

Økonomisk Ugebrev presentation

Innovative vaccines for a healthier world

STO: EXPRS2

Expres2ion Biotech Holding AB
Org. Nr. 559033-3729

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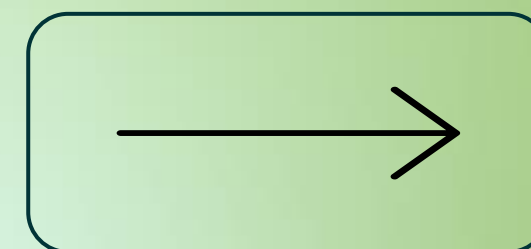
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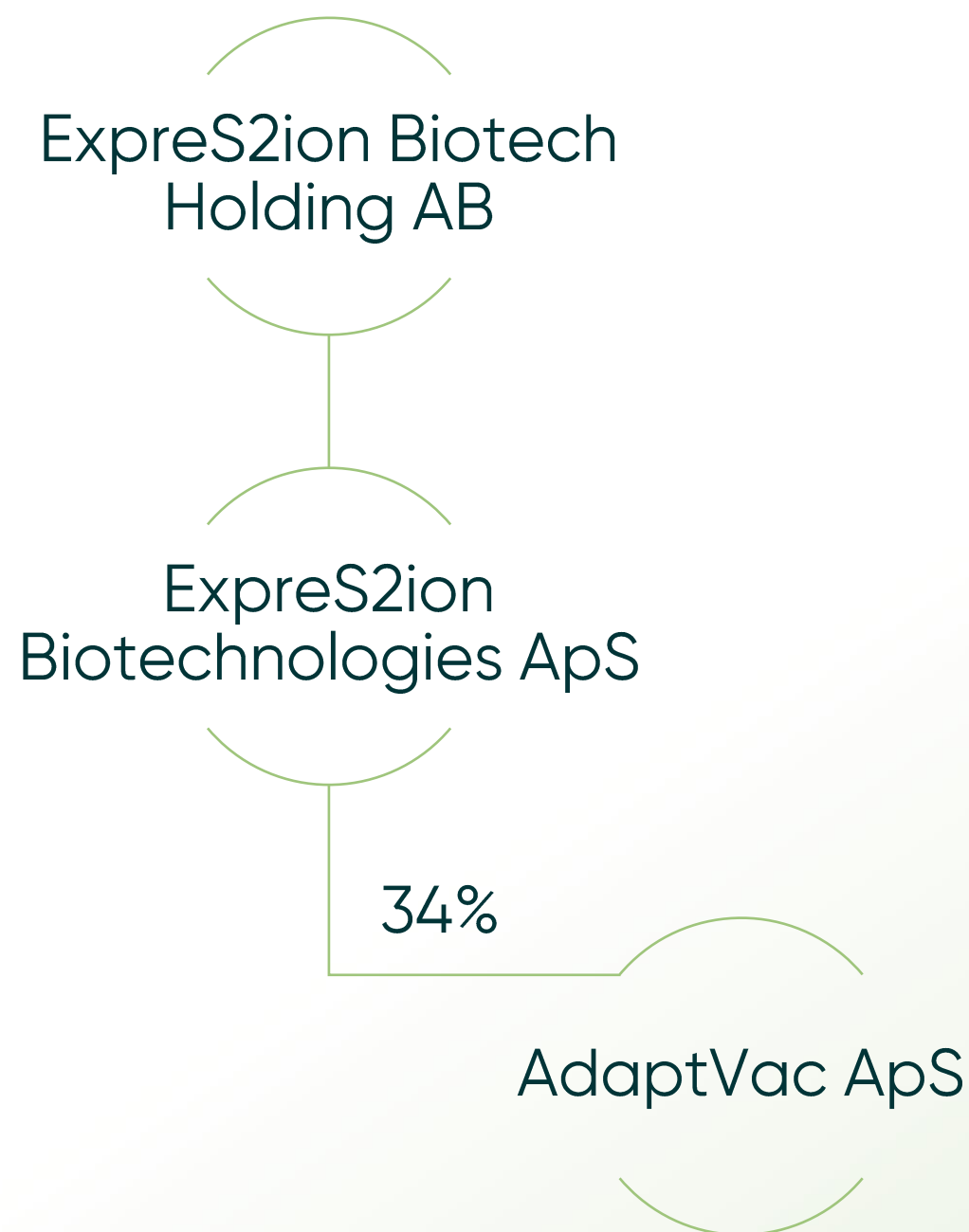
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Company overview



About Expres2ion



Expres2ion Biotech Holding AB

- Listed on the Nasdaq First North Growth Market since 2016
- Holding company for Expres2ion Biotechnologies ApS, which it owns 100%

Expres2ion Biotechnologies ApS

- Established in 2010
- Protein expression platform technology, vaccine pipeline and CRO business
- Located on the DTU Science Park
- Approximately 20 FTEs
- Owns 34% of AdaptVac ApS

AdaptVac ApS

- Co-founded in 2017 by Expres2ion and researchers from Copenhagen University (NextGen Vaccines ApS)
- Virus-like particle (VLP) platform – AdaptVac's VLP is a delivery vehicle in two Expres2ion vaccines

Management team

Over 100 years of experience relevant to advancing drug development



Bent Frandsen
CEO

>25 years industry, finance, business development and management experience

MSc in Finance/Strategic Management
Copenhagen Business School



Keith Alexander
CFO

>20 years asset management, strategy, equity research & consulting experience

MBA in Finance
The Wharton School of the University of Pennsylvania



Dr. Farshad Guirakhoo
CSO

>35 years of broad translational research experience in vaccine development

PhD in Virology
Medical University of Vienna

MSc in Genetics
Institute of Biochemistry & Biophysics,
University of Tehran



Dr. Max Søgaard
SVP of R&D & Technology

>20 years academic and industrial research experience

PhD in Biochemistry
University College London

MSc in Molecular Biology
Aarhus University

MOLECULAR BIOPHYSICS SUITE
DEPARTMENT OF BIOCHEMISTRY
UNIVERSITY OF OXFORD



Expres2™ platform technology

1) Enables development of novel vaccines

Expres2-produced proteins can be combined with, e.g., a virus-like particle to produce vaccines

Advantages to other vaccine types

1. **Safety** – Inherently safe, as they cannot replicate and cause infection
2. **Immunogenicity** – Induce a strong immune response due to their similarity to real viruses
3. **Versatility** – Expres2 is the basis for vaccines against wide variety of diseases, with and without delivery vehicles

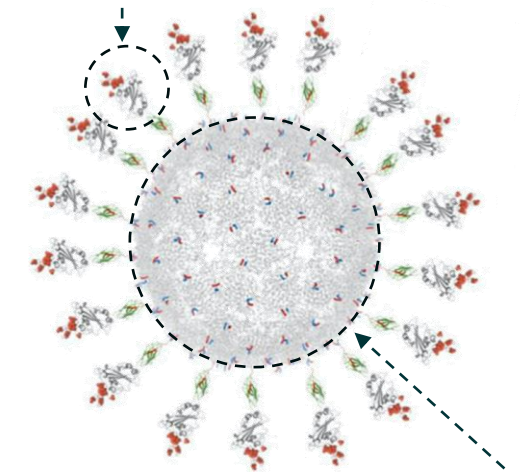
2) Enables production of hard-to-express proteins

Advantages to other protein-production methods

1. Speed in production
2. Higher yields
3. Homogeneous manufacturing batches
4. Thermal stability
5. Functional modification options


Illustrative Expres2 vaccine

Expres2-produced antigens target specific antibody production in the body

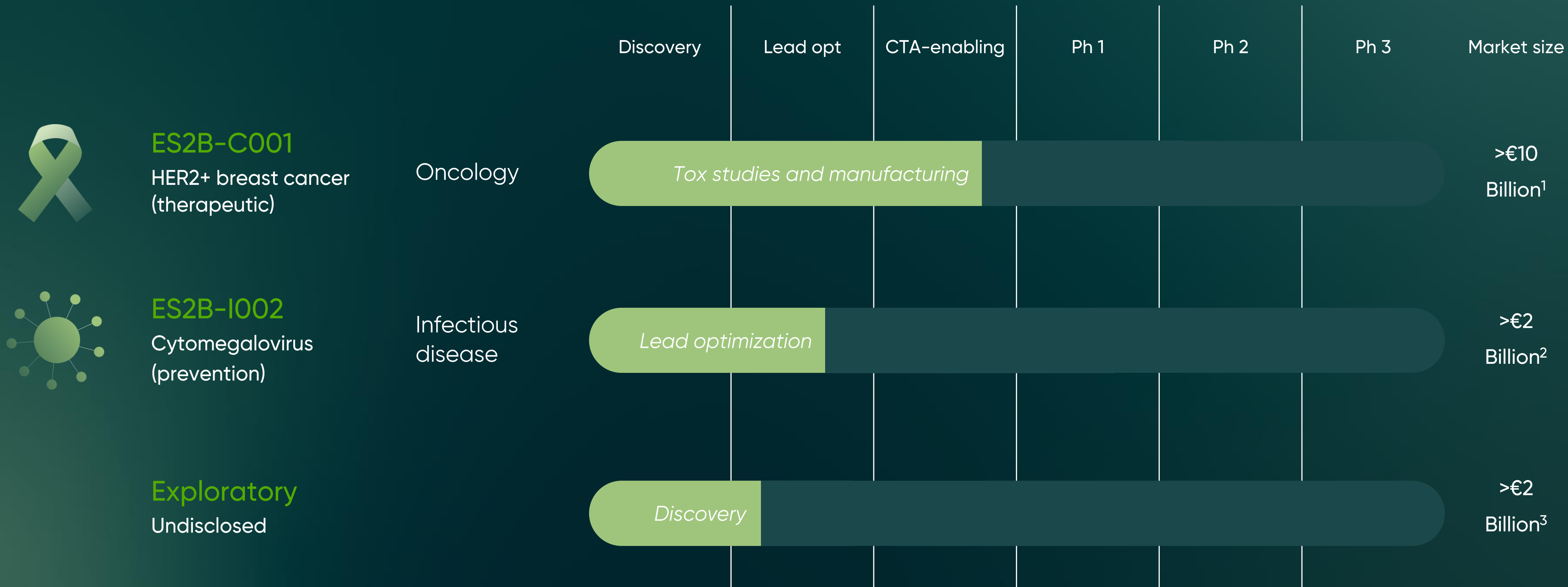


Delivery vehicle
(e.g., VLP)

Expres2 platform proofs-of-concept

Discovery	Lead optimization	CTA-enabling	Phase I	Phase II	Phase III - Validated 
<p>Influenza Through partnership with Copenhagen University</p>	<p>Cytomegalovirus Expres2ion has first right to license</p>	<p>HER2+ breast cancer Wholly-owned by Expres2ion</p>	<p>5 x Malaria Under development by Oxford University</p>	<p>2 x Malaria Under development by Oxford University</p>	<p>COVID-19 Licensed to Bavarian Nordic; met Phase III primary endpoint</p>
<p>Nipah and filovirus Through participation in VICI consortium</p>	<p>Influenza Through participation in INDIGO consortium</p>				
<p>Two undisclosed projects</p>	<p><i>+ numerous additional pharmaceutical and biotech protein production projects</i></p>				

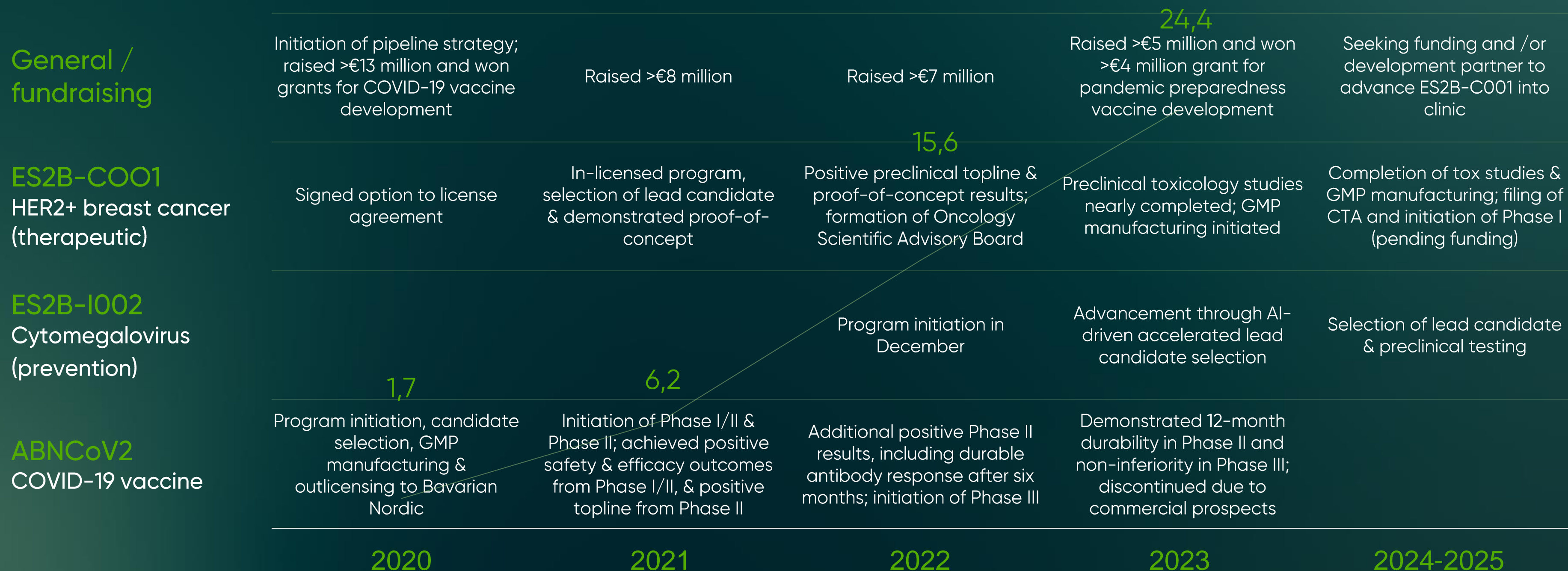
Vaccine pipeline



¹ Global Data, 2022, for HER2+ breast cancer
² Market estimate from Moderna, 41st Annual J.P. Morgan Healthcare Conference (Presentation)
³ Based on data for global market for existing therapies from Future Market Insights

Spend against milestones achieved

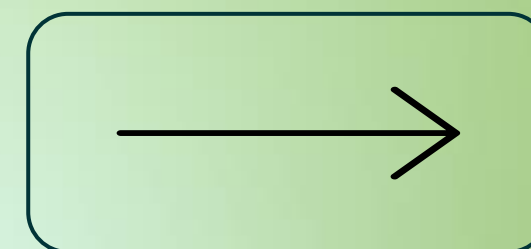
Cumulative operating costs in € millions since initiation of pipeline strategy





ES2B-C001

HER2+ breast cancer vaccine



Breast Cancer is **the most common cancer**

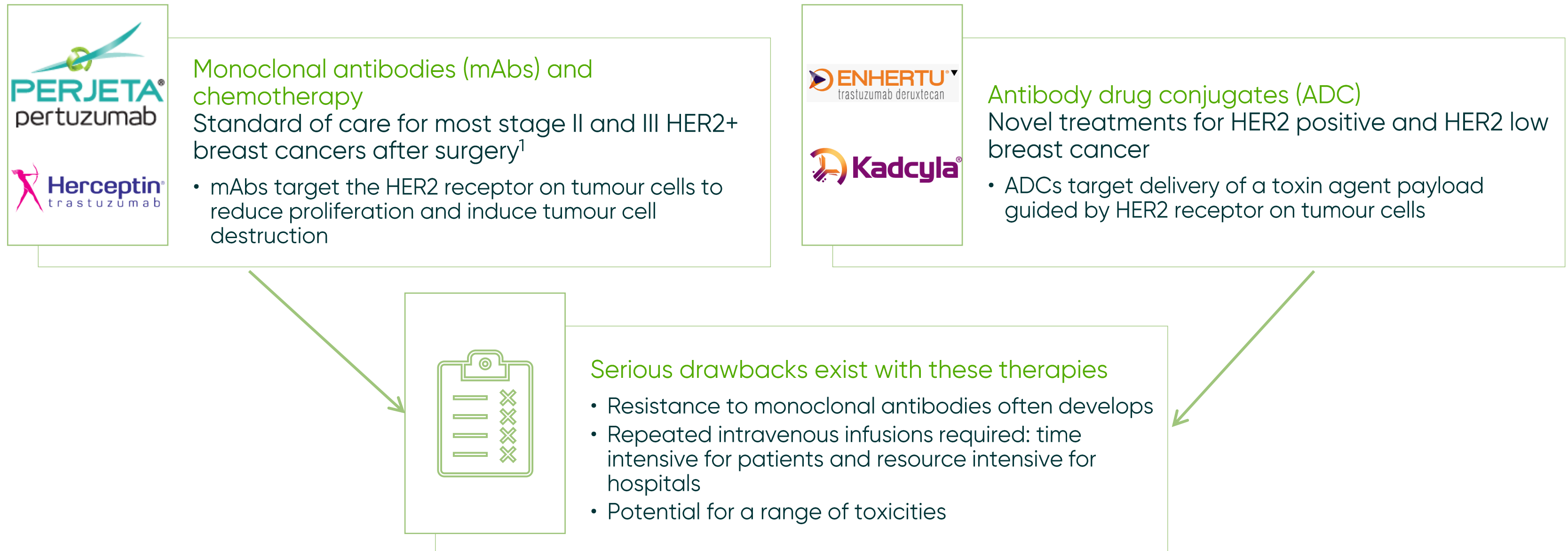


- **1 in 8 women** will be diagnosed with invasive breast cancer
- **In approximately 25%** of breast cancer tumours, HER2 is overexpressed, which is associated with a more aggressive disease, higher recurrence rate, and increased mortality¹
- **685,000 deaths worldwide** in 2020 due to breast cancer²

¹ Mitri Z et al. The HER2 Receptor in Breast Cancer: Pathophysiology, Clinical Use, and New Advances in Therapy (Chemother Res Pract. 2012; 2012: 743193)

² Breast Cancer Research Foundation (<https://www.bcrf.org/breast-cancer-statistics-and-resources>)

Competitive landscape leaves room for improvement



¹ <https://www.breastcancer.org/research-news/perjeta-plus-herceptin-and-chemo-shows-benefits>

ES2B-C001 could succeed where other HER2 vaccines are failing

Solutions under development	Limitations	Overcome by ES2B-C001
<p>Epitope-based vaccines No clinical validation in Phase III</p>	<ul style="list-style-type: none"> Limited to certain HLA subtypes Limited capacity to overcome therapy resistance Poor immunogenicity 	<ul style="list-style-type: none"> ✓ ✓ ✓
<p>Protein-based vaccines Very few projects under clinical development</p>	<ul style="list-style-type: none"> Challenging antigen presentation High-production cost 	<ul style="list-style-type: none"> ✓ ✓
<p>DNA vaccines Very few projects under clinical development</p>	<ul style="list-style-type: none"> Low immunogenicity (Abs) High-production cost Complex/costly storage/transportation 	<ul style="list-style-type: none"> ✓ ✓ ✓
<p>Dendritic cells vaccines Very few projects under clinical development</p>	<ul style="list-style-type: none"> Complex production Questionable safety High-production costs 	<ul style="list-style-type: none"> ✓ ✓ ✓

ES2B-C001 targets multiple epitopes of ECD

Indication

HER2-expressing cancers, in first instance HER2+ breast cancer (BC)

Delivery method

Intramuscular (i.m.)

Development stage

Preclinical (CTA-enabling)

Advantages

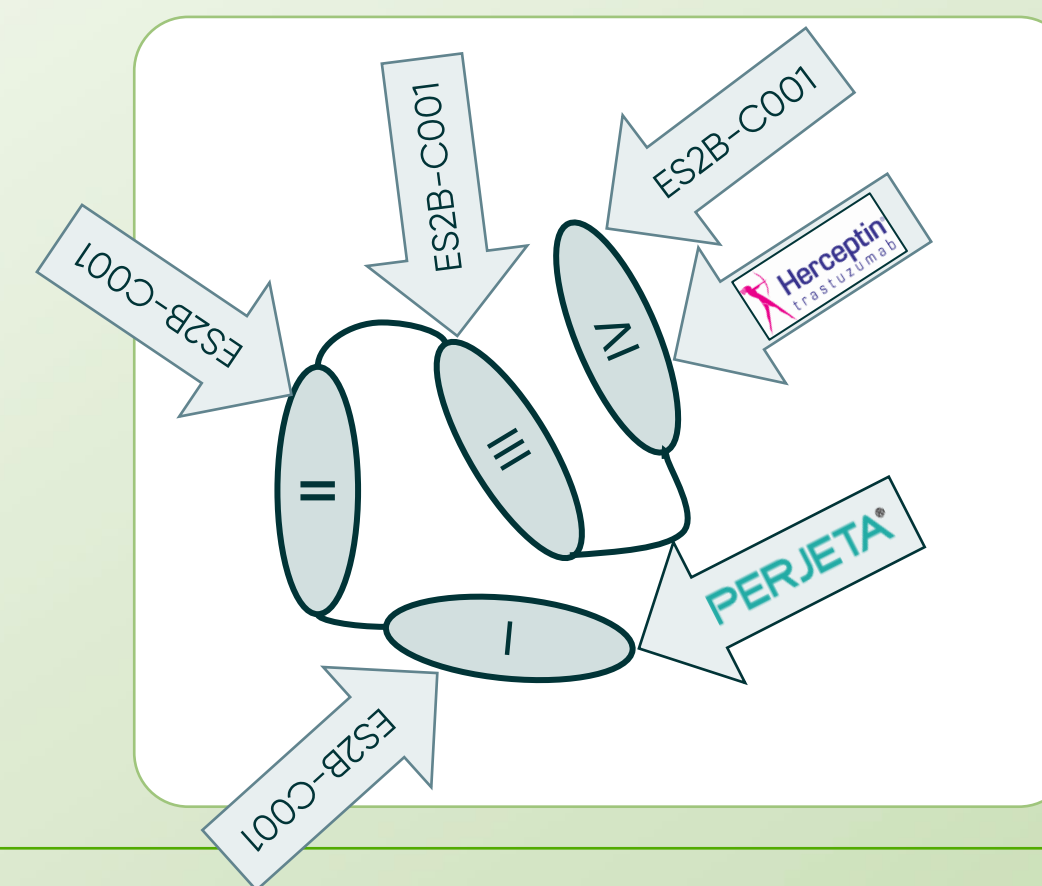
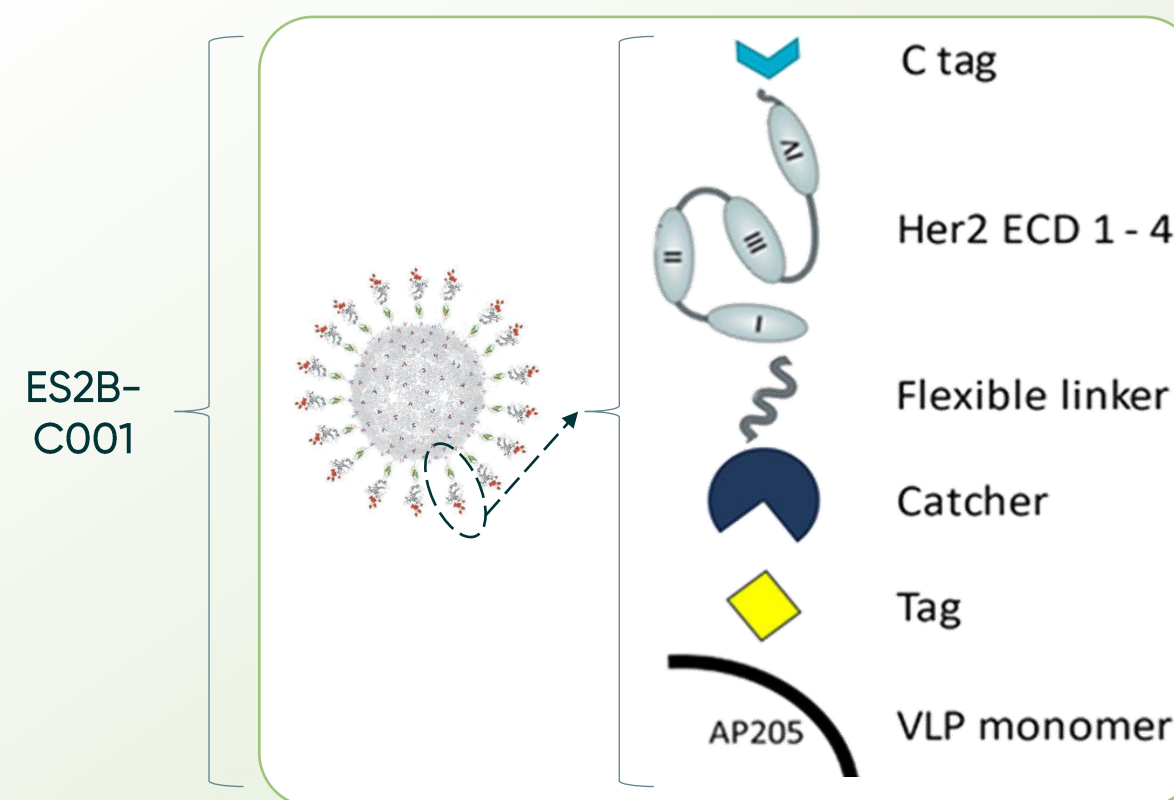
- Highly immunogenic
- Safety profile
- Longevity of response
- Combination with SoC
- Off-the-shelf, scalable, cost-effective

Description

- Extracellular domain (ECD) of HER2 protein coupled to the Acinetobacter Phage 205 (AP205) capsid virus-like particle (cVLP)

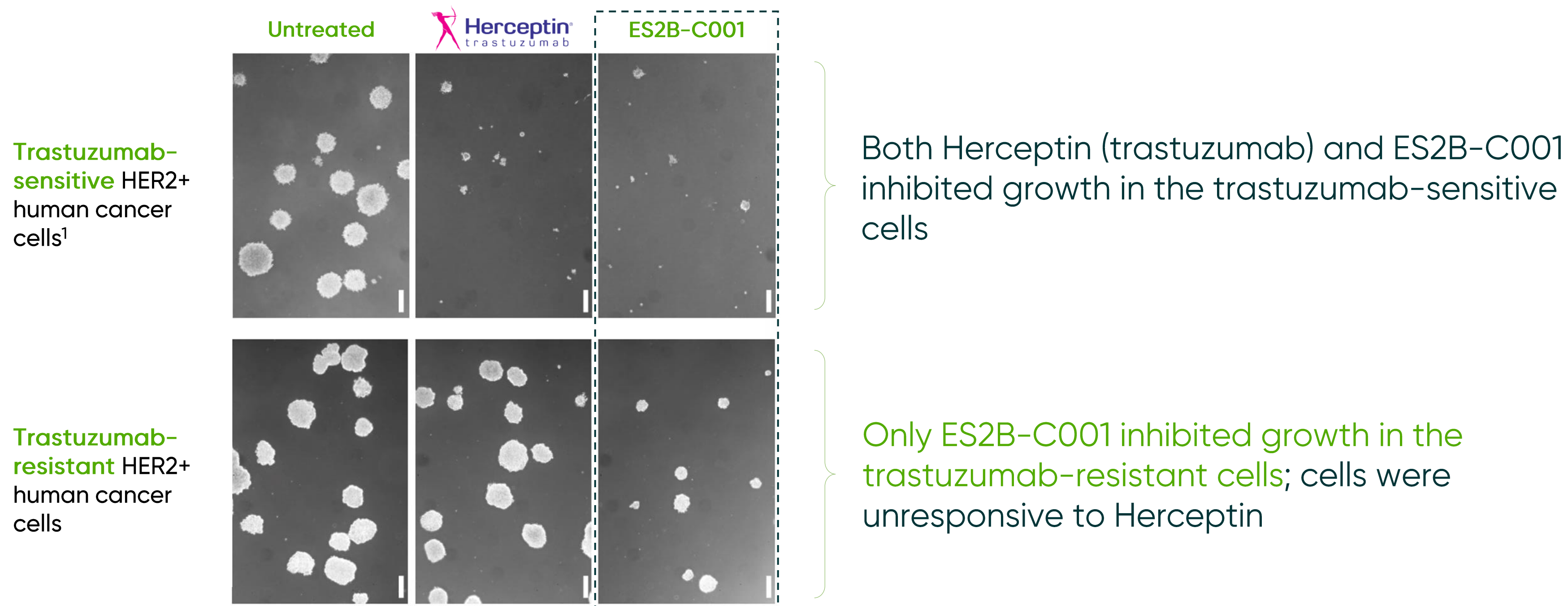
Benefits vs. commercial mAbs

- Polyclonal antibodies generated by ES2B-C001 target numerous epitopes within the ECD of HER2 protein
- mAbs only target one epitope within one domain



Overcomes Herceptin resistance

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

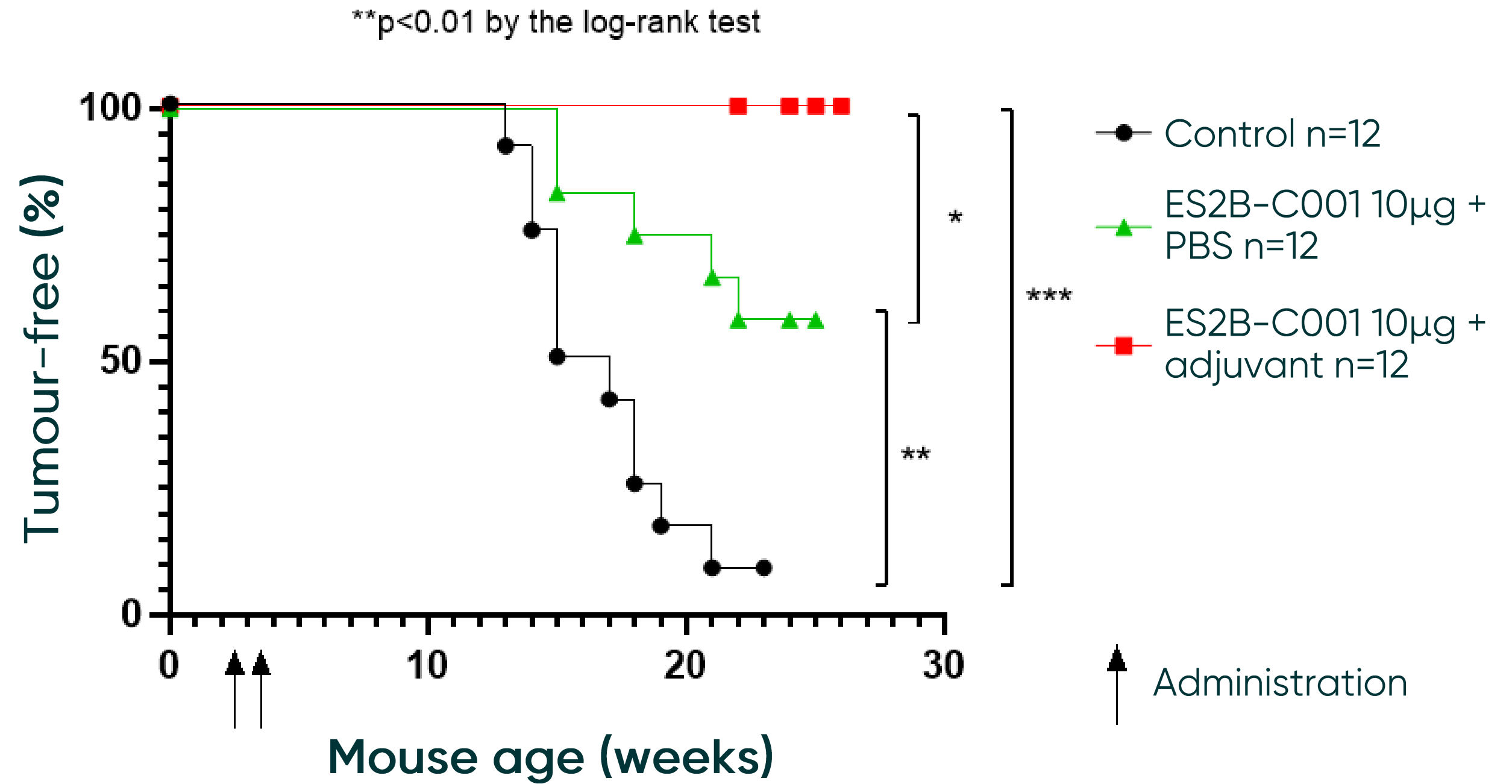


Note that this data was generated for AdaptVac's predecessor vaccine candidate (HER2-VLP very similar to ES2B-C001)
 1) Palladini, A. et al. (2018), "Virus-like particle display of HER2 induces potent anti-cancer responses", *Oncolmmunology*, pub. Vol 7, no 3

Prevention of mammary carcinoma

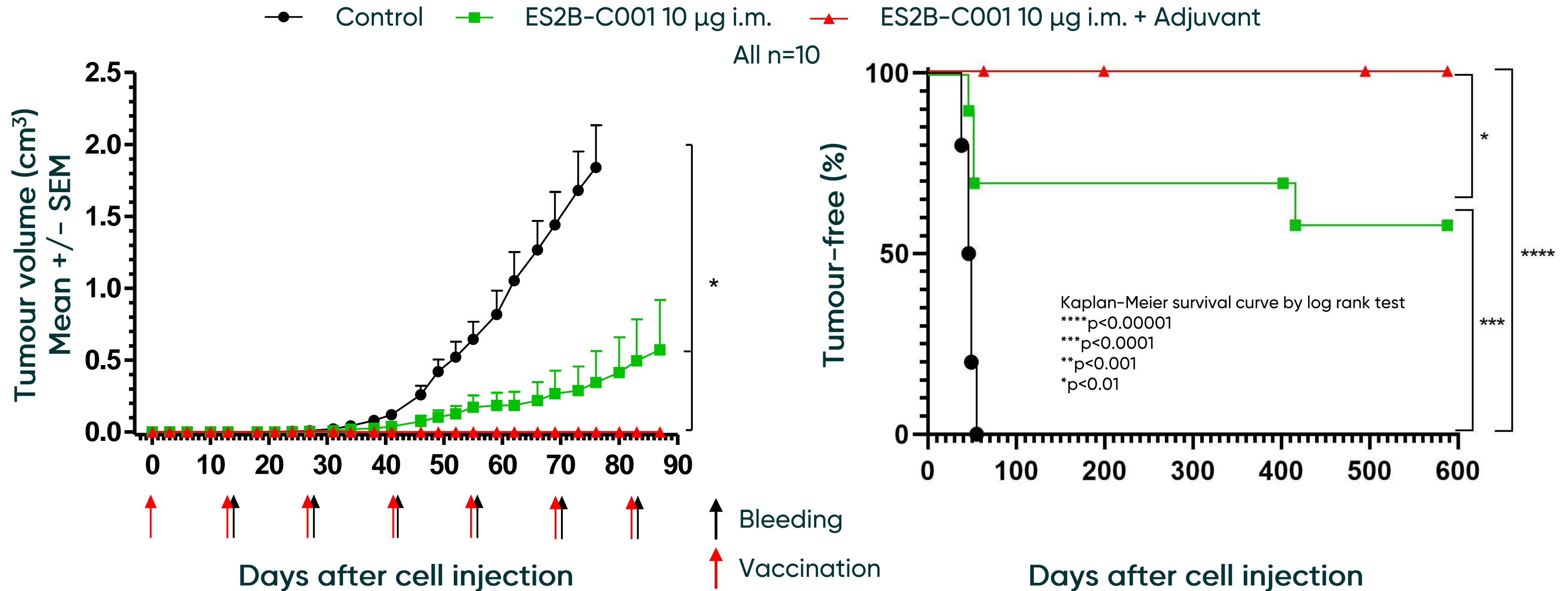
In HER2 transgenic Delta 16 mice with a human candidate ES2B-C001

Vaccination with only 2 doses of adjuvanted ES2B-0001 completely prevented the onset of mammary carcinoma

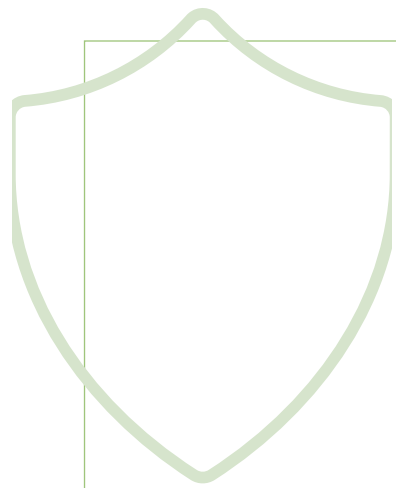


Therapeutic vaccination in FVB mice

Completely inhibited QD cells tumour growth in FVB mice

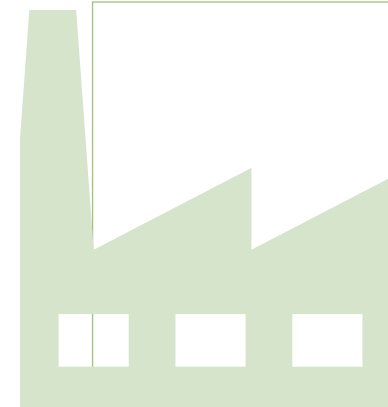


Status: rapidly approaching **clinical readiness**



Preclinical safety

- Study is complete
- Draft report is near completion



Chemistry, manufacturing and controls

- GMP drug substance production initiated
- Stability studies underway



Clinical

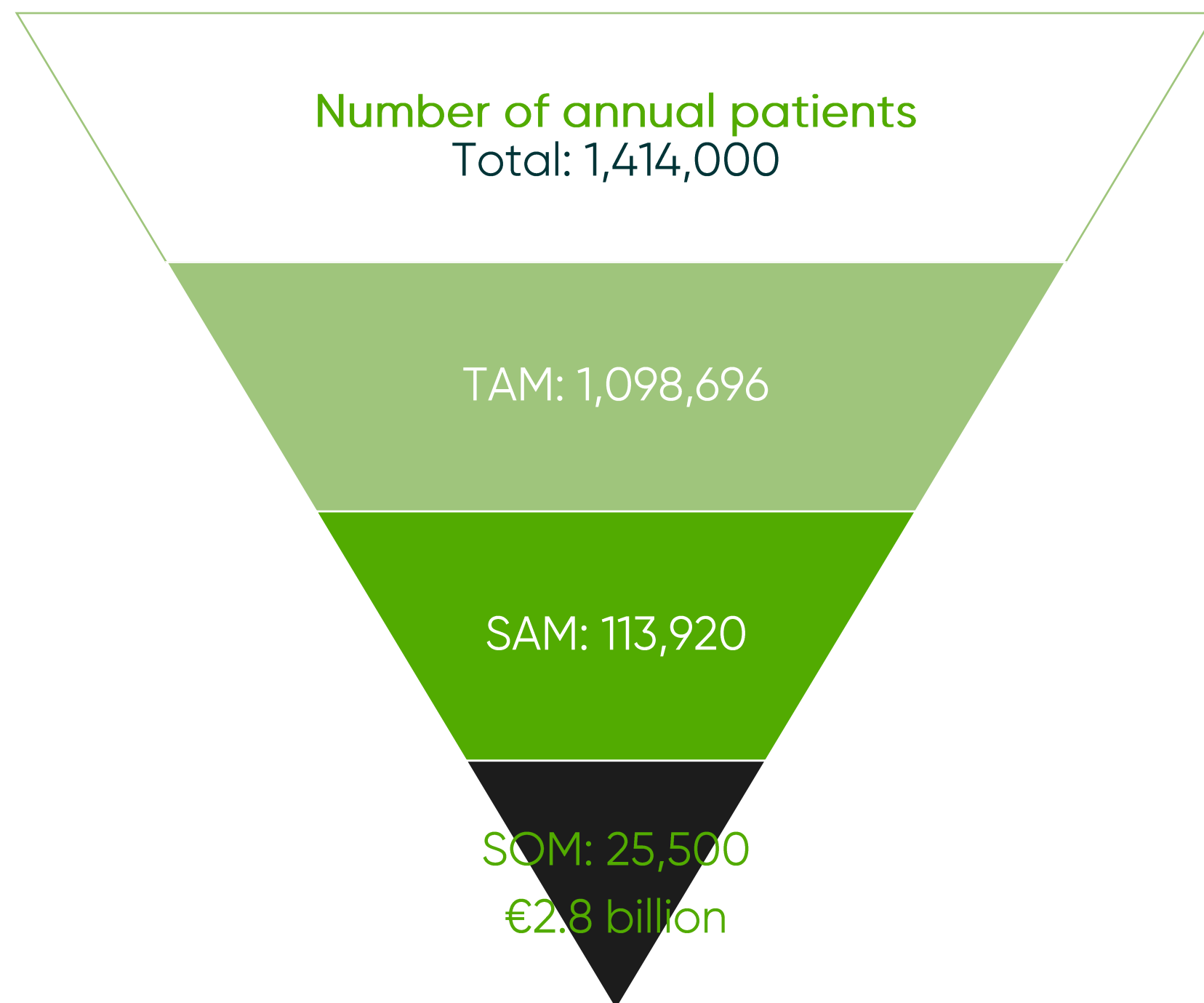
- Design of Phase I clinical trial underway



Business development

- Life science business development consultancy engaged, and they are actively marketing ES2B-C001 to potential partners

Obtainable market estimated at €2.8 billion



Total market

Number of treated breast cancer patients per year
\$32 billion global market size expected by 2026¹

Total addressable market

In top 8 countries with early or advanced breast cancer

Serviceable addressable market (SAM)

Reduced to EU top 5 countries and US and estimated percent serviceable

Serviceable obtainable market (SOM)

Reduced by estimated penetration rate, based on first year at peak (20%)
Annual market value based on w.a. cost per patient in first year at peak penetration²

¹ Mordor Intelligence, breast cancer therapeutics market, 2021.

² Source: <https://www.bizjournals.com/sanfrancisco/news/2020/06/29/cancer-genentech-fda-phesgo-herceptin-perjeta.html>
Assuming no change in cost of treatment, i.e. general drug price inflation offset impact of increased competition

Oncology scientific advisory board

Advised by the leading specialists in oncology and specifically breast cancer



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. 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. 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. 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. 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.

Investment highlights

Unmet medical need

- ExpreS2ion is developing a therapy for HER2+ breast cancer, the most common cancer

Market size

- Obtainable market conservatively estimated at €2.8 B

Technical validation

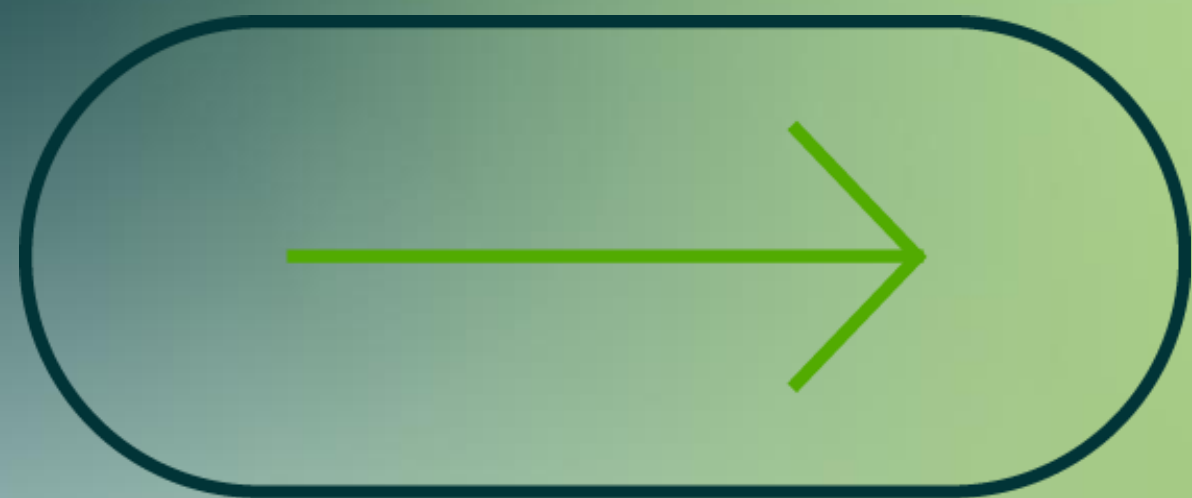
- Clinically validated platform technology in use by broad mix of proprietary and partner-driven vaccine candidates

Experienced team

- Proven leadership and experienced scientific team backed by knowledgeable Board & supportive SAB



Q&A



Investor Relations

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