

ACTIVATING THE PATIENT'S IMMUNE SYSTEM TO FIGHT CANCER

Pareto Securities' 11th
Healthcare Conference

Dr. Torbjørn Furuseth, CFO

September 2020

targovax

IMPORTANT NOTICE AND DISCLAIMER

This report contains certain forward-looking statements based on uncertainty, since they relate to events and depend on circumstances that will occur in future and which, by their nature, will have an impact on the results of operations and the financial condition of Targovax. Such forward-looking statements reflect the current views of Targovax and are based on the information currently available to the company. Targovax cannot give any assurance as to the correctness of such statements.

There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in these forward-looking statements. These factors include, among other things, risks or uncertainties associated with the success of future clinical trials; risks relating to personal injury or death in connection with clinical trials or following commercialization of the company's products, and liability in connection therewith; risks relating to the company's freedom to operate (competitors patents) in respect of the products it develops; risks of non-approval of patents not yet granted and the company's ability to adequately protect its intellectual property and know-how; risks relating to obtaining regulatory approval and other regulatory risks relating to the development and future commercialization of the company's products; risks that research and development will not yield new products that achieve commercial success; risks relating to the company's ability to successfully commercialize and gain market acceptance for Targovax' products; risks relating to the future development of the pricing environment and/or regulations for pharmaceutical products; risks relating to the company's ability to secure additional financing in the future, which may not be available on favorable terms or at all; risks relating to currency fluctuations; risks associated with technological development, growth management, general economic and business conditions; risks relating to the company's ability to retain key personnel; and risks relating to the impact of competition.

TARGOVAX AT A GLANCE

Immune activators

- Addressing high medical need for **immune activators** like oncolytic viruses to enhance efficacy of checkpoint inhibitors

Leader in the field

- ONCOS-102 is one of the **most promising** oncolytic viruses with >200 patients treated
- Encouraging **clinical and immune data** enabling a path to market in mesothelioma

Exciting pipeline

- Innovative uses of ONCOS backbone as **vector** for delivering novel payloads
- Program to fight **mutRAS** cancers through vaccinations and novel constructs

Rich News Flow

- Ongoing combination trials ensure several near-term **value inflection points**

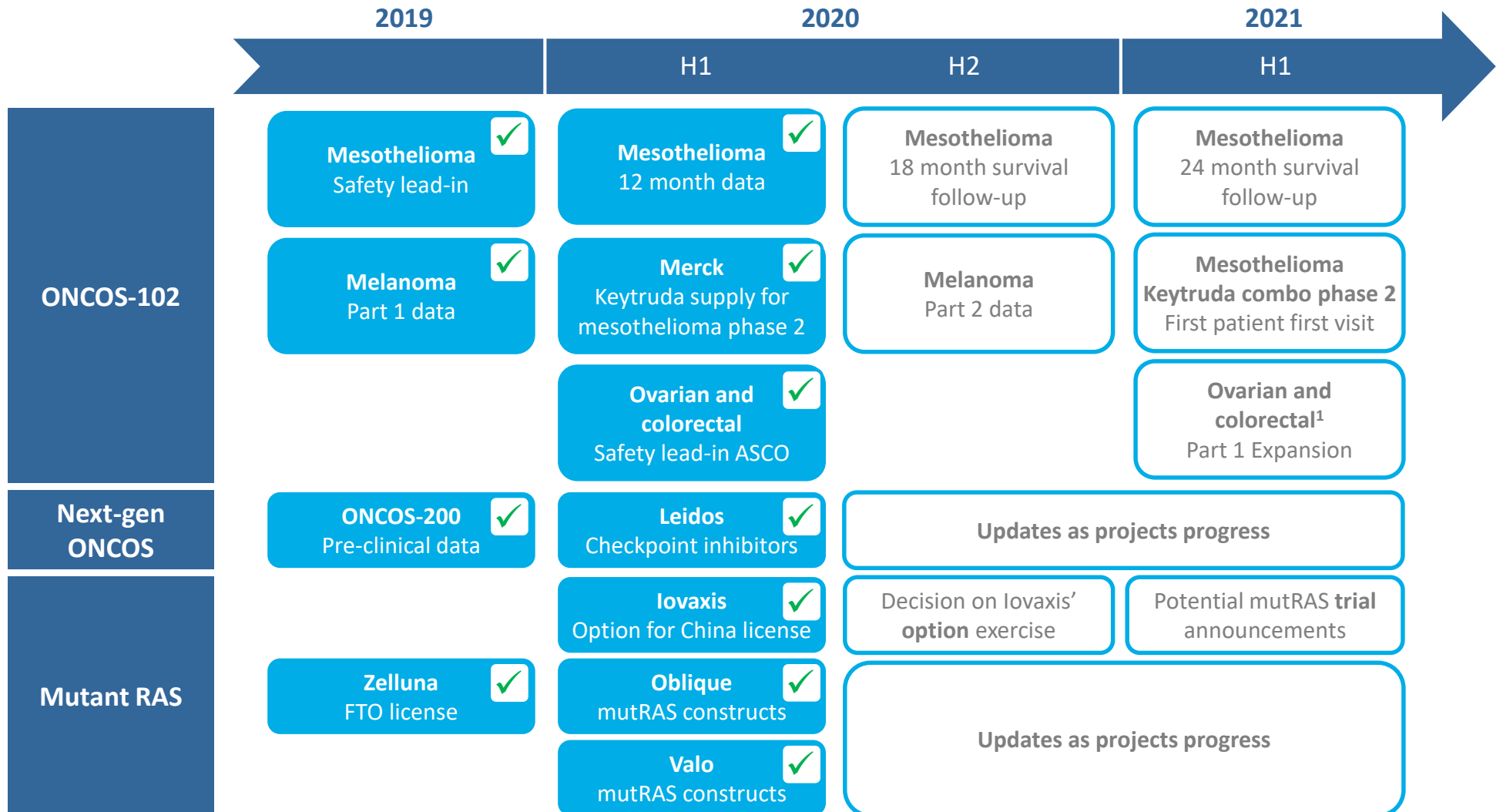
Robust Team

- Seasoned management team and board with a **track record of success**
- Listed on the Oslo Stock Exchange with a market cap of approx. USD 55 million



targovax

STRONG EXECUTION THE LAST YEAR WITH FURTHER VALUE INFLECTION POINTS UPCOMING



GROWING NEED FOR IMMUNE ACTIVATORS

Checkpoint inhibitors are revolutionizing cancer therapy...

...but minority of patients respond...

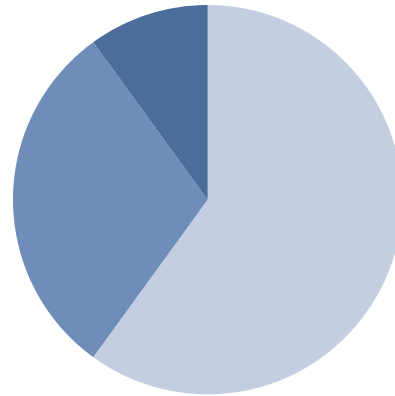
...leading to a high medical need for immune activators

22 bn USD

Global CPI market¹

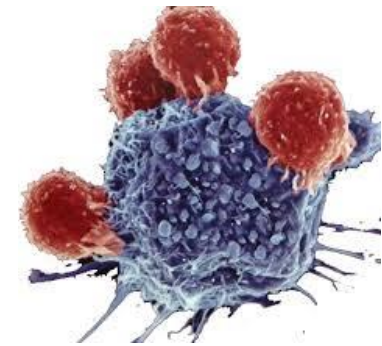
44 %

Patients eligible for CPI²:



10 - 40 %











Responders



¹ Immune Checkpoint Inhibitors Markets Report, 2020 January, ResearchAndMarkets.com

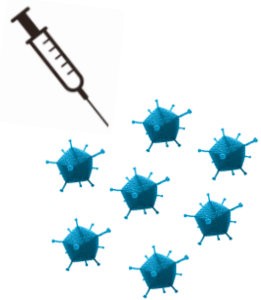
² Estimation of the Percentage of US Patients With Cancer Who Are Eligible for and Respond to Checkpoint Inhibitor Immunotherapy Drugs, JAMA Netw Open. 2019 May; 2(5), Haslam A., Prasad V.

SEVERAL SIGNIFICANT ONCOLYTIC VIRUS TRANSACTIONS

Acquirer	Target	Type of deal	Deal value
		Strategic collaboration Co-development of multiple vaccinia viruses, Pre-clinical	USD 120m near-term USD >900m total value
		M&A RNA virus, Phase II	USD 400m cash acquisition
		M&A Herpes virus, Pre-clinical	USD 140m up-front USD 1b total value
		M&A VSV virus, Pre-clinical	USD 250m cash acquisition
		R&D partnership Co-development of novel vaccinia viruses, Pre-clinical	USD 10m up-front Unknown total value

ONCOS-102 DRIVES A STRONG IMMUNE RESPONSE TRIGGERING ANTI-TUMOR IMMUNITY

1 Virus injection



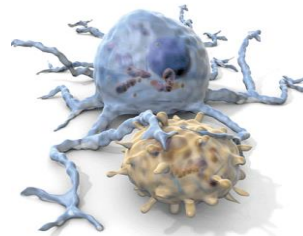
- Intratumoral or intra-peritoneal injection
- Tumor cell infection

2 Immune activation



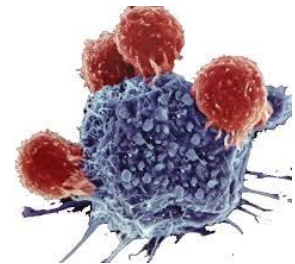
- Oncolysis of tumor cells
- Inflammatory response by TLR-9 and other pathways
- Tumor antigen release

3 T-cell generation



- Antigen processing stimulated by GM-CSF
- T-cell activation in lymph nodes

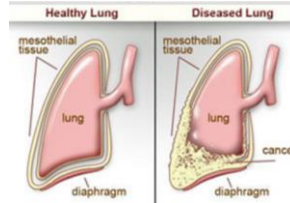
4 Anti-tumor immunity



- T-cell tumor infiltration
- Tumor cell killing
- Synergy with checkpoint inhibitors

DEVELOPMENT STRATEGY WITH CPI COMBINATIONS

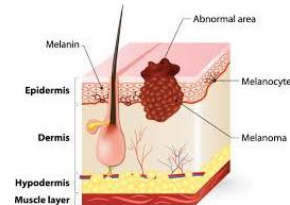
1 Establish path-to-market



Mesothelioma

- ~15.000 patients
- Limited competition, potential for first line

2 Activate refractory tumors



Anti-PD1 refractory melanoma

- Few alternatives for ~50.000 patients
- Competitive indication, serving as benchmarking arena for immune activators

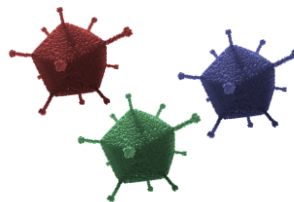
3 Expand CPI indications



Ovarian and colorectal

- Metastases to the peritoneum
- >100.000 patients not responding to CPIs








4 Expand platform



Next generation oncolytic viruses

- Double transgenes
- Novel targets and modes of action

PIPELINE WITH RICH NEAR-TERM NEWS FLOW

Product candidate	Preclinical	Phase I	Phase II	Collaborator	Next expected event
ONCOS-102	Mesothelioma Combination w/ pemetrexed/cisplatin			 MERCK	2H 2020 18 mo. survival follow-up
	Melanoma Combination w/Keytruda				2H 2020 Part 2 clinical data
	Ovarian and colorectal Combination w/Imfinzi			 	<i>Update by collaborator</i>
	Prostate Combination w/DCvac				<i>Update by collaborator</i>
ONCOS-200 series	Next Gen viruses				Updates at conferences
Novel mutRAS concepts				 	

Product candidate	Preclinical	Phase I	Phase II	Collaborator	Next expected event
ONCOS-102	Mesothelioma Combination w/ pemetrexed/cisplatin				
	Melanoma Combination w/Keytruda				
	Ovarian and colorectal Combination w/Imfinzi				
	Prostate Combination w/DCvac				
ONCOS-200 series	Next Gen viruses				
Novel mutRAS concepts					

HIGH NEED FOR NEW TREATMENT APPROACHES IN MALIGNANT PLEURAL MESOTHELIOMA



Surgery

Only 10% of patients suitable for resection

Often diagnosed too late for surgery

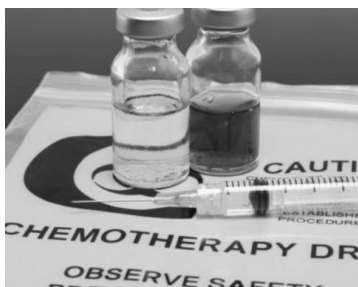
Technically challenging

Radiotherapy

Rarely effective due to tumor shape

Hard to focus radiation

Mainly palliative care



Chemotherapy

Standard of care (SoC) with limited efficacy

Only approved option is pemetrexed/cisplatin

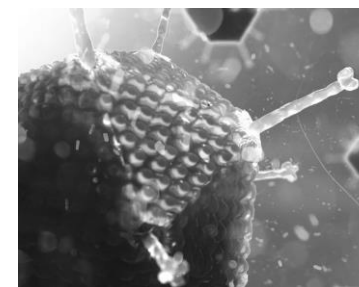
6 months mPFS and 12 months mOS in 1st line

Immunotherapy

Mixed signals from early CPI trials

CPIs included in NCCN guidelines as 2nd line option

Possible frontline therapy with orphan drug designation



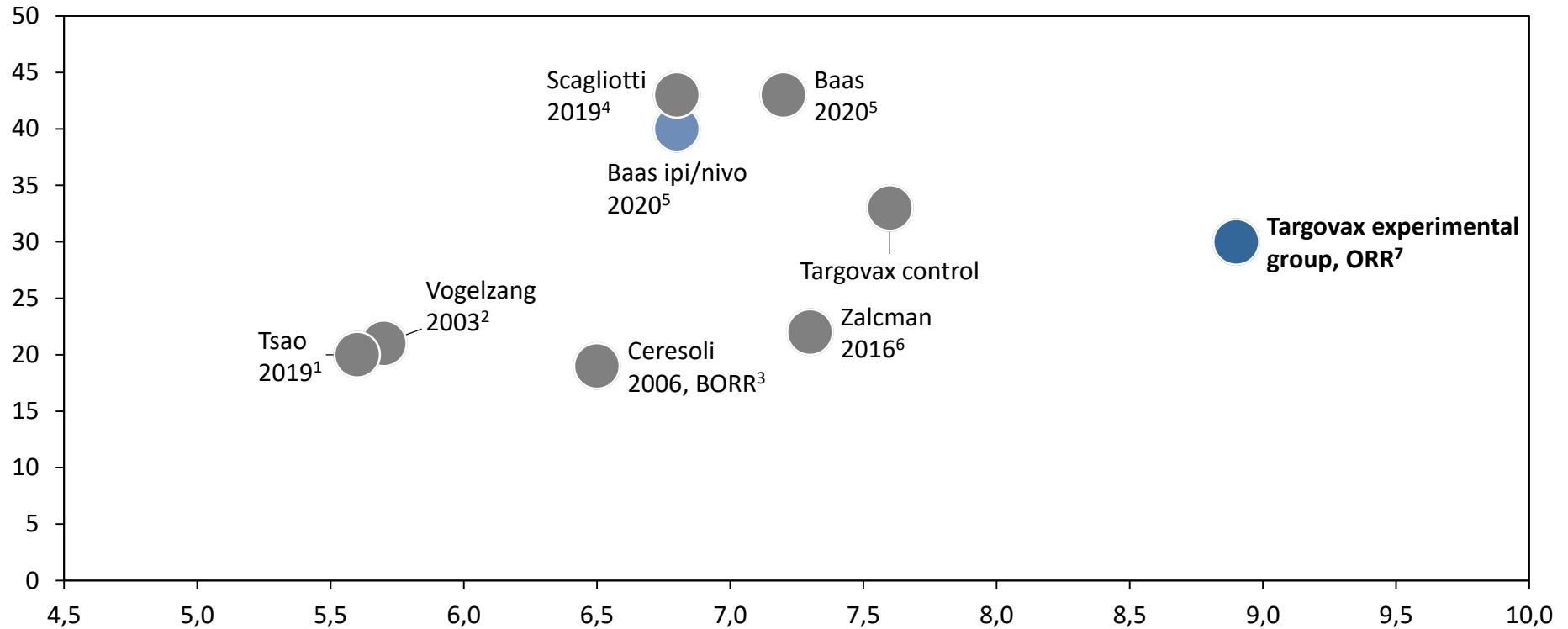
12-MONTH DATA ONCOS-102 MESOTHELIOMA PHASE I/II COMBINATION WITH SOC

PATIENT CHARACTERISTICS AND OUTCOMES

ITT: N = 31 (20+11) PP: N = 30 (19+11)	Experimental n= 20	Control n= 11	Comments
Tumor and disease characteristics at enrollment			
- Number of lesions	4.3	3.5	<i>Generally more advanced disease in the experimental group</i>
- Tumor burden mm (RECIST 1.1)	87	46	
- Stage I and II	10%	27%	
- Stage III	30%	27%	
- Stage IV	60%	46%	
First line patients	11	6	<i>No previous chemotherapy</i>
Disease control rate (DCR)	90%	83%	<i>CR, PR & SD</i>
Median Progression Free Survival (mPFS)	8.9 months	7.6 months	
12-month survival rate	64%	50%	
Second (or later) line patients	9	5	<i>Received previous chemotherapy</i>
Disease control rate (DCR)	67%	80%	<i>CR, PR & SD</i>
Median Progression Free Survival (mPFS)	4.5 months	8.5 months	
12-month survival rate	44%	60%	

FIRST LINE ORR AND PFS DATA COMPARE FAVORABLY TO HISTORICAL CONTROL

ORR / BORR



1 Tsao 2019 (JCO) compared cediranib + pem/cis vs pem/cis; data from pem/cis arm presented on plot

2 Vogelzang 2003 was the basis for FDA approval of pemetrexed. FDA review disputed originally reported data, reducing confirmed BORR to 21% (Hazariika 2005)

3 Pemetrexed plus carboplatin

4 Scagliotti 2019 (Lancet) compared nintedanib + pem/cis vs pem/cis; data from pem/cis arm presented on plot

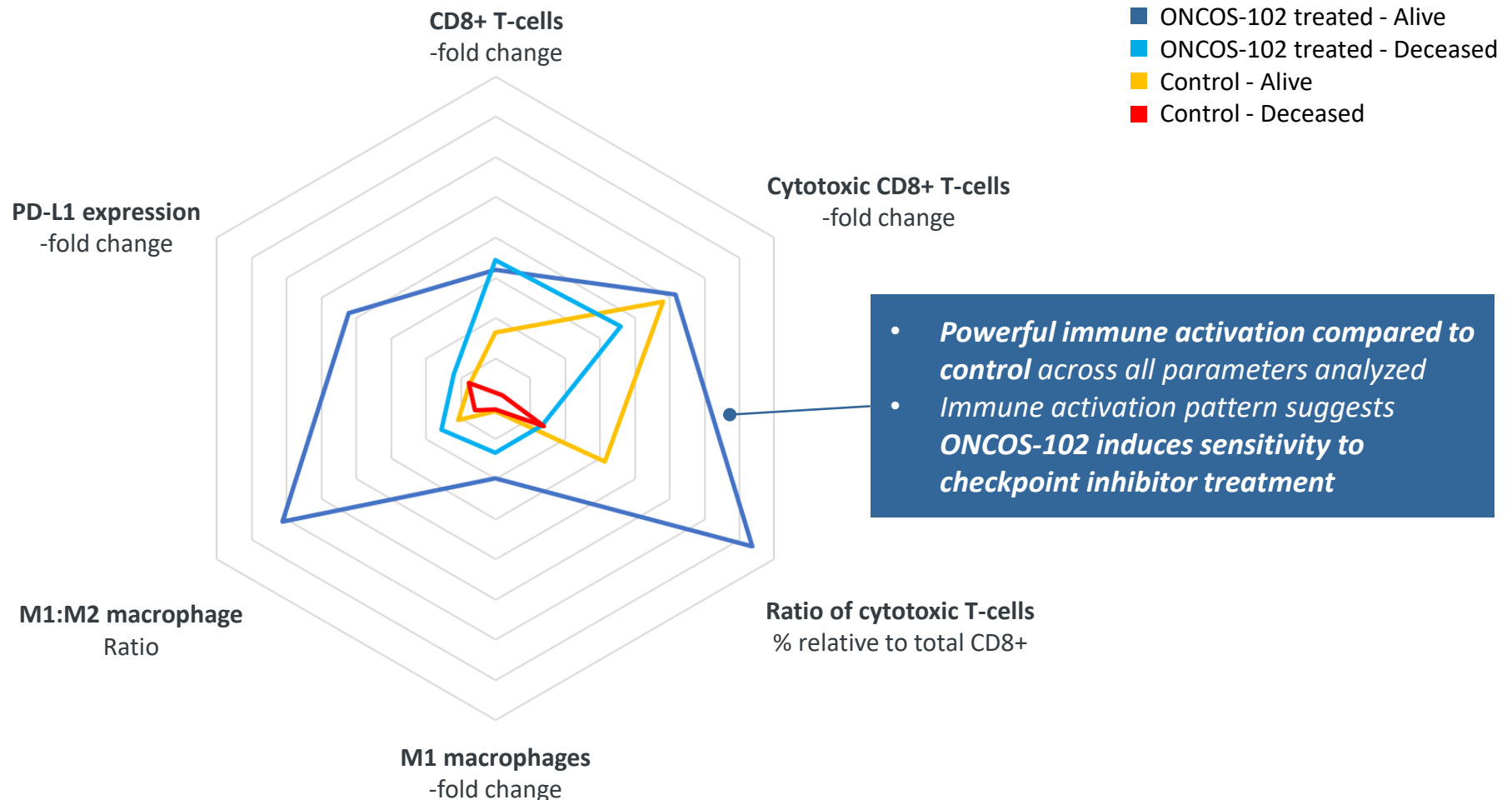
5 Baas 2020 CheckMate 743. Nivolumab + ipilimumab for two years vs pem/cis (or carboplatin)

6 Zalcman 2016 (Lancet) compared bevacizumab + pem/cis vs pem/cis; data from pem/cis arm presented on plot. Not specified if ORR or BORR.

7 mPFS may change: Experimental group 11 patients (3 censored)

mPFS

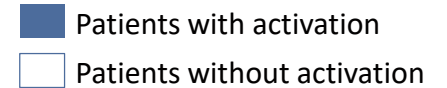
A BROAD AND POWERFUL IMMUNE ACTIVATION PATTERN CONFIRMS ONCOS-102 MODE OF ACTION






Product candidate	Preclinical	Phase I	Phase II	Collaborator	Next expected event
	Mesothelioma Combination w/ pemetrexed/cisplatin				
ONCOS-102	Melanoma Combination w/Keytruda				
	Ovarian and colorectal Combination w/Imfinzi				
	Prostate Combination w/DCvac				
ONCOS-200 series	Next Gen viruses				
Novel mutRAS concepts					

PART 1

ROBUST LOCAL AND SYSTEMIC IMMUNE ACTIVATION






Inflammatory response and innate immune activation




- Pro-inflammatory cytokine increase: IL-6 and / or TNFa 
- Increase in systemic IFN γ expression 
- Fever/chills 

Adaptive immune activation

T-cell tumor infiltration

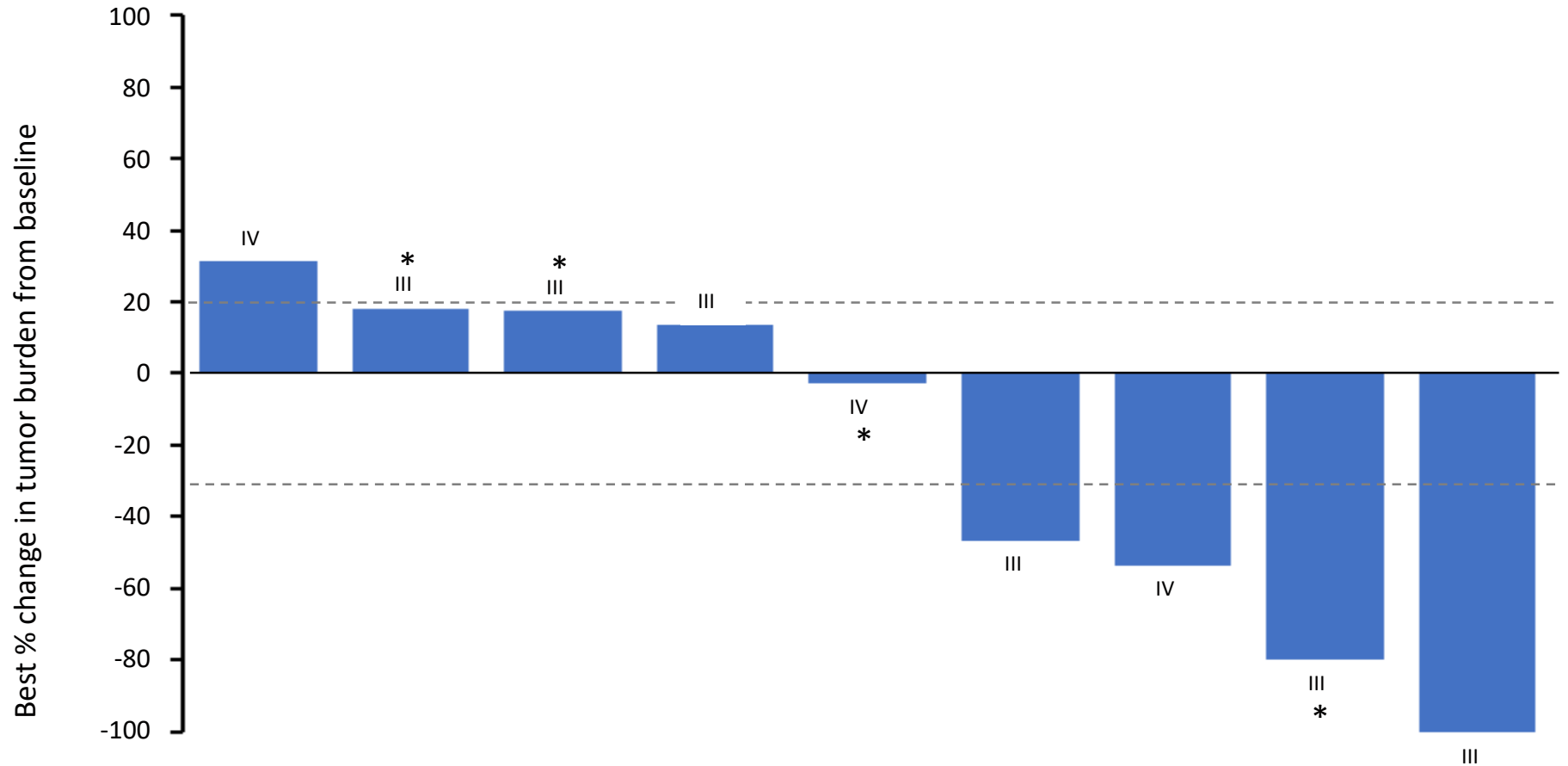
- Increase in CD8+ T-cell infiltration 
- Increase in cytotoxic CD8+ T-cells 
- T-cells in non-treated lesions on Week 3 

Tumor specific activation

- Systemic increase in tumor specific T-cells NY-ESO-1 and/or MAGE-A1 
- Increase in PD-L1 expression in tumor 
- Melanoma specific cancer markers reduced 

TUMOR REGRESSION OBSERVED IN PD1-REFRACTORY PATIENTS

BEST PERCENT CHANGE IN TARGET LESIONS



* Progressive Disease due to non target progression

Letters and numbers indicating disease stage

Preliminary data

PART 1

CASE EXAMPLE: EARLY AND DURABLE COMPLETE RESPONSE

Tumor response, 1 of 1 injected lesion

Baseline

Week 3

Week 9

Week 18

Week 27 (EoS)



Progression on
Keytruda



3x ONCOS-102 only



3x ONCOS-102 &
2x Keytruda



3x ONCOS-102 & 5x
Keytruda



3x ONCOS-102 & 8x
Keytruda

Patient characteristics

Tumor stage at enrolment:

IIIb
T4a, N2b, M0

Prior therapies:

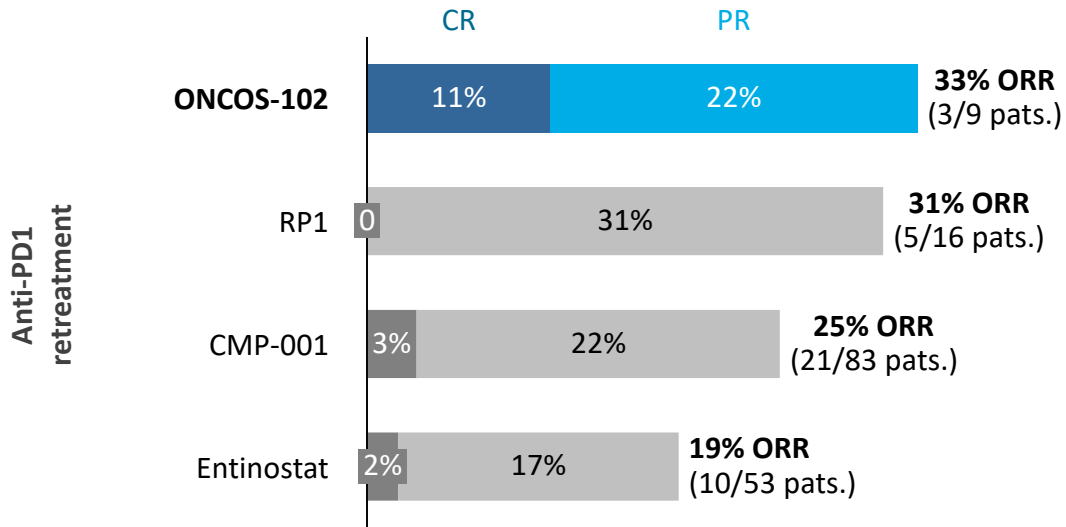
Surgery (x3)
Ipilimumab
Dabrafenib + Trametinib
Keytruda

RECIST 1.1:

CR, week 9-27

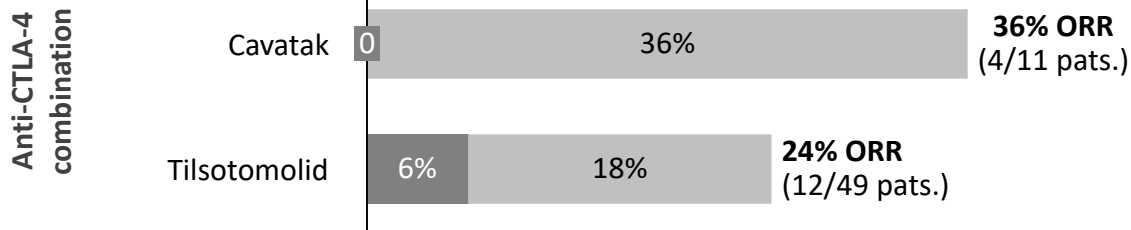
ANTI-PD1 REFRACTORY MELANOMA IS A COMPETITIVE INDICATION

ONCOS-102 + KEYTRUDA DATA IN CONTEXT



Comment

- Targovax – Oncolytic adenovirus expressing GM-CSF
- Replimune – Oncolytic herpesvirus expressing GM-CSF and GALV
- Checkmate Pharma – TLR-9 agonist
- Data from high dose cohort
- Syndax Pharma – HDAC inhibitor



Most pats CTLA4 naïve, 10-20% ORR expected

- Merck (Viralytics) – Oncolytic coxsackievirus, no transgene
- Idera, TLR-9 agonist



- IOvance, autologous TIL therapy with IL-2
- Complex and expensive manufacturing

Product candidate	Preclinical	Phase I	Phase II	Collaborator	Next expected event
	Mesothelioma Combination w/ pemetrexed/cisplatin				
	Melanoma Combination w/Keytruda				
ONCOS-102	Ovarian and colorectal Combination w/Imfinzi				
	Prostate Combination w/DCvac				
ONCOS-200 series	Next Gen viruses				
Novel mutRAS concepts					

STRONG COLLABORATION IN OVARIAN AND COLORECTAL CANCERS WITH PHASE I/II TRIAL COMBINING ONCOS-102 AND IMFINZI

Collaboration



Patient population

- Primary ovarian or colorectal cancer with peritoneal metastases
- Refractory to standard-of-care platinum chemotherapy
- Intraperitoneal admin of ONCOS-102

Dose escalation

Safety lead-in

**Ovarian and
Colorectal cancer**

ONCOS-102
(6 IP doses)
+
Imfinzi (12 cycles)

Expansion

Part I

Ovarian
18 patients

Colorectal
13 patients

Part II

Ovarian
15 patients

Colorectal
14 patients

*DCR in
5 of 18
Simon's
two-stage design*

*DCR in
1 of 13*

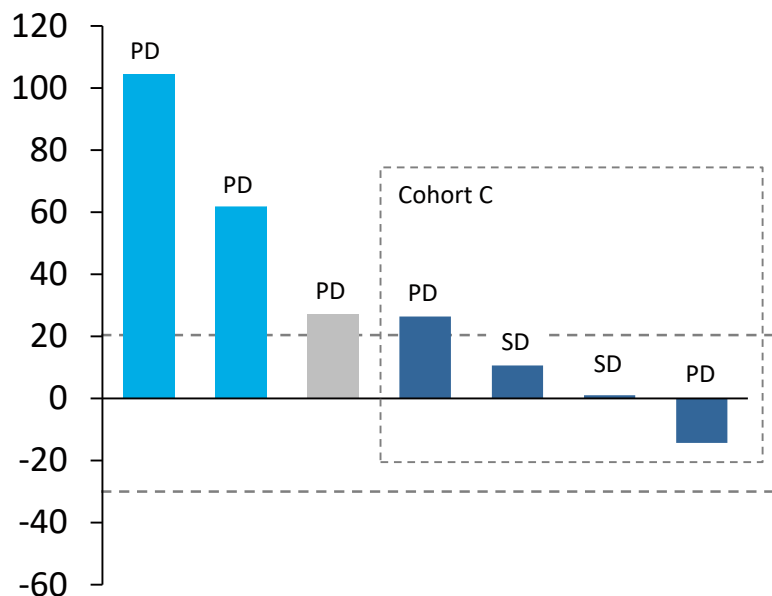
ASCO 2020: Dose Escalation part presented showing clinical activity as well as immune activation, and acceptable safety profile with no DLTs observed

TUMOR CHANGE AND RESPONSES IN SAFETY LEAD-IN

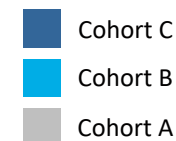
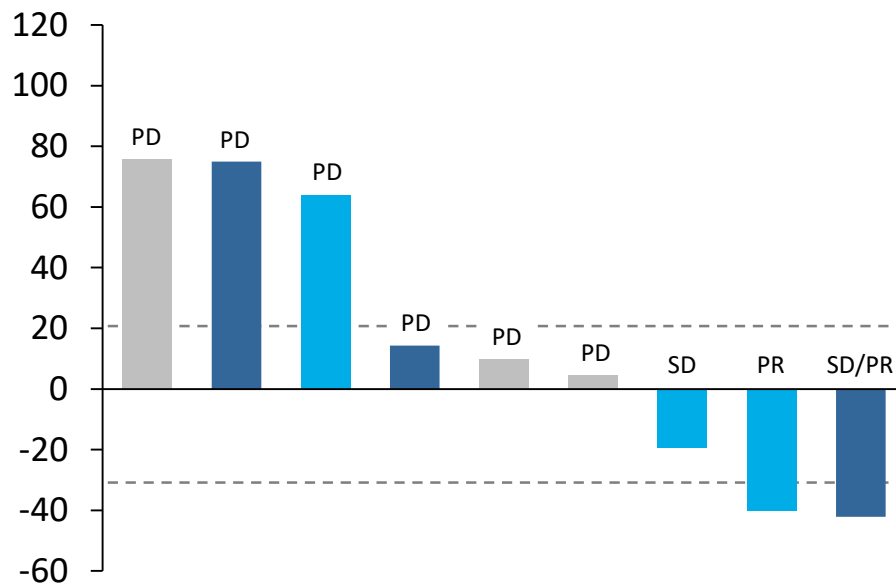
CPI MONOTHERAPY HAS SHOWN RESPONSES <10%¹

Tumor change² and best overall response (BORR) by RECIST 1.1

Colorectal³ (CRC)



Ovarian (OC)



Dosing

- Cohort A – Low dose ONCOS-102 then Imfinzi
- Cohort B – Low dose ONCOS-102 + Imfinzi
- Cohort C – Standard dose ONCOS-102 + Imfinzi

Disease control rate (best response)

- CRC: 0/2 OC: 0/2
- CRC: 0/2 OC: 2/3
- CRC: 2/5 OC: 1/3

¹ Gonzales-Martin, Cancer 2019; W Hammond, Ther Adv Med Oncol 2016; Le et al, Keynote-016

² Tumor change is based on the patient's best overall response or first indication of progression (if PD was the best response). % change = $[(\text{Sum of diameters at best response or first indication of PD} - \text{Sum of diameters at baseline}) \div \text{sum of diameters at baseline}] \times 100$

³ One patient with CRC in Cohort C is not in waterfall plot, as RECIST data are not available; clinical PD was documented.

Product candidate	Preclinical	Phase I	Phase II	Collaborator	Next expected event
ONCOS-102	Mesothelioma Combination w/ pemetrexed/cisplatin				
	Melanoma Combination w/Keytruda				
	Ovarian and colorectal Combination w/Imfinzi				
	Prostate Combination w/DCvac				
ONCOS-200 series	Next Gen viruses				
Novel mutRAS concepts					

ESTABLISHING PIPELINE OF FIRST-IN-CLASS MUTANT RAS CONCEPTS THROUGH STRATEGIC PARTNERSHIPS

Targovax mutRAS immunotherapy strategy

Next generation mutRAS concepts
Pre-clinical discovery

- Innovative, first-in-class mutRAS IO concepts
- Leverage ONCOS platform
- Strategic R&D partnerships

Next generation mutant RAS pipeline



Oncolytic virus w/ mutRAS vaccine coating - Coat ONCOS-102 with mutant RAS neoantigen PeptiCRAd peptides



Oncolytic virus w/ mutRAS antibody payload - Express AbiProt mutant RAS targeting antibodies from ONCOS backbone

Enhanced mutRAS vaccination
Clinical stage

- Enhanced versions of TG01/TG02 vaccines
- Novel therapeutic strategies
- Clinical collaborations



Boost TG01/02 immunogenicity - Next gen. adjuvants



Option to license TG01/02 mutRAS vaccine for Greater China and Singapore

SUFFICIENTLY FUNDED TO ADVANCE CLINICAL PROGRAM BEYOND VALUE INFLECTION POINTS

The company

Cash end of 2Q

101 / 11

NOK million

USD million

Net cash flow - total 2Q

-34 / 4

NOK million

USD million

Market cap

510 / 57

NOK million

USD million

Analyst coverage

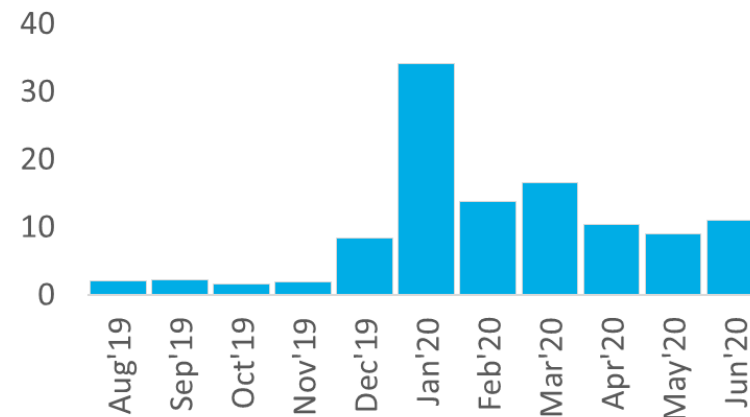
DNB, H.C. Wainwright, Arctic, ABG Sundal Collier, Edison

Share liquidity

135% of shares traded last 6 months

Average share turnover per month

Million shares



Average daily value traded last 6 months

5.7 / 0.6

NOK million

USD million

ACTIVATING THE IMMUNE SYSTEM TO FIGHT CANCER

CLINICALLY PROVEN

One of the furthest developed unencumbered oncolytic viruses

Strong immune activation data associated with encouraging clinical data

STRONG BACKING

Platform endorsement through pharma and biotech collaborations

Seasoned team with both experience and entrepreneurial drive

VALUE TRIGGERS

Ongoing combination trials ensuring rich news flow of clinical data

Pipeline of innovative pre-clinical drug candidates