

Activating the patient's immune system to fight cancer

3Q 2018 Report

1 November 2018

targovax

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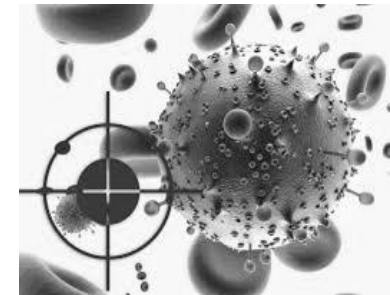
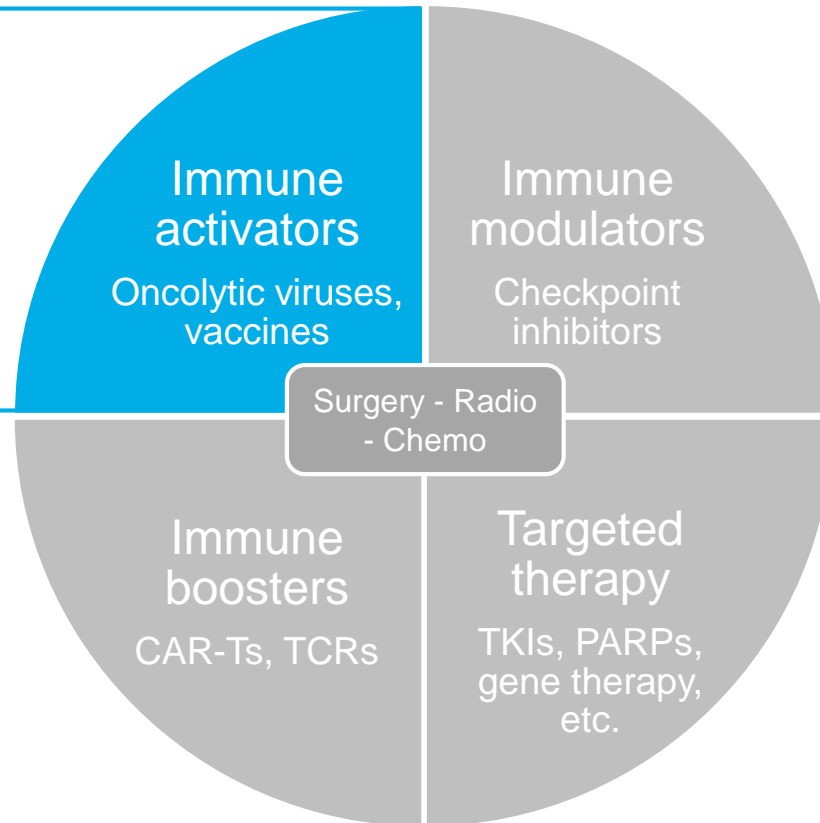
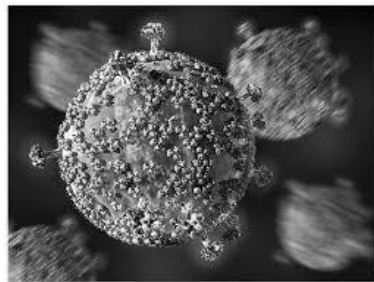
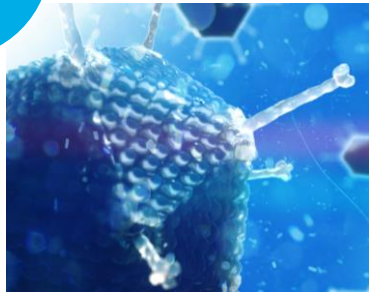
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Status & Highlights

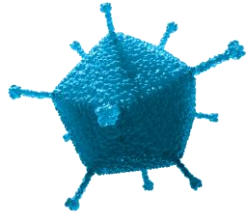
2. TG neo-antigen vaccine
3. ONCOS oncolytic virus program
4. 3Q 2018 Financials

TARGOVAX AIM IS TO ACTIVATE THE PATIENT'S OWN IMMUNE SYSTEM TO FIGHT CANCER

Targovax focus



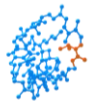
Two programs in clinical development, with an
ONCOLYTIC VIRUS LEAD PRODUCT CANDIDATE



ONCOS
Oncolytic virus

Lead product candidate

- Genetically **armed adenovirus**
- **Alerts the immune system** to recognize cancer antigens
- **Induces T-cells** specific to the patients' tumor
- **4 ongoing trials**



TG
Neoantigen
vaccine

Pipeline product

- **Shared neoantigen**, therapeutic cancer vaccine
- Triggers the immune system to **recognize mutant RAS cancers**
- **1 ongoing trial**

Triggers patient-specific responses

No need for individualization

3Q 2018 HIGHLIGHTS

During period

ONCOS-102 Melanoma CPI refractory phase I trial:

- One complete response among first six patients
- Innate and adaptive immune activation in all four evaluated patients

ONCOS-102 Peritoneal cancer phase I/II trial in combination w/ Imfinzi®:

- Safety evaluation of first dose cohort completed without any concerns

ONCOS-102 Prostate cancer phase I trial in combination w/ DCVAC:

- First patient has been dosed

Publications:

- New ONCOS-102 in vivo data in the Journal of Medical Virology, showing T-cell activation in a mesothelioma model









Corporate development:

- Torbjørn Furuseth appointed Chief Financial Officer, with Erik Digman Wiklund transitioning to the role of Chief Business Officer

Post-period

- Full data set from the TG01 trial in resected pancreatic cancer, including encouraging disease-free survival data was announced

Large deals in the last year show strong
INDUSTRY INTEREST IN ONCOLYTIC VIRUSES

Acquirer	Target	Type of deal	Deal value
 Boehringer Ingelheim	 ViraTherapeutics	M&A Phase I/II oncolytic virus	USD 250m up-front cash
 MERCK	 Vivalytics <small>Developers of Oncolytic Immunotherapies</small>	M&A Phase I/II oncolytic virus	USD 400m up-front cash
 Janssen <small>PHARMACEUTICAL COMPANIES OF Johnson & Johnson</small>	 BeneVir	M&A Pre-clinical oncolytic virus	USD 140m up-front cash Up to USD 1b total value
 Bristol-Myers Squibb	 PsiOxus <small>THERAPEUTICS</small>	BD partnership Pre-clinical oncolytic virus	USD 15m milestone payment Up to USD 1b total value

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TG neo-antigen vaccine

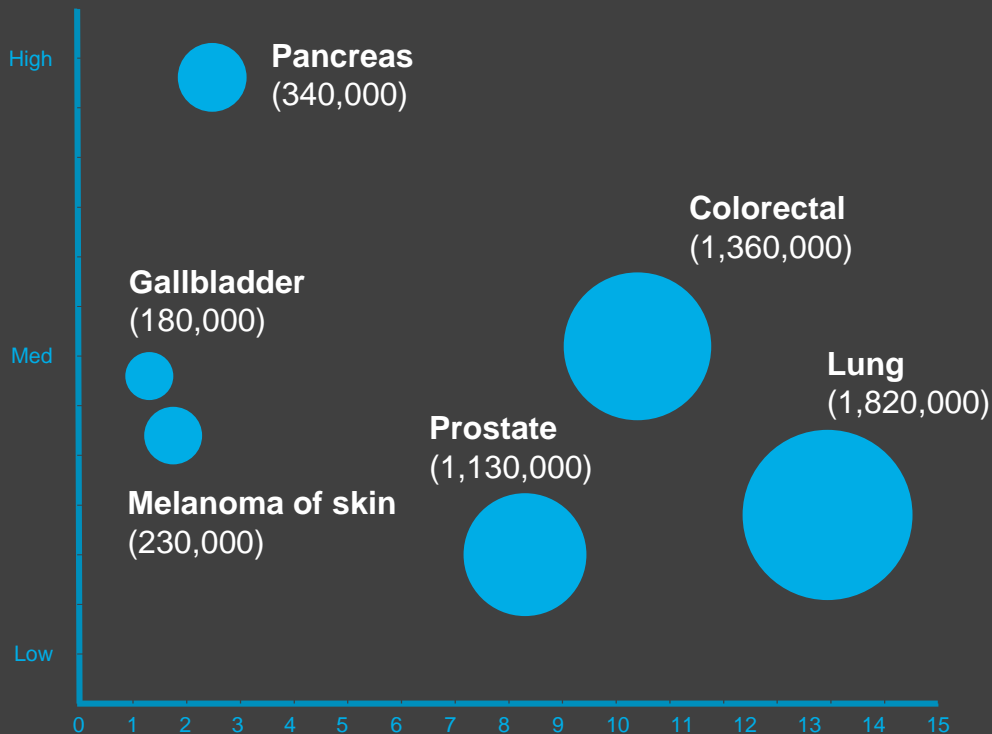
3. ONCOS oncolytic virus program
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The RAS gene is mutated in 90% OF PANCREATIC AND 50% OF COLORECTAL CANCERS

Frequency of RAS mutations

Global cancer incidents per 10,000

(xx) = no. of cancer patients



- RAS mutations are oncogenic and result in **uncontrolled cell division**
- There are **no existing therapies** targeting RAS mutations
- Targovax' TG program is a **unique vaccine approach for mutant RAS cancer**

TG01 IN RESECTED PANCREATIC CANCER

SIGNAL OF EFFICACY SEEN IN PHASE I/II TRIAL

Median overall survival (mOS)
(N=32)

33.4 vs. 27.6 months reported in the ESPAC4 trial for gemcitabine alone (from time of surgery)

- First cohort: 33.1 months mOS (n=19)
- **Second cohort: not yet reached** (n=13)

Median disease free survival (mDFS)

16.1 vs. 13.1 months reported in the ESPAC4 trial for gemcitabine alone (from time of surgery)

- First cohort 13.9 months mDFS (n=19)
- **Second cohort 19.5 months mDFS** (n=13)

mutRAS immune activation

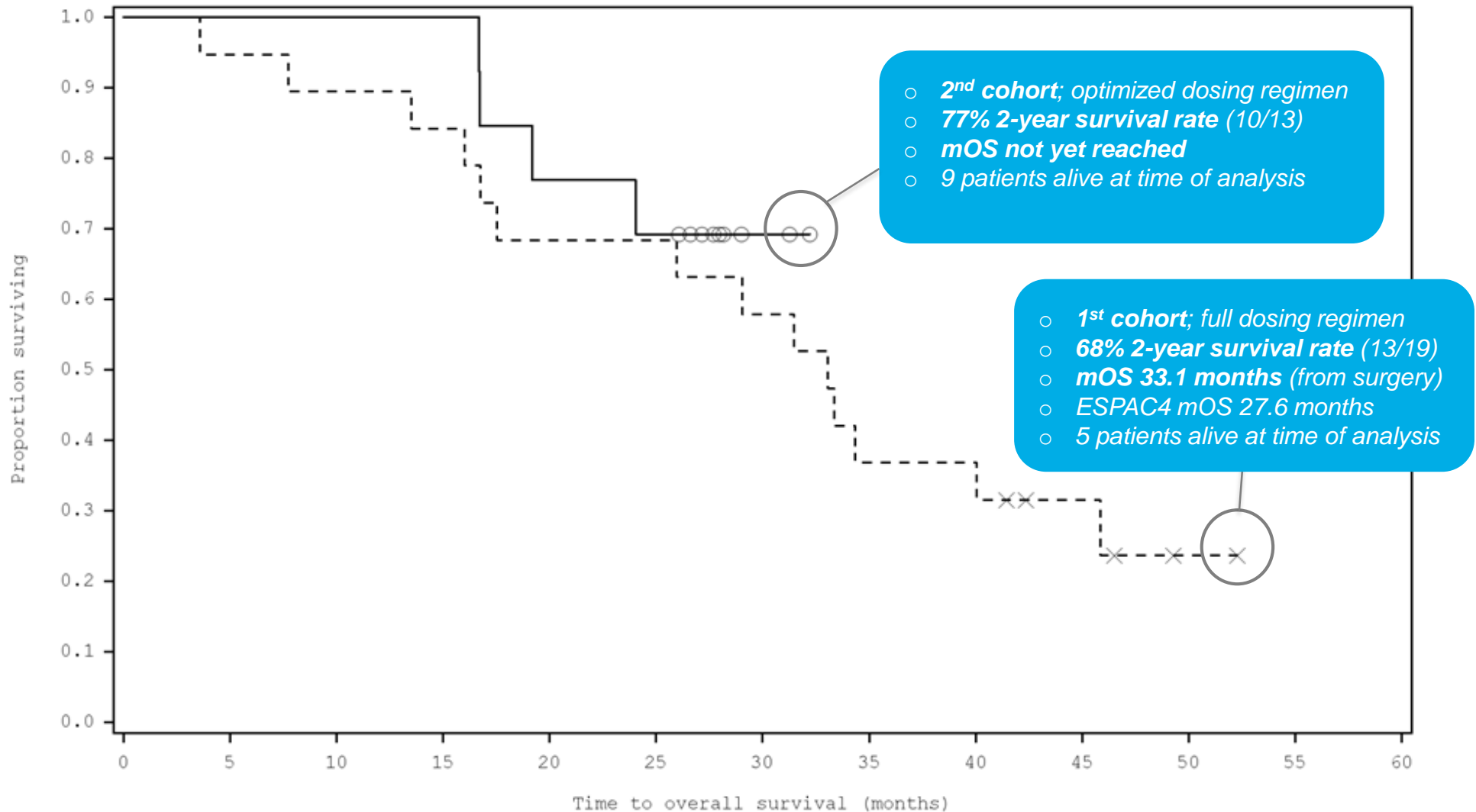
30 out of 32 patients (94%) had **RAS-specific immune activation**

Dosing and safety

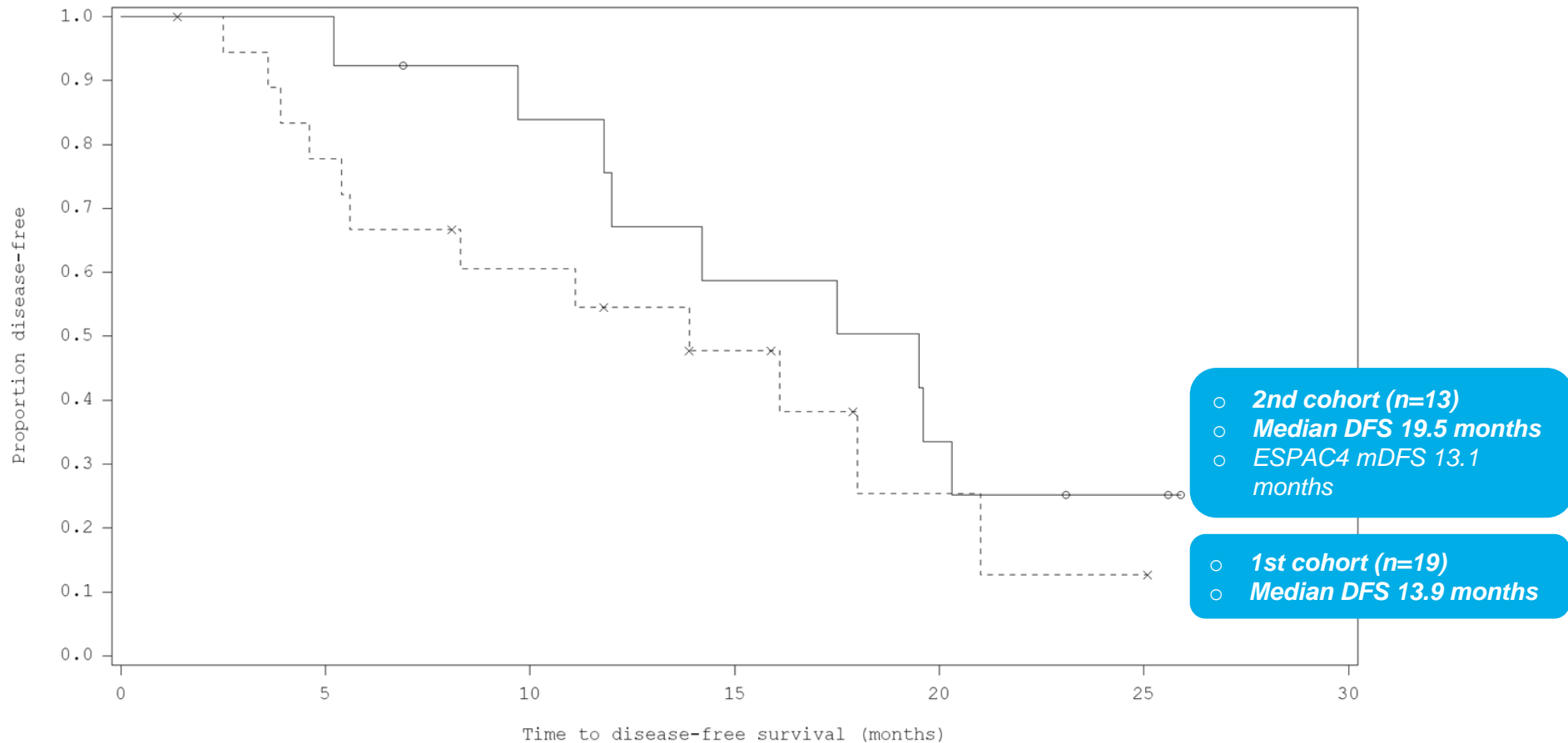
Dosing regimen defined and TG01 is **well-tolerated** in combination with chemotherapy

TG01 resected pancreas cancer trial overall survival

SECOND PATIENT COHORT PERFORMING BETTER



DISEASE FREE SURVIVAL FROM SURGERY



Censored= No progression on latest scan collected

OPPORTUNITIES TO DEVELOP THE TG PROGRAM

Rationale for further development of TG

“With the emergence of immune checkpoint inhibitors, therapeutic vaccine strategies are primed for a rebirth”

Clinical relevance

- Meaningful **clinical benefit (DFS and OS)** data in resected pancreatic cancer
- **Immune activation** with generation of mutRAS specific T-cells
- **Good safety profile**

Well-defined target

- Cancer neoantigens are **immunogenic and** can drive **anti-tumor immunity**
- RAS mutations are known **trunk neoantigens** present in large patient populations

Growing interest

- **Combinations with CPI** might fully release the therapeutic potential of neoantigen vaccines
- Several academic groups have contacted Targovax to run trials with TG

TG

CLINICAL DEVELOPMENT STRATEGY

1

Resected pancreatic cancer



TG01 indication

- Ph I/II completed
- Next steps being reassessed
- ~40 000 incidents

2

Colorectal cancer



TG02 lead indication

- Ph I trial ongoing
- 50% mutRAS
- ~0.5m incidents

3

Lung cancer (NSCLC)

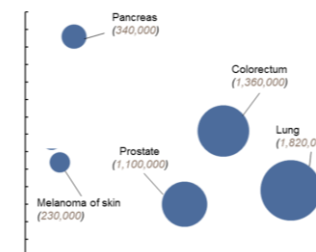


TG02 potential future indication

- 30% mutRAS
- ~0.5m incidents

4

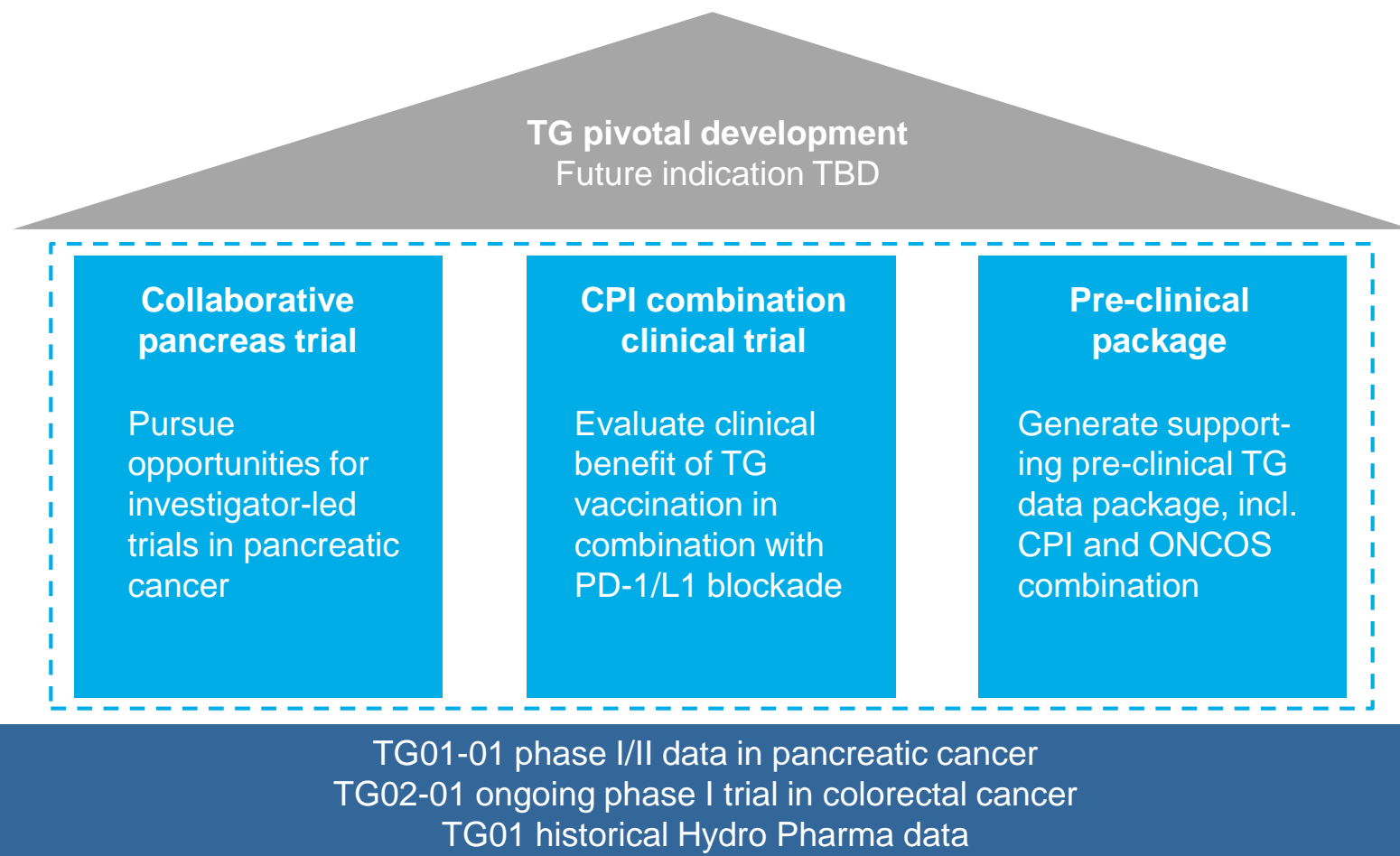
All mutRAS cancers



TG02 + TG03 long-term potential

- Up to 30% of all cancer patients

TG DEVELOPMENT STRATEGY OVERVIEW



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ONCOS oncolytic virus program

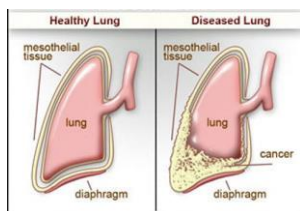
4. 3Q 2018 Financials

ONCOS

CLINICAL DEVELOPMENT STRATEGY

1

Path-to-market Mesothelioma

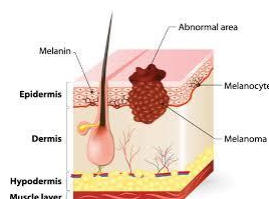


Target launch indication

- Ongoing Phase I/II
- Orphan drug status
- Aim to become addition to SoC
- 15,000 patients per year

2

Proof-of-concept CPI refractory



Indications with no/ limited effect of CPIs

- Ongoing melanoma Phase I
- Combo w/PD-1
- >100,000 patients per year

3

Proof-of-concept New CPI indication

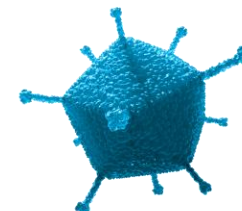


Peritoneal malignancies

- Ongoing Phase I/II in ovarian and colorectal
- Combo w/PD-L1
- >100,000 patients per year

4

Next generation oncolytic viruses

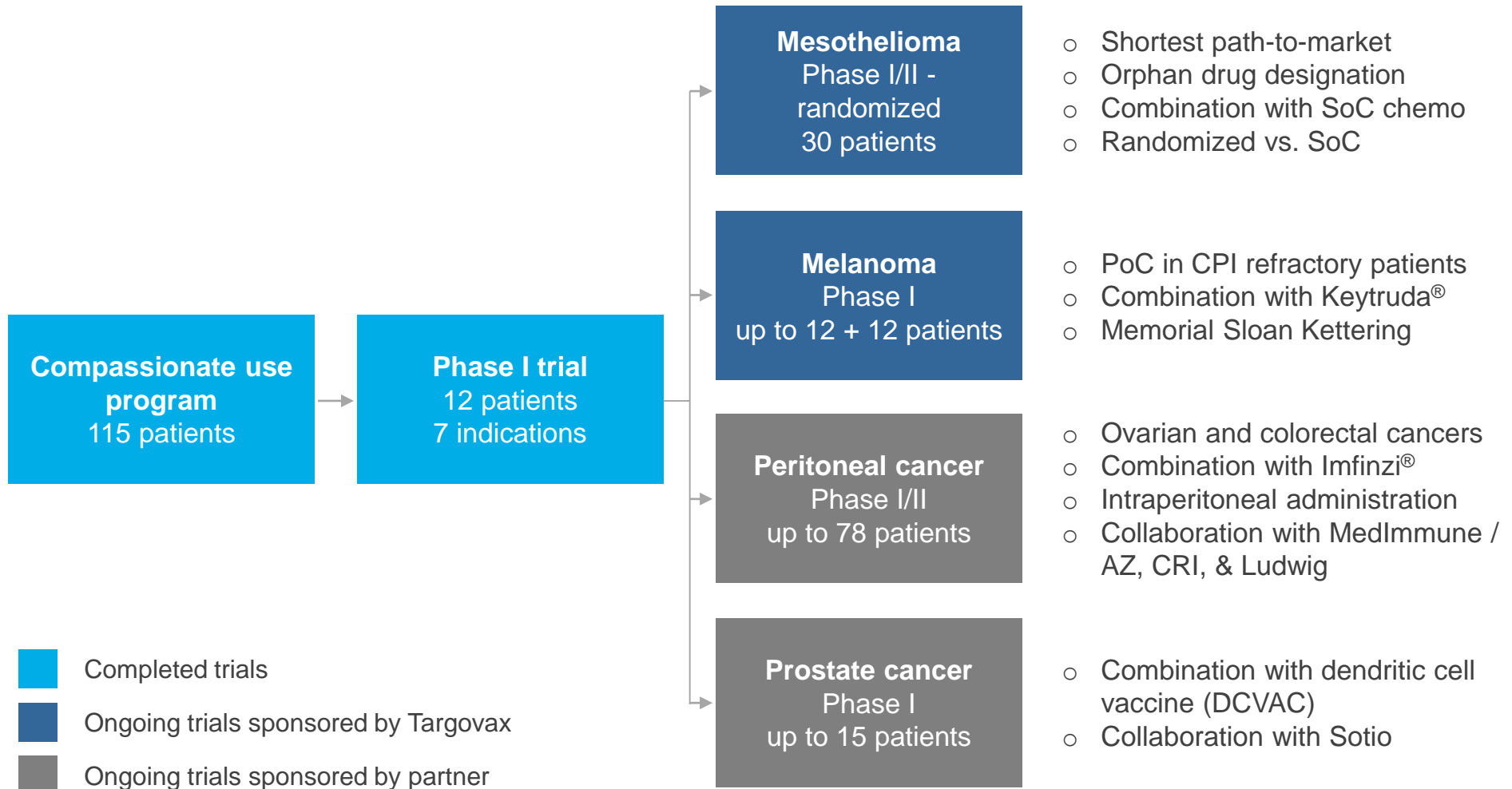


Platform expansion with new targets

- Ongoing pre-clinical testing
- Novel targets and mode-of-action
- Broad spectrum of solid tumors

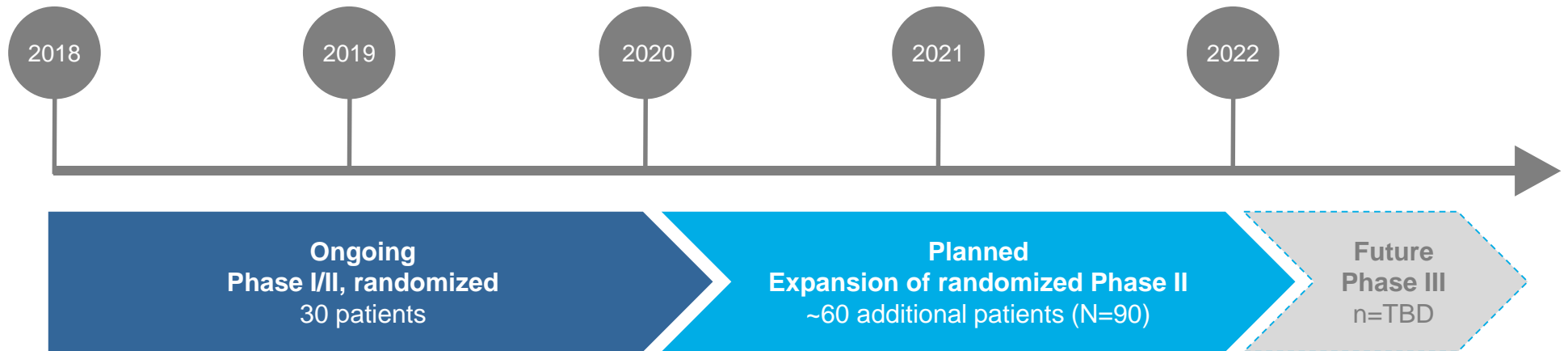
ONCOS

CLINICAL PROGRAM OVERVIEW



ONCOS-102 in malignant pleural mesothelioma

DEVELOPMENT STRATEGY AND INDICATIVE TIMELINES



- Randomized ORR and OS data 30 patients
- Decide on possible CPI combination arm
- EMA & FDA advisory meetings

- Randomized ORR and OS data 90 patients
- Potentially use as basis for a submission for conditional approval
- Potentially start Phase III OS trial for full MAA

ONCOS-102 + KEYTRUDA MELANOMA TRIAL

One complete response observed in the first six patients

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Safety

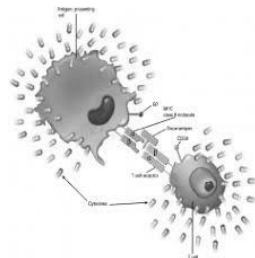
- ✓ **First safety review completed with no safety concerns**
- ✓ **ONCOS-102 first time in melanoma treatment**



2

Innate immune activation

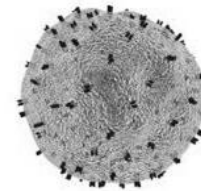
- ✓ **Systemic increase of several pro-inflammatory cytokines (6/6 patients)**



3

Adaptive immune activation

- ✓ **Increase in the relative level of cytotoxic CD8+ T-cells (4/4 patients)**
- ✓ **Increase in PD-1 expression on CD8+ T-cells (4/4 patients)**



4

Efficacy

- ✓ **Complete response in one out of six patients**
- Expected <5% CR in this CPI refractory population**



MELANOMA COMPLETE RESPONSE CASE EXAMPLE

Received 3 injections of ONCOS-102 and 2 Keytruda infusions

Baseline



Day 22



Day 63



4

3Q 2018 Financials

TARGOVAX HAS A SOUND FINANCIAL POSITION

with cash to complete the planned clinical program into 2020

Operations

Cash end of 3Q - Sep 30th 2018

173 / 21

NOK million USD million

Net cash flow - total 3Q

-27 / -3

NOK million USD million

Annual run rate - last four quarters

112 / 14

NOK million USD million

The share

Market Cap - at share price NOK ~9

470 / 57

NOK million USD million

Daily turnover - rolling 6 month avg.

2.5 / 0.3 / 0.5

NOK million USD million % of share capital

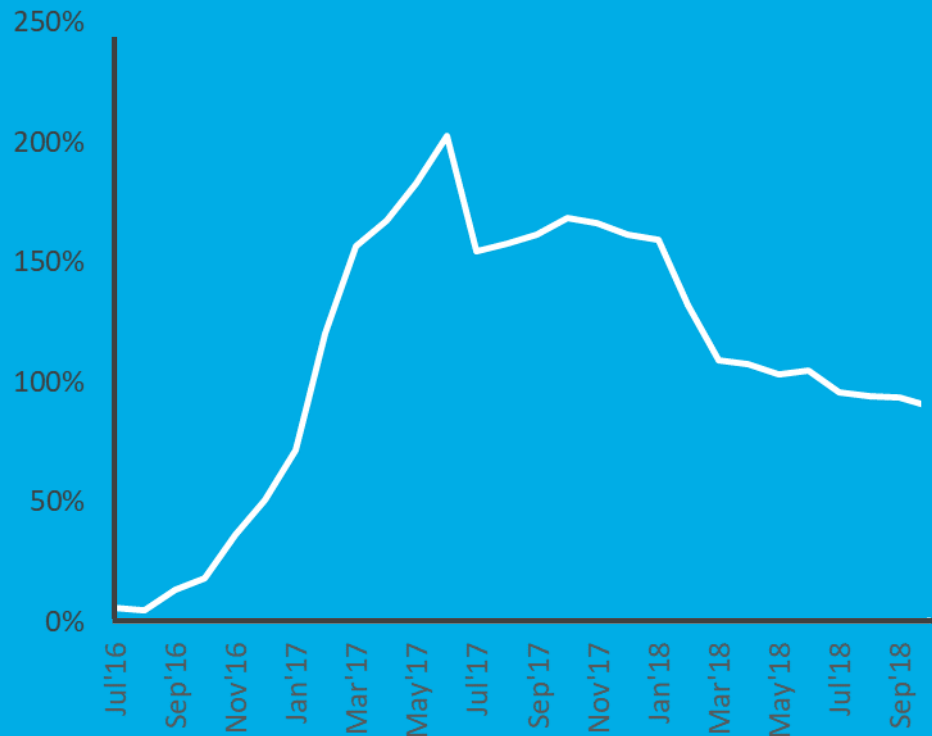
Analyst coverage

**DNB, ABG Sundal Collier, Arctic,
Redeye, Edison**

TARGOVAX IS LISTED ON THE OSLO STOCK EXCHANGE

and included in the OSEBX index as of December 2017

TRVX share turnover (% of share capital, rolling 12 month)



- USD ~57 m market cap
- USD 0,3m avg. daily turnover in last 6 months
- USD 13m total turnover in 3Q
- 150k shares avg. daily volume in 3Q
- ~ 4,000 owners
- 52.6m shares* (57.4 fully diluted)

* Up until 30th Sep

R&D PIPELINE OVERVIEW AND MILESTONES

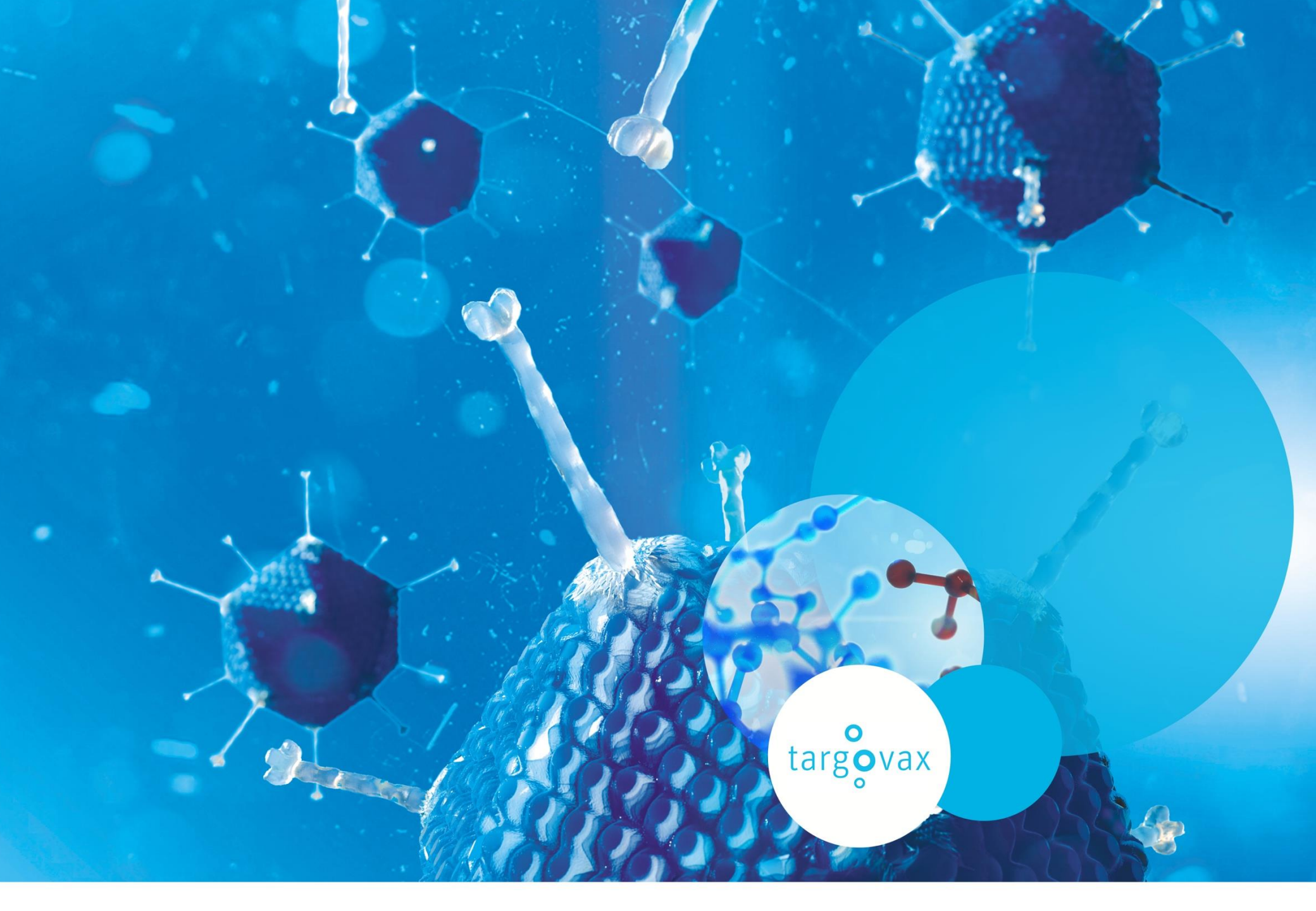
Platform	Product candidate	Preclinical	Phase I	Phase II	Phase III	Last event	Next expected event	
ONCOS oncolytic adenovirus	ONCOS-102	Mesothelioma Comb. w/ pemetrexed/cisplatin ¹					Phase Ib safety lead-in cohort, incl. immune activation and ORR data (6 pts)	1H 2020 Randomized ORR data 30 pts
		Melanoma Comb. w/KEYTRUDA®					ORR and immune activation (6 pts), 1/6 CR	1H 2019 ORR and immune data first cohort
		Peritoneal cancers ^{2,3} Collab: Ludwig, CRI & AZ Comb. w/IMFINZI®					First dose escalation cohort safety review (4 pts)	<i>Update by collaborator, expected 2019</i>
		Prostate ³ Collab: Sotio Comb. w/DCVAC					First patient dosed	<i>Update by collaborator, expected 2019</i>
	Next-gen ONCOS	3 viruses undisclosed					Virus construct cloning and <i>in vitro</i> validation	2H 2019 Target disclosure and <i>in vivo</i> data
TG neo-antigen cancer vaccine	TG01	Pancreatic cancer Comb. w/gemcitabine					mOS 33.4 months Demonstrated mutant RAS-specific immune activation	TBD
	TG02	Colorectal cancer Proof-of-mechanism Comb. w/KEYTRUDA®					First safety review, incl. immune activation data (3 pts)	1H 2019 Immune activation and mechanistic data (mono)
	TG02	CPI synergy TG + PD-1						1H 2019 TG02 + <i>in vivo</i> data

1 Current standard of care chemotherapy for patients with unresectable malignant pleural mesothelioma

2 Patients with advanced peritoneal disease, who have failed prior standard chemotherapy and have histologically confirmed platinum-resistant or refractory epithelial ovarian or colorectal cancer

3 Trials sponsored by collaborators

■ Ongoing collaborator sponsored trials



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