Activating the patient's immune system to fight cancer

Company presentation

November 2018

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Important
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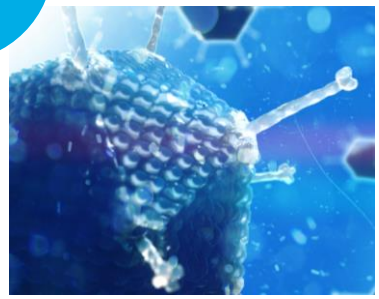
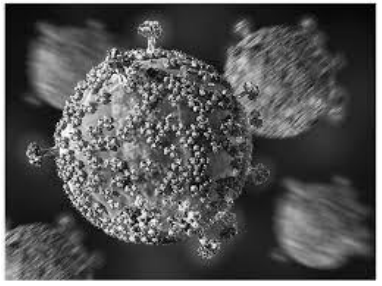
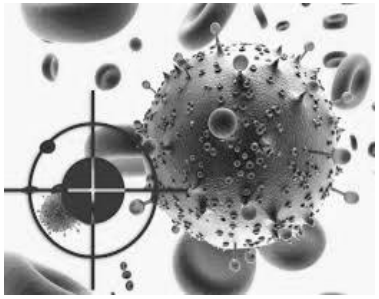
TARGOVAX'S POSITION IN THE FUTURE CANCER TREATMENT LANDSCAPE

Targovax focus







Immune activators
Oncolytic viruses, vaccines

Immune modulators
Checkpoint inhibitors

Surgery - Radio - Chemo

Immune boosters
CAR-Ts, TCRs

Targeted therapy
TKIs, PARPs, etc.

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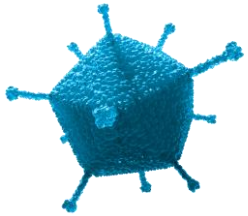
Two programs in clinical development, with an

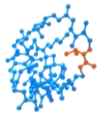
ONCOLYTIC VIRUS LEAD PRODUCT CANDIDATE



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

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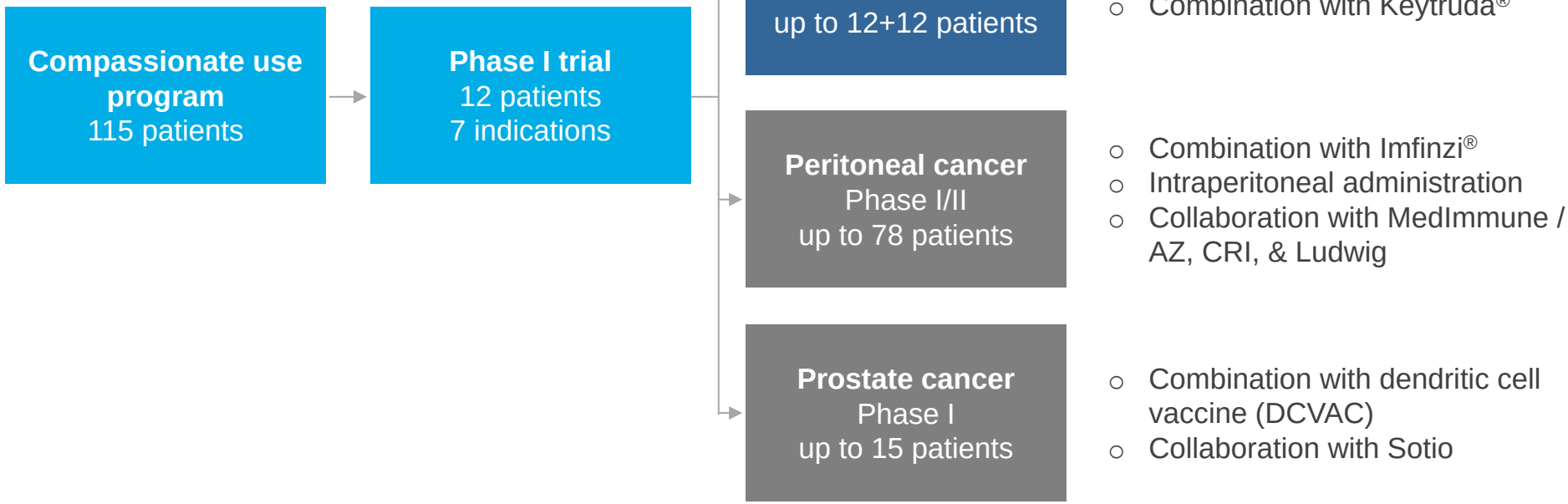
ONCOS CLINICAL PROGRAM OVERVIEW



- Shortest path-to-market
- Orphan drug designation
- Combination with SoC chemo

- PoC in CPI refractory patients
- Combination with Keytruda®

- Combination with Imfinzi®
- Intraperitoneal administration
- Collaboration with MedImmune / AZ, CRI, & Ludwig

- Combination with dendritic cell vaccine (DCVAC)
- Collaboration with Sotio

ONCOS-102 CLINICAL DATA SUMMARY

	Patient population	Immune activation	Efficacy
Various solid tumors Ph I Monotherapy	○ End-stage patients, 3rd line and beyond ○ 7 different solid tumors ○ 12 pts	○ Innate: 12/12 ○ Adaptive: 11/12	○ 40% DCR ○ 2 long-term survivors ○ Survival correlated with TIL increase

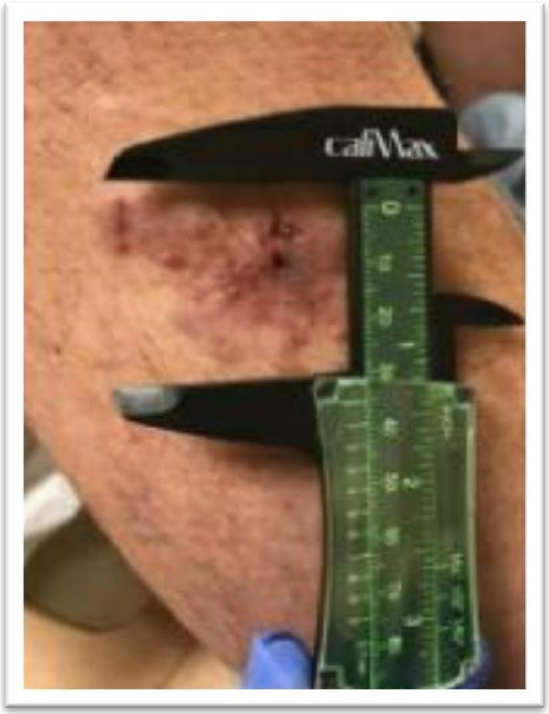
Mesothelioma
Ph I/II randomized with SoC chemo
	○ Metastatic
	○ 1st and 2nd/3rd line
	○ 6 pts completed trial to date
		○ Innate: 6/6
		○ Adaptive: 3/4
			○ 50% DCR
			  ○ 1 PR
			  ○ 2 SD

Melanoma Ph I Combo with Keytruda®	○ PD-1 refractory advanced melanoma ○ 6 pts completed trial to date	○ Innate: 6/6 ○ Adaptive: 4/4	○ 1 CR, w/supporting immune data ○ 3 local responders, but with distal progression

ONE PATIENT HAD A COMPLETE RESPONSE

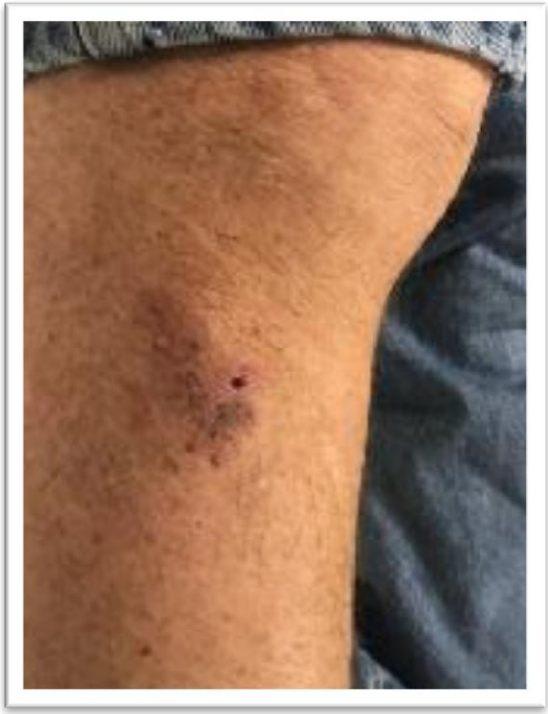
following ONCOS-102 and Keytruda combination treatment

Baseline



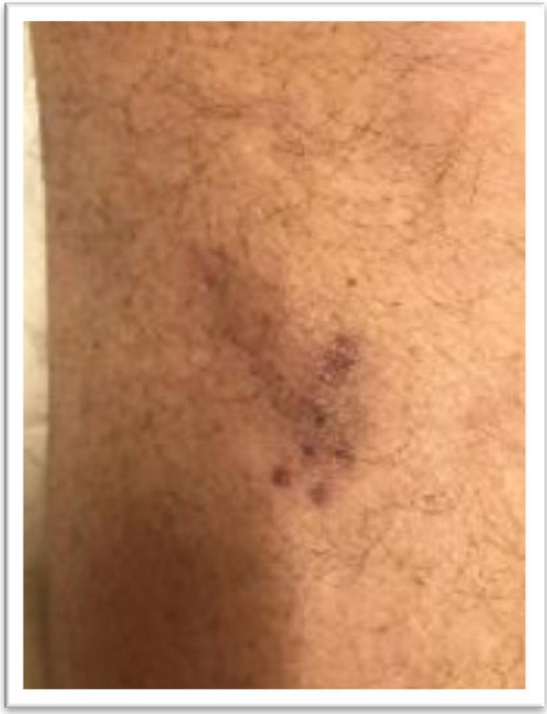
Progression on Keytruda

Week 3



Partial response (PR) after 3x ONCOS-102 injections

Week 9



Complete response (CR) after 3x ONCOS-102 & 2 Keytruda infusions

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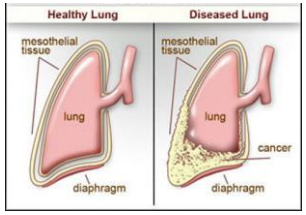
ONCOS CLINICAL DEVELOPMENT STRATEGY

1

Path-to-market
Orphan indication

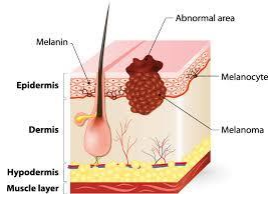


Target launch indication

- Mesothelioma
- Orphan drug status
- Combo with SoC chemo

2

Proof-of-concept
Re-activating CPIs

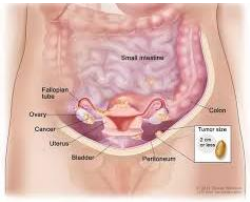


CPI refractory cancers

- CPI refractory melanoma
- Combo w/PD-1

3

Proof-of-concept
New CPI indication



Indications with no/ limited effect of CPIs

- Ovarian and colorectal cancer with spread to peritoneum
- Combo w/PD-L1

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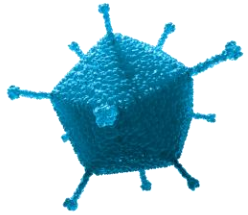
Next generation
oncolytic viruses



Platform expansion with new targets

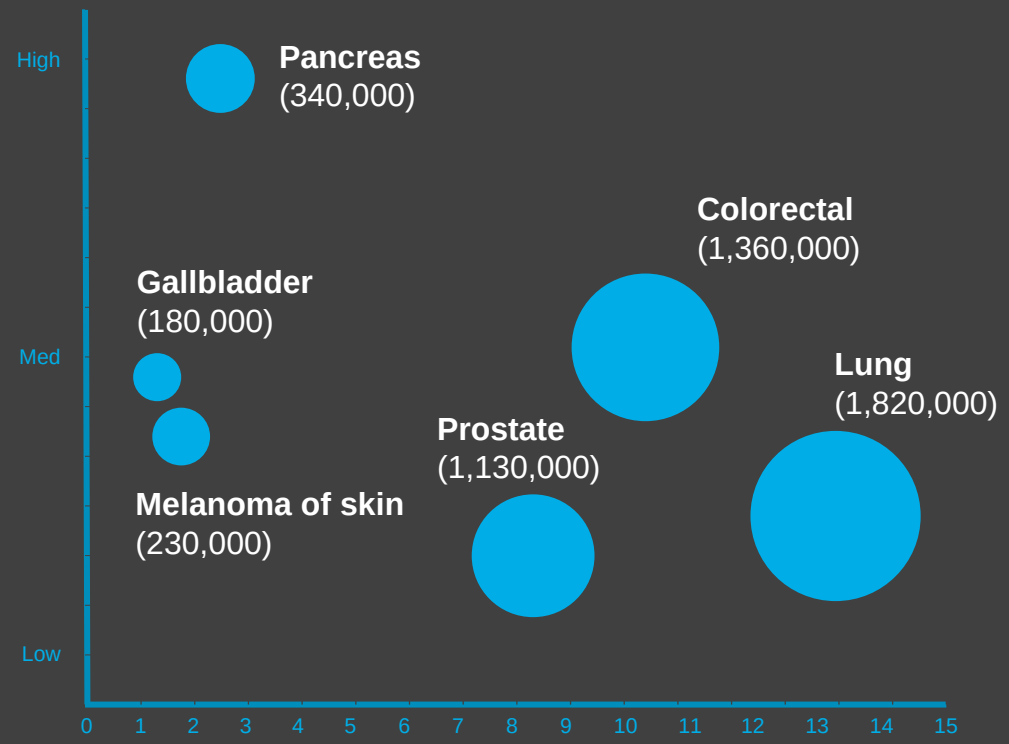
- Ongoing *in vivo* testing
- Novel targets and mode-of-action

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 neoantigen vaccine approach for mutant RAS cancer**

Fernandez-Medarde; RAS in Cancer and Developmental Diseases; Genes & Cancer. 2011;

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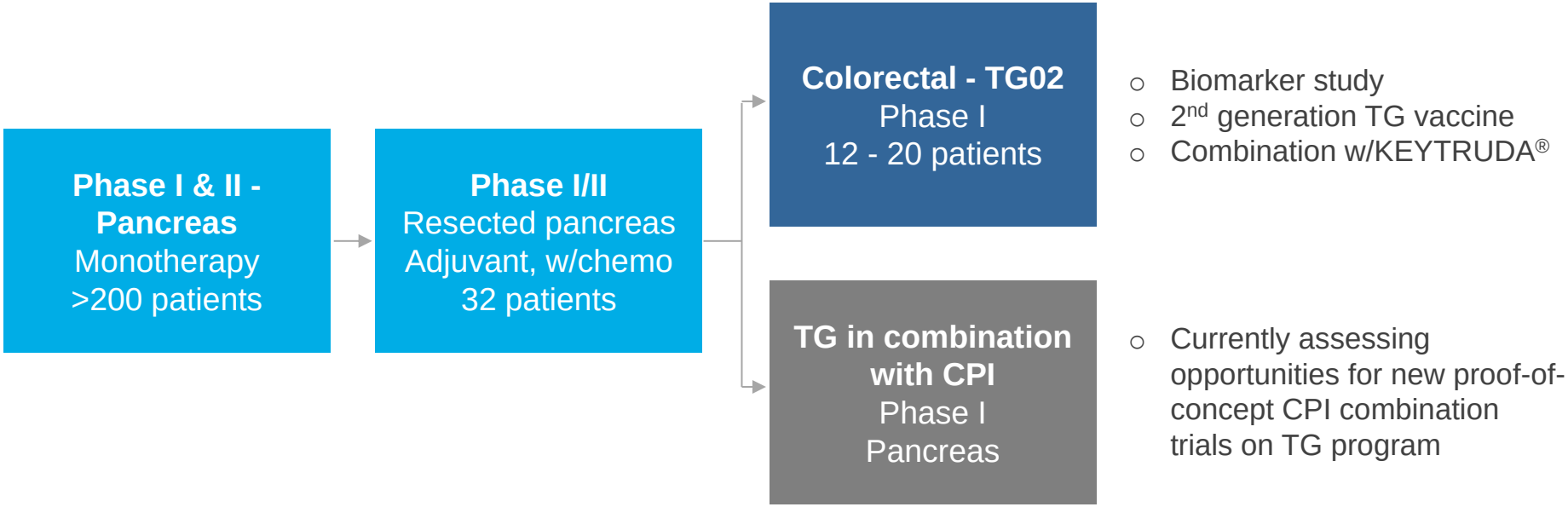
TG CLINICAL PROGRAM OVERVIEW

Phase I/II trial in resected pancreas cancer recently completed



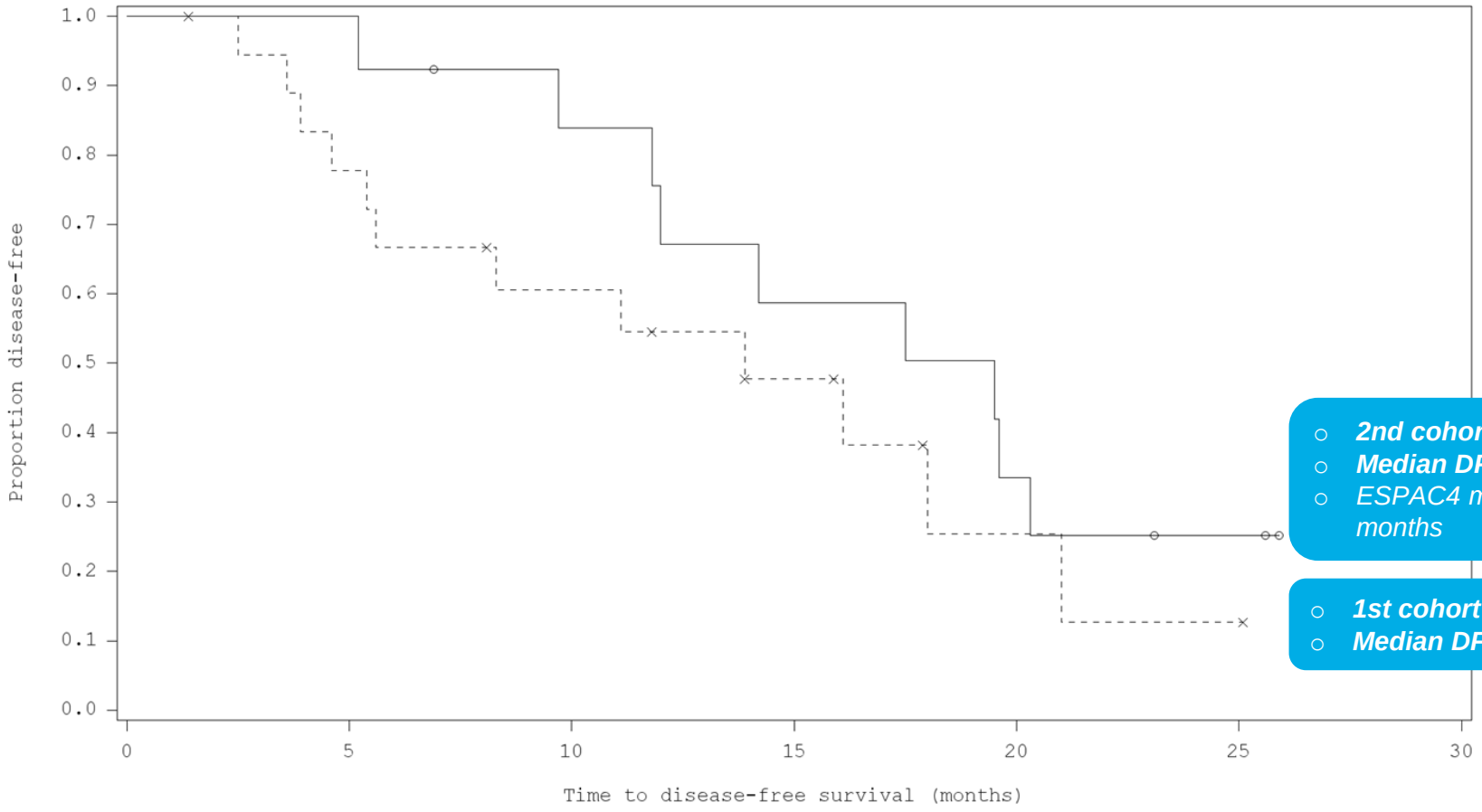
TG01 IN RESECTED PANCREATIC CANCER

SIGNAL OF EFFICACY SEEN IN PHASE I/II TRIAL

Median overall survival	**33.4 vs. 27.6 months** reported in the ESPAC4 trial for gemcitabine alone (from time of surgery) ○ First cohort: 33.1 months ○ **Second cohort: not yet reached**
Median disease free survival	**16.1 vs. 13.1 months** reported in the ESPAC4 trial for gemcitabine alone (from time of surgery) ○ First cohort 13.9 months ○ **Second cohort 19.5 months**
mutRAS immune activation	**94%** (30 out of 32 patients) had **RAS-specific immune activation**
Dosing and safety	**Dosing regimen defined** and TG01 is **well-tolerated**

First cohort: 19 pts, Second cohort: 13 pts. Total 32 pts.

DISEASE FREE SURVIVAL FROM SURGERY



- 2nd cohort (n=13)
- Median DFS 19.5 months
- ESPAC4 mDFS 13.1 months

- 1st cohort (n=19)
- Median DFS 13.9 months

- - - 1st cohort

—— 2nd cohort

Censored= No progression on latest scan collected

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PIPELINE OVERVIEW AND MILESTONES

Platform	Product candidate	Preclinical	Phase I	Phase II	Phase III	Next expected event
ONCOS oncolytic adenovirus	ONCOS-102	**Mesothelioma** Comb. w/ pemetrexed/cisplatin				**1H 2020** Randomized ORR data
		Melanoma Comb. w/KEYTRUDA®				**1H 2019** ORR and immune data first cohort
		Peritoneal metastasis[1] Collab: Ludwig, CRI & AZ Comb. w/IMFINZI®				*Update by collaborator, expected 2019*
		Prostate Collab: Sotio Comb. w/DCVAC				*Update by collaborator, expected 2019*
	Next-gen ONCOS	**3 viruses** undisclosed				**2H 2019** Target disclosure and *in vivo* data
TG neo-antigen cancer vaccine	TG01	**Pancreatic cancer** Comb. w/gemcitabine				TBD
	TG02	**Colorectal cancer** Proof-of-mechanism Comb. w/KEYTRUDA®				**1H 2019** Immune activation and mechanistic data (mono)
	TG02	**CPI synergy** TG + PD-1				**1H 2019** TG02 + *in vivo* data

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

Ongoing collaborator sponsored trials

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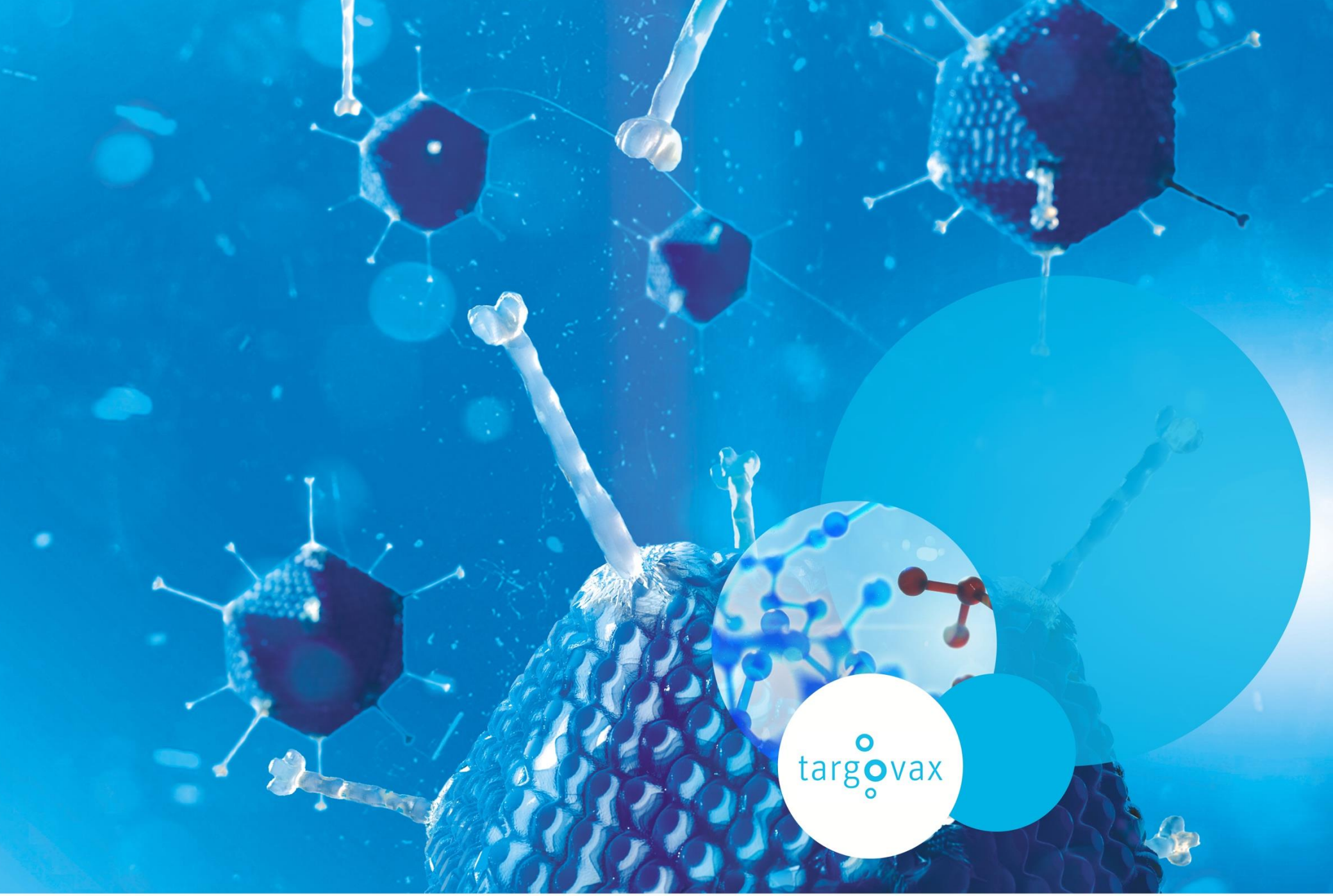
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Large deals in the last year show strong

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	Viralytics Developers of Oncolytic Immunotherapies	**M&A** Phase I/II oncolytic virus	**USD 400m** up-front cash
janssen PHARMACEUTICAL COMPANIES OF Johnson&Johnson	BeneVir	**M&A** Pre-clinical oncolytic virus	**USD 140m** up-front cash **Up to USD 1b** total value
Bristol-Myers Squibb	PsiOxus THERAPEUTICS	**BD partnership** Pre-clinical oncolytic virus	**USD 15m** milestone payment **Up to USD 1b** total value