Arming the patient's immune system to fight cancer

Q1 2017 presentation

April 25th 2017

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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's 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.

First quarter highlights

Data

- Encouraging top line two-year survival data from the phase I/II TG01 clinical trial in resected pancreatic cancer, with 68% of patients still alive after 2 years

Share listing

- Targovax upgraded its share listing from Oslo Axess to the main Oslo Stock Exchange list (OSE)
- Average daily share liquidity increased from NOK 9m to 13m relative to Q4 2016

Finances

- Cash NOK 147m
- Operating expenses NOK 27m
- Net cash flow NOK -24m

People

- Erik Digman Wiklund appointed CFO, starting April 1st 2017

Post-period

- Targovax will present clinical data from the TG01 clinical trial in resected pancreatic cancer at the ASCO Annual Meeting in June
- The exploratory Phase Ib clinical trial in locally recurrent RAS-mutated colorectal cancer was initiated

* PoC = Proof of Concept

TG01 phase I/II resected pancreatic trial

Encouraging top line two-year survival data

TG background – “reasons to believe”

History

- 120 patients treated with TG peptides in 1990’s
- Encouraging 10 year long-term survival for resected patients treated with TG01 or single TG peptides[1]

RAS

- RAS mutations are well-known and characterized neoantigens
- Regulate cell proliferation; mutations cause abnormal cell growth
  - the definition of cancer itself
- Exclusively found in cancer cells

TG-peptides

- Unique peptides of 17 amino acid chain length activate both RAS specific CD4+ and CD8+ T cells, which recognize and destroy mutated RAS cancer cells

[1] Wedén et al, 2011 and Clinical trial reports

TG01 in resected pancreatic cancer:
Encouraging survival rate and “signal” of efficacy

	First Cohort	Modified Cohort
1 Immunization schedule	• 26 vaccinations over 2 years	• 15 vaccinations over 2 years
2 Patient population	• Cohort completed • 19 patients	• Recruitment completed • 13 patients
3 Immune activation	• DTH response: 15 of 18 • T-cell response: 6 of 8	• DTH response at 8 weeks: 4 of first 5 • *T-cell response: not yet available*
4 Interim 1-year survival	• 14 of 15 patients alive after 1 year • No patients died from pancreatic cancer during the first year	• Not planned
5 2-year survival	• **13 of 19 patients (68%) alive after 2 year** • Published* historical rate 30-53% suggests a signal of clinical efficacy for TG01	• *1H18*
6 Safety	• Generally well tolerated • 4 allergic reactions triggering the “modified cohort”	• *Not yet available*

[1] ITT – Intention to treat

[2] J Neoptolemos 2010, J van Loethem 2010, H Oettle 2013, M Sinn 2015, K Uesaka 2016 (In these reported studies overall survival is measured either from surgery or treatment randomization).

Encouraging survival rate and “signal” of efficacy in TG01 trial

CT TG01-01; A Phase I/II Trial of TG01 and Gemcitabine as Adjuvant Therapy for Treating Patients with Resected Adenocarcinoma of the Pancreas

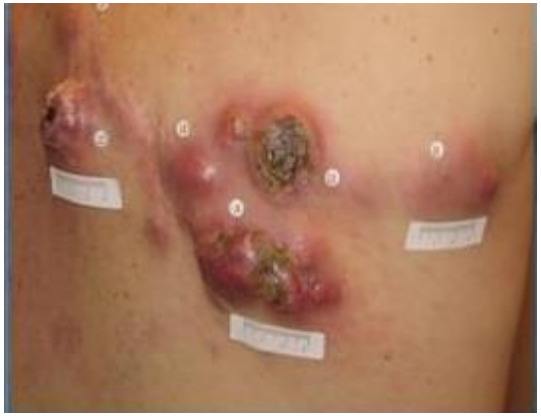
- 68% (13 of 19) of the patients in cohort 1 were alive two years after the resection
  - Published historical rate 30-53% suggests a signal of clinical efficacy for TG01[1]
- Abstract accepted for poster presentation at ASCO 2017 (June) from the 1st cohort
  - Efficacy, safety, immune activation
- Encouraging survival rate and “signal” of efficacy providing strong rationale and KOL support to move program forward
- Planning for a larger randomized controlled Phase II trial has been initiated

[1] J Neoptolemos 2010, J van Loethem 2010, H Oettle 2013, M Sinn 2015, K Uesaka 2016 (In these reported studies overall survival is measured either from surgery or treatment randomization).

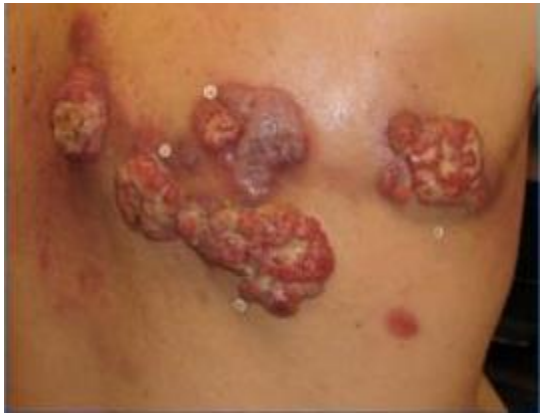
ONCOS-102 phase I Melanoma trial

Clinical proof of platform

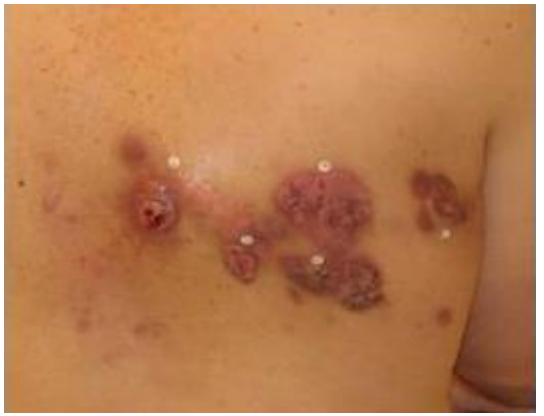
Checkpoint inhibitors have revolutionized cancer treatment



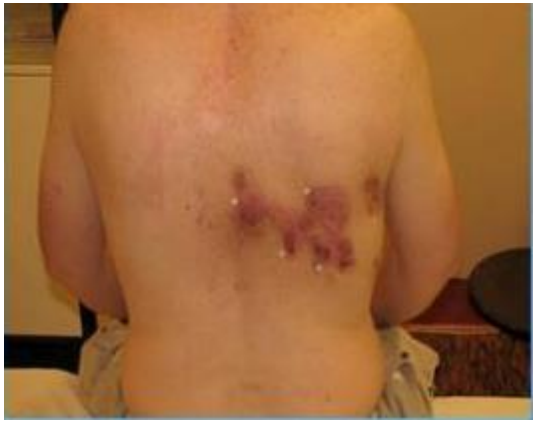
Prior to Yervoy



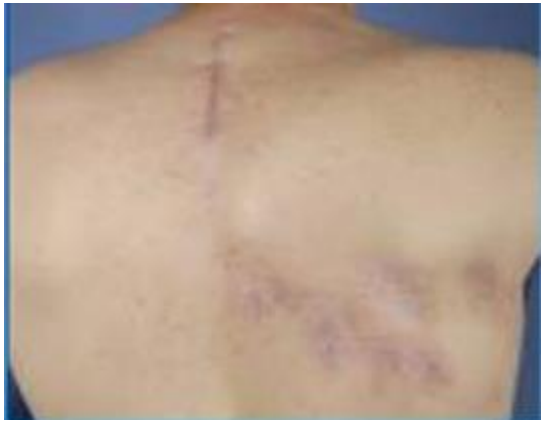
4 weeks



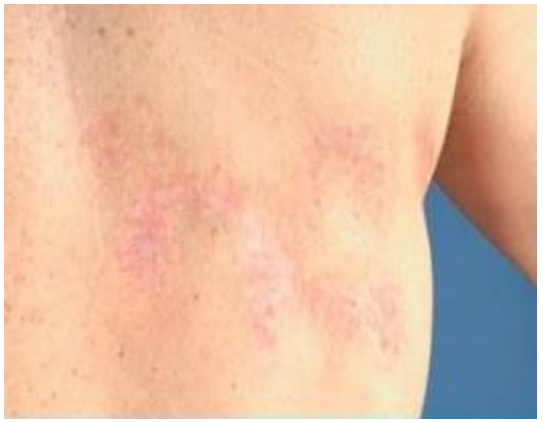
8 weeks



20 weeks

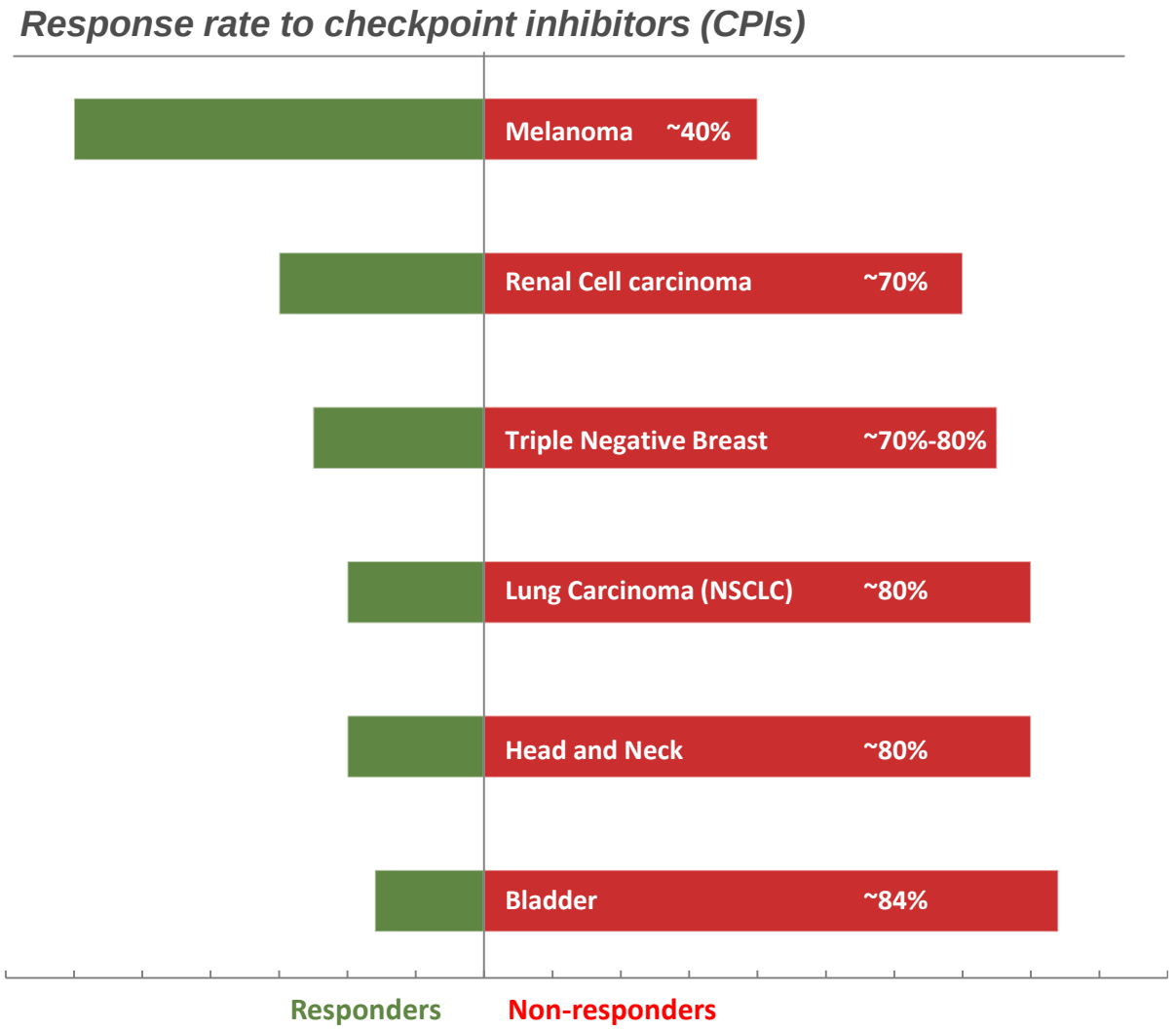


8 months



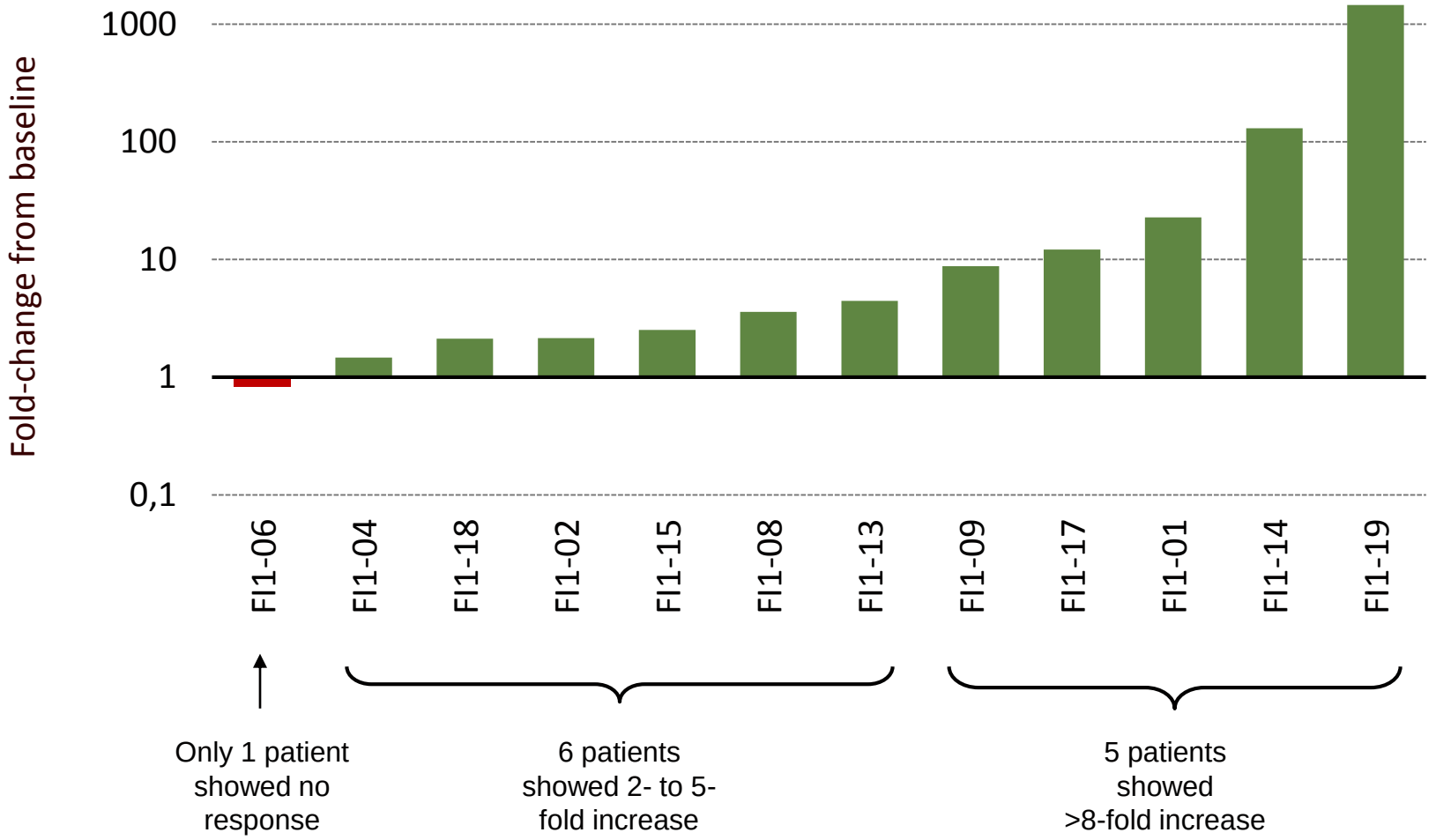
1 year

Checkpoint inhibitor refractory patients have a large unmet medical need for effective treatment



ONCOS-102 can potentially activate non-responders to become susceptible to CPI's

ONCOS-102 increased tumor infiltrating CD8+ T-cells in 11 of 12 cancer patients with a range of solid tumors



ONCOS-102: CPI refractory melanoma trial details

Setting

- Advanced malignant melanoma patients not responsing to CPIs
- Immune activate patients with ONCOS-102, then re-challenge with a CPI (Keytruda)

Cohorts

- Six patients with prior PD1 monotherapy
- Six patients with prior PD1 plus Yervoy combination therapy

Key endpoints

- Safety
- Immune activation
- Clinical response data

Sequence

Yervoy – generic name: ipilimumab
Keytruda – generic name: pembrolizumab

How does ONCOS-102 work?

At the tumor:

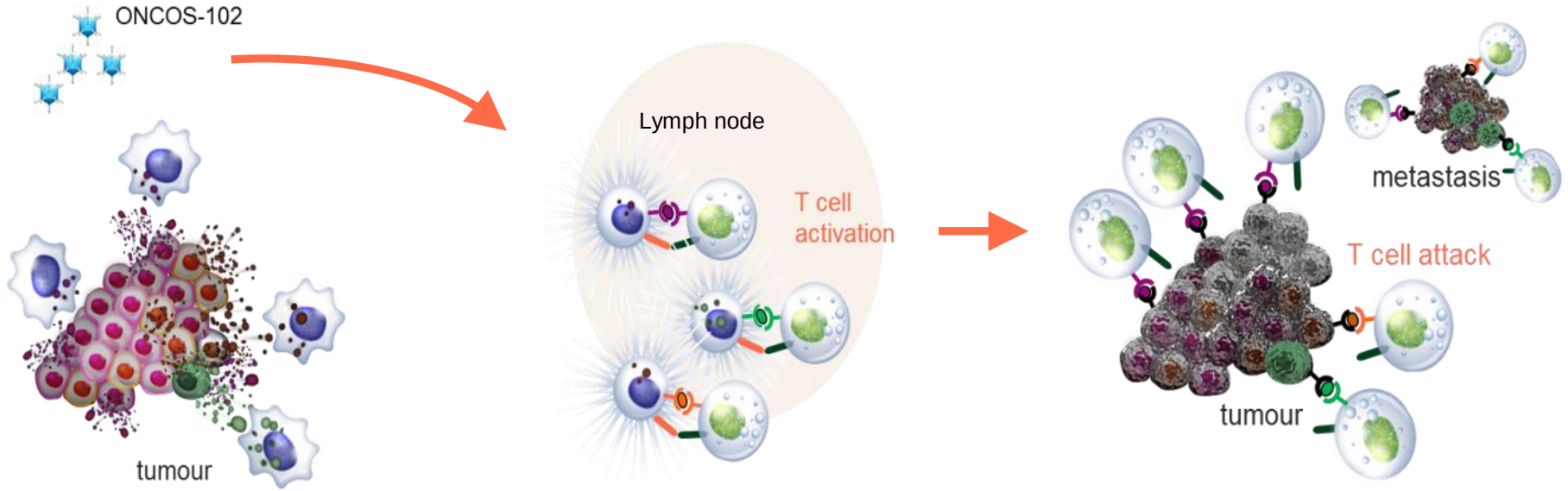
Virus injected directly into tumor, replicates, lyses cells and releases antigens. Immune system picks up antigens

At the lymph node:

Immune system starts production of tumor specific T-cells

At the tumor lesions:

T-cells find tumor lesions with corresponding tumor antigens and kill the cancer cells

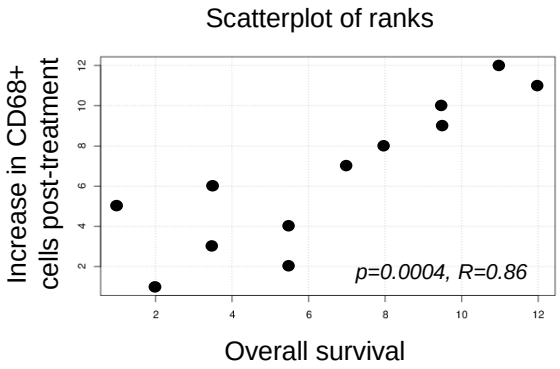


Initial ONCOS-102 trial showed strong T-cell response

Evidence that immune system recognizes tumor threat

Innate Immune System (biopsy)

- Induction of pro-inflammatory cytokines + fever (all patients)
- Infiltration of innate immune cells into tumors in 11 out of 12 patients



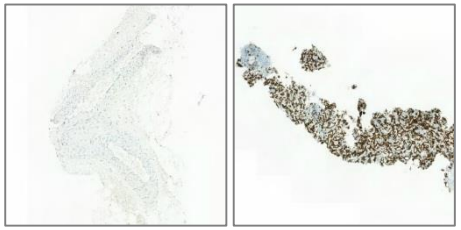
Correlation between post-treatment increase in innate immune cells and OS

Evidence that T-cells find the tumor and are cell killing

Adaptive immune system (biopsy)

- Increase in T-cell infiltration into tumors (including CD8+ killer T-cells) in 11 out of 12 patients
- Observation in one non-injected distant metastasis

OvCa. patient (FI1-19)



Correlation between post-treatment increase in CD8+ T-cells and OS (p=0.008, R=0.74)

Evidence that newly produced T-cells are tumor specific

Anti-tumor immune response (blood)

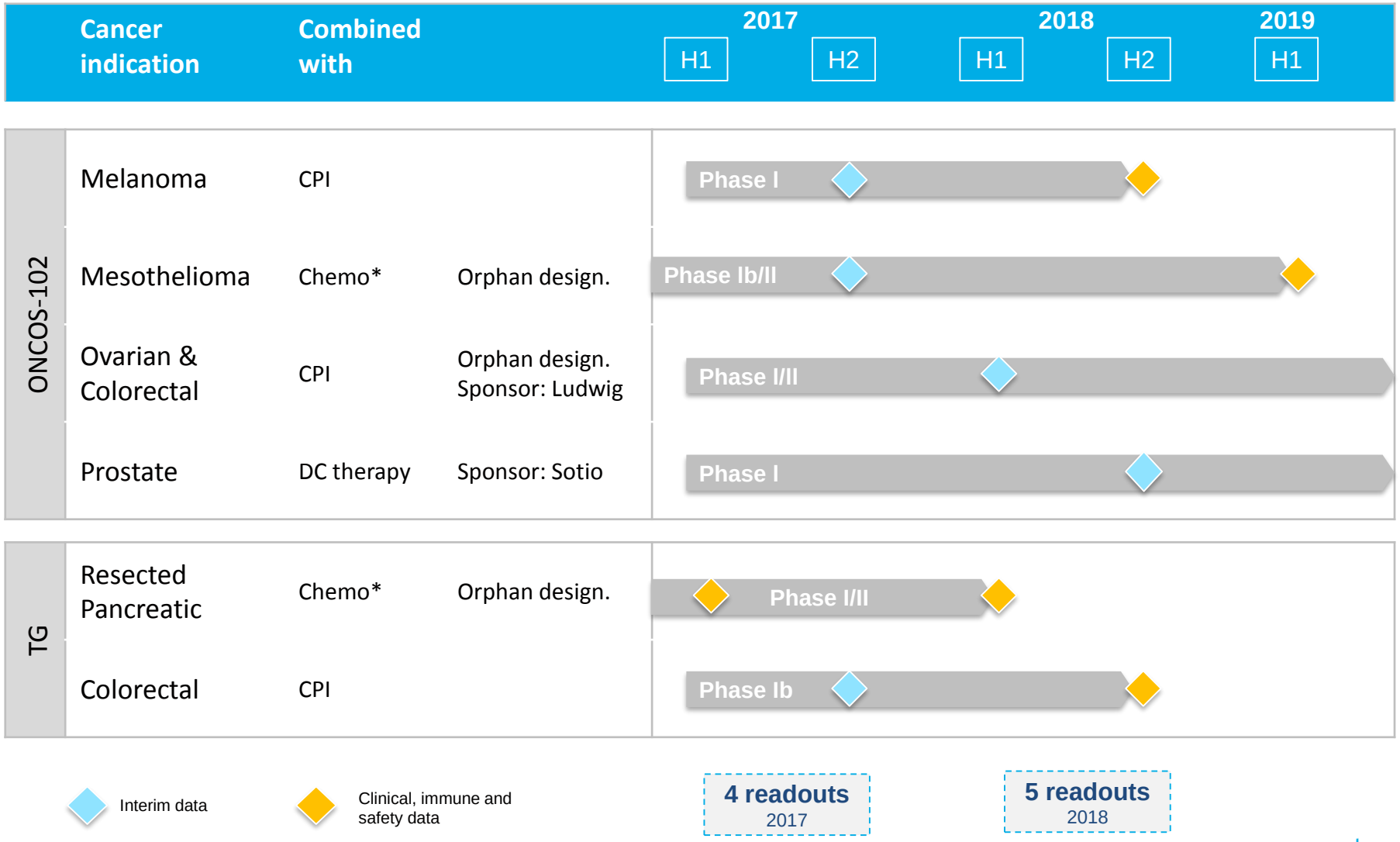
- Systemic induction of tumor-specific CD8+ T-cells

Ovarian patient:
NY-ESO-1, MAGE-A1, MAGE-A3, and Mesothelin specific CD8+ cells

Mesothelioma patient:
MAGE-A3 specific CD8+ cells

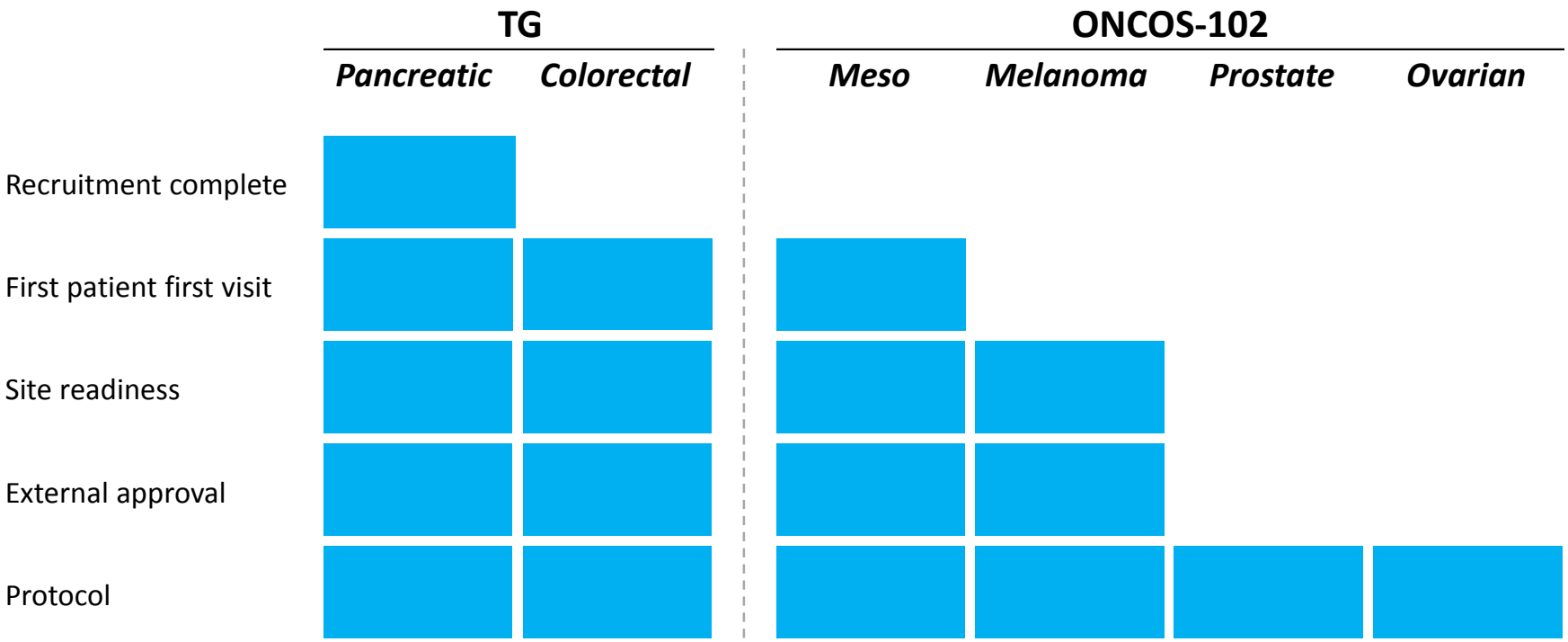
Associated with clinical benefit

Six shots on goal



* In combination with Standard of Care Chemoterapy. Pemetrexed/cisplatin for Mesothelioma and Gemcitabine for Resected Pancreatic

Where are we with the clinical trials?



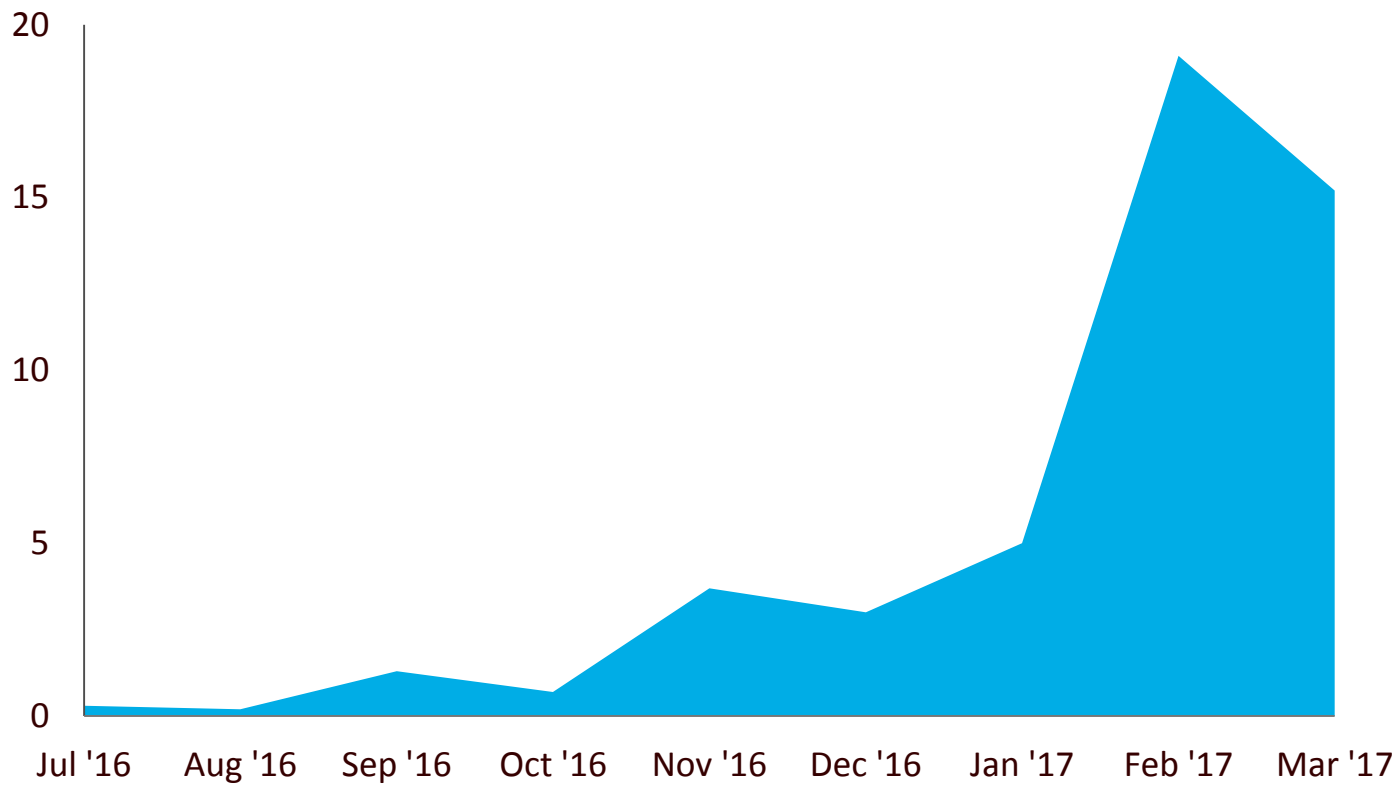
Financial summary – end of Q1 2017

Operations			
Cash	**NOK 147m**	USD 17m	*End of Q1 2017*
Annual run rate	**NOK 104m**	USD 12m	*Last four quarters*
Annual opex	**NOK 116m**	USD 13m	*Last four quarters*

The share	OSE: TRVX		
Daily liquidity	**NOK 14m**	USD 1.6m	*Last three months avg.*
Market Cap	**NOK ~900m**	USD ~100m	*At share price NOK ~21*
Debt	**NOK 43m**	USD 5m	*EUR 6m conditional*
No. of shares	**42.2m**		*46.0m fully diluted per April 18*
Analysts	DNB, ABG Sundal Collier, Arctic, Redeye, Norske Aksjeanalyser		

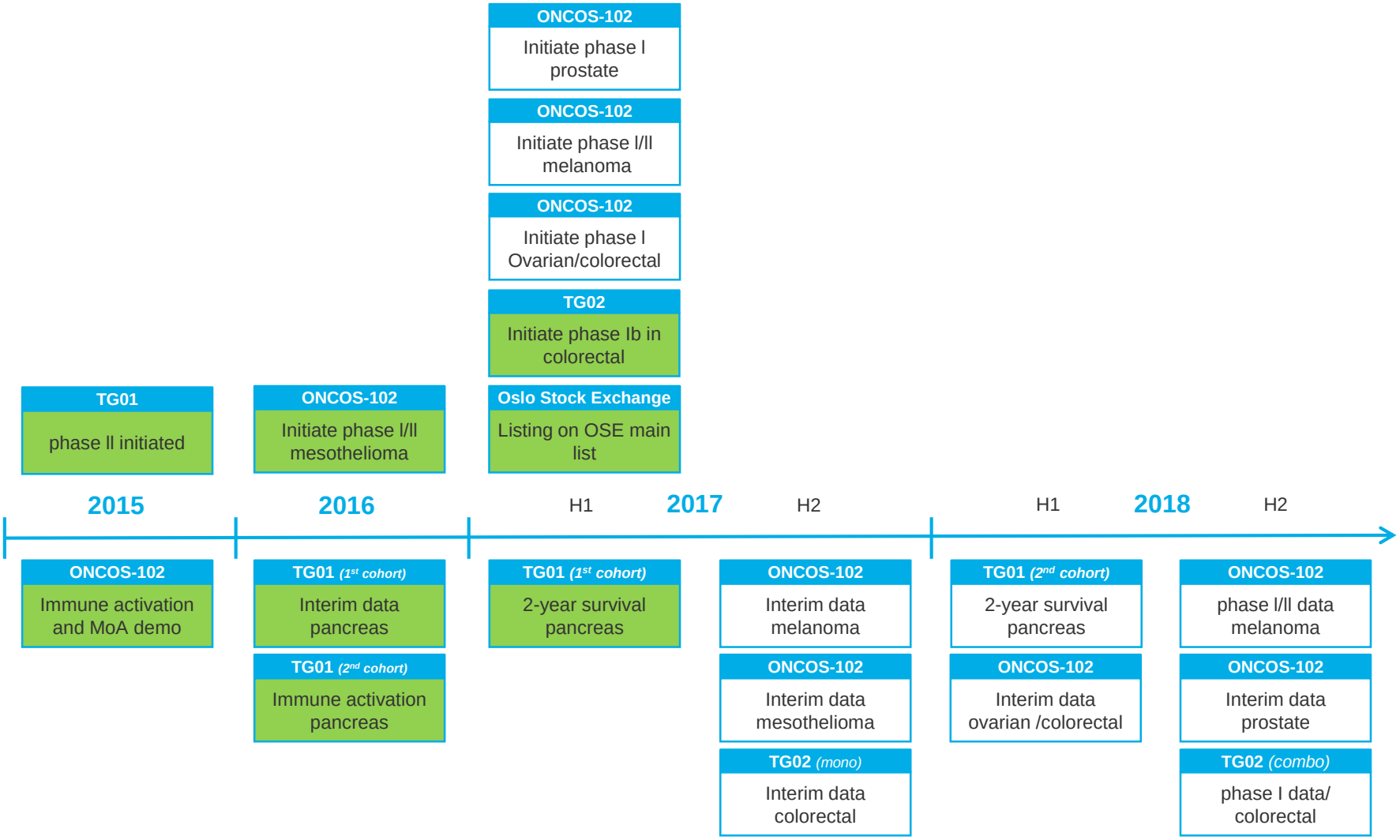
TRVX upgraded to the main list on OSE, and showed a positive trend in share turnover

Development in daily average share turnover *(NOK million / day)*



- ***NOK ~900m market cap***
- ***NOK 14m NOK*** *avg. daily turnover in last 3 months*
- ***NOK 850m*** *total turnover in Q1*
- ***560k shares*** *avg. daily volume in Q1*
- ***>3,500 owners***
- ***42.2m shares*** *(46.0 fully diluted)*

Multiple near term value inflection points



Arming the patient's immune system to fight cancer

1 **Core focus on immuno-oncology**	✓ Two differentiated product platforms, oncolytic adenovirus (ONCOS-102) and RAS-peptide cancer vaccine (TG) ✓ Targeting refractory solid tumors with combination trials
2 **Proprietary platforms and pipeline**	✓ Promising Phase I/II data from both platform technologies, with clinically demonstrated immune activation and signal of efficacy
3 **Multiple near term value inflection points**	✓ Six combination trials started or about to start (phase I & II) ✓ All six trials read out in 2017-2018
4 **Corporate**	✓ TRVX transferred to the OSE main list in Q1 2017 ✓ Cash at approx. NOK 147m (USD 17m) ✓ Strong increase in share turnover

Appendix

Financial Snapshot

NOK m	1Q16	2Q16	3Q16	4Q16	1Q17
Total revenue	**0**	**0**	**0**	**0**	**0**
External R&D expenses	-11	-12	-11	-12	-9
Payroll and related expenses	-13	-12	-10	-13	-11
Other operating expenses	-7	-8	-4	-6	-7
Total operating expenses	**-31**	**-32**	**-25**	**-31**	**-27**
Operating loss	-31	-32	-25	-31	-27
Net financial items	-1	-1	-1	-1	-0
Loss before income tax	-32	-33	-26	-32	-27
Net change in cash	-33	-34	85	-21	-24
Net cash EOP	**141**	**107**	**193**	**172**	**147**

Strong shareholder base as per April 18th 2017

Shareholder		Estimated ownership	
		Shares m	*Relative*
HealthCap	Sweden	11,2	26,4 %
RadForsk	Norway	4,1	9,7 %
Nordea	Norway	3,0	7,2 %
KLP	Norway	1,6	3,7 %
Nordnet Livsforsikring	Norway	1,4	3,3 %
Statoil	Norway	0,9	2,2 %
Danske Bank (nom.)	Denmark	0,8	1,8 %
Timmuno AS	Norway	0,7	1,7 %
Prieta AS	Norway	0,7	1,7 %
Rasmussengruppen	Norway	0,7	1,7 %
Nordnet Bank AB (nom.)	Sweden	0,7	1,5 %
Sundt AS	Norway	0,3	0,7 %
DNB	Norway	0,3	0,6 %
Avanza Bank AB (nom.)	Sweden	0,3	0,6 %
Thorendahl Invest AS	Norway	0,3	0,6 %
The Bank of NY Mellon (nom.	Belgium	0,2	0,5 %
Netfonds Livsforsikring AS	Norway	0,2	0,5 %
Tobech Invest AS	Norway	0,2	0,5 %
Istvan Molnar	Norway	0,2	0,4 %
Danske Bank (nom.)	Denmark	0,2	0,4 %
Top 20		**27,8**	**65,9 %**
Other shareholders (3566)		*14,4*	*34,1 %*
Total		**42,2**	**100,0 %**

42.2m ordinary shares

- Management ownership: 2.1%
- 3,586 shareholders

46.0m[1] shares fully diluted

- Average strike price on options ~NOK 21
- Total dilutive effect of options is 7.9%

[1] Includes outstanding options (3,634,263) and Restricted Stock Units (169,128) to Board members