in the partner set-up.

We also applied to the EU organization Eurostars jointly with the Zurich Institute for soft funding of this ambitious effort, and just before Christmas we had the fantastic news of getting top ranking and receiving the full grant! This way we certainly can begin 2023 with full steam ahead.

### **Wrapping up 2022**

An extra bonus was the launching of the new Ziccum website end of year, a total remake much better reflecting our offering: our technology and our team. Also, I was happy to present Ziccum at BioStock Life Science, getting significant interest. Finally, we had the great pleasure to expand our team with a Quality specialist, warm welcomes to Fatemeh starting in January.

Many thanks to the Ziccum team for great efforts and enthusiasm all year, taking the new strategy forward together, and to all supporting parties, owners and business partners for engaging in fruitful dialogues and supporting our efforts!

**Lund, January 27, 2023**

**Ann Gidner, CEO**



## Expected future development

The company's overall objective is to enter into license agreements to industrialize and commercialize the technology in collaboration with one or more major pharmaceutical companies.

The path to licensing agreements goes through evaluation agreements where LaminaPace functionality and capacity are evaluated together with a partner. If successful, the ambition is to continue to a negotiation regarding a license agreement. Primarily for a specific project or vaccine.

A prerequisite for being a relevant and attractive licensing partner is to be able to describe what an industrial version of LaminaPace can look like, and make it probable that the technology is suitable for upscaling and GMP production. Therefore, Ziccum conducts its own development projects where important components in LaminaPace are developed and adapted to industrial requirements. Ziccum is carrying out intensive work on developing 3D modelling, and ultimately a Digital Twin, of LaminaPace in partnership with the ICP Institute of Computational Physics team at the Zurich University of Applied Sciences's School of Engineering (ZHAW.) The 3D modelling is being used to optimize LaminaPace design, exploring optimal capacity loads and increasing the repeatability of outcomes. It will be a valuable enabler of tech transfer and integration into existing pharmaceutical production chains.

Another priority area is applications for external and non-dilutive funding for further development of the technology. Ziccum actively monitors announcements that suit the Company's area of operation and technical phase.

## Project Portfolio overview

The Ziccum pipeline of external projects is depicted in a portfolio overview. This gives a general representation of the key steps towards the desired commercialization by entering into license agreements, licensing the LaminaPace technology for specific applications, and the current status of each project. The actual progress in a specific project may proceed via alternative or additional steps, and the timeline varies greatly depending on the resulting read-outs and the counterpart preferences.

Pharmaceutical development in general is subject to very strict confidentiality, and certain collaborations are given without partner name publication, until name disclosure is possible.

The company also pursues earlier dialogues with other counterparts in on-going business development efforts.



Project portfolio overview as of 31 Dec, 2022

\*The text in the arrow represents the technology platform

## Result and financial position Q4 October - December 2022

Operating income from goods and services amounted to 0 kSEK (0).

Operating expenses amounted to 8 072 kSEK (6 474), of which personnel costs amounted to 2 582 kSEK (2 488).

Other external costs amounted to 5 148 kSEK (3 700).

Operating result amounted to -8 067 kSEK (-6 474) and result after financial items amounted to -8 021 kSEK (-6 450).

Result amounted to -8 021 kSEK (-6 450).

Result per share before and after dilution amounted to -0.58 SEK (-0.65).

Cash flow during the period amounted to -6 642 kSEK (-7 291). The cash flow included a share issue of 0 kSEK (0). Cash flow per share amounted to -0.48 SEK (-0.73).

## Result and financial position Full Year January - December 2022

Operating income from goods and services amounted to 0 kSEK (0).

Operating expenses amounted to 28 972 kSEK (21 121), of which personnel costs amounted to 11 276 kSEK (9 151).

Other external costs amounted to 16 323 kSEK (11 128).

Operating result amounted to -28 955 kSEK (-21 116) and result after financial items amounted to -28 788 kSEK (-21 136).

Result for the period amounted to -28 788 kSEK (-21 136).

Result per share before and after dilution amounted to -2.09 SEK (-2.17).

Cash flow during the period amounted to 10 678 kSEK (-21 347). The cash flow includes a share issue of 28 051 kSEK (2 200) before deduction of share issue costs. Cash flow per share amounted to 0.78 SEK (-2.19).

Cash and cash equivalents as of Dec 31 2022 amounted to 22 951 kSEK, compared with 12 273 kSEK on December 31 2021.

The company's equity as of Dec 31 2022 amounted to 29 301 kSEK, compared with 29 731 kSEK on December 31 2021.

Equity per share as of Dec 31 2022 amounted to 2.12 SEK, compared with 2.70 SEK on December 31 2021.

The company's equity ratio as of Dec 31 2022 was 88% compared to 81% on December 31 2021.

The result follows budget expectations regarding the costs of the ongoing commercialization of LaminarPace technology. The increase of external costs is mainly driven by consulting fees, extended premises, R&D costs and the disposal of four LaminarPace systems. Personnel costs have increased compared with the previous year as a result of the company having double CEO salary costs for four months, since the former CEO Göran Conradson was exempted from work during the notice period.

The investments made during the year are mainly related to development of the fourth generation of LaminarPace systems in order to adapt and automate the technology for industrial integration.

## Ziccum in brief

Ziccum is developing LaminarPace, a unique ambient 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.

## Vision

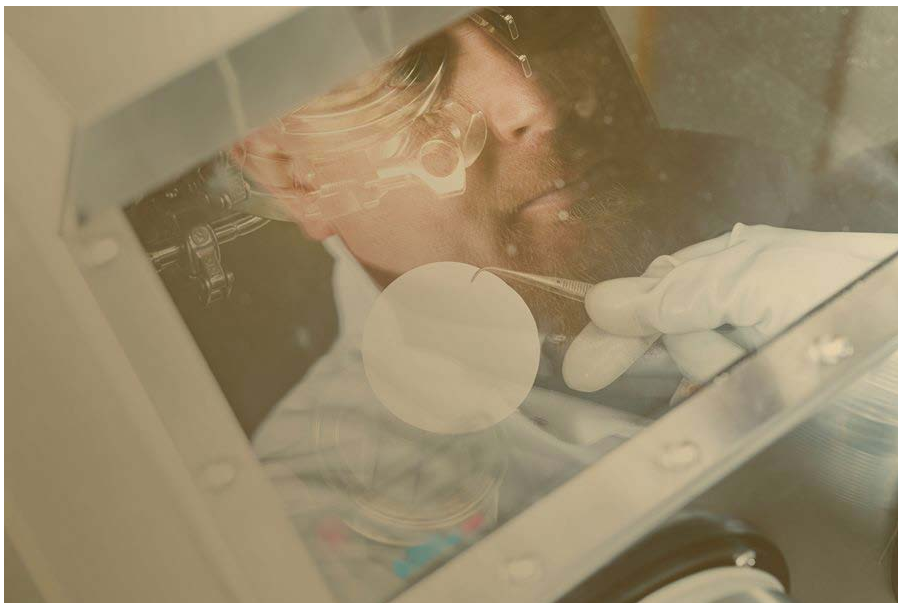
Ziccum's vision is to enable new biological treatments for patient needs globally, by making drug formulation, biopharmaceutical processing, product transport and patient administration efficient and functional enough for successful treatments.

## 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 Market on October 25, 2018.

On December 1 2020, Ziccum moved to Nasdaq First North Growth Market.



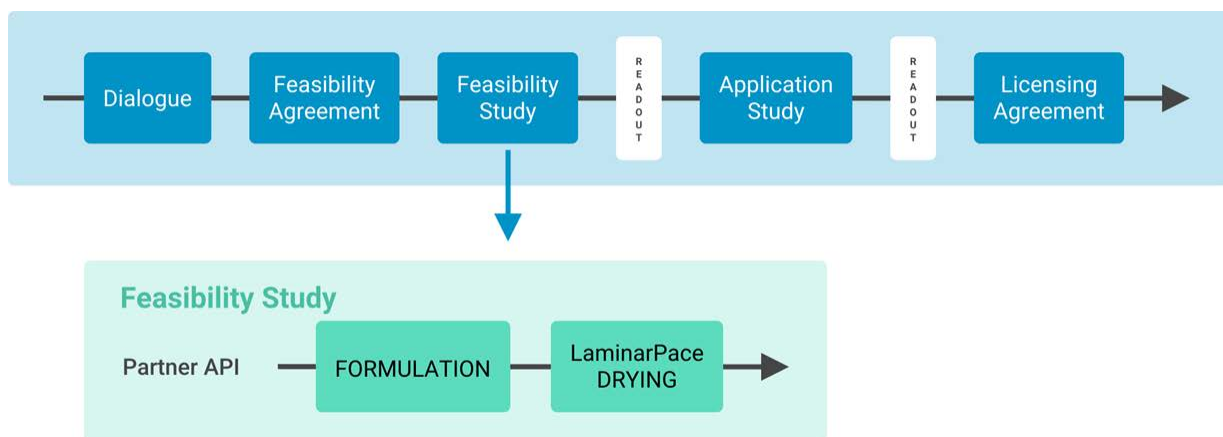
## Business model

Ziccum's business model is based on partnering and co-development with biotech and pharma companies. LaminarPace is developed to be an integrated part of the commercial supply chain of biological pharmaceutical products, with a particular focus on vaccines and mRNA-based products.

The business model rests on the following focus areas:

- ▶ An active partnering agenda to create a substantial pipeline of industrial dialogues.
- ▶ Development responsibility for the LaminarPace unit and process development.
- ▶ Development and optimization of quality attributes and scale-out.
- ▶ Continuous regulatory assessment to prepare for industrialization.

In the early project phases revenues are generated by paid feasibility studies, agreement signing fees, milestone payments for R&D activities and license fees for exclusive evaluation periods. At a mature commercial stage, revenues will primarily be earned through royalty payments from licensees – a standard revenue model for pharmaceutical industry.



*Ziccum technology licensing business model*

Ziccum's business and revenue models are dependent on a strong IP position. The IP strategy rests on two pillars: Patents and Trade secrets.

The basic principles of LaminarPace are protected by an approved Patent family providing an important basis for customer interaction and R&D activities and a fundament for out-licensing. The patent portfolio is currently built to include several layers of patent protection, including general technical improvements and features as well as specific use areas and product classes, enabling a strong and long term patent position supporting a long term out-licensing revenue stream.

Trade secrets are well defined pieces of operational knowledge, such as the optimal drying conditions for each specific product.

## Market and market targeting

The market for biologics and vaccine manufacturing is very significant and has a renewed emphasis with the covid-19 pandemic, having created keen awareness of the importance of vaccines not only within research organisations and from healthcare authorities, but in every segment of the industry and in the general public, globally. The Covid-19 pandemic created an enormous focus on developing a vaccine urgently, and highlighted the need for worldwide distribution.

Thanks to very intense efforts from large industry players it was possible to develop the new mRNA in LNP formulation for Covid-19 vaccination in a short timeframe. However, as now commonly known, these new mRNA vaccines require cryogenic handling all throughout the distribution chain, meaning storage and handling at -80°C. This poses a number of logistical and handling issues. In this situation, the Ziccum offering to enable powder-form thermostable biologics and vaccines should be of great interest.

The freeze-drying technique for drugs, established and developed since many decades, still has only succeeded in very limited trials to generate dry mRNA/LNP – and the product still requires special handling. Another technique gaining ground in pharmaceutical processing is spray-drying by heating – but there, no known attempts have succeeded in generating dry material from mRNA/LNP. Hence, the LaminarPace ability to dry LNP formulations may be of great importance.

The LaminarPace technology lends itself to biopharmaceutical ingredients in general, but as of now the company has decided to focus on vaccines, and three specific vaccine platforms, all relevant for covid-19 vaccines:

- ▶ mRNA/LNP vaccine platform
- ▶ Viral vector (adenovirus) platform
- ▶ Subunit vaccine (adjuvanted) platform

For the total vaccine Western world sales market value, estimates for the top vaccine indications are as follows; In 2023 predicted to 67 billion USD, also after a slight decrease from record Covid-19 numbers; to be followed by some 64 billion USD per year in 2024-2026, then rising towards 80 billion USD in 2028\*.

The corresponding annual market value for our three focus vaccine platforms are 40-50 billion USD for the years 2024-28. With a licensing business model, estimates of the addressable market size for our three focus vaccine platforms, considering a 1% royalty on entire vaccine sales can be made. Based on this, the total drying technology licensing market size may be predicted to 400 – 500 mUSD\*.

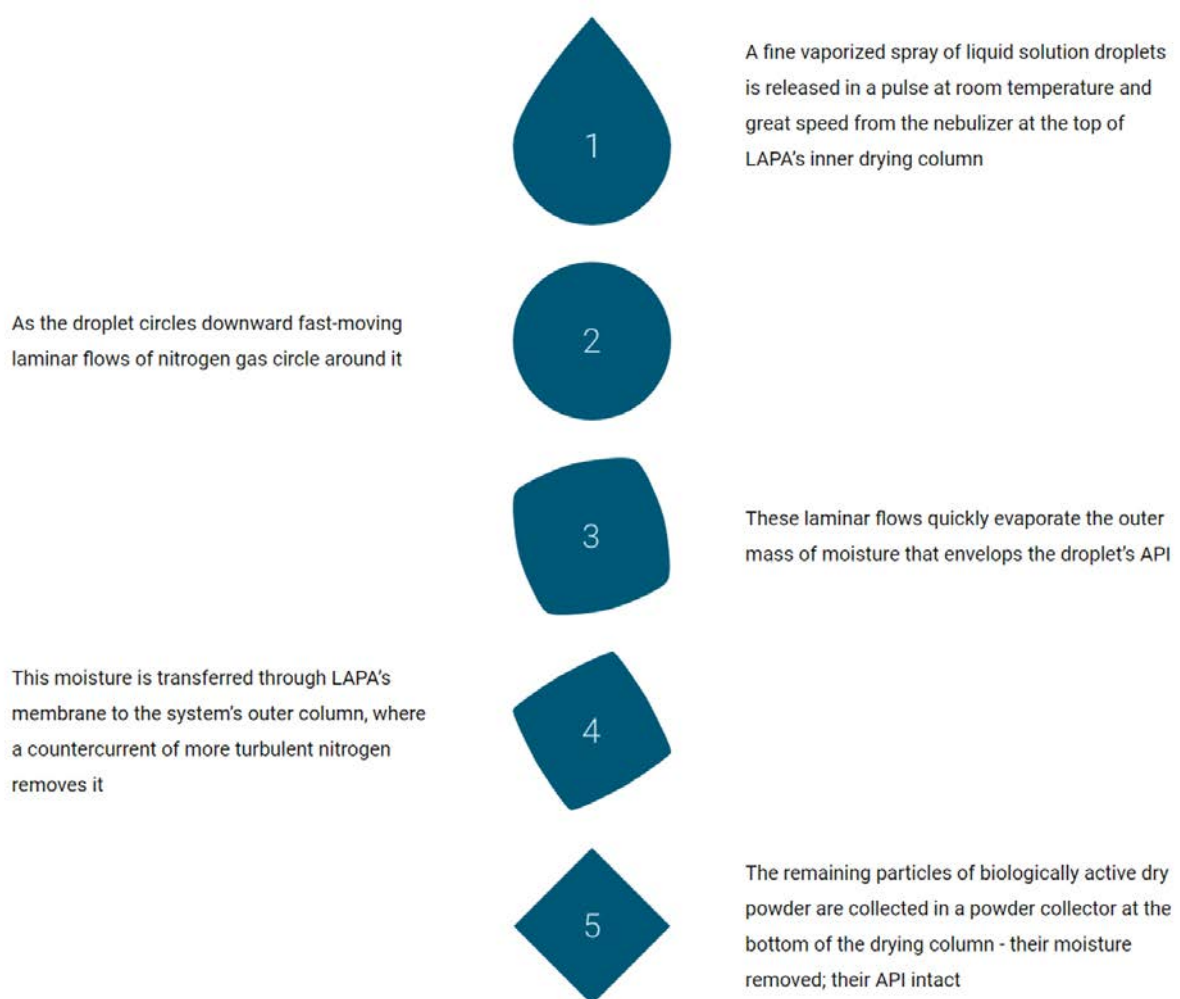


*\*Estimates based on the GlobalData Intelligence platform Dec 2022*

## Technical description

LaminarPace creates an efficient drying process by generating mass transfer, rather than heat transfer. This happens directly after evaporation and removes the need for elevated temperatures. Mass transfer is a highly efficient drying method. Our optimization tests demonstrate that following drying less than 2% of absolute humidity is left inside LaminarPace's drying column.

To best understand the process, let's follow the drying path of a single droplet of biomolecule.



*The LaminarPace drying path of a single droplet*



## Shares

As of January 1 2022, the total number of shares was 11 006 056 and as of December 31 2022, the total number of shares was 13 806 142. The increase of 2 800 086 shares was a result of the share issue that was initiated by the company in December 2021.

All shares have a voting ratio of 1.

The Board of Directors proposes that no dividend is paid for the financial year 2022.

## Shareholders 2022-12-31

Name	Number of shares	Share capital	Votes
Försäkrings AB, Avanza Pension	879,145	6.4%	6.4%
Göran Conradson	760,738	5.5%	5.5%
William Lithander	600,000	4.3%	4.3%
Tigerstaden AS	427,991	3.1%	3.1%
Nordnet Pensionsförsäkring AB	336,164	2.4%	2.4%
Viskär AB	220,000	1.6%	1.6%
Other shareholders	10,582,104	76.6%	76.6%
<b>Total</b>	<b>13,806,142</b>	<b>100%</b>	<b>100%</b>

## Share price

Ziccum AB was registered as a public company by the Swedish Companies Registration Office 2018-05-31.

Ziccum's shares were listed on Spotlight Stock Markets on October 25, 2018.

The share's closing price on the first trading day amounted to SEK 5.90.

Ziccum moved to Nasdaq First North Growth Market on December 1, 2020.

The share closing price on December 31, 2022 amounted to SEK 2.48.

## Transactions with related parties

During the reporting period (Jan-Dec), fees charged by related parties were invoiced as follows:

The Chairman of the Board, Fredrik Sjövall, has through Axelero AB invoiced fees amounting to 306 kSEK for project management.

Board member (until April 28, 2022) Mattias Münnich has through Magamu AB invoiced 26 kSEK for project management.

Board fees have been paid in accordance with resolutions at the Annual General Meeting.

There have otherwise been no significant transactions with related parties.

## Significant risks and uncertainties in brief

Ziccum's significant risk and uncertainty factors include business-related risks as well as risks related to market and technology development, patents, competitors and future financing.

The company's value is largely dependent on the success of the company's development projects and the ability to enter into partnerships, and that LaminarPace receives broad market acceptance. Ziccum is in the commercialization phase and there is a risk that the company will not reach sufficient profitability.

As the company is in growth stage and working to achieve a positive cash flow, the company needs access to capital before its cash flow becomes positive.

It is the company's assessment that the company has the required financing for longer than 12 months. The company will have a reduction of fixed costs compared to last year, and the Eurostars grant will also have an additional positive effect on the cash flow.

In light of the outbreak of the coronavirus and COVID-19, Ziccum is closely monitoring the development of events and taking measures to minimize or eliminate the impact on the company's operations. Ziccum follows guidelines from the Swedish Public Health Agency. Ziccum has been able to continue its internal operations without significant impact from COVID-19.

The conflict in Ukraine has not affected the development of the company's operations, position or results.



## Income statement

kSEK	Oct-Dec 2022	Oct-Dec 2021	Jan-Dec 2022	Jan-Dec 2021
<b>Net sales</b>	0	0	0	0
Other income	5	0	17	5
<b>Total income</b>	5	0	17	5
Other external costs	-5,148	-3,700	-16,323	-11,128
Personnel costs	-2,582	-2,488	-11,276	-9,151
Depreciation of tangible and intangible assets	-342	-286	-1,373	-842
<b>Operating result</b>	<b>-8,067</b>	<b>-6,474</b>	<b>-28,955</b>	<b>-21,116</b>
<b>Result from financial items</b>				
Financial net	46	24	167	-20
<b>Result after financial items</b>	<b>-8,021</b>	<b>-6,450</b>	<b>-28,788</b>	<b>-21,136</b>
<b>RESULT FOR THE PERIOD</b>	<b>-8,021</b>	<b>-6,450</b>	<b>-28,788</b>	<b>-21,136</b>
Result per share before and after dilution*	-0.58	-0.65	-2.09	-2.17

\*Dilution effect is not calculated when the result is negative

## Balance sheet statement

kSEK	Not	2022-12-31	2021-12-31
<b>Assets</b>			
Subscribed unpaid capital		0	13,198
<b>Intangible assets</b>			
Patents, licenses, trademarks and similar rights		624	604
<b>Tangible assets</b>			
Equipment & tools		8,246	9,778
<b>Total non-current assets</b>		<b>8,870</b>	<b>10,382</b>
<b>Current assets</b>			
<b>Short-term receivables</b>			
Other receivables		496	796
Prepaid expenses & accrued income		968	251
<b>Total short-term receivables</b>		<b>1,464</b>	<b>1,047</b>
Cash & cash equivalents		22,951	12,273
<b>Total current assets</b>		<b>24,415</b>	<b>13,320</b>
<b>TOTAL ASSETS</b>		<b>33,285</b>	<b>36,900</b>
<b>Equity &amp; liabilities</b>			
<b>Equity</b>			
<b>Restricted equity</b>			
Share capital	3	2,301	1,834
<b>Total restricted equity</b>		<b>2,301</b>	<b>1,834</b>
<b>Unrestricted equity</b>			
Share premium fund		105,400	77,900
Retained earnings		-49,612	-28,867
Result of the period		-28,788	-21,136
<b>Total unrestricted capital</b>		<b>27,000</b>	<b>27,897</b>
<b>Total equity</b>		<b>29,301</b>	<b>29,731</b>
<b>Debt</b>			
<b>Long-term debt</b>			
Loans		857	1,429
<b>Short-term debt</b>			
Account payables		978	2,680
Short-term loans		571	571
Tax debt		0	10
Other short-term debt		416	269
Accrued expenses and deferred income		1,162	2,210
<b>Total short-term debt</b>		<b>3,127</b>	<b>5,740</b>
<b>TOTAL EQUITY &amp; LIABILITIES</b>		<b>33,285</b>	<b>36,900</b>

## Changes in equity

kSEK	Restricted equity	Unrestricted equity	Retained earnings	Result of the period	Total equity
	Share capital	Share premium fund			
<b>Opening balance 2021-01-01</b>	<b>1,601</b>	<b>63,756</b>	<b>-11,687</b>	<b>-17,289</b>	<b>36,381</b>
Appropriations of net result			-17,289	17,289	0
Result of the period				-21,136	-21,136
<b>Transactions with shareholders</b>					
Share issue (LTI 2018/21)	33	2,167			2,200
Share issue costs		-55			-55
Warrants		213			213
Ongoing directed new issue	200	12,998			13,198
Directed new issue costs		-1,179			-1,179
Share related remunerations			109		109
<b>Closing balance 2021-12-31</b>	<b>1,834</b>	<b>77,900</b>	<b>-28,867</b>	<b>-21,136</b>	<b>29,731</b>
<b>Opening balance 2022-01-01</b>	<b>1,834</b>	<b>77,900</b>	<b>-28,867</b>	<b>-21,136</b>	<b>29,731</b>
Appropriations of net result			-21,136	21,136	0
Result of the period				-28,788	-28,788
<b>Transactions with shareholders</b>					
Share issue	467	27,584			28,051
Share issue costs		-84			-84
Share related remunerations			391		391
<b>Closing balance 2022-12-31</b>	<b>2,301</b>	<b>105,400</b>	<b>-49,612</b>	<b>-28,788</b>	<b>29,301</b>

## Cash flow statement

kSEK	Oct-Dec 2022	Oct-Dec 2021	Jan-Dec 2022	Jan-Dec 2021
<b>Cash flow from operating activities</b>				
Operating result	-8,067	-6,474	-28,955	-21,117
Ingoing interest	70	33	163	33
Paid interest	-25	-25	-94	-100
<b>Adjustments for items that is not included in the cash flow</b>				
Share related remunerations	124	23	392	109
Currency exchange	56	15	99	47
Depreciations & disposals	2,706	286	5,409	842
<b>Cash flow from operating activities before changes in working capital</b>	<b>-5,136</b>	<b>-6,142</b>	<b>-22,986</b>	<b>-20,186</b>
<b>Cash flow from changes in working capital</b>				
Changes in operating receivables	304	303	12,781	173
Changes in operating debt	-1,401	1,961	-3,186	3,911
<b>Cash flow from operating activities</b>	<b>-6,233</b>	<b>-3,878</b>	<b>-13,391</b>	<b>-16,102</b>
<b>Investing activities</b>				
Acquisitions of non-current assets	-409	-2,234	-3,898	-6,424
<b>Cash flow from investment activities</b>	<b>-409</b>	<b>-2,234</b>	<b>-3,898</b>	<b>-6,424</b>
<b>Financing activities</b>				
Share issue (LTI 2018/21)	0	0	0	2,200
Warrants (LTI 2021/24)	0	0	0	213
Share issue	0	0	28,051	0
Share issue costs	0	-1,179	-84	-1,234
<b>Cash flow from financing activities</b>	<b>0</b>	<b>-1,179</b>	<b>27,967</b>	<b>1,179</b>
<b>Cash flow from the period</b>	<b>-6,642</b>	<b>-7,291</b>	<b>10,678</b>	<b>-21,347</b>
<b>Opening balance cash &amp; cash equivalents</b>	<b>29,593</b>	<b>19,564</b>	<b>12,273</b>	<b>33,620</b>
<b>CLOSING BALANCE CASH &amp; CASH EQUIVALENTS</b>	<b>22,951</b>	<b>12,273</b>	<b>22,951</b>	<b>12,273</b>

## Note 1 Accounting standards

Ziccum AB (publ) reports in accordance with the Swedish Annual Accounts Act and the Swedish Accounting Standards Board's general advice BFAR 2012:1 (K3).

The company's accounting principles are described in the company's annual report for 2021.

Amounts are expressed in kSEK, which in this report refers to thousands of Swedish kronor.

Amounts in parentheses refer to comparative figures from the previous year, if nothing else is stated.

## Note 2 Pledged assets and contingent liabilities

Pledged assets	2022-12-31	2021-12-31
Company mortgage	2,000	2,000

## Note 3 Changes in equity

Date	Transaction	Number of serie B	Share capital	Quota-value	Subscription-course	Total invested capital (SEK)
5 Apr 17	Formation	500	50,000	1.00	1.00	50,000
29 May 17	Share issue	500	50,000	1.00	1.00	50,000
31 Dec 17	Conditional shareholder contribution*	-	-	-	-	1,996,622
25 Apr 18	Bond issue	-	400,000	1.00	-	-
27 Apr 18	Split	2,999,000	-	0.17	-	-
19 Oct 18	Share issue	3,000,000	500,000	0.17	5.26	15,776,962
14 Jan 20	Share issue	1,389,385	231,564	0.17	10.00	13,893,850
6 Jul 20	Share issue	2,216,815	369,469	0.17	17.50	38,794,263
15 Jun 21	Share issue (LTI 2018/21)	200,000	33,334	0.17	11.00	2,200,000
21 Dec 21	Share issue	1,199,856	199,976	0.17	11.00	13,198,416
18 Jan 22	Share issue	2,800,086	466,680	0.17	11.00	30,800,946
<b>Total</b>		<b>13,806,142</b>	<b>2,301,023</b>			<b>116,761,059</b>

\* Inhalation Sciences Sweden AB did in 2017 provide conditional shareholder contributions amounting to 1 996 622 SEK (cash 0.3 mSEK and reverse loans arising in connection with the acquisition of intangible assets by the parent company converted to shareholder contributions amounting to approximately 1.7 mSEK).

## Note 4 Share related incentive programs

On December 31 2022, the company has three ongoing option programs:

- ▶ At the Annual General Meeting on April 27 2021, it was decided to introduce a long-term incentive program by issuing warrants to the Board of Directors (**LTI 2021/2024**), as well as a long-term incentive program for the company's employees consisting of employee stock options (**LTI 2021:1**).
- ▶ At the Annual General Meeting on April 28 2022, it was decided to implement a long-term incentive program for the company's employees and for the Board of Directors consisting of employee stock options (**LTI 2022:1**).

None of the options entail the right to a dividend.

Based on the existing number of shares and options that is registered in the company as of 31 Dec 2022, the dilution as a result of the incentive programs, assuming that all warrants are exercised for new subscription of shares, is approximately 3% of the number of shares and votes.

### LTI 2021/24

The exercise price per share for LTI 2021/2024 amounts to SEK 28.8 and subscription can take place during the period from 1 May 2024 to 31 May 2024. The incentive program means that participants are offered to subscribe warrants at market value calculated according to the Black-Scholes valuation model.

A prerequisite for participation in the incentive program is that the participant has entered into a pre-purchase agreement with Ziccum, whereby Ziccum, with certain exceptions, reserves the right to repurchase warrants if the board member's assignment in Ziccum ends or if the participant wishes to transfer the options before the warrants can be exercised.

The Board was offered to acquire a maximum of 9 200 warrants each and all chose to acquire the maximum number, which resulted in a total of 46 000 warrants being issued.





## LTI 2021:1

LTI 2021:1 runs for three years and means that participants are granted employee stock options free of charge that give the right to acquire shares in Ziccum at a subscription price corresponding to the share's quota value. Each employee stock option gives the right to subscribe for a new share in Ziccum, alternatively up to 40% of the number in synthetic options that give the right to cash compensation instead of shares. Each synthetic option entitles the participant to receive a cash payment corresponding to the value of a share at the time of payment.

The options will be expensed as personnel costs over a period of three years, without affecting the company's cash flow. If employee stock options are exercised, LTI 2021:1 will also entail costs in the form of social security contributions.

Social security contributions will be expensed in the income statement during a period of three years. The company intends to hedge the entire cost of social security contributions through an issue of warrants, which may be exercised by a financial intermediary in connection with the exercise of the employee stock options. If the company chooses to implement such hedging measures, the social security contributions will not affect the company's cash flow.

	<b>Number of employee stock options</b>
<b>Ingoing balance 1 Jan 2021</b>	<b>0</b>
Issued	42,456
Reversed	-6,728
<b>Outgoing balance 31 Dec 2021</b>	<b>35,728</b>

	<b>Number of employee stock options</b>
<b>Ingoing balance 1 Jan 2022</b>	<b>35,728</b>
Reversed	-16,364
<b>Outgoing balance 31 Dec 2022</b>	<b>19,364</b>

During 2022, LTI 2021:1 have affected the reporting period result with totally 32 kSEK in costs, of which lower costs of 21 kSEK relates to social security contributions. The lower costs is due to a lower share price and the reset of employee stock options.

## LTI 2022:1

LTI 2022:1 runs for three years and means that participants are granted employee stock options free of charge that give the right to acquire shares in Ziccum at a subscription price corresponding to the share's quota value. Each employee stock option gives the right to subscribe for a new share in Ziccum, alternatively up to 40% of the number in synthetic options that give the right to cash compensation instead of shares. Each synthetic option entitles the participant to receive a cash payment corresponding to the value of a share at the time of payment.

The options will be expensed as personnel costs over a period of three years, without affecting the company's cash flow. If employee stock options are exercised, LTI 2022:1 will also entail costs in the form of social security contributions.

Social security contributions will be expensed in the income statement during a period of three years. The company intends to hedge the entire cost of social security contributions through an issue of warrants, which may be exercised by a financial intermediary in connection with the exercise of the employee stock options. If the company chooses to implement such hedging measures, the social security contributions will not affect the company's cash flow.

	<b>Number of employee stock options</b>
<b>Ingoing balance 1 Jan 2022</b>	<b>0</b>
Issued for employees	226,000
Issues for Board of Directors	165,000
<b>Outgoing balance 31 Dec 2022</b>	<b>391,000</b>

During 2022, LTI 2022:1 have affected the reporting period result with totally 478 kSEK in costs, of which 71 kSEK relates to social security contributions.

## Note 5 Definitions of key figures

	Oct-Dec 2022	Oct-Dec 2021	Jan-Dec 2022	Jan-Dec 2021
<b>Cash flow per share</b>				
Cash flow from the period, kSEK	-6,642	-7,291	10,678	-21,347
Average number of shares	13,806,142	9,949,661	13,675,727	9,751,949
<b>Cash flow per share (SEK)</b>	<b>-0.48</b>	<b>-0.73</b>	<b>0.78</b>	<b>-2.19</b>
<b>Equity per share</b>				
Equity, kSEK	29,301	29,731	29,301	29,731
Number of shares at the end of the period	13,806,142	11,006,056	13,806,142	11,006,056
<b>Equity per share (SEK)</b>	<b>2.12</b>	<b>2.70</b>	<b>2.12</b>	<b>2.70</b>
<b>Equity ratio</b>				
Equity, kSEK	29,301	29,731	29,301	29,731
Total equity & debt, kSEK	33,285	36,900	33,285	36,900
<b>Equity ratio %</b>	<b>88%</b>	<b>81%</b>	<b>88%</b>	<b>81%</b>

## Financial calendar

Annual report 2022: 17 February 2023

Interim report Q1 2023: 27 April 2023

General Annual meeting: 20 June 2023

Interim report Q2 2023: 18 July 2023

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## Certification

The report has not been reviewed by the company's auditors.

The board and the CEO ensure that this report provides a fair overview of the company's operation, financial position and results and describes significant risks and uncertainties to which the company is exposed.

Lund, January 27, 2022

**Fredrik Sjövall**  
Chairman of the board

**Mikaela Bruhammar**

**Andreas Pettersson Rohman**

**Christina Herder**

**Martina Banyay**

**Ann Gidner**  
CEO