

January 11, 2023

Proteins for Life

Expres²ion Biotech Holding AB [NASDAQ First North Growth Market: **EXPRS2**] –
a clinical Phase III development stage vaccine company

JPM Week / Biotech Showcase™

Bent U. Frandsen, CEO

EXPRE²ION
BIOTECHNOLOGIES

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Management Team

Experienced team with extensive experience from the *life sciences* industry



Bent U. Frandsen, CEO

- MSc. In Finance/Strategic Management, Copenhagen Business School, Denmark
- >25 years industry finance, business dev and management experience



Dr. Mette Thorn, SVP Preclinical Development

- PhD in Immunology, and a MSc in Chem Eng., Tech. Univ of Denmark
- >20 years industrial research experience



Keith Alexander, CFO

- MBA, The Wharton School and the University of Pennsylvania, USA
- >20 years of equity research, corporate strategy, asset management and consulting experience



Dr. Mattis F. Ranthe, Chief Medical Officer

- Medical Diploma (MD, 2006) and PhD (2013), University of Copenhagen. MSc. in Drug Development Science from King's College, London
- Broad clinical and research experience, 7 years in Pharma



Dr. Max Soegaard, SVP of R&D and Technology

- PhD in Biochem., UCL, UK, and MSc in Molecular Biology; AU, Denmark
- >20 years academic and industrial research experience



Dr. Farshad Guirakhoo, Chief Scientific Officer

- PhD in Virology from the Medical University of Vienna, Austria, and an MSc. in Genetics from the International Institute for Biophysics and Biochemistry at the University of Tehran
- >30 years of broad translational research experience in the vaccine development field



New management team member as of January 16, 2023

Unique Technology Platforms

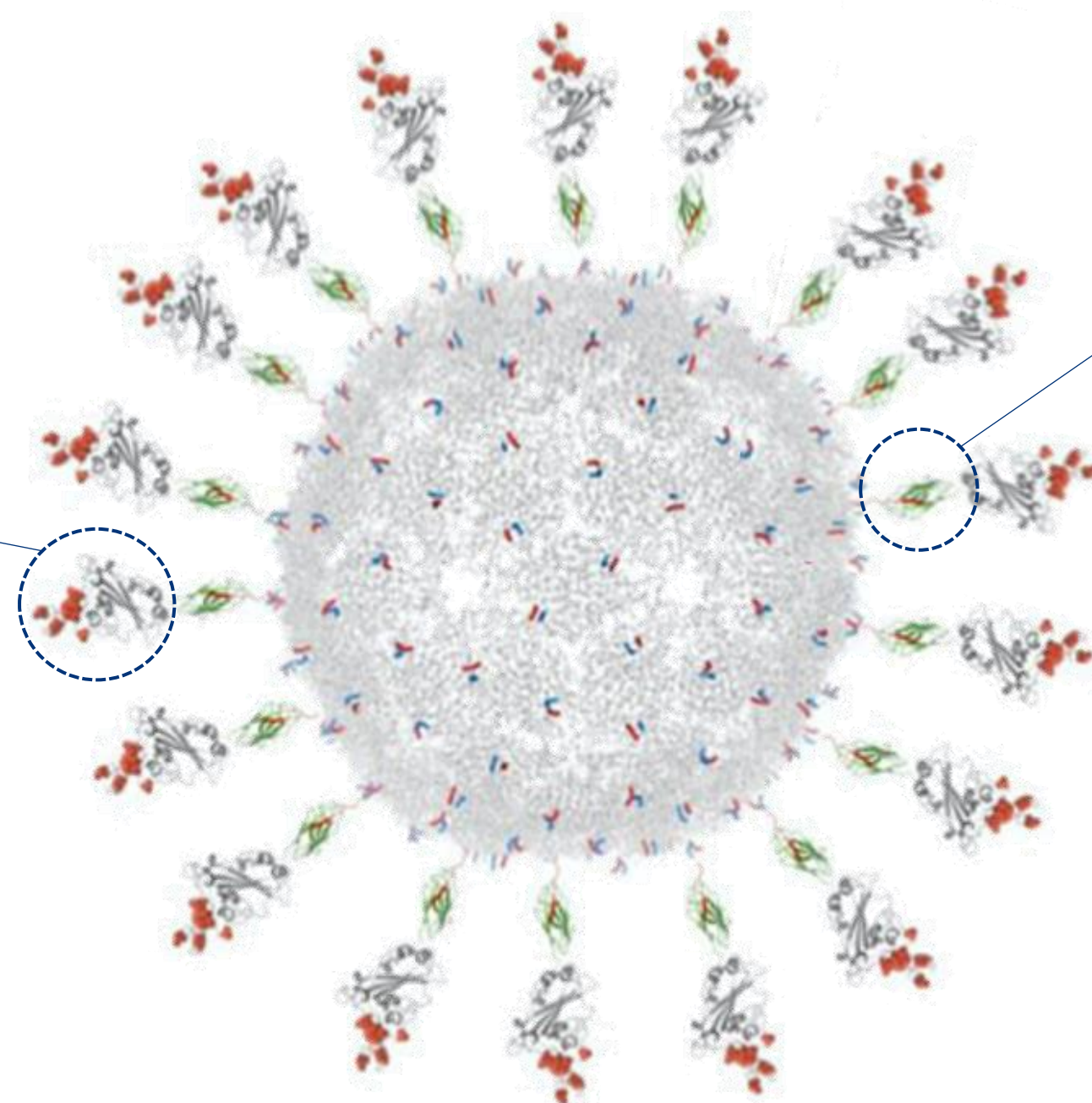
Combines a highly immunogenic antigen with unique presentation technology

Expres² platform

- Combines S2 cells with patented expression vectors (add a specific gene into a target cell and command the cell to produce the gene encoded protein), adapted culture agents and reagents (stimulating cell growth)
- Produces the complex surface proteins (antigens), which are critical to immune system recognition and response

100% ownership

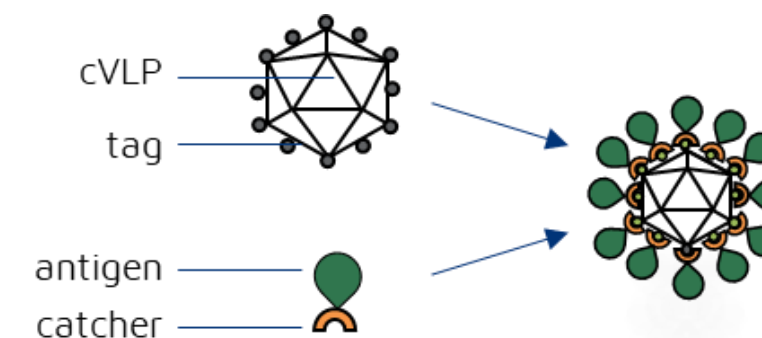
Expres²™ technology platform applied in all pipeline assets, including Influenza, CMV, and Malaria



Particle (VLP) technology

- AdaptVac's proprietary virus-like particles (VLP) technology securely attaches our proteins to the surface of a capsid (outer protein protective shell of a virus), mimicking a virus to elicit an immune response

34% ownership



cVLP: Capsid Virus Like Particle

Same VLP technology platform applied for HER2 vaccine ES2B-CO01 and COVID-19 vaccine ABN-CoV2

Expres²ion's Business Model

Deep pipeline for value creation and revenue generating CRO business

Expres² Platform for Protein Expression

+500 different proteins have been produced with the Expres² platform, while posting a success rate exceeding 90% across +100 clients and partners.

Novel Pipeline Development



Independent

- Fully-owned development of novel protein therapeutics and vaccines
- After human PoC, targeting partner externally for further development

ES2B-C001/HER2-cVLP

Collaboration

- Partner with leading research organizations to source and develop novel programs
- Potential to fully acquire programs for independent development

EVAXION



**Significant upside potential:
intermediate/long-term**

Contract Research Organization



Services

- Early-stage R&D
- Protein feasibility, delivery, and transfer to GMP production

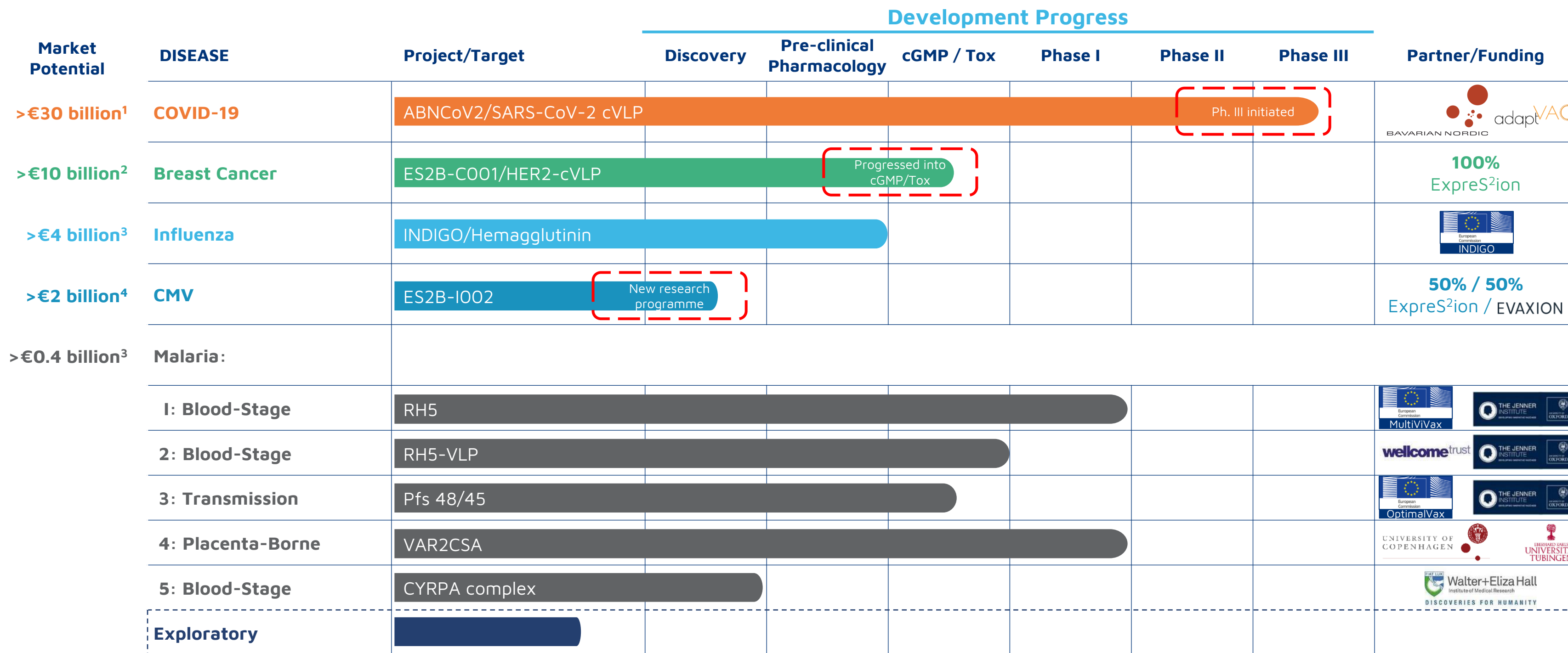
Licensing

- Fully out-license technology
- Sell test kits and reagents for research or diagnostic applications

**Revenue-generating business:
current and long-term payments**

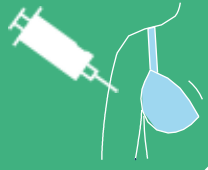
Deep Pipeline for Value Creation

Numerous projects across all development stages with additional exploratory focus



Significant events in 2022

¹ 2024 estimate from Evaluate Pharma for top 10 products and other, as of 9 June 2022
² Global Data, 2022, for HER2+ breast cancer
³ Company estimate
⁴ Market estimate from Moderna, 41st Annual J.P. Morgan Healthcare Conference (Presentation)
 Note: AdaptVac is a joint venture between ExpreS²ion (34% owned) and NextGen Vaccines (66% owned)



The Most Common Cancer

1 in 8

women will be diagnosed with invasive breast cancer in her lifetime

~25%

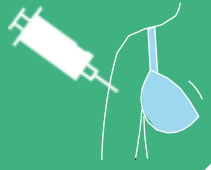
have overexpression of HER2 receptors, associated with more aggressive tumors and reduced survival²

685,000

deaths worldwide in 2020 due to breast cancer¹

Global market size expected to grow to **USD 32 billion** by 2026³

1. Breast Cancer Research Foundation (<https://www.bcrf.org/breast-cancer-statistics-and-resources>)
2. Mitri Z et al. The HER2 Receptor in Breast Cancer: Pathophysiology, Clinical Use, and New Advances in Therapy (Chemother Res Pract. 2012; 2012: 743193)
3. Mordor Intelligence, breast cancer therapeutics market, 2021.



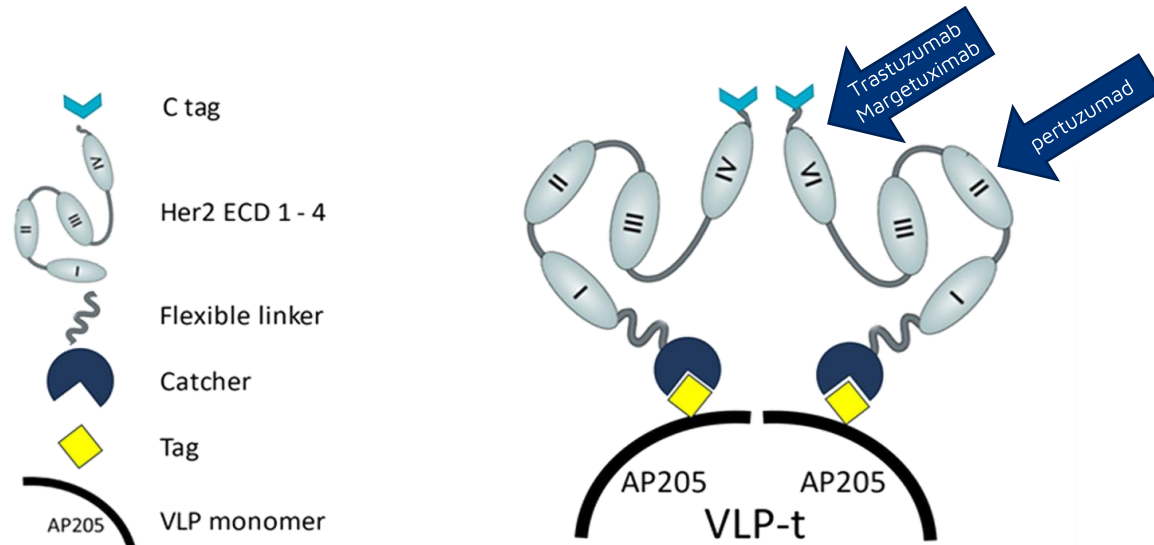
Current Breast Cancer treatments

The ES2B-C001 vaccine can offer significant benefits compared to current treatment options

Existing therapies

Monoclonal antibodies are the cornerstone of treatment for HER2+ breast cancer (>USD 11bn sales)¹

- Target the HER2 receptor on tumor cells to reduce proliferation and induce tumor cell destruction

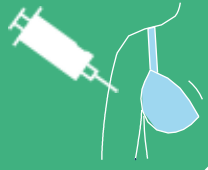


Monoclonal antibodies target one epitope. ES2B-C001 with four subdomains generates a broad polyclonal antibody response.

Significant drawbacks exist with existing therapies²

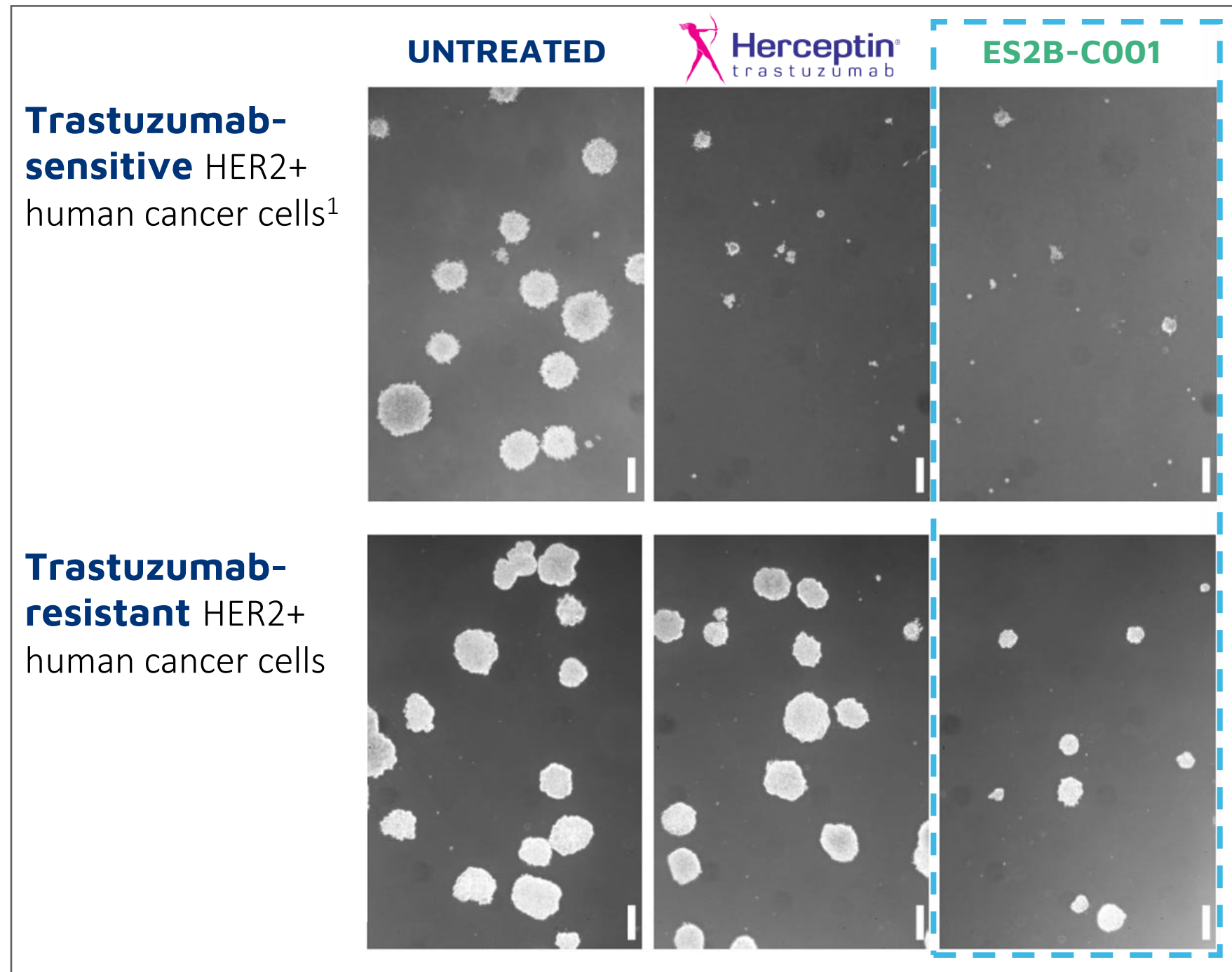
- **Resistance** to monoclonal antibodies may develop
- **Potential for cardiac toxicity**
- **Repeated administration required**: 28-day half-life requires administration every 3rd week until remission or resistance develops, costs USD 30-50k

Expres²ion's HER2-targeted vaccine approach offers potential to overcome some of the drawbacks through *internal polyclonal antibody production*



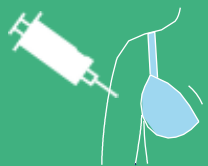
ES2B-C001 Overcomes Herceptin Resistance

The soft agar human cancer cell growth inhibition assay provides *in vitro* evidence



Both Herceptin (trastuzumab) and ES2B-C001 inhibited growth in the trastuzumab-sensitive cells

Only ES2B-C001 inhibited growth in the trastuzumab-resistant cells; cells were unresponsive to Herceptin



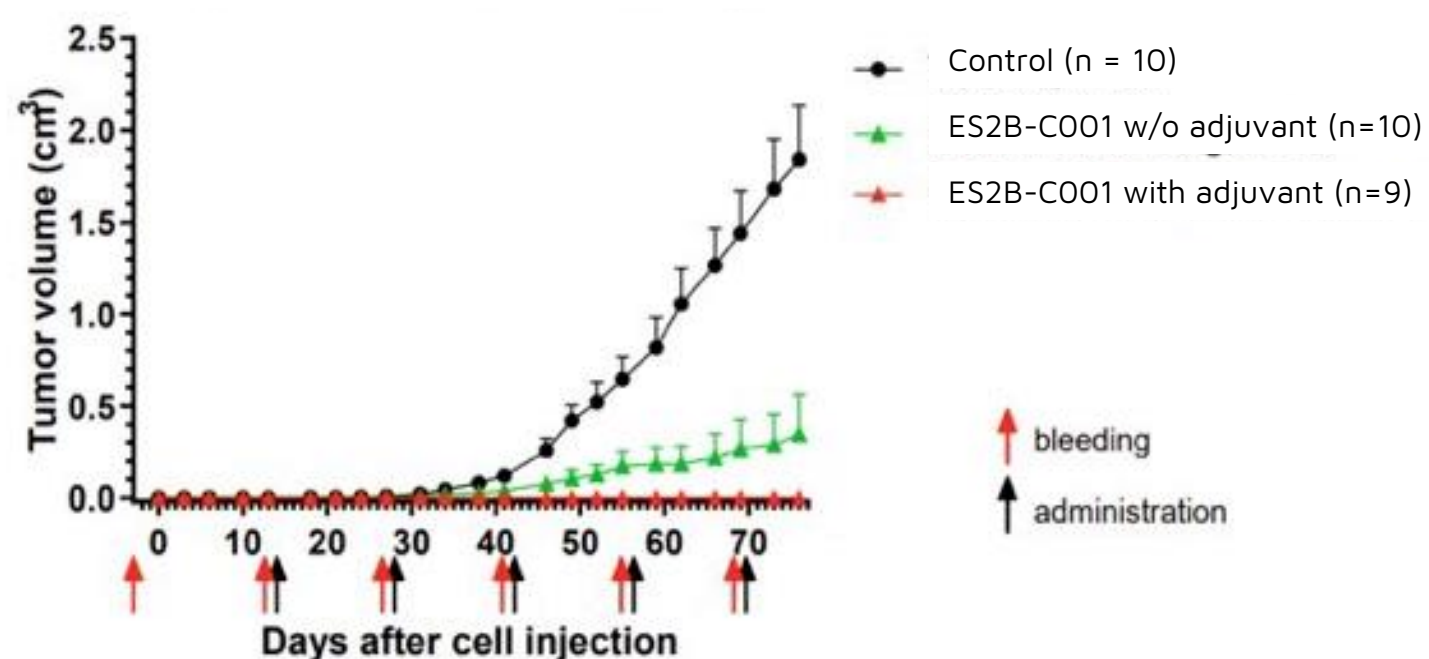
ES2B-C001 Preclinical Proof-of-Concept

ES2B-C001 has demonstrated animal proof-of-concept

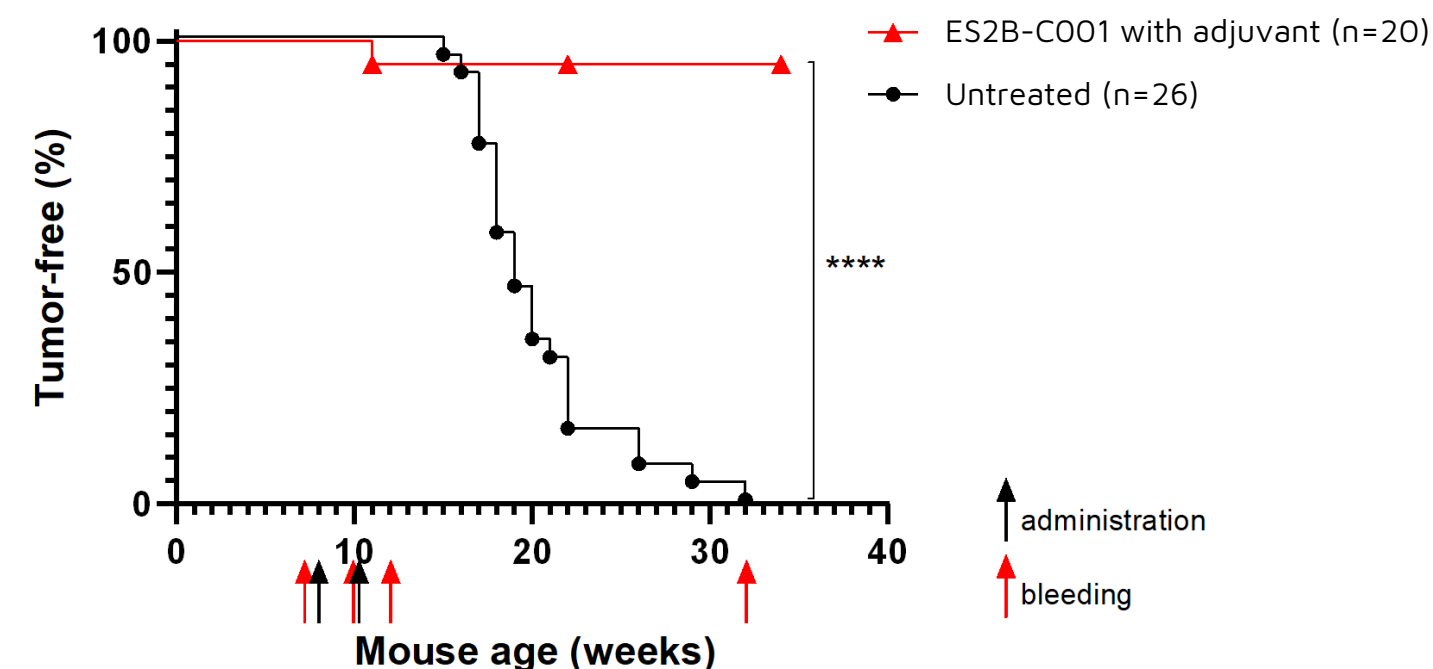
Effectively inhibited tumor development

Prevented tumor development with 95% efficiency

Tumor growth in FVB mice
(HER2-intolerant)

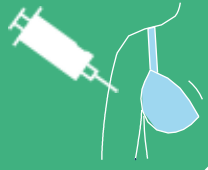


Kaplan-Meier survival curves
****p<0.0001 by the log-rank test



- Two weeks after the inoculation of tumor cells, the first vaccine administration was given. Repeated every 2nd week during the study
- **ES2B-C001 formulated in an adjuvant totally blocks tumor development. ES2B-C001 without adjuvant partly blocks tumor development** and if tumors develop, growth is significantly inhibited
- At mouse age 6-8 weeks, 2 vaccinations with 2 weeks interval were administered to Delta16 mice
- **Two vaccinations prevented tumor development with 95% efficiency** as compared to a control group, where all mice spontaneously developed tumors

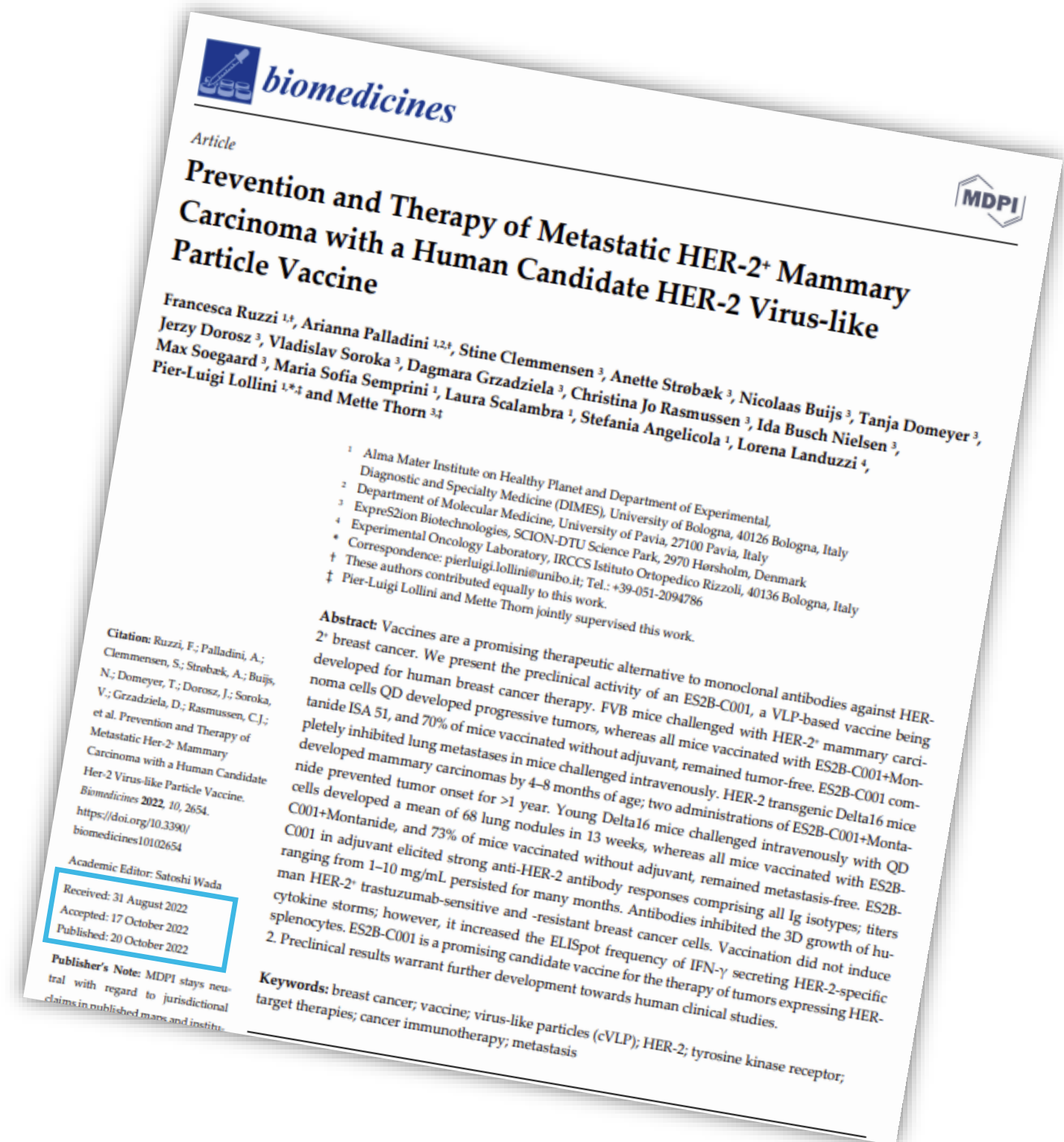
Note: FVB mice are mice being challenged with tumors, while Delta16 mice spontaneously develop tumors and have been inoculated with tumor cells to accelerate tumor development

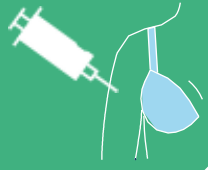


Publication Supports ES2B-C001

Pre-clinical proof of concept

- Vaccines are a promising therapeutic alternative to monoclonal antibodies against HER-2+ breast cancer.
- Polyclonal antibodies generated after vaccination with ES2B-C001 inhibited growth of human HER-2+ trastuzumab-resistant breast cancer cells.
- Vaccination with ES2B-C001 prevented tumor development in mice models for >1 year.
- The ES2B-C001 vaccine completely inhibited lung metastases in mice challenged intravenously.
- **ES2B-C001 is a promising candidate vaccine for the therapy of tumors expressing HER-2. Preclinical results warrant further development towards human clinical studies.**





Scientific Advisory Board

Key Opinion Leaders (KOLs) providing clinical advise on our oncology development programme



Dr. Giuseppe Curigliano, MD, PhD

Associate Professor of Medical Oncology at the University of Milano and the Head of the Division of Early Drug Development at the European Institute of Oncology, Italy (IRCCS). Dr. Curigliano is recognized among the leading experts in the world within the field of HER2 expressing breast cancer and has authored or co-authored more than 650 peer-reviewed scientific papers.



Dr. Ulrik Lassen, MD, PhD

Professor at University of Copenhagen, Department of Clinical Medicine. In 2017, he was appointed Head of the Department of Oncology at Copenhagen University Hospital, Rigshospitalet, Denmark. As a Clinical Oncologist he has been working with Phase 1 Oncology trials since 2005 and is ESMO board certified in Medical Oncology. Dr. Lassen has (co-)authored ~300 peer reviewed publications.



Dr. Daniel Lenihan, MD, FACC, FESC, FIC-OS

Dr. Lenihan has been active in cardio-oncology, for over 25 years. He has previously held positions at MD Anderson Cancer Center in Houston, Texas, Vanderbilt University in Nashville, Tennessee, and Washington University in St Louis, Missouri. His current research projects include early phase clinical trials in cardio-oncology, heart failure and amyloidosis. Dr. Lenihan serves as editor on several scientific journals and has authored or co-authored more than 210 peer-reviewed scientific papers.



Dr. Michael Andersson, MD, DMSci

Dr. Andersson is a Clinical Oncologist working as consultant at the Breast Oncology Unit in the Copenhagen University Hospital, Rigshospitalet, Denmark since 1998. He has special interest in HER2-positive breast cancer and has published on and been Principal Investigator in several national and international studies of HER2-positive early and metastatic breast cancer. Dr. Andersson has authored or co-authored more than 140 peer reviewed publications.



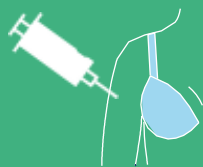
Dr. Javier Cortes, MD, PhD

Doctor in Medical Oncology, and Head of the International Breast Cancer Centre (IBCC) in Barcelona. Dr. Cortes He is an active member of the Spanish, European, and American Societies of Medical Oncology (SEOM, ESMO, ASCO), and is a member of expert panels that develop the treatment guidelines for metastatic breast cancer. He is the author of more than 380 publications.



Dr. Rupert Bartsch, MD

Associate Professor of medicine at the Medical University of Vienna in Austria and serves as the director of the Breast Cancer Programme at the Department of Oncology. Dr. Bartsch has a longstanding clinical and scientific focus on breast cancer and brain metastases. Together with his colleagues, he has published over 150 articles in peer-reviewed journals.



Progression as Planned

Important steps as ES2B-C001 is moving closer to the planned clinical Phase I trial in 2024

GMP Manufacturing

- ✓ GMP (Good Manufacturing Practice) Manufacturers selected and Work Order Statements executed
- ✓ ExpreS²ion's processes for manufacturing of material for HER2 antigen and VLP are transferred to the contract manufacturers
- Development of GMP manufacturing processes are progressing as planned

Preclinical Safety

- ✓ GLP (Good Laboratory Practice) CRO (Contract Research Organisation) selected and Master Service Agreement executed
- ✓ In accordance with feedback from DKMA (Danish Medicines Agency) preclinical safety studies have been planned in two species (1-month short-term testing in a rodent and non-rodent model) as well as long-term general GLP study in NHP (non-human primates)
- The *in vivo* part of the short-term rodent safety study has been carried out, and the final report of the study is expected in the beginning of 2023
- GLP study in NHP in 2023 with data expected from mid-year

Good
manufacturing
practices
(GMP)

Risk management

Suitable facilities & qualified personnel

Quality management

Complaints & Recall

Personnel training & Competence

Breast cancer vaccine expected to file for clinical Phase I trials towards end of 2023 (first dose in human in 2024)



The 2nd Generation COVID-19 Vaccine

With **over 6.6 million deaths worldwide**¹, significant needs remain in the global long-term fight against the SARS-CoV-2 virus:



Uncertain duration of effect with current vaccines, expected to need repeated boosters



Storage and handling requirements for many vaccines create logistical constraints (requires storage of -20 to -80 degrees Celsius)



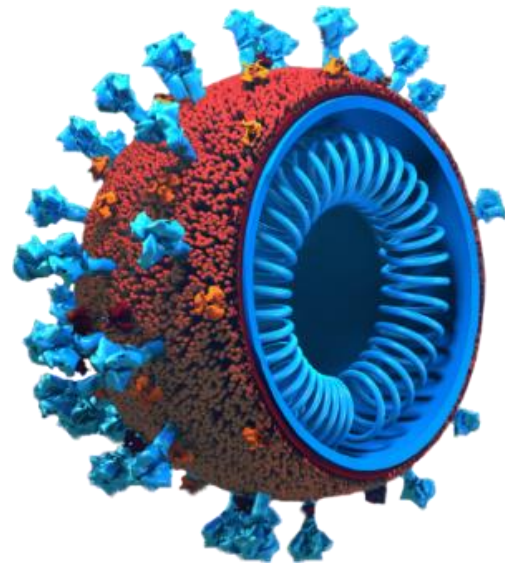
Potential mutated variants may require rapid development of new vaccines

Global market size of **USD 137 billion** for the COVID-19 vaccine (2021)²



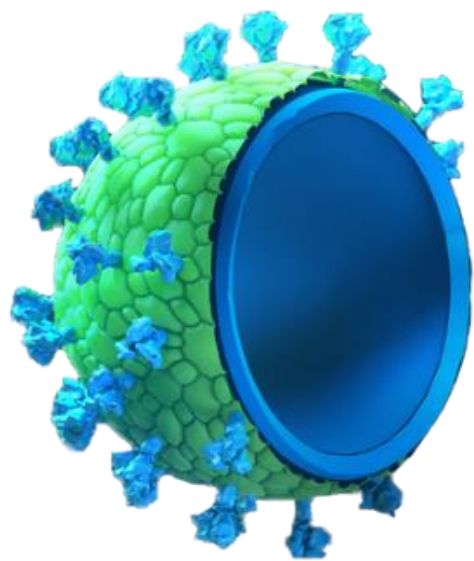
ABNCoV2 COVID-19 Vaccine

ABNCoV2 is rapidly advancing through clinical phases



Virus

Spike proteins on surface of the coronavirus are primary target for vaccine development



ABNCoV2-Capsid VLP

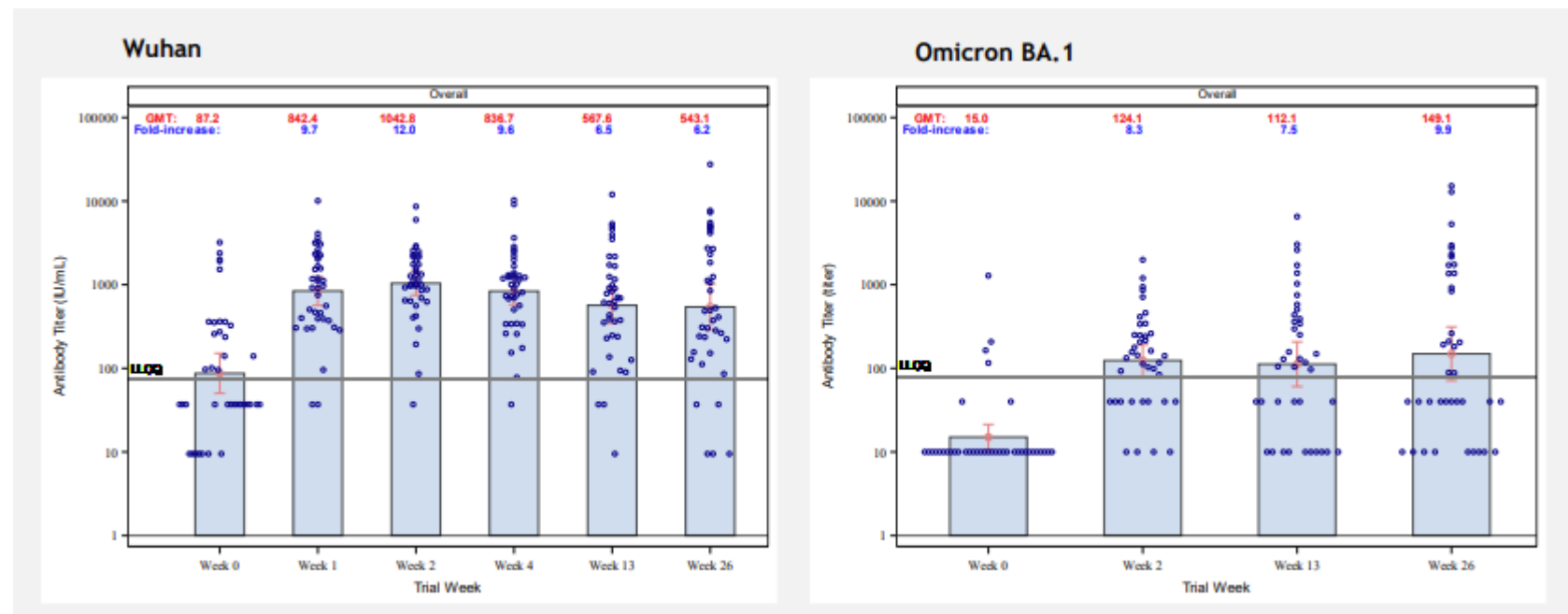
Spike proteins displayed on surface but contains no genetic material

Positive phase II data announced in February 2022, phase III-initiated 2nd September 2022

Phase II results confirms ABNCoV2 as universal booster

- Evaluation as a booster vaccine in ~100 individuals with existing immunity. Study also assessed neutralizing immune responses against circulating variants and durability.
 - Strong boosting effect across all variants of concern
 - Level of neutralizing antibodies at levels reported to be associated with high level of protection (>90%)¹
 - Level of neutralizing antibodies lowest for beta and omicron
- **Phase II six-month follow up data in 41 out of 103 subjects demonstrated durable antibody levels across variants of concern**

Announced 17 October 2022



Bavarian Nordic data published 9th November 2022

1) P. B. Gilbert et al., Science 10.1126/science.abm3425 (2021)



ABNCoV2 COVID-19 Vaccine

Bavarian Nordic have initiated the Phase III study



Phase III study initiated in USA and Europe

- 4,000 previously vaccinated subjects who will receive a booster vaccination with ABNCoV2 or an mRNA-based vaccine, aiming to demonstrate non-inferiority of ABNCoV2 to the licensed mRNA vaccine
- Manufacturing of vaccine bulk for the trial has been completed, filling now ongoing at BN's own manufacturing line
- The trial is supported by funding from the Danish State

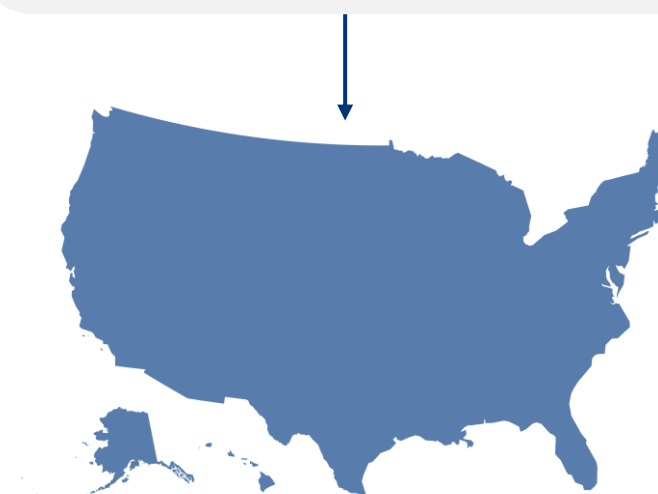
Trial initiated 2nd September 2022 with initial data read-out expected Q1 2023



Expres²ion's partner Bavarian Nordic, a fully integrated vaccines company, plans a rolling submission in 2023, subject to approval and is rapidly moving towards commercial launch in 2023-24.

Comparison Arm

- Conducted in the U.S with 3000 subjects
- Will evaluate the safety and tolerability of the vaccine in subjects receiving a single 100 µg dose of ABNCoV2.



Active Arm

- Conducted in Denmark and Belgium with 1000 subjects
- Will receive either a single 100 µg dose of ABNCoV2 or a single 30 µg adult booster dose of mRNA vaccine.





Partnership with Bavarian Nordic

ABNCoV2 is out-licensed with near-term revenue streams supporting ExpreS²ion

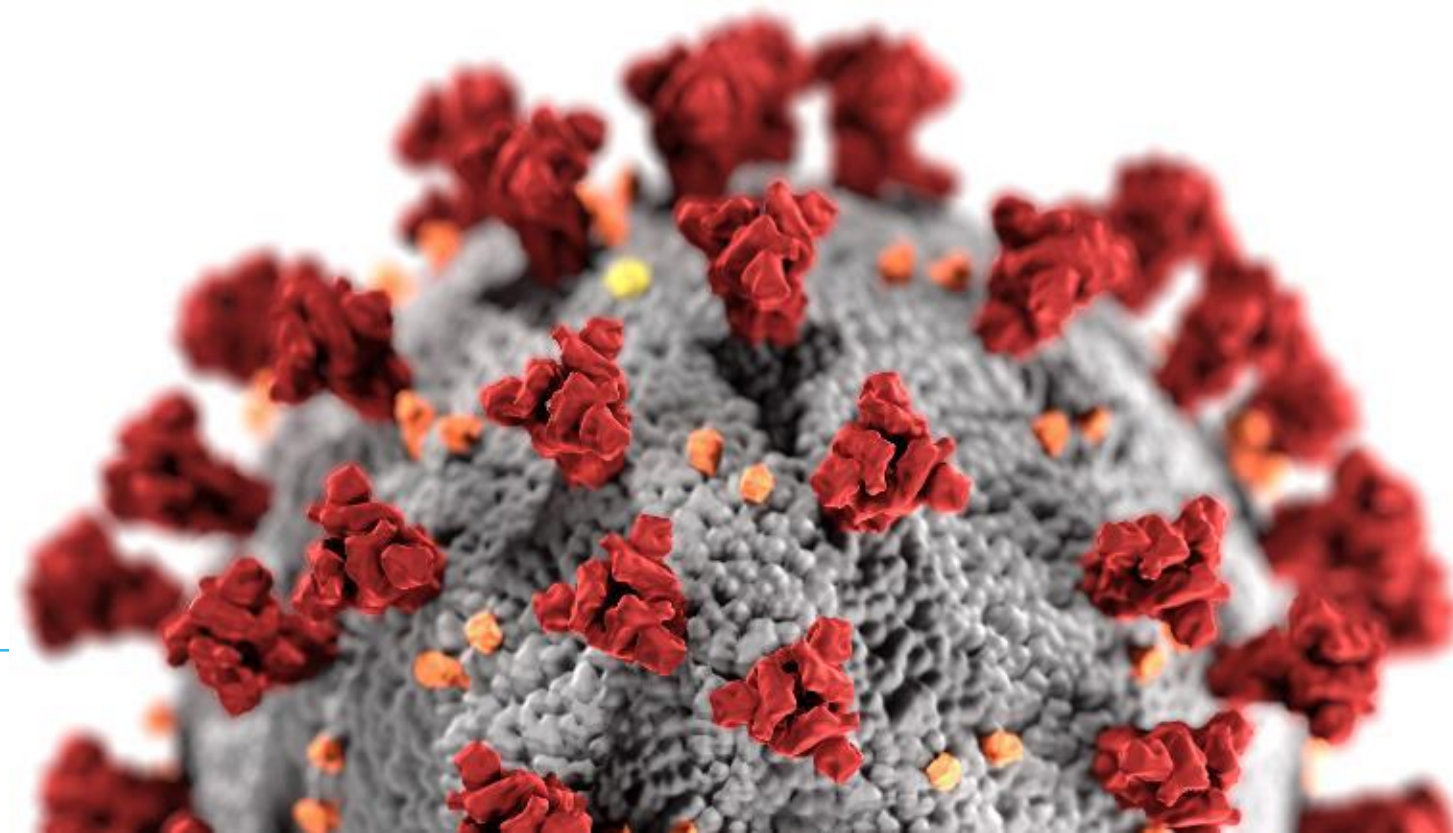
AdaptVac receive from Bavarian Nordic

- EUR 4 million upfront (paid in July 2020)
- Up to EUR 136 million in development and sales milestones
- Single- to double-digit-% royalties of Bavarian revenues



ExpreS²ion receive from AdaptVac

- 34% ownership of AdaptVac
- Up to EUR 2 million in commercial milestone payments
- Lower double-digit percentage of AdaptVac royalties



A Very Common Infection

1 in 3

children is already infected with CMV by age 5

> 50%

of US adults are infected with the virus by age 40¹

1 in 5

adults and children receiving organ transplants (kidney, liver, lung, heart, stem-cells) are at risk of CMV infection²

1 in 200

born with congenital CMV infection (CCMI). ~20% newborns with CCMI have long-term health problems

Current global market size estimated to **USD 0.5 billion**³

1. Centers for Disease Control & Prevention (<https://www.cdc.gov/cm/index.html>).
2. Cytomegalovirus infection in transplant recipients, Luiz Sergio Azevedo (Clinics, 2015)
3. Company estimate

Uniting Forces in CMV Vaccine Research

ExpreS²ion and Evaxion Biotech new vaccine research partnership since December 2022

- **Vaccine Discovery Collaboration Agreement** announced Dec. 6th, 2022
- Research partnership with focus on discovery and development of a **novel CMV Vaccine**
- Joint research efforts in discovery phase for ~2 years
 - EVX: AI Platform¹, including RAVENTM
 - ES2B: ExpreS²™ platform and know how in vaccine production and development
 - EVX: Early establishment of Immunogenicity in preclinical models
- 50:50 cost sharing during discovery phase
- **Selection of vaccine candidate**, expected in 2025
 - ES2B first option to in-license CMV vaccine asset
 - ES2B sponsors development onwards thereafter



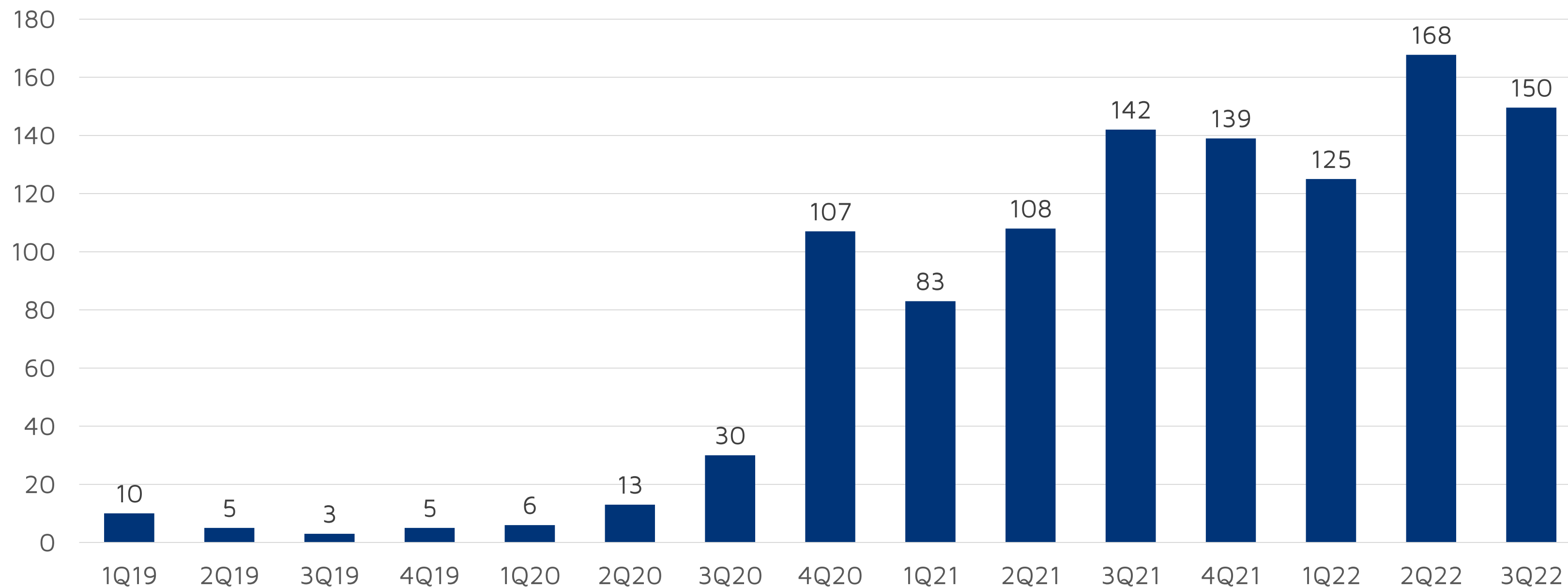
Advancing Towards Key Catalysts

	2022	2023	2024	2025
COVID-19 (ABNCoV2)	<ul style="list-style-type: none"> ✓ BN Phase II study readout H1 2022 ✓ BN Phase III study initiation Q3 2022 	<ul style="list-style-type: none"> BN Phase III initial readout BN initiating rolling submission 	<ul style="list-style-type: none"> BN ready for market launch (subject to regulatory approval) 	<ul style="list-style-type: none"> Royalties from sales?
BREAST CANCER (ES2B-C001)	<ul style="list-style-type: none"> ✓ Preclinical animal proof-of-concept results H1 2022 ✓ Preliminary preclinical safety studies initiated ✓ GMP manufacturing processing 	<ul style="list-style-type: none"> Preclinical safety studies readout 	<ul style="list-style-type: none"> Filing of clinical study application H2 2023 	<ul style="list-style-type: none"> Initiation of first human clinical study 2024 Out-licensing window opens pending human data
INFLUENZA (INDIGO)	<ul style="list-style-type: none"> ✓ Advance/support further development of one or more candidates in 2022 	<ul style="list-style-type: none"> cGMP/Preclinical safety studies initiation (subject to new grant funding) 		
CYTOMEGALOVIRUS (ES2B-I002)	<ul style="list-style-type: none"> ✓ Establish 50/50% partnership on cytomegalovirus vaccine with Evaxion 	<ul style="list-style-type: none"> Early research on CMV vaccine target, applying AI 	<ul style="list-style-type: none"> Preclinical testing of immunogenicity of CMV vaccine target 	<ul style="list-style-type: none"> Selection of lead CMV vaccine candidate
MALARIA	<ul style="list-style-type: none"> ✓ RH5 Additional phase I study in a malaria endemic region in Africa launched during 2021, with alternative adjuvant 	<ul style="list-style-type: none"> ✓ Pfs 48/45 phase I study initiation 2023 (pending University of Oxford) 	<ul style="list-style-type: none"> RH5-VLP phase I initiation 2023 (pending University of Oxford) 	<ul style="list-style-type: none"> RH5 phase I study readout H2 2023

Note: Timeline for ABNCoV2 is based on Bavarian Nordic's communicated timeline, and is subject to potential revision

Cash Balance¹, 2019-2022 Quarterly

SEK millions (1 SEK = ~0.1 US\$)



¹ For Q4 2021 and Q1 2022, the cash balance combines funds on the Company's SKAT account (interest-free tax asset with Denmark's tax authorities), and cash and bank. See page 16 of the 2Q 2022 report for more information.

Investment Highlights

We turn complex proteins into tomorrow's vaccines



High-potential pipeline of key focus within infections diseases and oncology, backed up by strong intellectual property rights



Vaccine development platform with strong track record and partner validation and regulatory approved for late-stage clinical development. +500 proteins produced while posting +90% success rate



Global vaccine market rapidly growing, from USD 33bn (2019) to USD 187bn (2021), corresponding to 460% growth



Expres²ion is advancing towards key catalysts during 2023, further de-risking the company's pipeline.

- COVID-19 vaccine clinical Phase III read-out Q1 2023. Moving towards commercial launch in 2023-24.
- Breast cancer vaccine expected to file for clinical Phase I trials end 2023 (human trial initiates 1H 2024).



Thank you!

Proteins
for Life

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