DNB's 8th annual Nordic Healthcare Conference

14 December 2017

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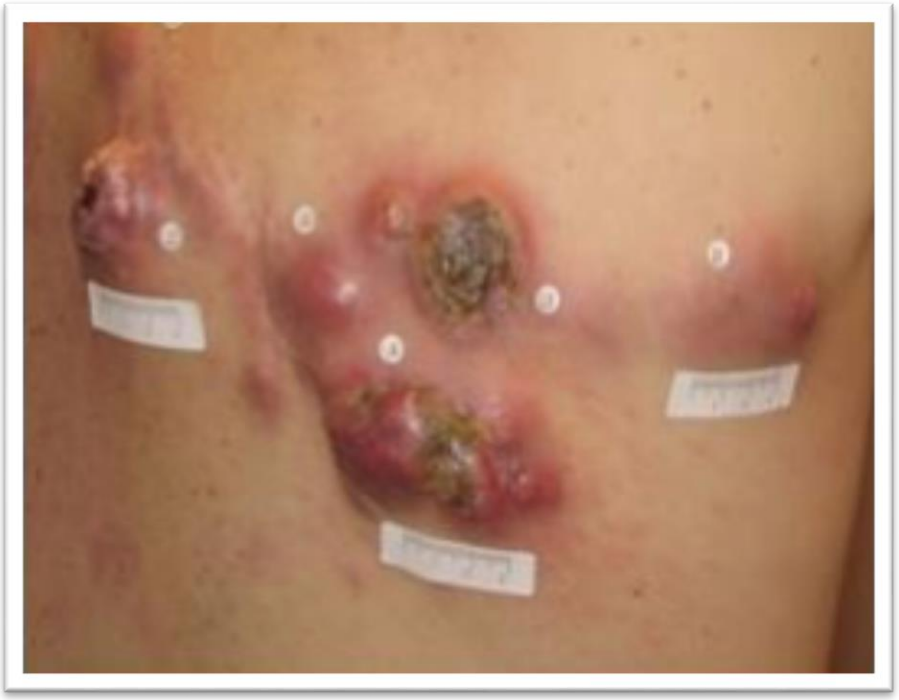
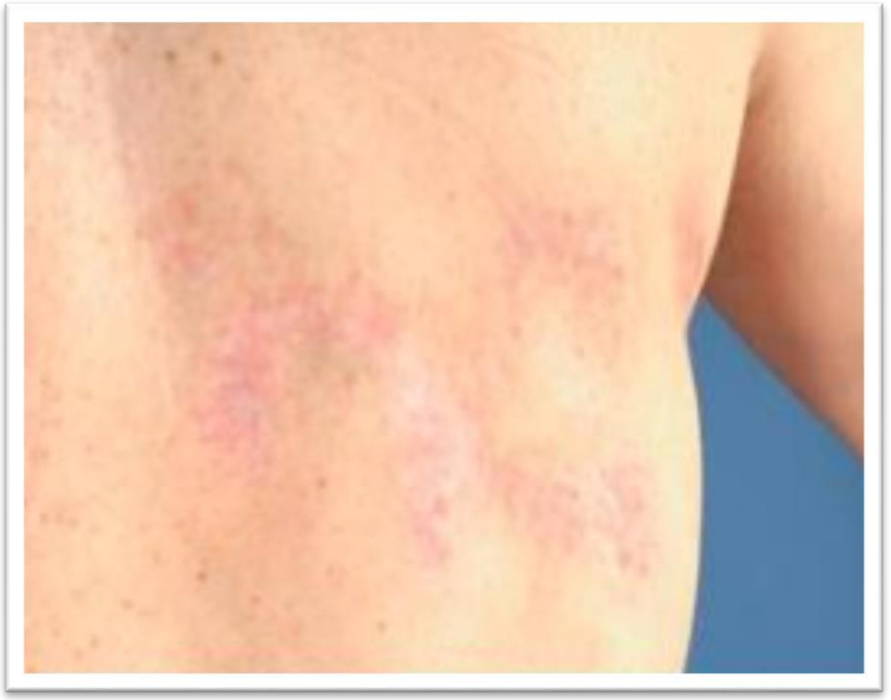
Immunotherapy has the potential to cure cancer

Patient example – Yervoy® checkpoint inhibitor trial



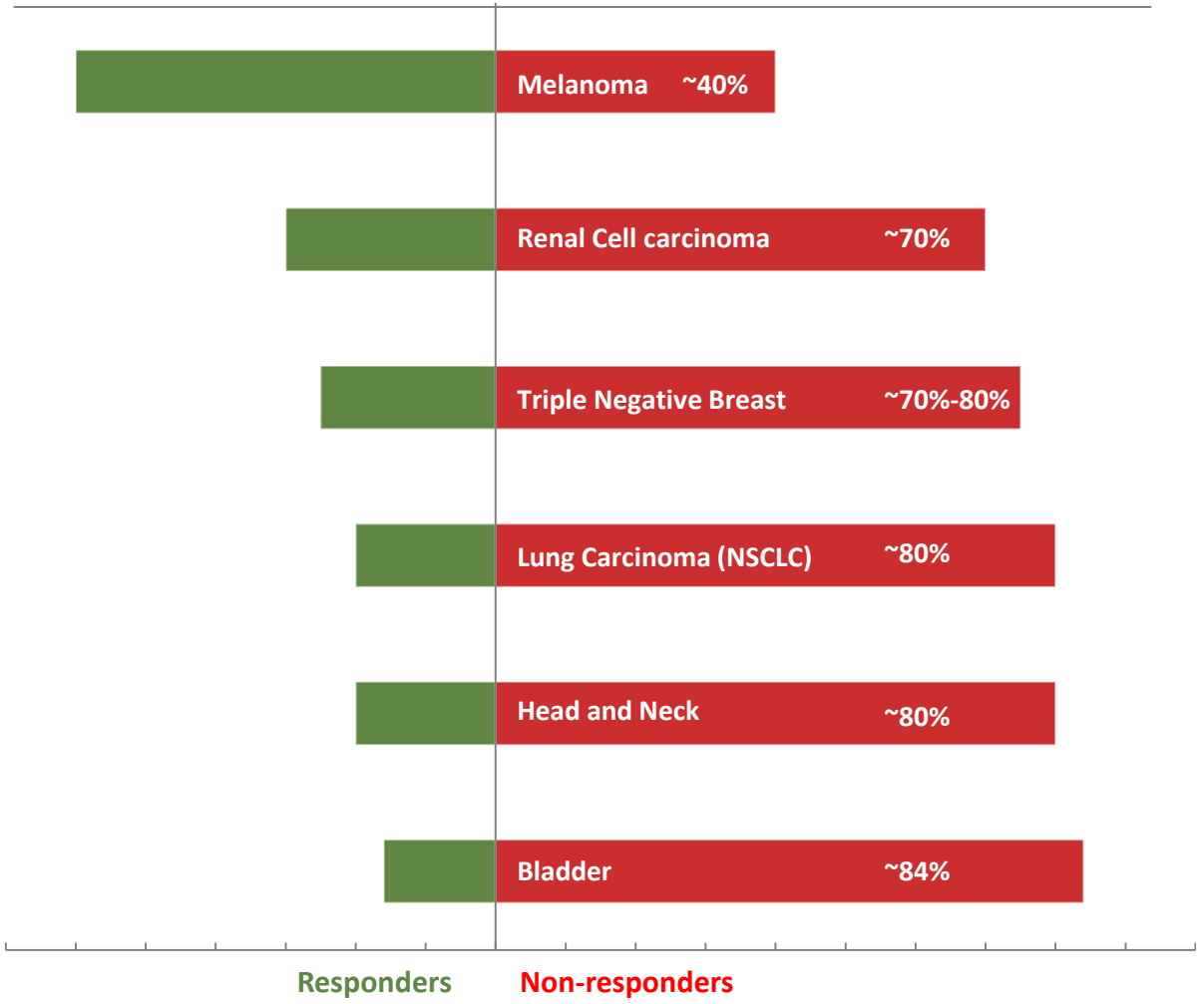
Prior to Yervoy®



1 year after

Most patients do not respond to currently available immunotherapies

Response rate to checkpoint inhibitors (CPIs)

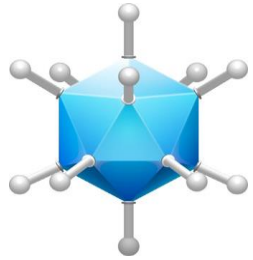


Boosting T-cells in tumors *may make checkpoint inhibitors* ***effective in more patients***

Targovax has two immuno-oncology programs in clinical development

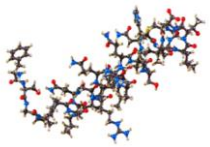
ONCOS
Oncolytic virus

- Genetically **designed adenovirus**
- Makes **cancer antigens** visible to immune system
- **Induces T-cells** specific to patients' tumor



TG
RAS neoantigen vaccine

- Cocktail of **synthetic peptides**
- Mimics cancer causing **RAS neoantigens**
- **Induces T-cells** specific to **RAS mutations**

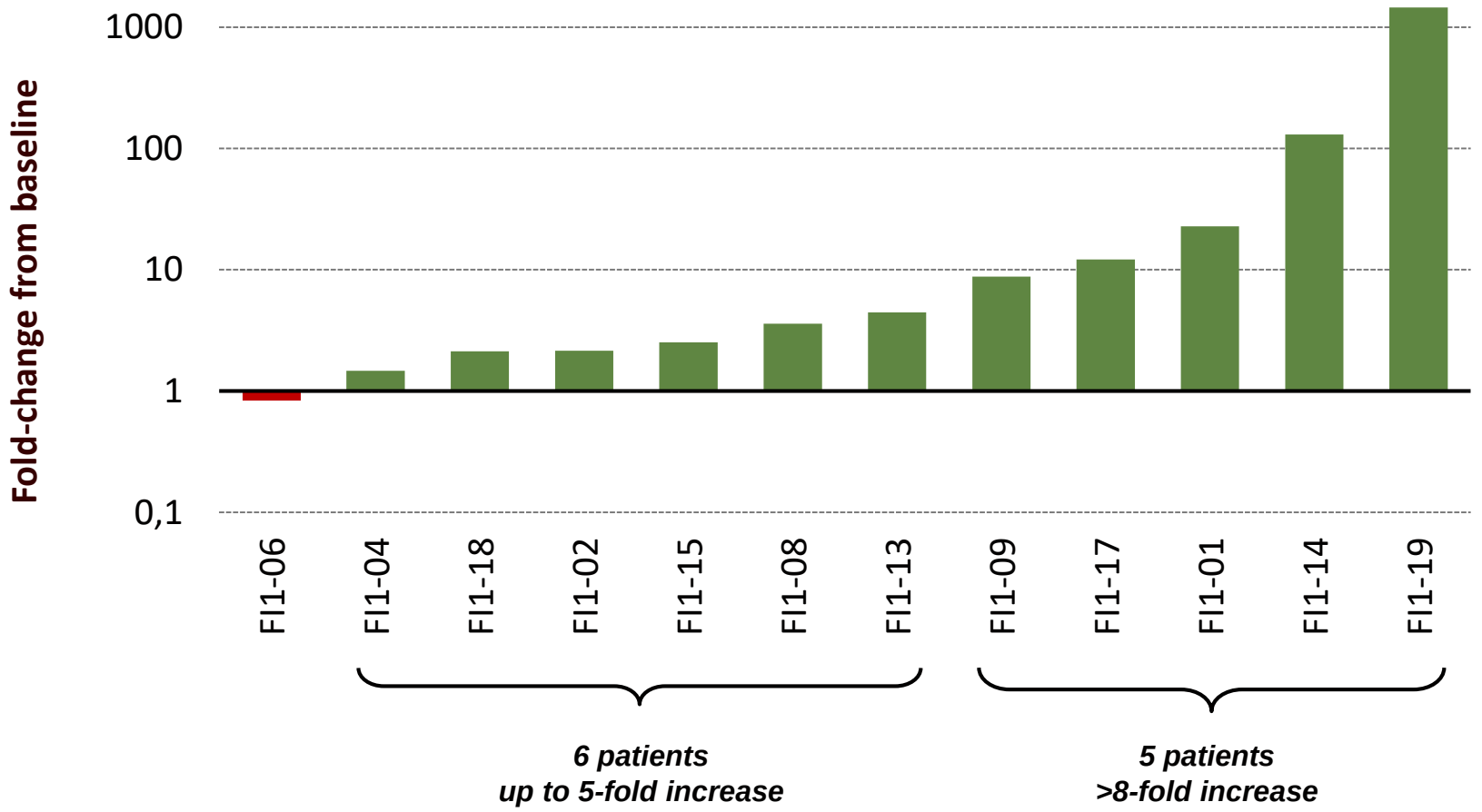


Agenda

- **ONCOS oncolytic virus platform**
- TG mutRAS neoantigen vaccine platform
- Targovax clinical program overview

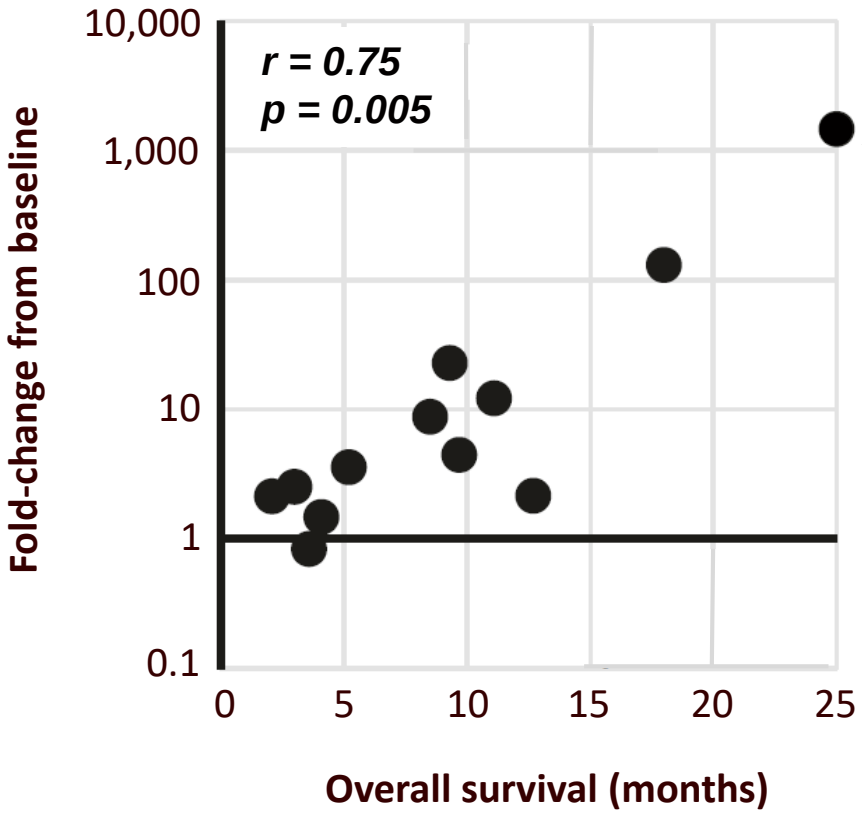
ONCOS-102 can increase T-cell count in tumors

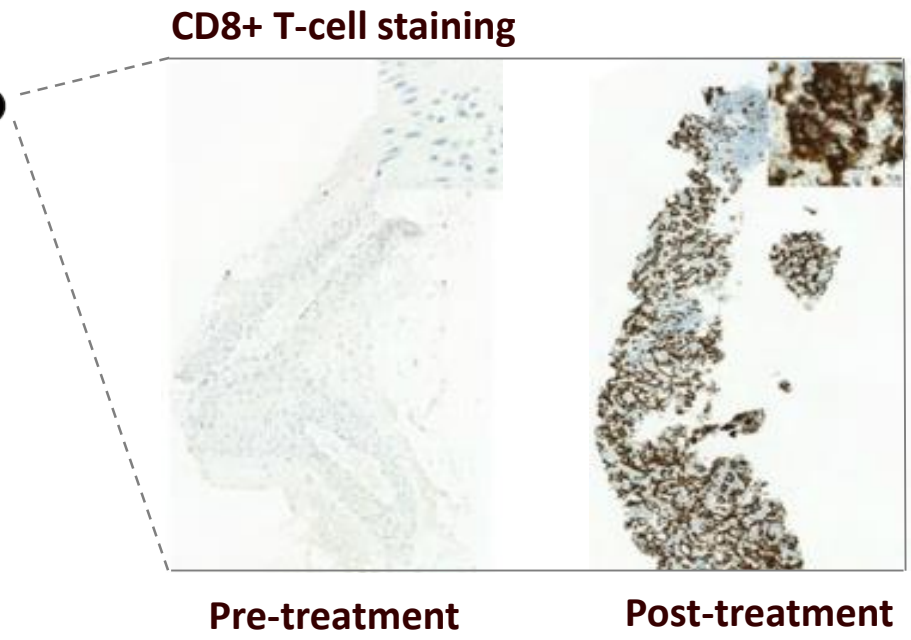
Phase I trial data: change in CD8+ T-cell count after treatment with ONCOS-102



The T-cell increase correlates with survival

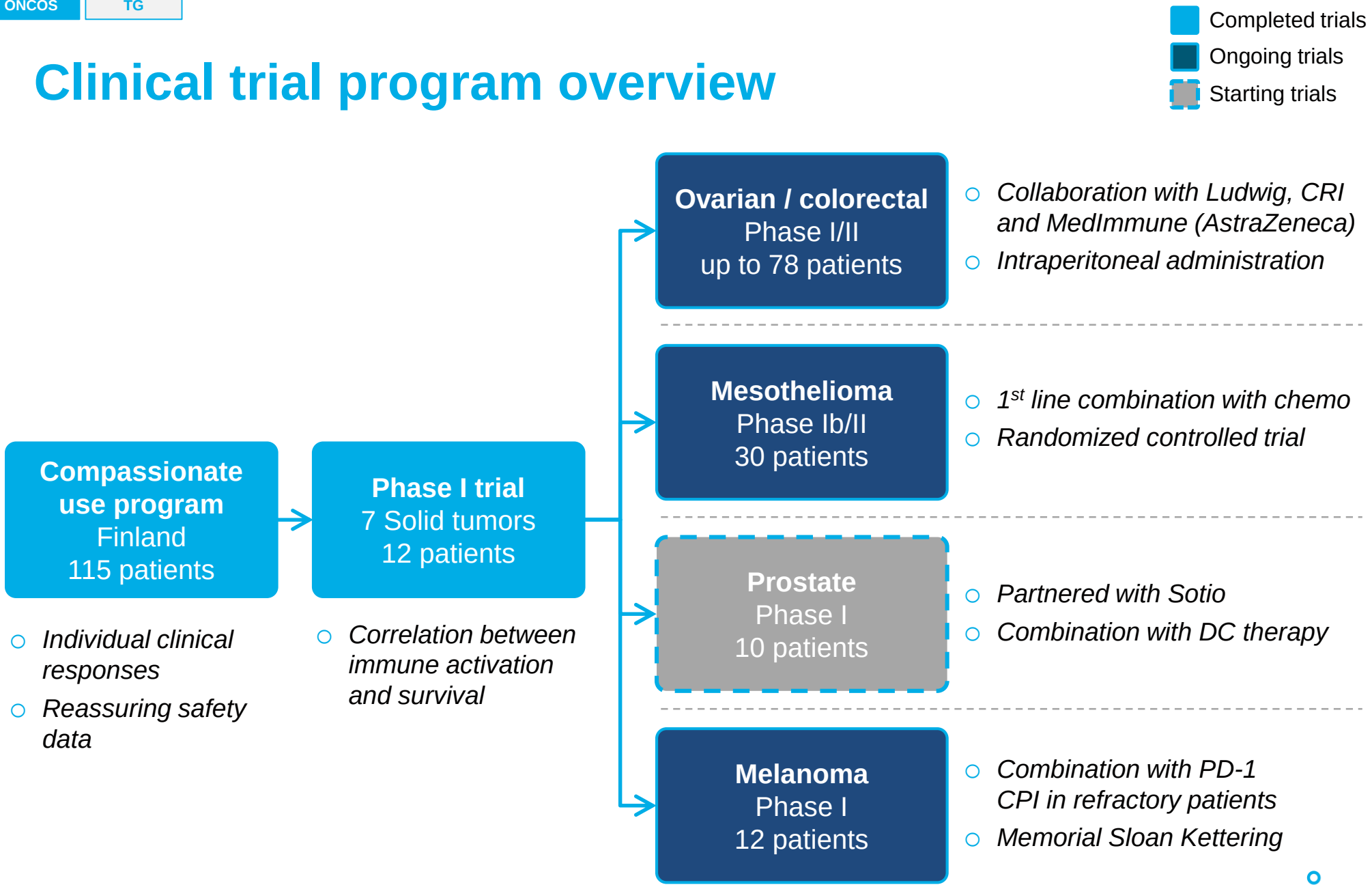
Phase I trial data: Fold-change CD8+ T-cell count vs. survival





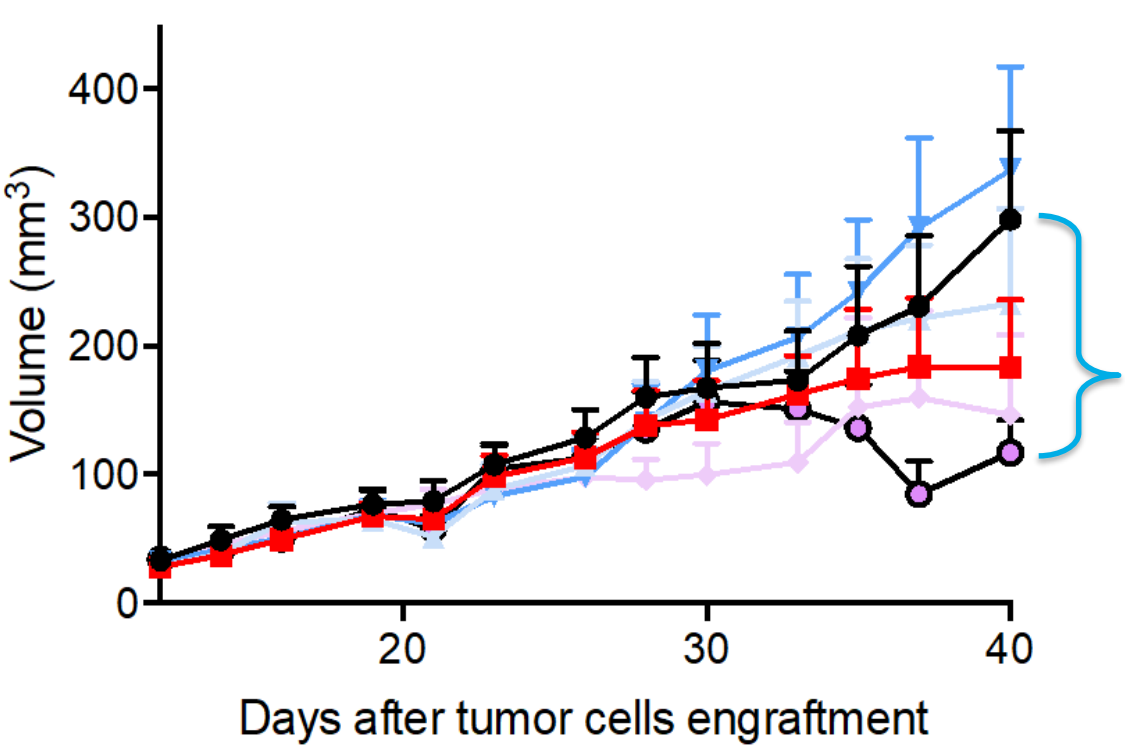
Ranki et al., Journal for Immunotherapy of Cancer 2016, 4(17)

Clinical trial program overview



70% reduction in tumor volume with CPI combination in mouse melanoma model

Effect of ONCOS-102 and Keytruda in humanized mouse melanoma model, change in tumor volume



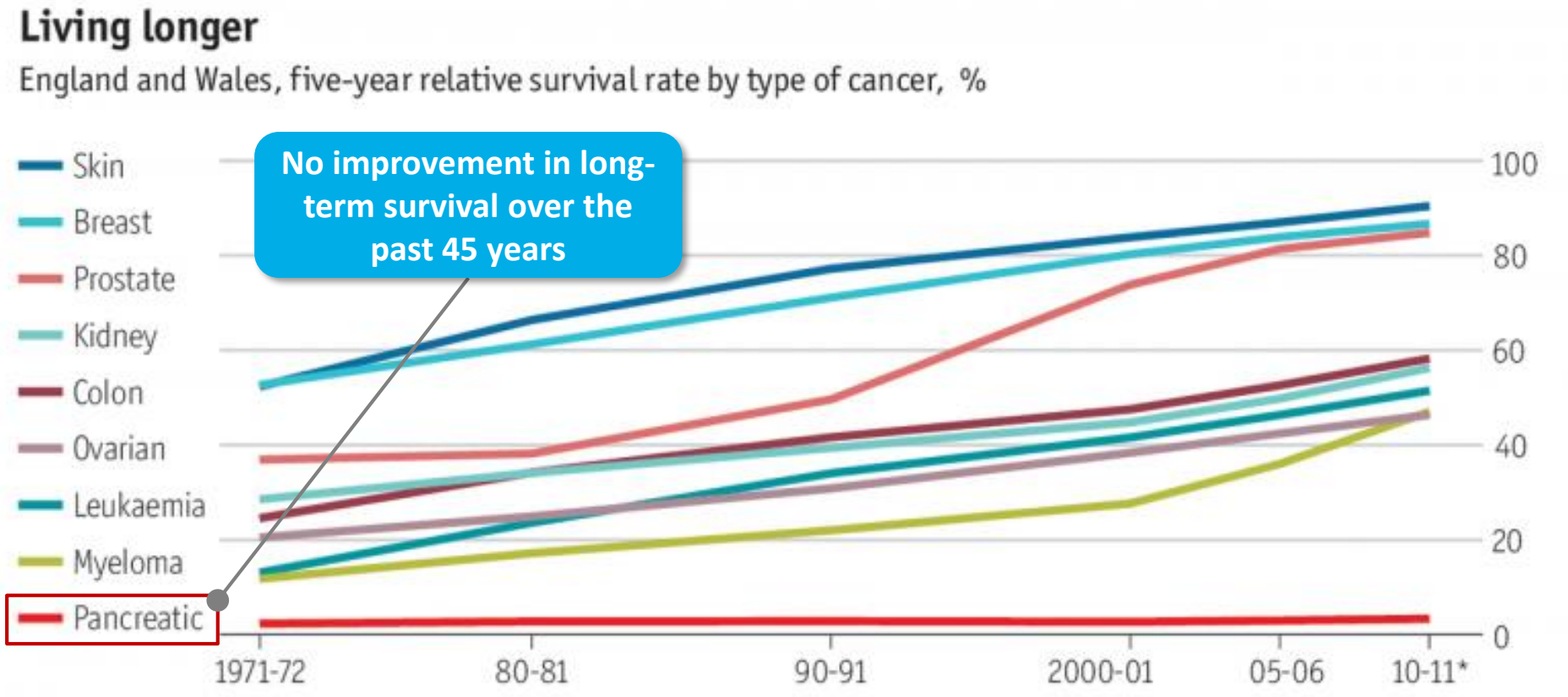
Tumor volume reduction vs. vehicle control
% change by Day 40:

Keytruda only	**No change**
ONCOS-102 only	**52%** reduction p<0.05
ONCOS-102 + Keytruda (200)	**61%** reduction p<0.05
ONCOS-102+ Keytruda (400)	**69%** reduction p<0.05

Agenda

- ONCOS oncolytic virus platform
- **TG mutRAS neoantigen vaccine platform**
- Targovax clinical program overview

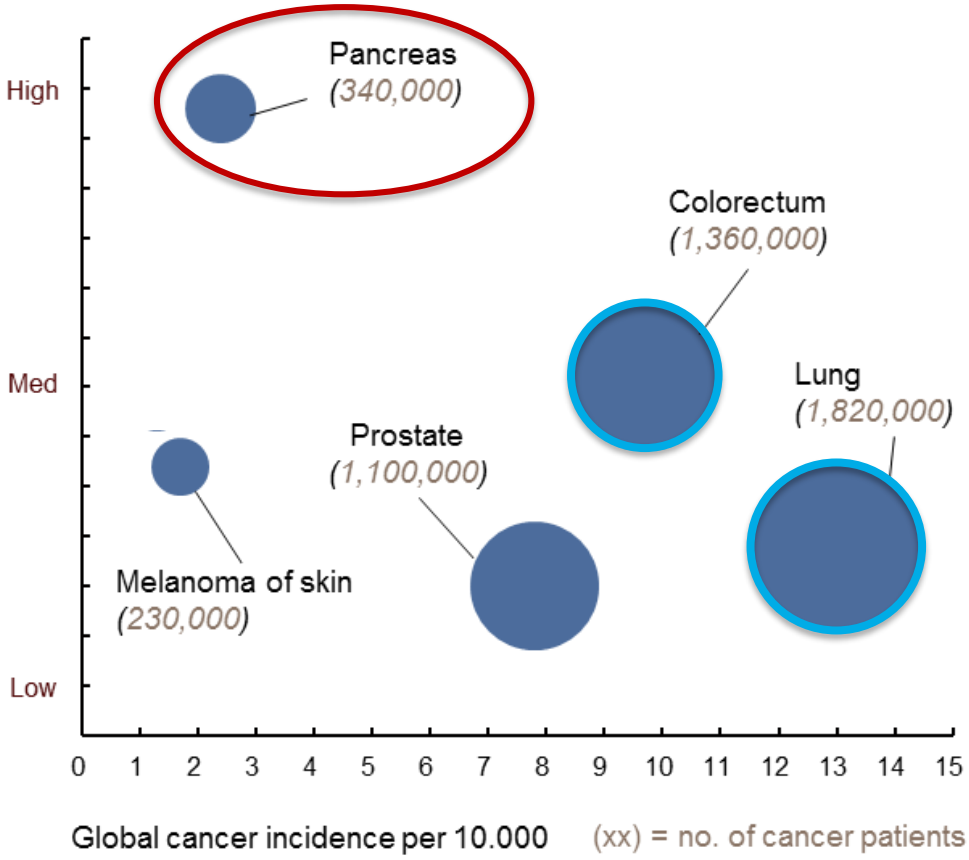
The five year survival rate for pancreatic cancer patients has not improved since the 1970s



SOURCE: Cancer Research UK, graphic adapted from The Economist September 16 2017

The RAS gene is mutated in 90% of pancreatic cancer patients, making it an ideal target

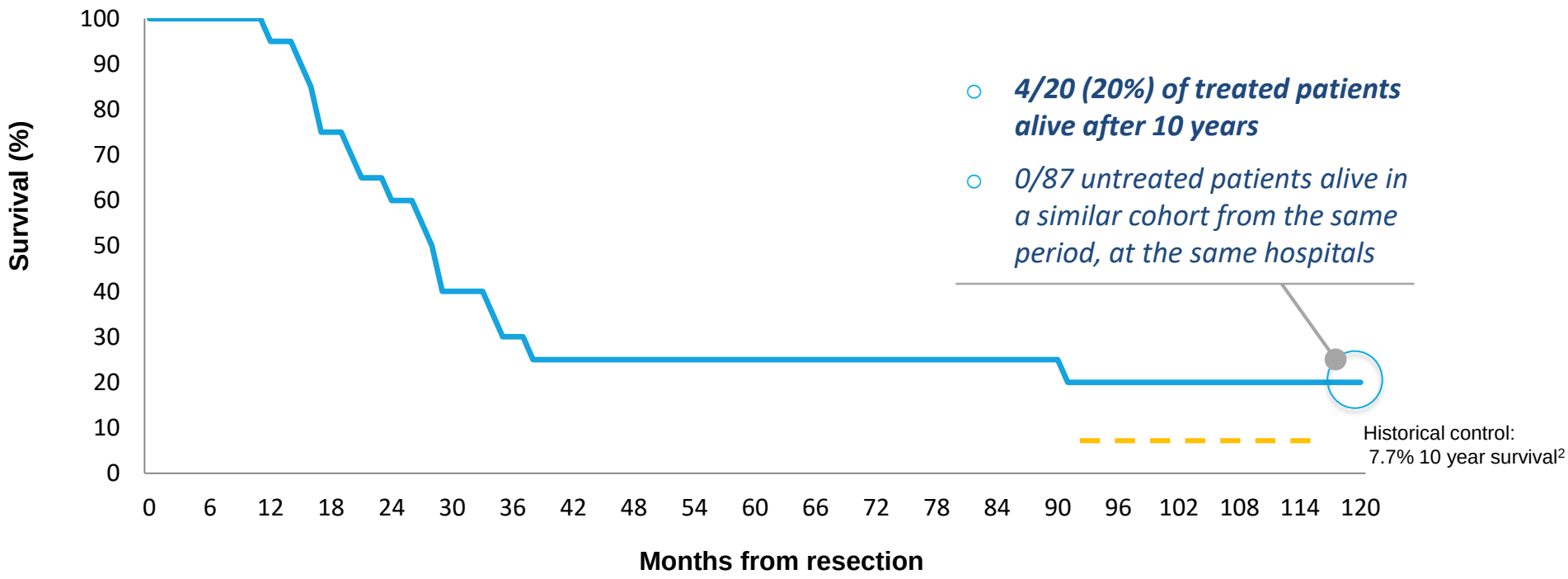
Frequency of RAS mutations



- RAS mutations result in **uncontrolled cell division**
- **There are no existing therapies** targeting RAS
- Targovax has developed a unique **vaccine against mutant RAS**

In previous trials in resected pancreatic cancer, TG vaccination has shown 20% 10 year survival

10 year survival in historical TG trials in resected pancreatic cancer (n=20, TG monotherapy)



[1] Wedén et al., 2011

[3] Oettle H et al., JAMA 2013, vol 310, no 14

These promising results are now being validated in an ongoing phase I/II trial with adjuvant chemotherapy

1st cohort (19 patients)

- **Median survival 33.1 months vs. 27.6 for historical control**
- **13 of 19 patients (68%) alive 2 years after surgery**, vs. 30-53% in historical controls

2nd cohort (13 patients)

- **13 of 13 patients (100%) alive 1 year after surgery**

mutRAS immune response (1 yr)

- **90% of patients** (29/32) had **RAS-specific immune activation**

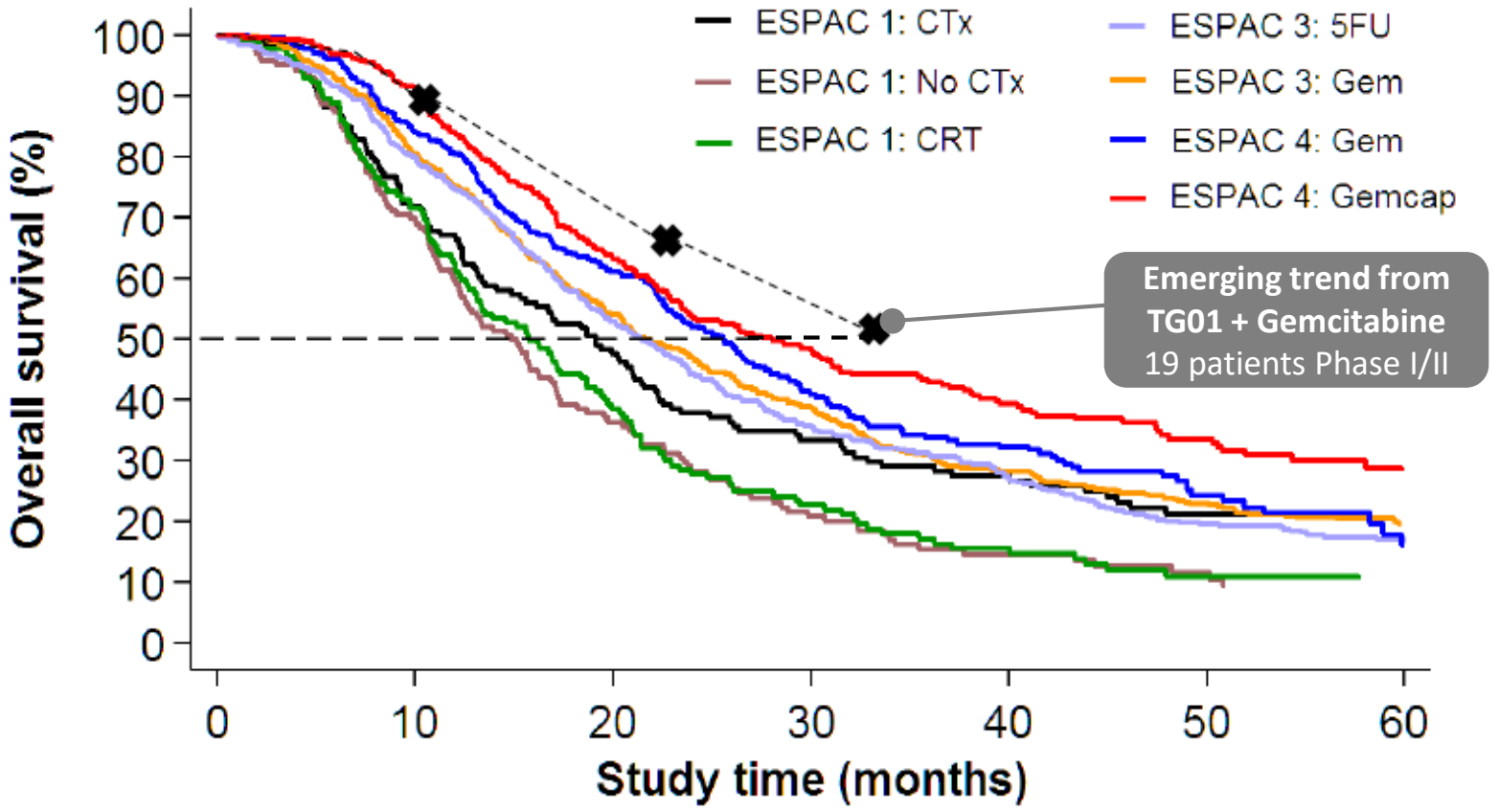
Safety

- TG01 and gemcitabine **combination treatment is well-tolerated**
- **Four allergic reactions reported in 1st cohort, none in 2nd cohort** (up to 1 year)

TG01 data in context

As presented by TG01 PI Prof. Daniel Palmer, London, June 2017

Comparative survival rates across trials in resected pancreatic cancer



NOTE: Relative survival curves across studies (ESPAC), meant for indicative comparisons only. No Kaplan Meier analysis has been done of the TG01 study data. Instead 1 and 2 year survival as well as median OS have been plotted.

Why TG may succeed where others have failed

Lessons Learned	The TG approach
Target often poorly defined *and not cancer specific*	✓ Mutated **RAS is a well-defined neo-antigen**, and a driving cause of cancer
Insufficient immune activation *of CD4+ helper and CD8+ killer T-cells*	✓ TG peptides are **proven** to induce both **CD4+ and CD8+ mutRAS T-cells**
Most clinical trials have been done in ***advanced disease***	✓ Initial focus on **resected patients, with stronger immune system**

Completed trials
Ongoing trials
Planned trials

Clinical trial program overview

Pancreas, resected & non-resected
Phase I
>200 patients

- *10 year survival data*
- *Correlation between immune response and survival*

Resected pancreas
Phase I/II
32 patients

- *Encouraging median survival*
- *90% immune response*

Resected pancreas
TG01 - Phase IIb/III
n = tbd

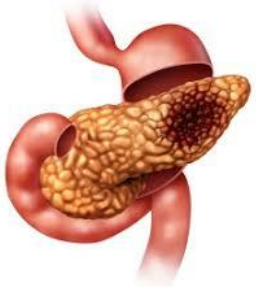
- *Ph IIb-III adaptive design*
- *Aimed to reach registration*
- *Possible CPI combination arm*

Colorectal
TG02 - Phase I
20 patients

- *TG02, targets 8 mutations*
- *Combination w/KEYTRUDA®*
  Currently recruiting patients

Resected pancreatic cancer is the lead indication, but all RAS mutated cancers are potential TG targets

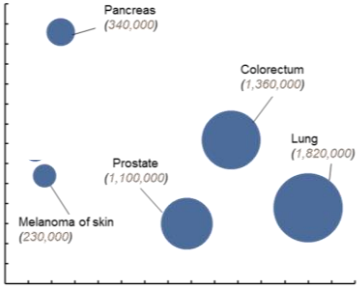
1. **Pancreatic cancer** (resected)
2. **Colorectal cancer**
3. **Lung cancer** (NSCLC)
4. **All mutRAS cancers**



- **TG01 lead indication**
- Completing phase I/II
- Planning phase IIb/III
- **40.000 patients**

- **TG02 lead indication**
- Phase I trial recruiting
- 50% RAS mutated
- **Up to 500.000 patients**

- **TG02 potential future indication**
- 30% RAS mutated
- **Up to 500.000 patients**



- **TG02 + TG03 ultimate long-term potential**
- 30% of all cancers
- **Up to 30% of all cancer patients**

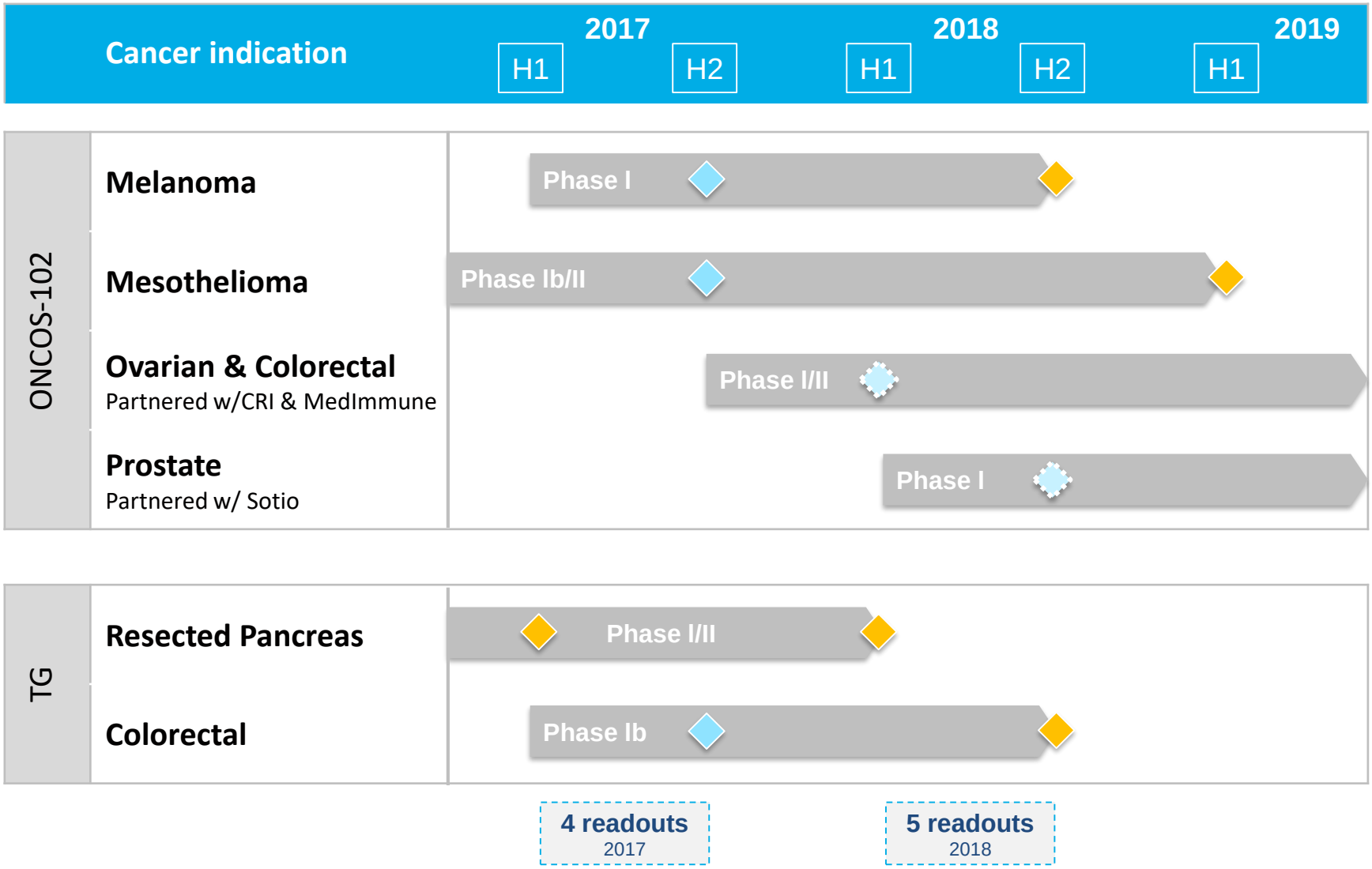
Source: Global data, Riva et al. Plos One 2017 Estimated total addressable patient number with RAS mutations in US, EU and China

Agenda

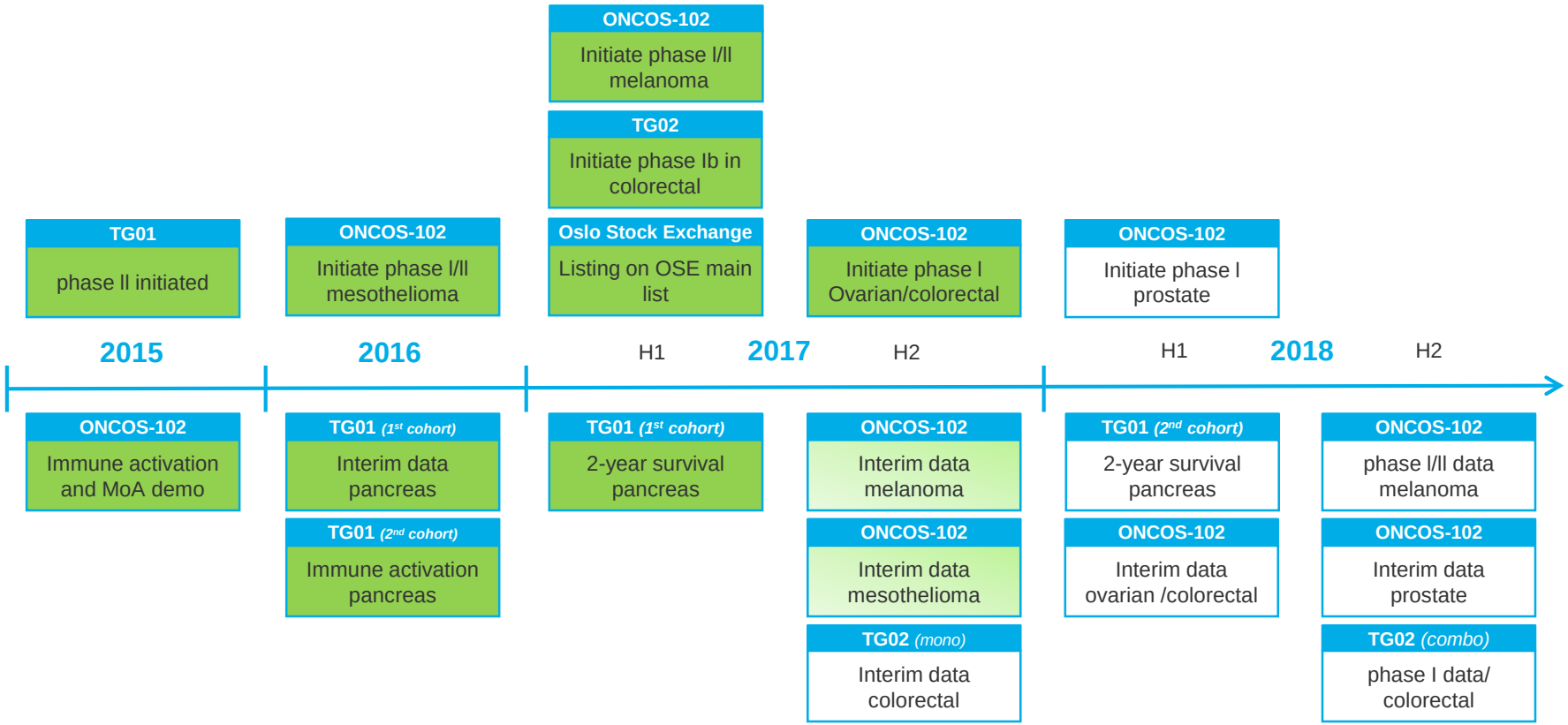
- ONCOS oncolytic virus platform
- TG mutRAS neoantigen vaccine platform
- **Targovax clinical program overview**

Overview of Targovax' full clinical program

Interim data
Interim data, partnered trials
Clinical, immune and safety data



Strong upcoming news flow, with multiple near term value inflection points

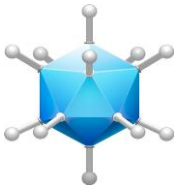


Arming the patient's immune system to fight cancer

Broad clinical program

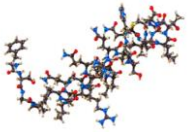
- ✓ Six shots on goal
- ✓ Several upcoming data points

ONCOS



- ✓ Demonstrated ability to increase T-cell count
- ✓ Potential to make CPIs effective in more indications

TG



- ✓ Unique approach for targeting RAS mutations
- ✓ Potential to benefit up to 1/3 of all cancer patients