Arming the immune system to fight cancer

June 2017

Important notice and disclaimer

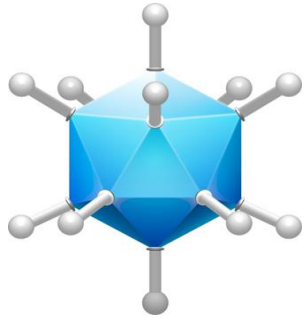
This report contains certain forward-looking statements based on uncertainty, since they relate to events and depend on circumstances that will occur in future and which, by their nature, will have an impact on the results of operations and the financial condition of Targovax. Such forward-looking statements 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'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.

Targovax is developing two novel proprietary immunotherapy platforms, with promising phase I/II data

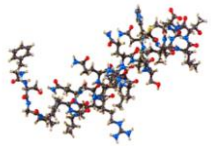
ONCOS-102
Oncolytic virus

- Genetically tailored Adenovirus
- Selectively infects and lyses cancer cells
- Releases cancer antigens
- Triggers immune response



TG01
Peptide vaccine

- Cocktail of 7 synthetic peptides mimicking clinically relevant RAS mutations
- Generates RAS-specific T-cells
- T-cells kill cancer cells displaying mutated RAS antigens on their surface



ONCOS-102 works by making cancer antigens visible to the immune system, thus generating tumor specific T-cells

Activate immune system:

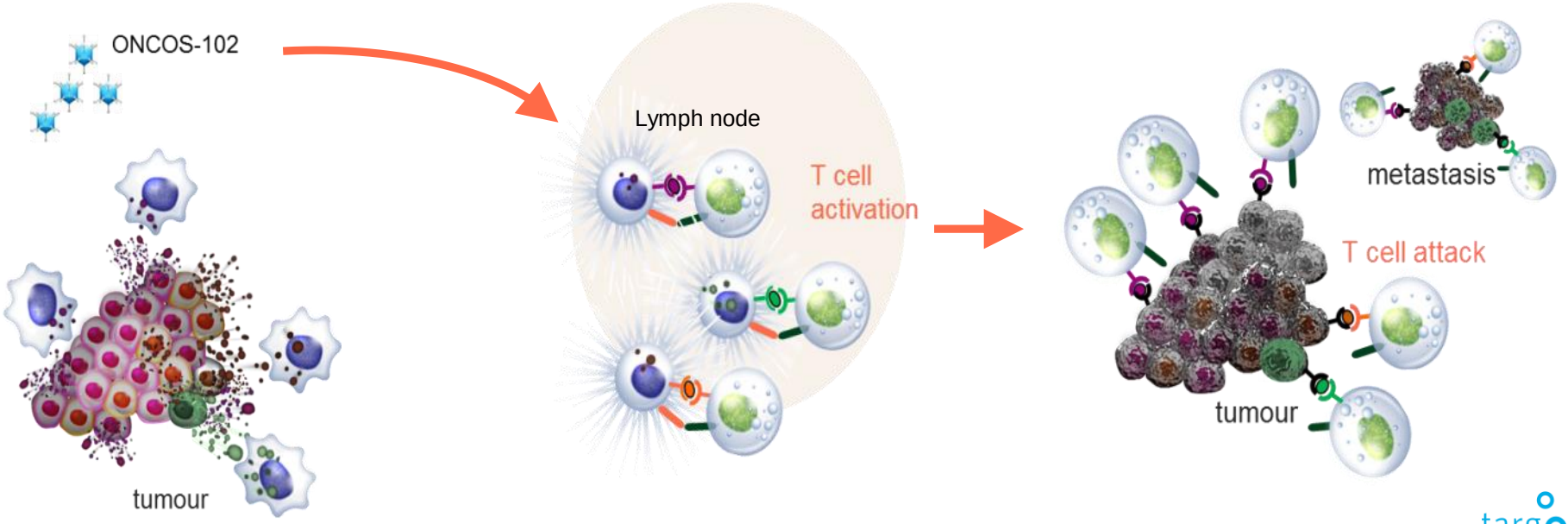
- Virus injected directly into the tumor / peritoneum
- Infected cells lyse and release cancer-specific antigens
- Immune system picks up antigens

Train T-cells:

- APCs present tumor specific antigens at lymph nodes
- Production of tumor specific T-cells

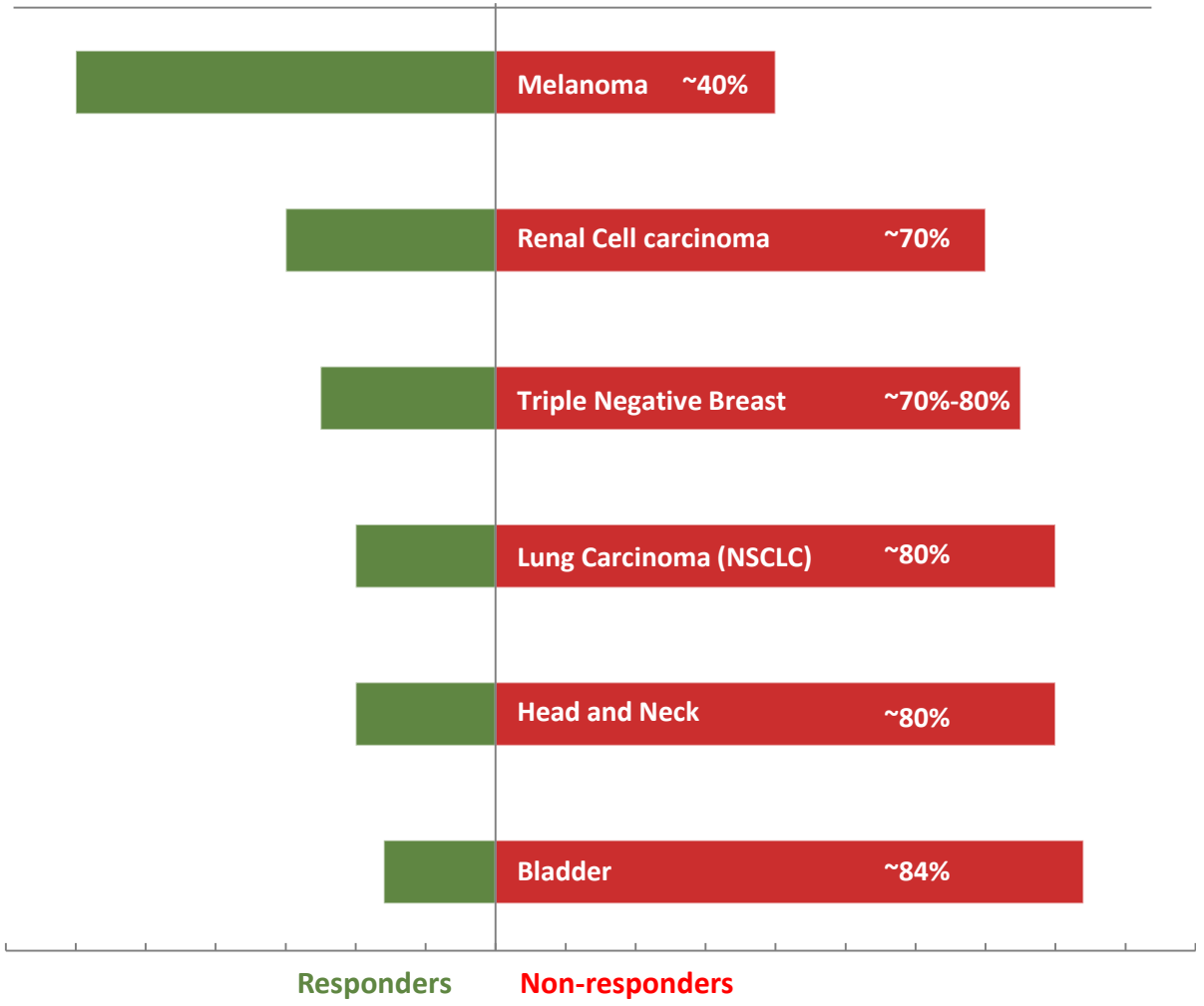
Attack the cancer:

- Tumor specific T-cells circulate in the body
- Identify lesions and kill the cancer cells



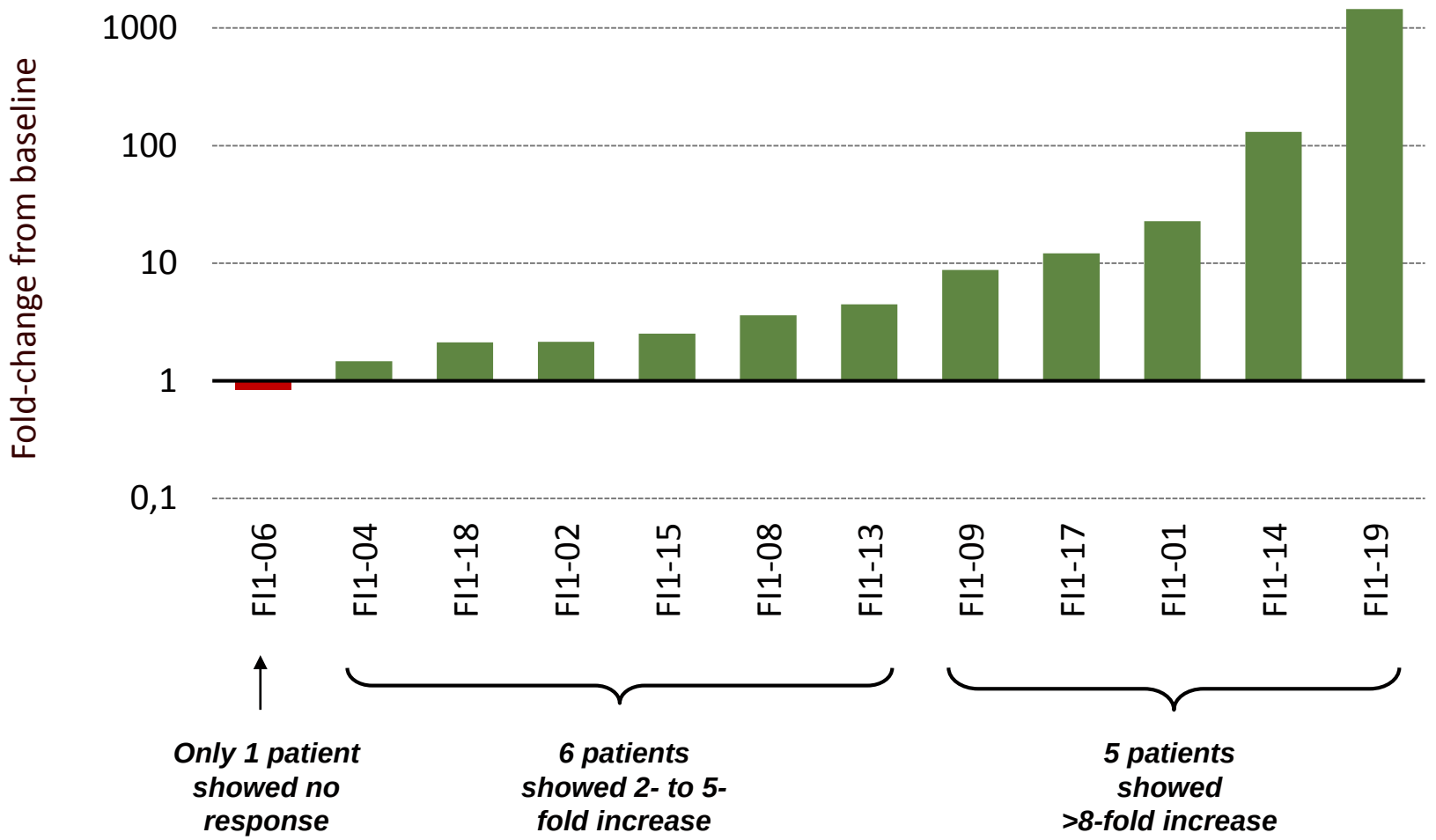
Most patients do not respond to check point inhibitors (CPIs), due to lack of T-cells in the tumor microenvironment

Response rate to checkpoint inhibitors (CPIs)



Complimentary ***immune priming medicines*** *may make tumors* ***respond better to checkpoint inhibitors***

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



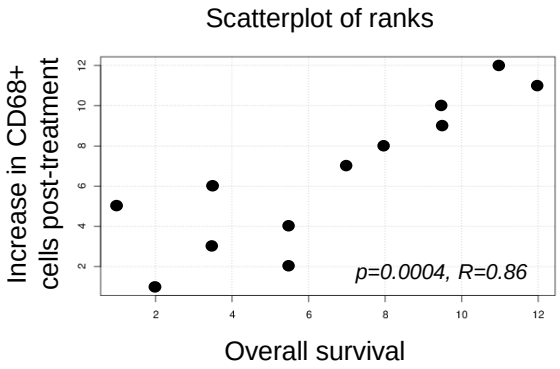
Ranki et al., Journal for Immunotherapy of Cancer 2016, 4(17)

In the initial Phase I ONCOS-102 trial tumor specific and systemic immune response was observed

Evidence that immune system recognizes tumor threat

Innate Immune System (biopsy)

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



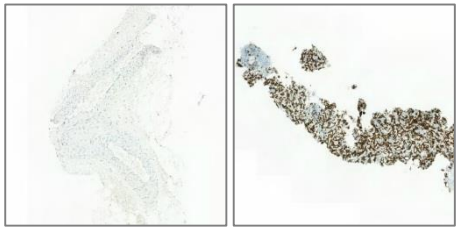
Correlation between post-treatment increase in innate immune cells and OS

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

Evidence of production of tumor antigen specific T-cells

Anti-tumor immune response (blood)

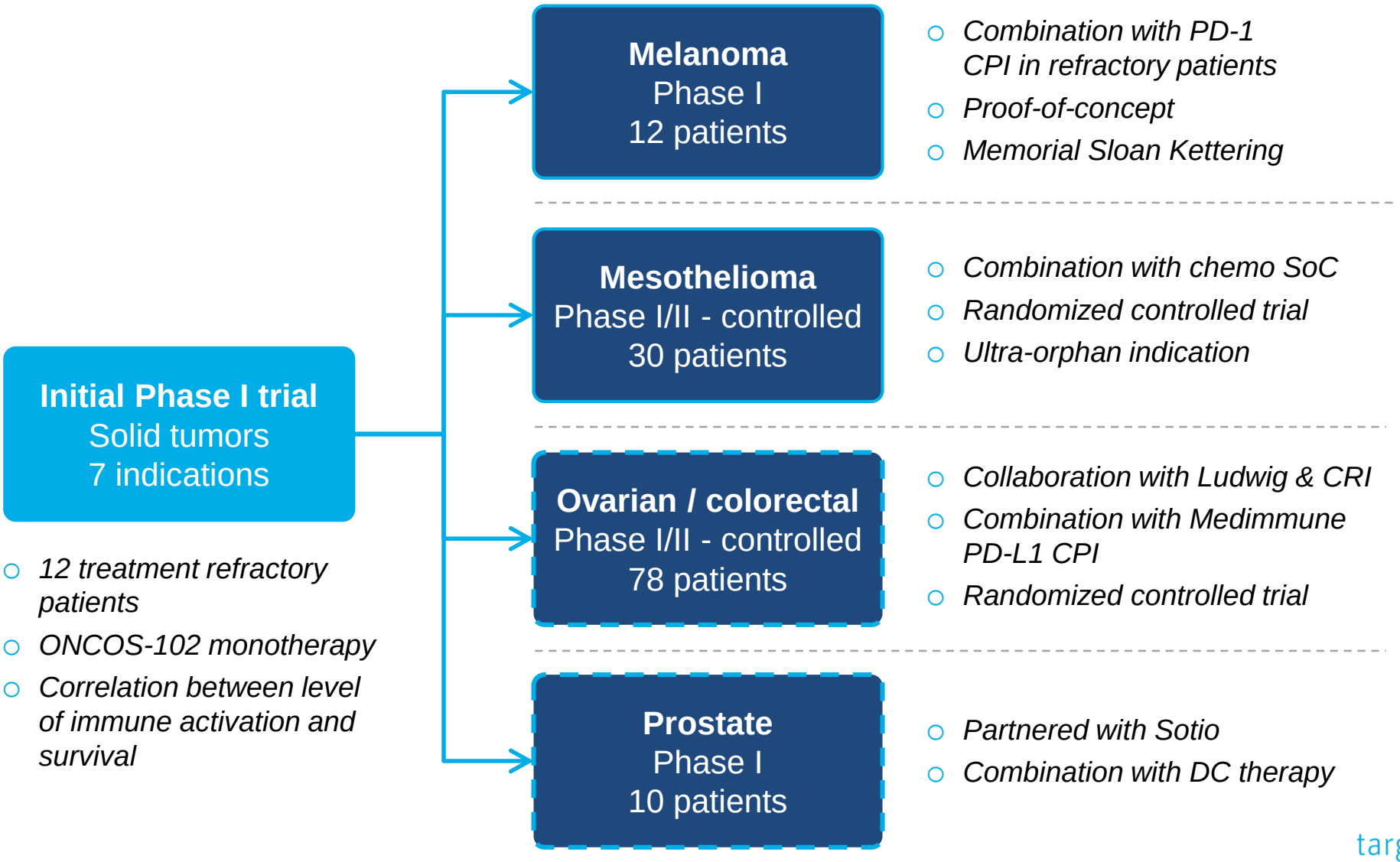
- Systemic induction of tumor-specific CD8+ T-cells

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

The encouraging Phase I results have triggered the initiation of a broad ONCOS-102 clinical program consisting of four new trials



Melanoma trial – will CPI refractory patients start responding after immune-priming with ONCOS-102?

Setting

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

Site

- 12 patients
- Memorial Sloan Kettering Cancer Centre

Key endpoints

- Safety
- Immune activation
- Clinical response data

Sequence

ONCOS-102 – 3 weeks → Keytruda – 5 months

Proof-of-concept

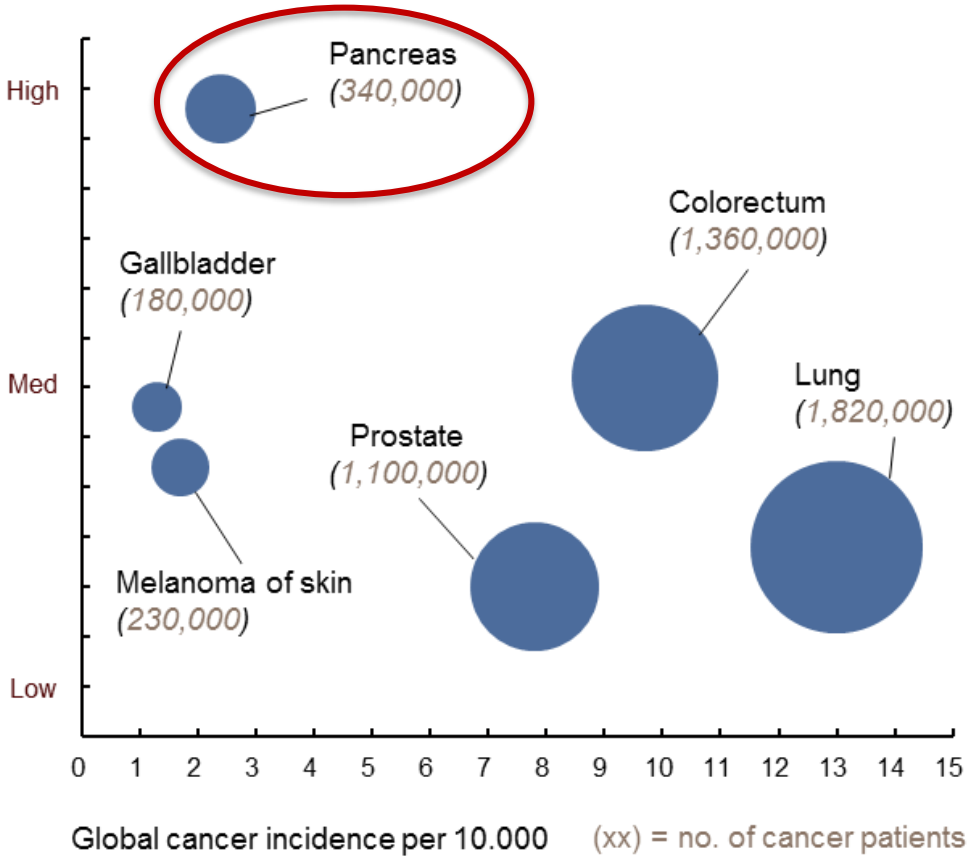
- *Will CPI refractory melanoma patients start responding to Keytruda after challenge by ONCOS-102?*

Agenda

- Introduction to immunotherapy
- ONCOS-102 oncolytic virus platform
- **TG RAS-peptide vaccine platform**
- Targovax clinical program overview
- Financial highlights

RAS is a key regulator of cell cycle that is mutated in 20-30% of all cancer patients, and >85% of pancreatic cancers

Incidence of RAS mutations



- One of the **most common mutations** in cancer
- RAS is one of the most **well-defined neoantigens**
- Results in **cell division permanently switched on**
- **No existing therapies** targeting RAS
- Occurs in **>85% of pancreatic cancer** patients

The TG peptides prime the immune system to recognize and destroy RAS mutated cancer cells

Activate immune system:

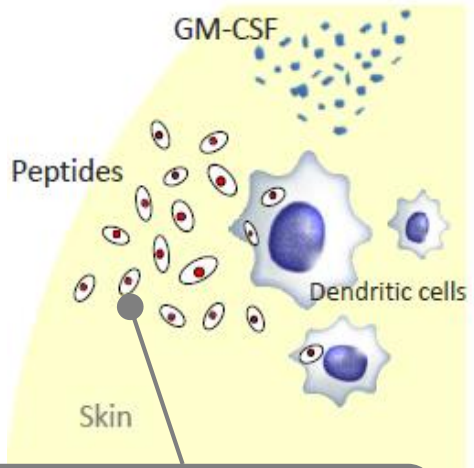
- TG peptides injected into the skin with GM-CSF adjuvant
- APCs pick up the TG RAS antigens

Train T-cells:

- APCs migrate to lymph nodes and present RAS specific antigens
- Production of RAS specific T-cells

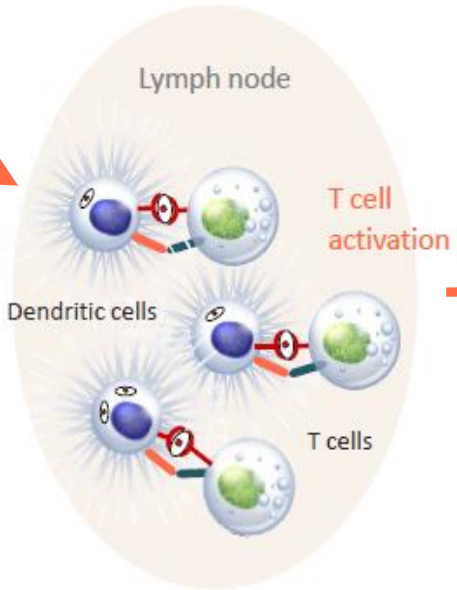
Attack the cancer:

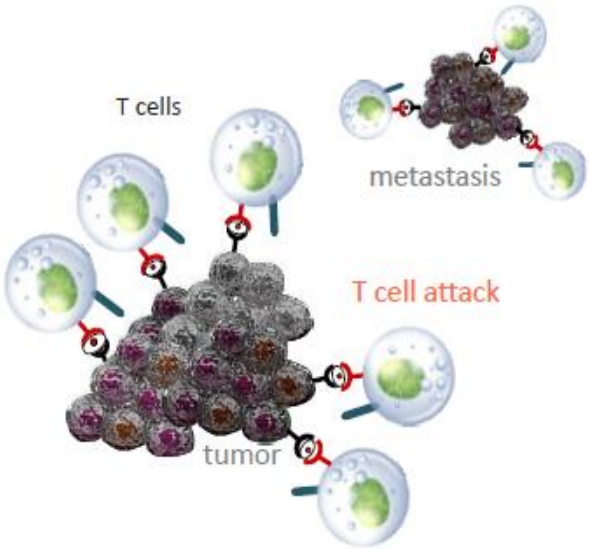
- RAS specific T-cells identify mutated RAS antigens on cancer cell surface
- Killer T-cells destroy the cancer cells



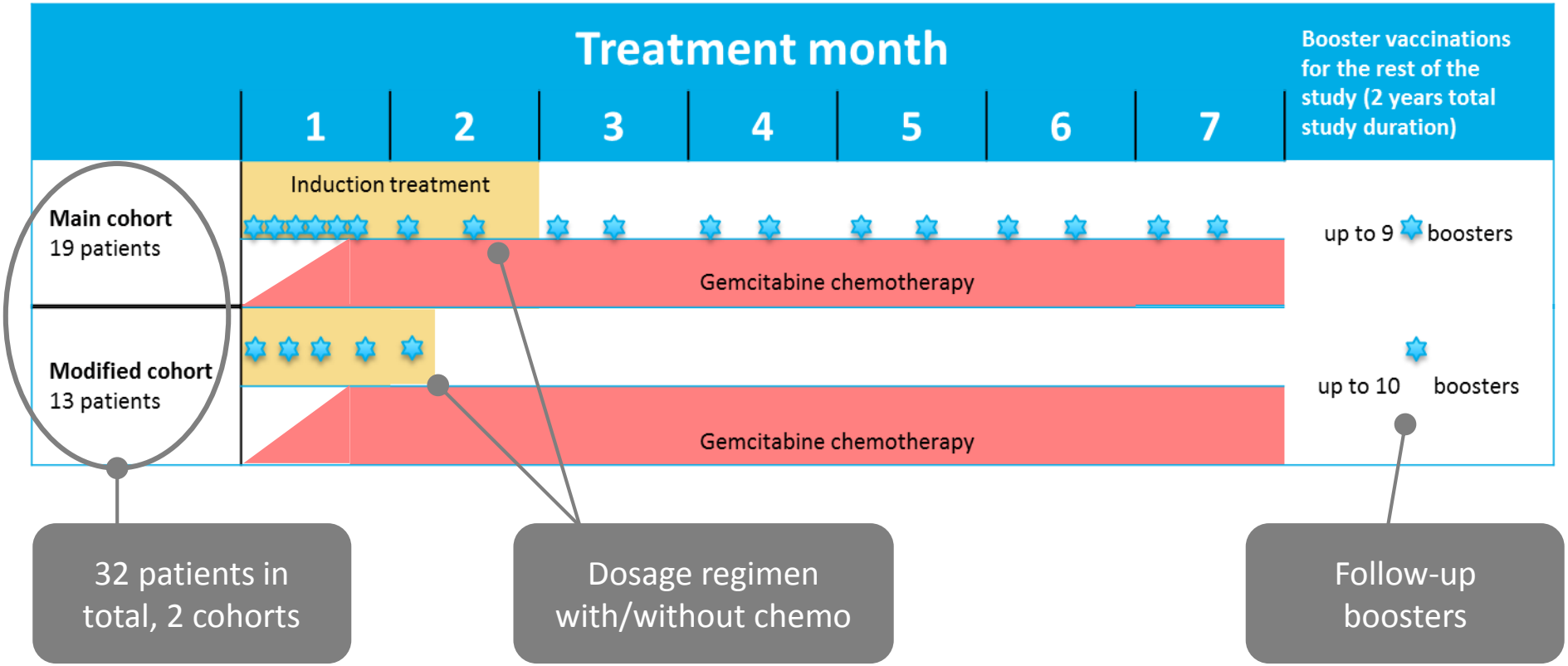
Cocktail of 7 peptides covering all relevant RAS mutations in pancreas

+ GM-CSF co-stimulation





A Phase I/II trial with TG01 in Resected Pancreatic Cancer is currently being completed



Key results from TG01 Phase I/II trial in resected pancreatic cancer: Signal of clinical efficacy

2 year OS

- **13 of 19 patients (68%) alive 2 years after surgery**
- Historical control 2 year OS range from 30-53%[1]

Median survival

- **33.1 months**
- 27.6 months for SoC (Gemcitabine) in ESPAC-4 study[2]

Immune response

- **16/18 patients (89%) showed TG specific immune sensitivity (DTH)** (analysis lacking for one patient)

Resection status

- **R0: 32 %** (6/19 patients) **R1: 68%** (13/19 patients)
- Historical comparisons range from ca. 35-60% R1 patients

Safety

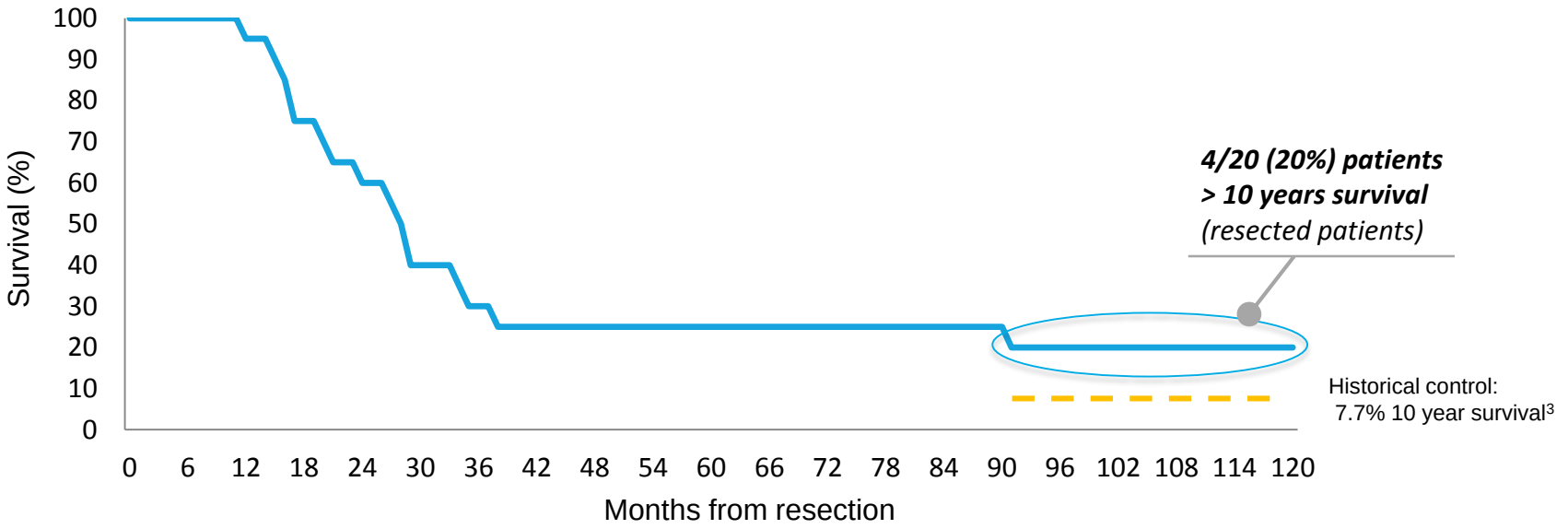
- **Treatment regimen generally well-tolerated**
- Some manageable allergic reactions were seen

1: Relevant historical control trials, not including ESPAC-4, which did not report 2 year OS

2: Based on ESPAC-4 reported 25.5 months median OS from randomisation, adding median time from surgery to randomization of 64 days (2.1 months)

These results are backed by encouraging 10 year survival data and immune response correlation from earlier trials

Long-term data from earlier TG mono-therapy trials – resected pancreatic cancer



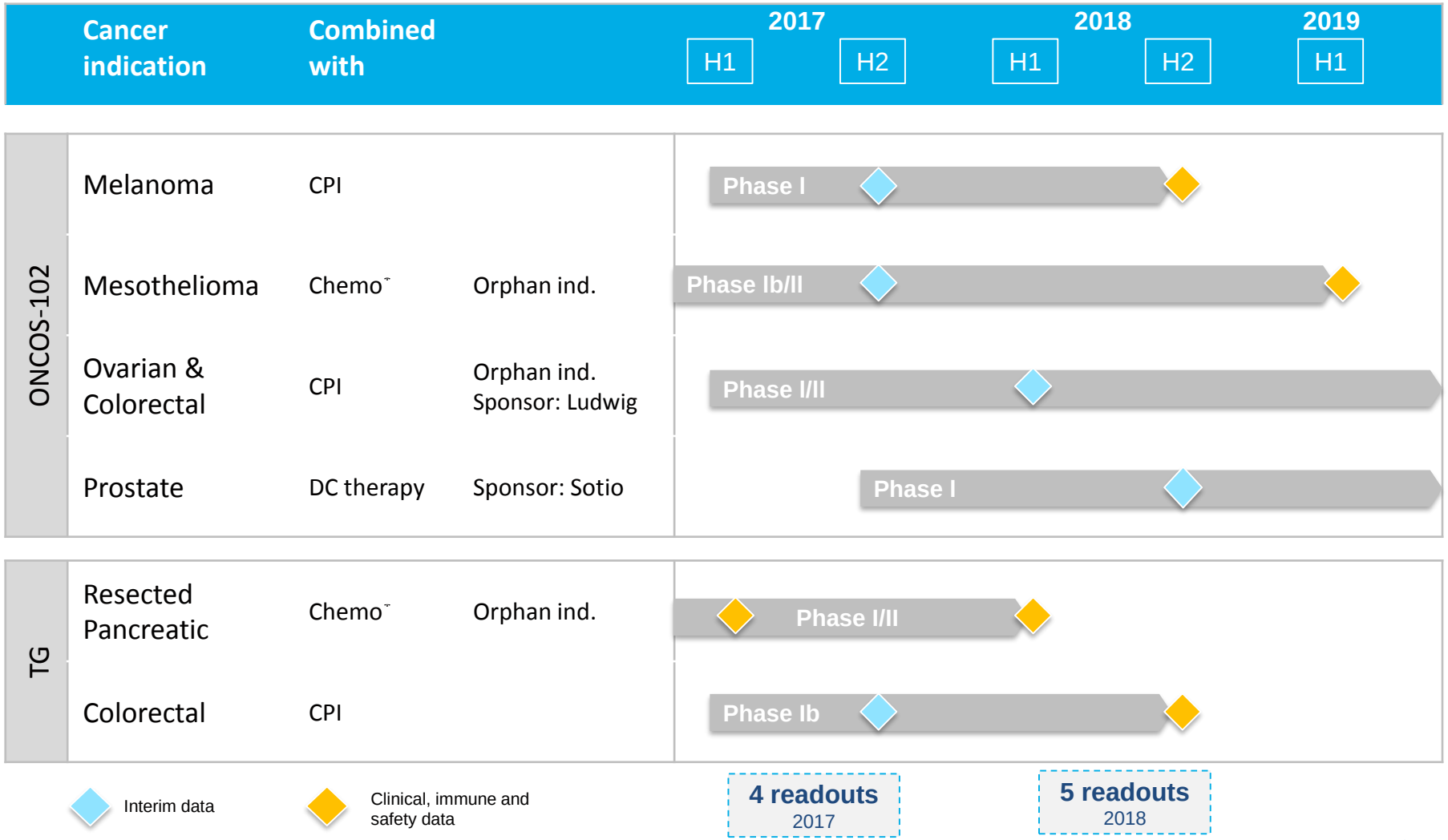
Advanced pancreatic cancer TG01/GM-CSF (mono-therapy)	Evaluable patients	Median survival (from 1st vaccination)	1 year survival (from 1st vaccination)
Detected immune response	14 / 25 (56%)	156 days	3 (21%)
Not detected Immune response	11 / 25 (44%)	109 days	1 (9%)

(Clinical study report CTN RAS 98010 on file)

Significantly better outcome for patients with immune response *(non-resected)*

[1] Wedén et al., 2011 [2] Oettle H et al., JAMA 2007, vol 297, no 3 [3] Oettle H et al., JAMA 2013, vol 310, no 14

Two platforms and six clinical trials in total ensures a diversified program with frequent data readouts



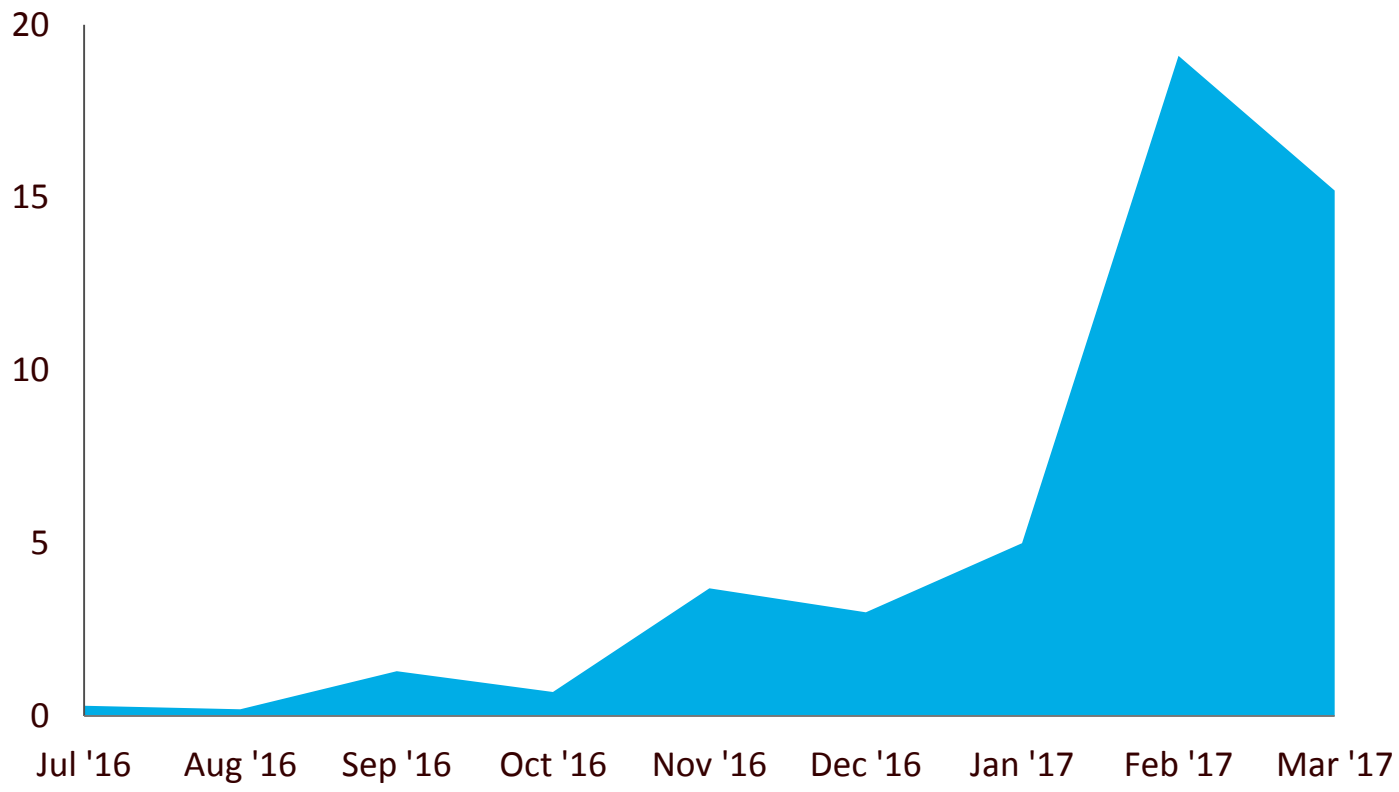
Financial summary – end of Q1 2017

Operations			
Cash	**NOK 147m**	USD 17m	*End of Q1 2017*
Net cash flow	**NOK -24m**	USD -3m	*Total Q1*
Annual run rate	**NOK 104m**	USD 12m	*Last four quarters*
Annual opex	**NOK 116m**	USD 13m	*Last four quarters*

The share	OSE: TRVX		
Market Cap	**NOK ~1bn**	USD ~120m	*At share price NOK ~24*
Daily turnover	**NOK 14m**	USD 1.6m	*Last three months avg.*
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 was upgraded to the main list on OSE in March, and has showed a positive trend in share turnover in 2017

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



- ***NOK ~1.2b 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)*

Strong shareholder base as per April 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

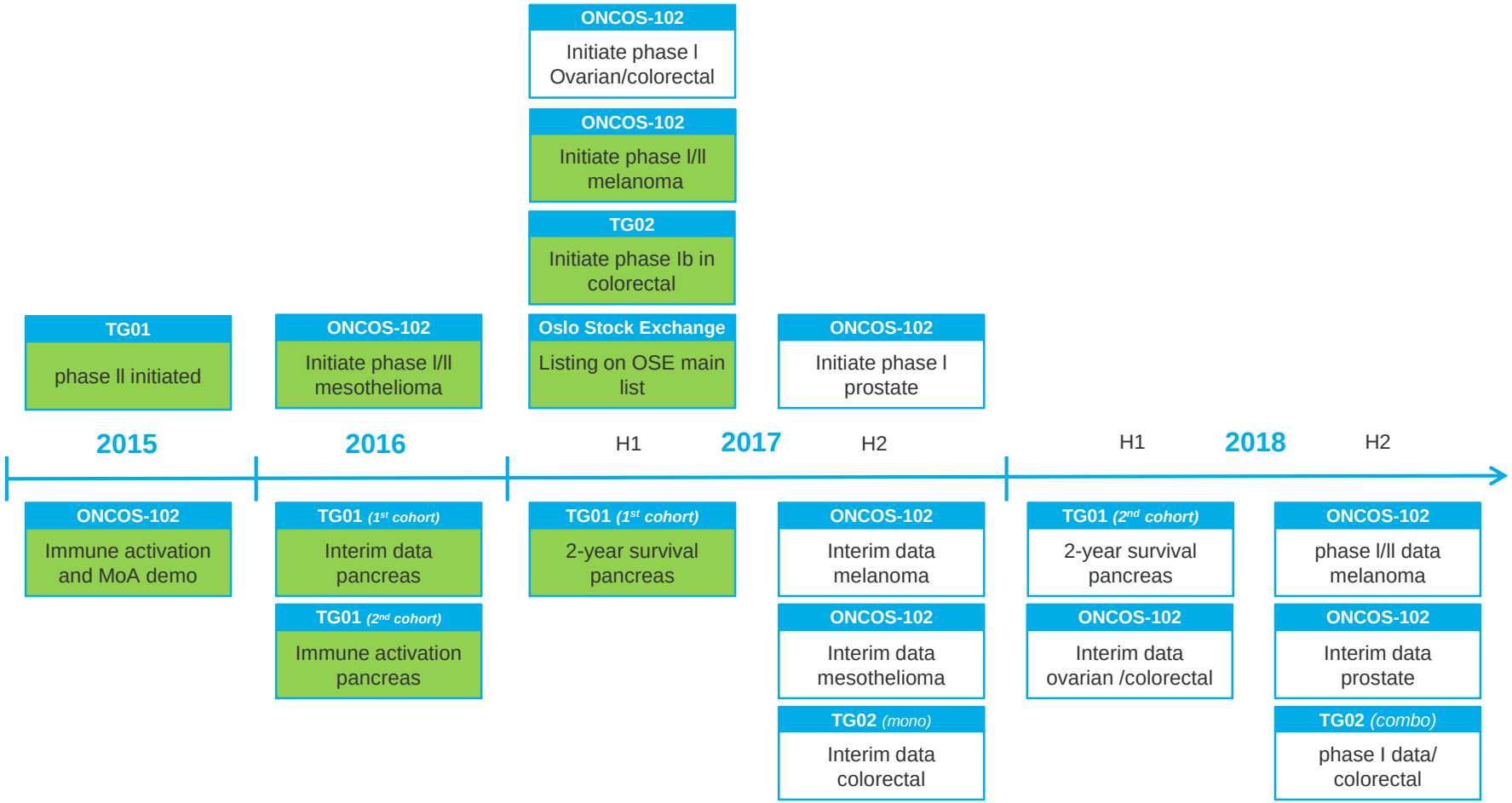
- Management ownership: 2.1%
- 3,586 shareholders

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

Multiple near term value inflection points

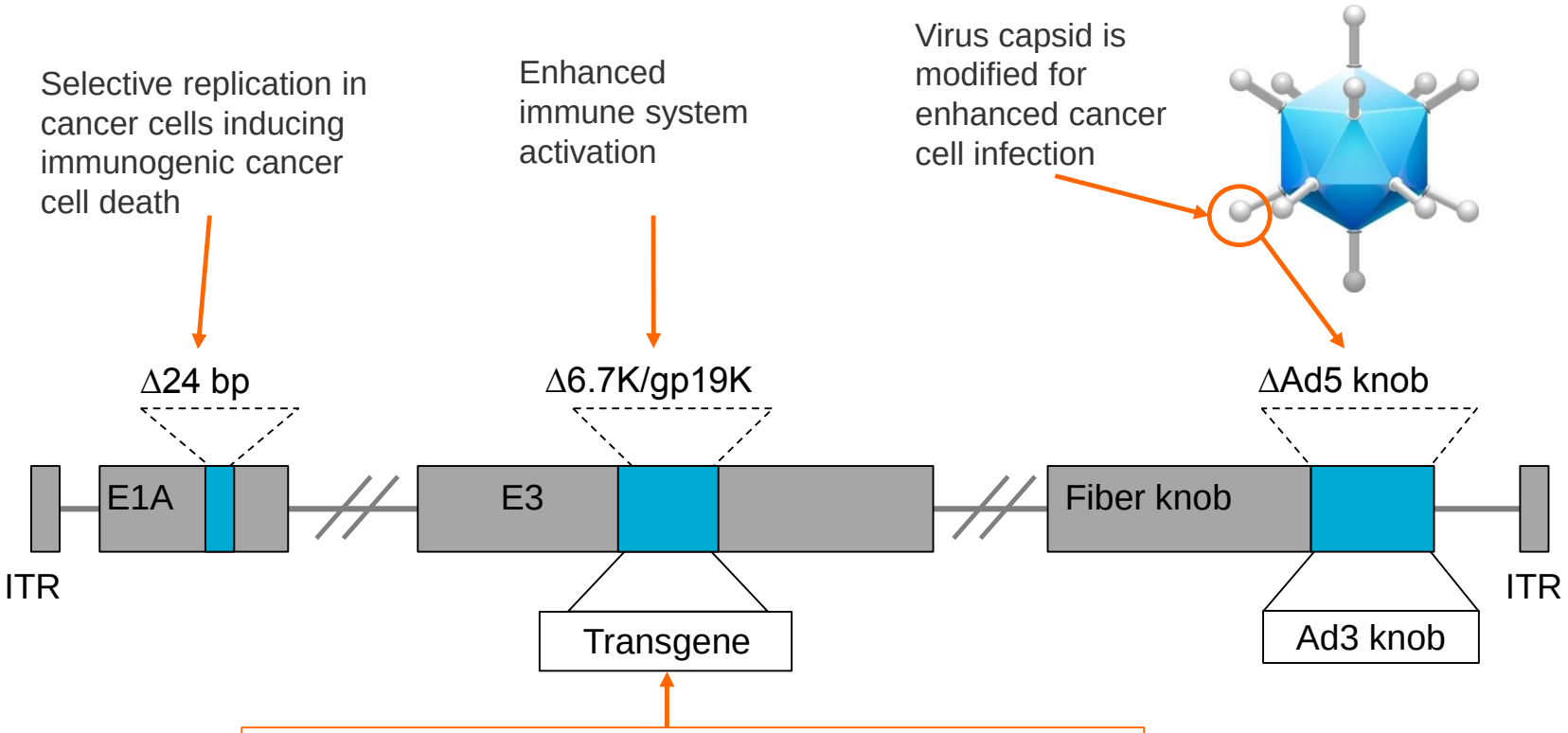


Arming the patient's immune system to fight cancer

1 TG	✓ Encouraging median survival and top line two-year OS data in resected pancreatic cancer
2 ONCOS	✓ Important proof-of-concept trial in CPI refractory melanoma
3 Clinical trials	✓ Six shots on goal, and steady news flow

Appendix

ONCOS-102: An adenovirus armed with different immune stimulating transgenes

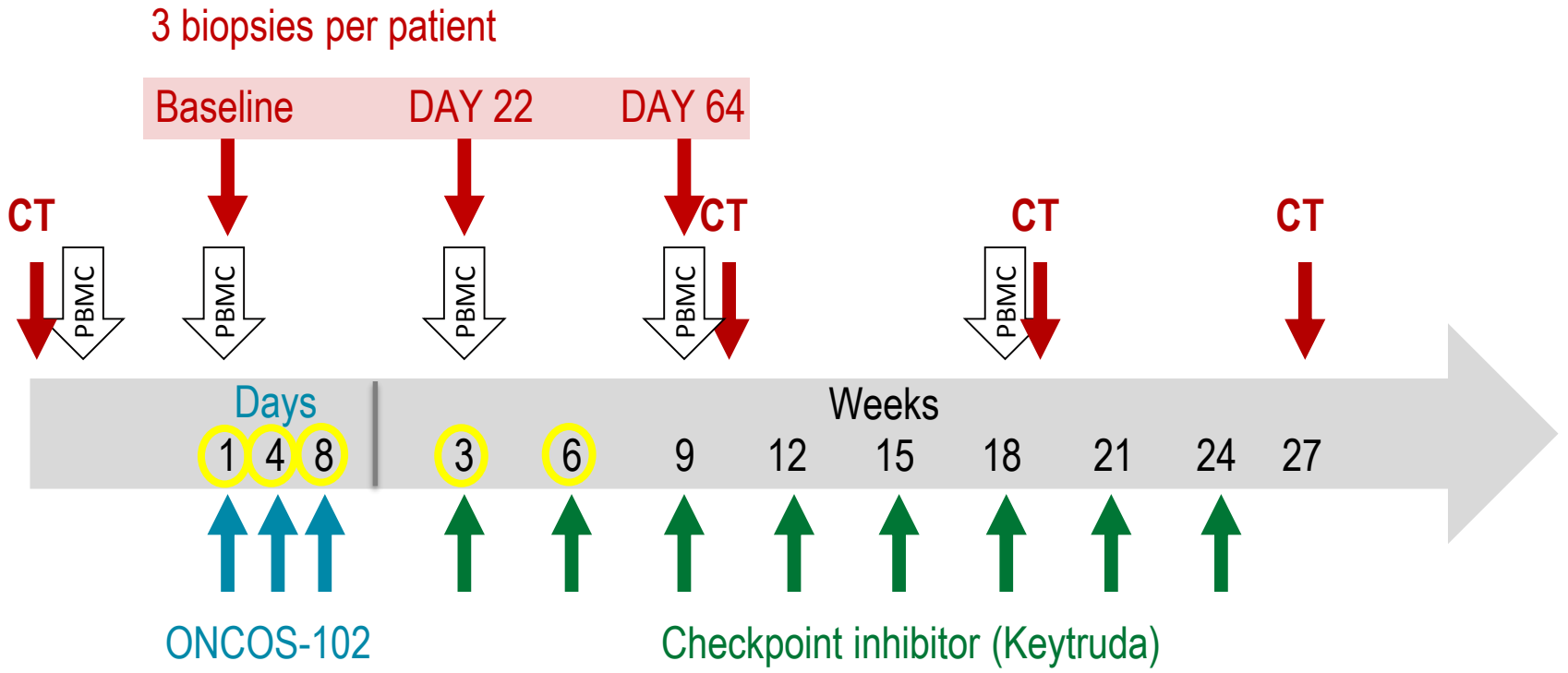


- A transgene enhances stimulation of the immune system
- GM-CSF transgene in ONCOS-102

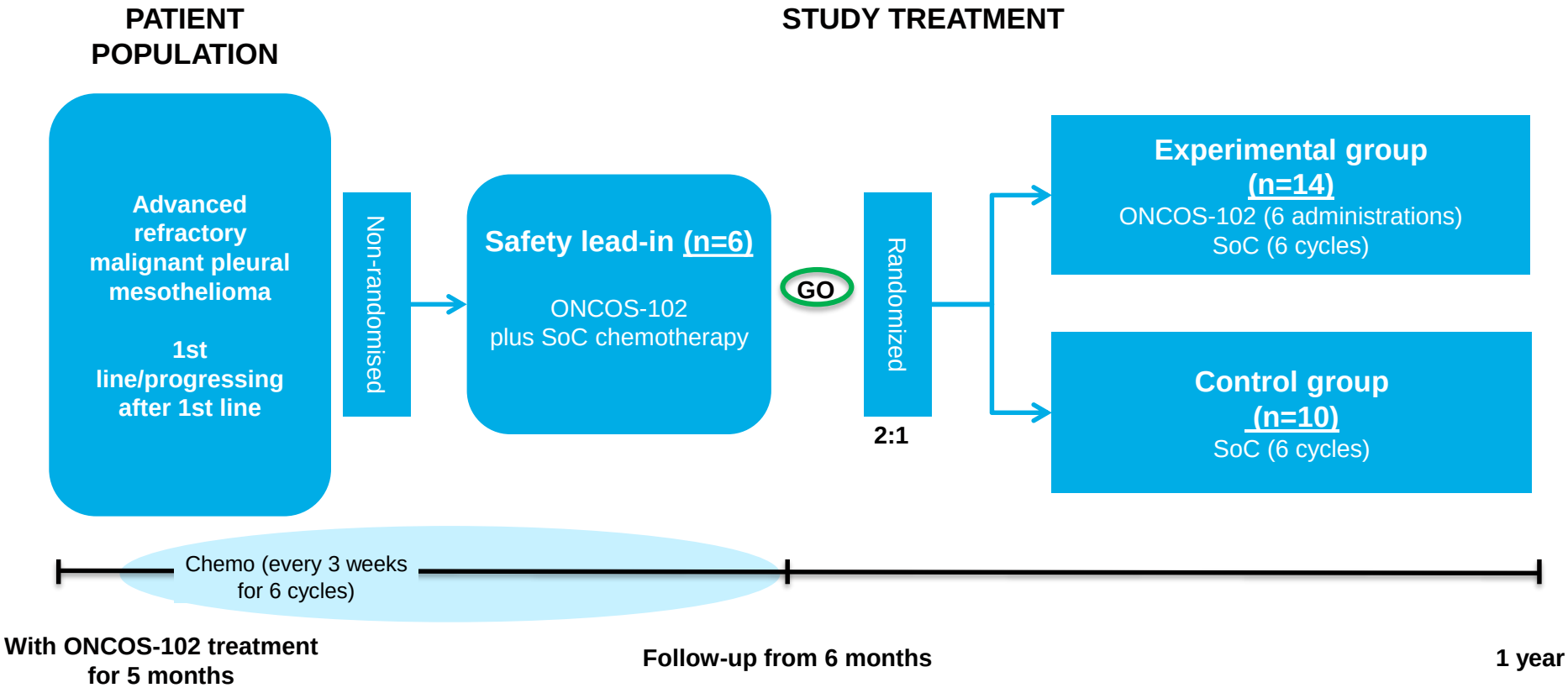
ONCOS-102: CPI refractory melanoma trial details

Open-label Phase I trial

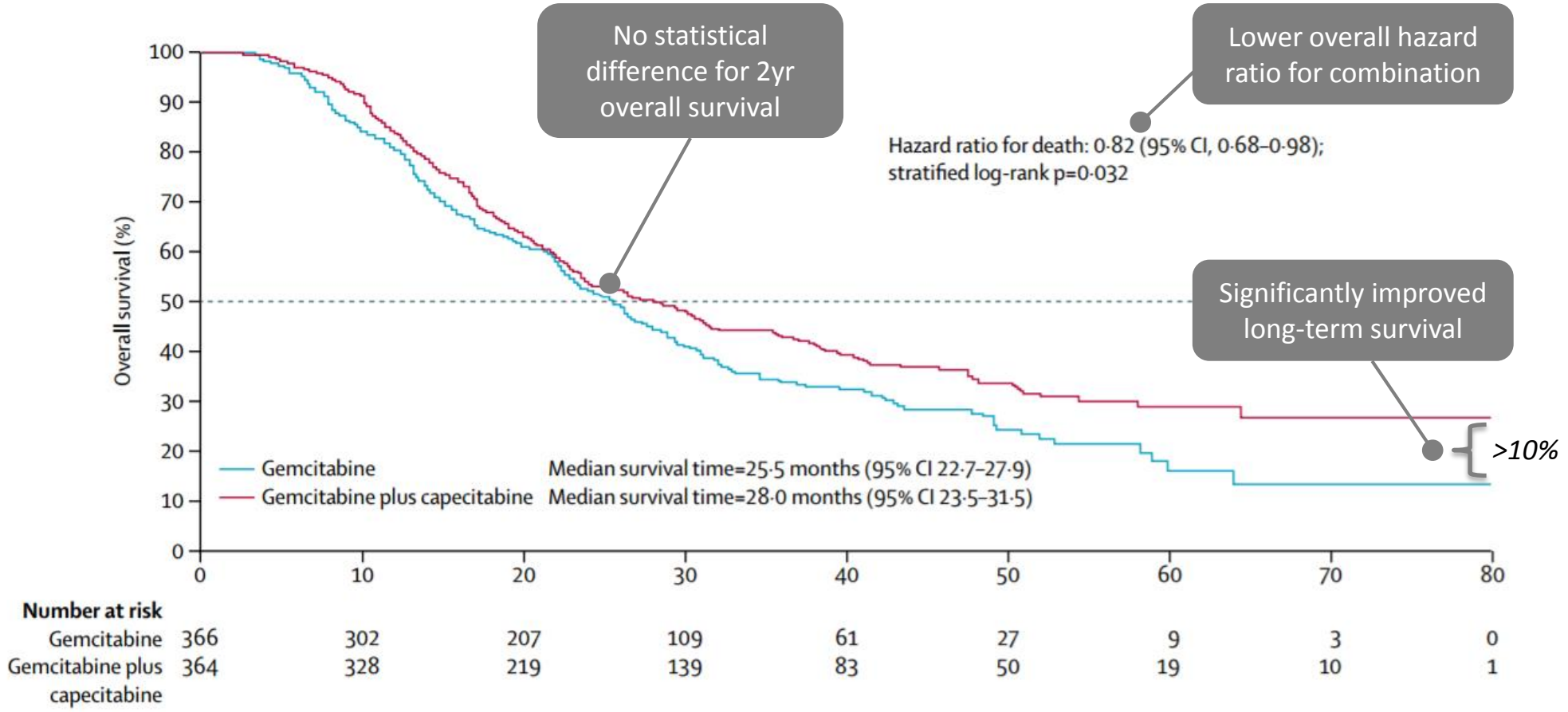
- ONCOS-102: 3 injections at day 1, 4 & 8
- CPI (Keytruda) at day 22, then every 3 weeks for 5 months



ONCOS-102 in Mesothelioma – Phase I/II study design (NCT02879669)

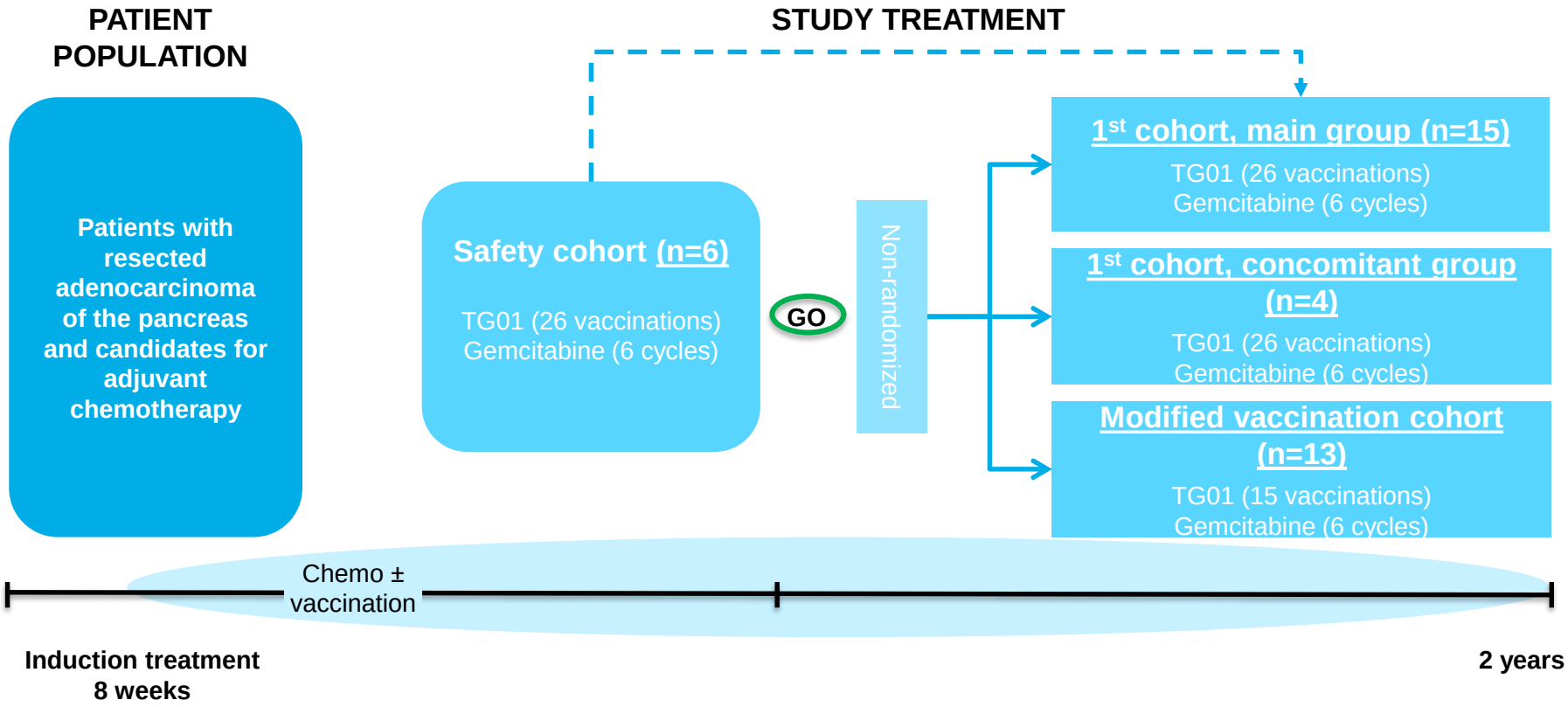


Resected pancreatic cancer patients only have chemotherapy as a treatment option, and long term survival is poor

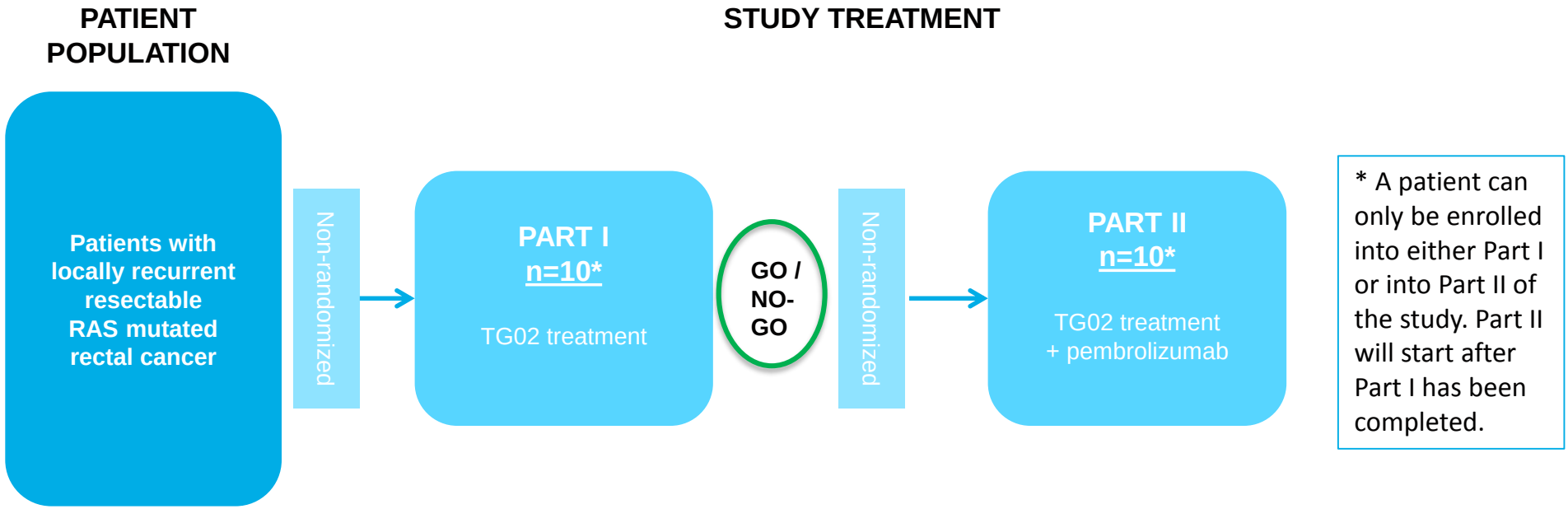


ESPAC-4 data; Neoptolemos et al., The Lancet 2017

TG01 in Resected Pancreatic Cancer – Phase I/II study design (NCT02261714)



TG02 in Colorectal Cancer – Phase I study design (NCT02933944)



Study plan →

1. Baseline biopsy and immune assay when patients enter the clinical trial.
   - Induction treatment with TG02 for the patients in Part I
   - Induction treatment with TG02 in combination with pembrolizumab for the patients in Part II
2. Surgery 8 to 14 weeks after initiation of treatment. Immune assay of resected tumor.

The results are being supported by 10 year long-term survival data from earlier TG trials

Historical data

Long-term data available from previous trials

- 4 out of 20 patients (20%) alive after 10 years in similar trial on resected pancreatic cancer
- Correlation between immune response and clinical outcome

RAS target

Highly specific and well-understood target

- RAS mutations are well-characterized neoantigens
- Exclusively found in cancer cells, and >85% of pancreatic cancers

Antigen targeting

Peptide design ensures full immune response

- 17 amino acid chain length activate both CD4+ and CD8+ T cells
- T-cells recognize mutated RAS antigens presented on the surface of cancer cells, with no need for intra-cellular targeting

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

Investment highlights

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 proprietary 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 ✓ Strong increase in share turnover ✓ Cash at approx. NOK 147m (USD 17m)

Highly experienced senior management team

Øystein Soug, CEO

Joined as CFO in April 2015 before being appointed CEO in November 2016. Before joining Targovax Oystein was CFO at Algeta, where he built up the functions of Finance, IR, Compliance, IT and HR, and oversaw its ultimate sale to Bayer for USDbn 2.9

Erik Digman Wiklund, CFO

Former consultant in the Pharma & Healthcare practice of McKinsey & Company, combined with a PhD in cancer research. Experience from management consulting, as well as commercial and operational roles in the biotechnology industry

Berit Iversen, VP, CMC

More than 25 years of experience within Research & Development in the pharmaceutical and biotech industry. Berit is a Chemist by training

Anne-Kirsti Aksnes, VP, Clinical Development

More than 20 years of experience within clinical research and development in the pharmaceutical and biotech industry and 10 years of experience working in clinical physiology.

Peter Skorpil, VP, Business Development

Extensive experience in licensing, commercial assessments, business intelligence and partnering and previously Commercial Director at Pronova BioPharma

Dr. Magnus Jaderberg, CMO

More than 25 years in various R&D functions and previously CMO at Bristol Meyers Squibb (Europe). Led development of Yervoy.

Jon Amund Eriksen, CTIO

35 years of R&D experience from pharmaceutical and biotech industry, 25 years within immuno-oncology. Co-founder of Targovax

Tina Madsen, VP, Quality Assurance

More than 20 years of experience within Research & Development and commercial manufacturing in the pharmaceutical and biotech industry, including quality assurance, process development and formulation

Tiina Hakonen, Site Manager Helsinki

More than 20 years of experience within clinical research and development in the pharmaceutical and biotech industry. Tiina has a Master of Science (Statistics) degree from the University of Oulu, Finland

Board of Directors

Jónas Einarsson, MD

- CEO of Radiumhospitalets Forskningsstiftelse
- On the board of several Norwegian Biotech companies, and was one of the initiators behind Oslo Cancer Cluster and the Oslo Cancer Cluster Innovation

Johan Christenson, MD, PhD

- Partner of HealthCap
- Previously supervised the healthcare portfolio of SEB Företagsinvest
- Senior management experience from Astra Pain Control and AstraZeneca
- PhD in basic neuroscience
- Author of 17 scientific articles

Per Samuelsson

- Partner of HealthCap
- Prior to joining HealthCap in 2000, he gained over 15 years of investment banking experience, mainly with Aros Securities in Sweden
- Prior to this Mr. Samuelsson was head of Research, also at Aros Securities

Eva-Lotta Allan

- Currently Chief Business Officer at Immunocore
- More than 25 years of experience from the biotechnology and life science industry in both private and public companies
- Has held senior positions at e.g. Ablynx, Vertex Pharmaceuticals and Oxford Asymmetry (Evotec)

Lars Lund-Roland

- CEO of Bringwell AB
- Previously MD of MSD Norway (Merck & Co Inc. subsidiary) and has more than twenty-five years' experience from various executive positions within marketing and sales
- Chairman of the Board of PI Innovation and has served as board member of Infodoc and Health Tech

Bente-Lill Romøren

- Board member of Radiumhospitalets Forskningsstiftelse and chairman of Farmastat and Photocure
- Previously employed by Novo Nordisk Scandinavia (1976-2012) in various positions, including position as CEO of the Norwegian unit (1983-2002, 2008-2012). Board member at Nordic Nanovector (2013-2014)

Robert Burns, PhD

- Consultant and advisor to companies developing immune based therapies in cancer
- Extensive experience in building biotechnology companies, previously CEO of 4-Antibody, Affitech and Celldex Therapeutics
- Previously Director at the Ludwig Cancer Research

Diane Mellett

- Consultant to biotech and medical device companies
- Qualified in both UK and US law
- Formerly General Counsel for Cambridge Antibody Technology (CAT)
- Led successful defence for CAT concerning a contractual dispute on Humira ®