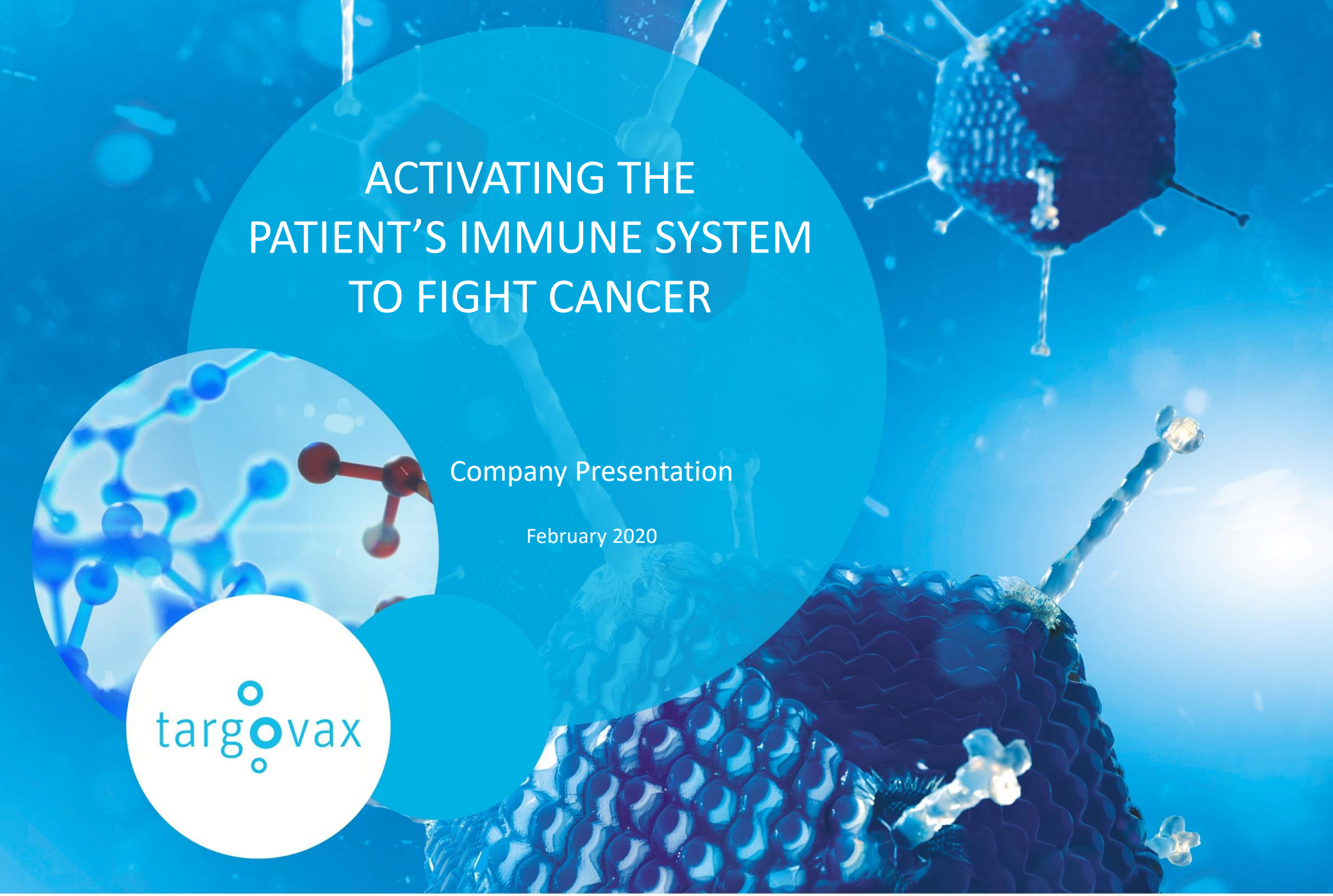

ACTIVATING THE PATIENT'S IMMUNE SYSTEM TO FIGHT CANCER

Company Presentation

February 2020

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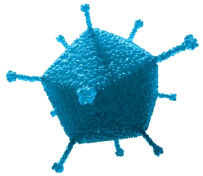
ACTIVATING THE IMMUNE SYSTEM

TO FIGHT CANCER

Growing need for immune activators

- Immune activators can enhance the efficacy of checkpoint inhibitors
- ONCOS oncolytic adenovirus platform targets hard-to-treat **solid tumors**



ONCOS-102 lead clinical asset

- One of the **furthest developed** OVs with >180 patients treated to date
- Four ongoing combination trials ensuring **rich news flow** in 2020

Encouraging clinical efficacy demonstrated

- Strong **single agent** immune activation and clinical data
- **33% ORR** in anti PD-1 refractory melanoma in combination with Keytruda
- First data set with **encouraging clinical and immune data**

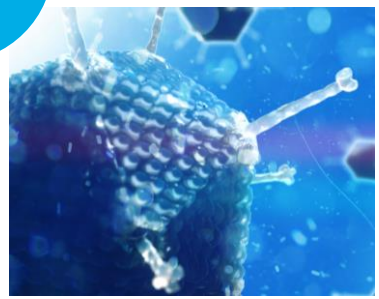
OSLO BØRS

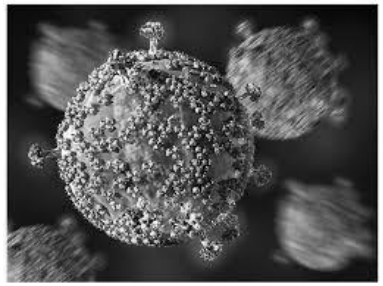
Listed on Oslo Stock Exchange

- Ticker: **TRVX**
- All virus assets unencumbered

ONCOLYTIC VIRUSES INCREASINGLY IMPORTANT IN THE FUTURE CANCER THERAPY LANDSCAPE

Targovax focus





Immune activators
Oncolytic viruses

Immune modulators
Checkpoint inhibitors

Surgery - Radio - Chemo

Immune boosters
CAR-Ts, TCRs

Targeted therapy
TKIs, PARPs, etc.

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ONCOS-102 IS AN ONCOLYTIC ADENOVIRUS SEROTYPE 5 ARMED WITH A GM-CSF TRANSGENE

1

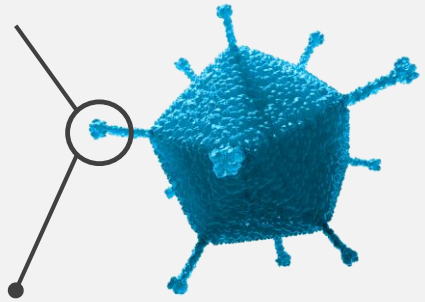
Selective replication in cancer cells

2

Boosting the **immune activation**

3

Enhanced infection of cancer cells



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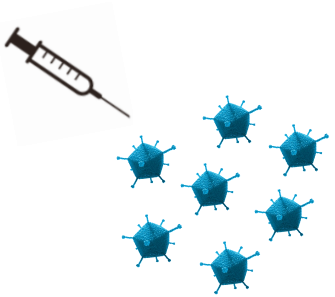
ONCOS-102 MODE OF ACTION

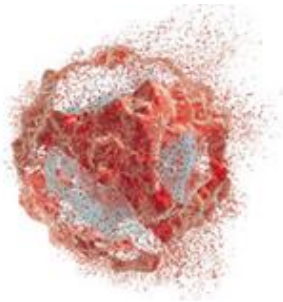
1 Virus injection
Local delivery

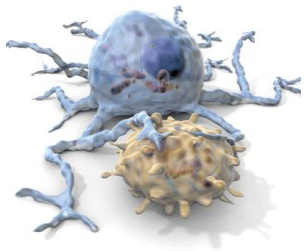
2 Oncolysis
Immune activation

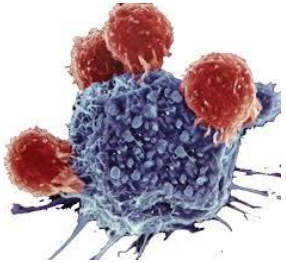
3 Antigen processing
T-cell activation

4 T-cell response
Anti-tumor immunity









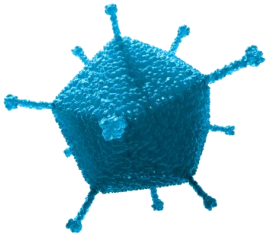
- Intra-tumoral or intra-peritoneal injection
- Tumor cell infection

- Lysis of tumor cells
- Inflammatory response
- Tumor antigen release

- Antigen processing
- T-cell activation in lymph nodes

- T-cell tumor infiltration
- Tumor antigen recognition

BENEFITS OF ONCOS-102 ADENOVIRUS



Highly immunogenic, TLR-9 agonist, stimulates inflammation

Well-characterized, well-tolerated and few safety concerns

Versatile DNA backbone, ability to carry multiple transgenes

SEVERAL SIGNIFICANT BD TRANSACTIONS IN THE ONCOLYTIC VIRUS SPACE IN 2018-2019

Acquirer	Target	Type of deal	Deal value
MERCK	Viralytics Developers of Oncolytic Immunotherapies	**M&A** RNA virus, Phase II	**USD 400m** cash acquisition
Janssen PHARMACEUTICAL COMPANIES OF Johnson&Johnson	BeneVir	**M&A** Herpes virus, Pre-clinical	**USD 140m** up-front **USD 1b** total value
Boehringer Ingelheim	ViraTherapeutics	**M&A** VSV virus, Pre-clinical	**USD 250m** cash acquisition
AstraZeneca	transgene	**R&D partnership** Co-development of novel vaccinia viruses, Pre-clinical	**USD 10m** up-front Unknown total value
Takeda	TURNSTONE BIOLOGICS	**Strategic collaboration** Co-development of multiple vaccinia viruses, Pre-clinical	**USD 120m** near-term **USD >900m** total value

THE OV DEVELOPMENT LANDSCAPE

OVERVIEW OF MOST RELEVANT OVS IN CURRENT DEVELOPMENT

Company		Asset/ Program	MoA	Highest Phase
AMGEN	H	Imlygic	HSV with GM-CSF transgene, IT only	Approved 2015 as mono Phase III PD1 combo
MSD	R	Cavatak	Coxsackievirus, non gene modified, IT focus, IV and IP trial ongoing	Phase II
DNAtrix	A	DNX-2401	Chimeric Ad5/3, no transgene, IT and intra-arterial	Phase II
targovax	A	**ONCOS-102**	**Chimeric Ad5/3 with GM-CSF transgene, IT and IP administration**	**Phase II**
Cold Genesys	A	CG0070	Ad5 with GM-CSF transgene, intravesical	Phase II
ONCOLYTICS BIOTECH INC	R	Reolysin	Reovirus, non gene modified, IV only	Phase II
PsiOxus THERAPEUTICS	A	Enadenotucirev	Chimeric Ad5, no transgene, IV only	Phase I/II
Replimune	H	RP1	HSV with GM-CSF, GALV, and ipilimumab transgenes, IT only	Phase I/II
LOKON	A	LOAd703	Chimeric Ad5/35 with TMZ-CD40L and 4-1BBL transgenes, IT only	Phase I/II
VYRIAD	R	Voyager V1	VSV virus with NIS and human interferon beta transgenes, IV only	Phase I
WESTERN ONCOLYTICS	R	Ad-MAGEA3	Maraba virus with MAGEA3 transgene, IV and IT	Phase I
Boehringer Ingelheim	R	VSV-GP	Chimeric VSV virus, IV only	Pre-clinical
TURNSTONE BIOLOGICS	V	RIVAL	Maraba and Vaccinia viruses armed with multiple transgenes, IV only	Pre-clinical
transgene	V	Invir.IO	Vaccinia virus platform armed with CTLA-4 ++, solid tumors	Pre-clinical
Oncorus	H	oHSV	Herpes virus with multiple transgenes (PD1, CTLA4 ++), IT only	Pre-clinical

A *Adenovirus* H *Herpes virus* V *Vaccinia virus* R *RNA virus*

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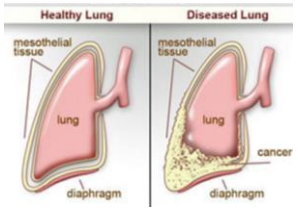
ONCOS DEVELOPMENT STRATEGY

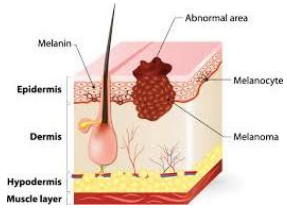
1 Path-to-market as orphan drug



Mesothelioma

- ~15.000 patients[1]
- Focused market entry in niche indication
- Potential as frontline therapy, limited competition

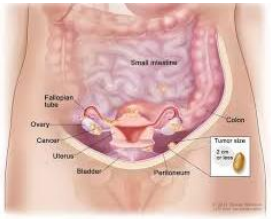
2 Activating CPI refractory tumors



Anti-PD1 refractory melanoma

- No/few alternatives for ~50.000 patients[1]
- Benchmarking arena for immune activators
- May release a large potential in other indications

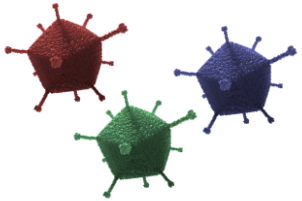
3 Expanding CPI indications



Peritoneal malignancies

- Originating from ovarian and colorectal cancers
- >100.000 patients[1] with tumors not responding to CPIs
- Intraperitoneal administration may open new indications

4 Next generation



Platform expansion in solid tumors

- Double transgenes
- Novel targets and modes of action
- Ongoing pre-clinical testing

1 Patients per year in EU5, US and Japan, Company estimates based on Global Data

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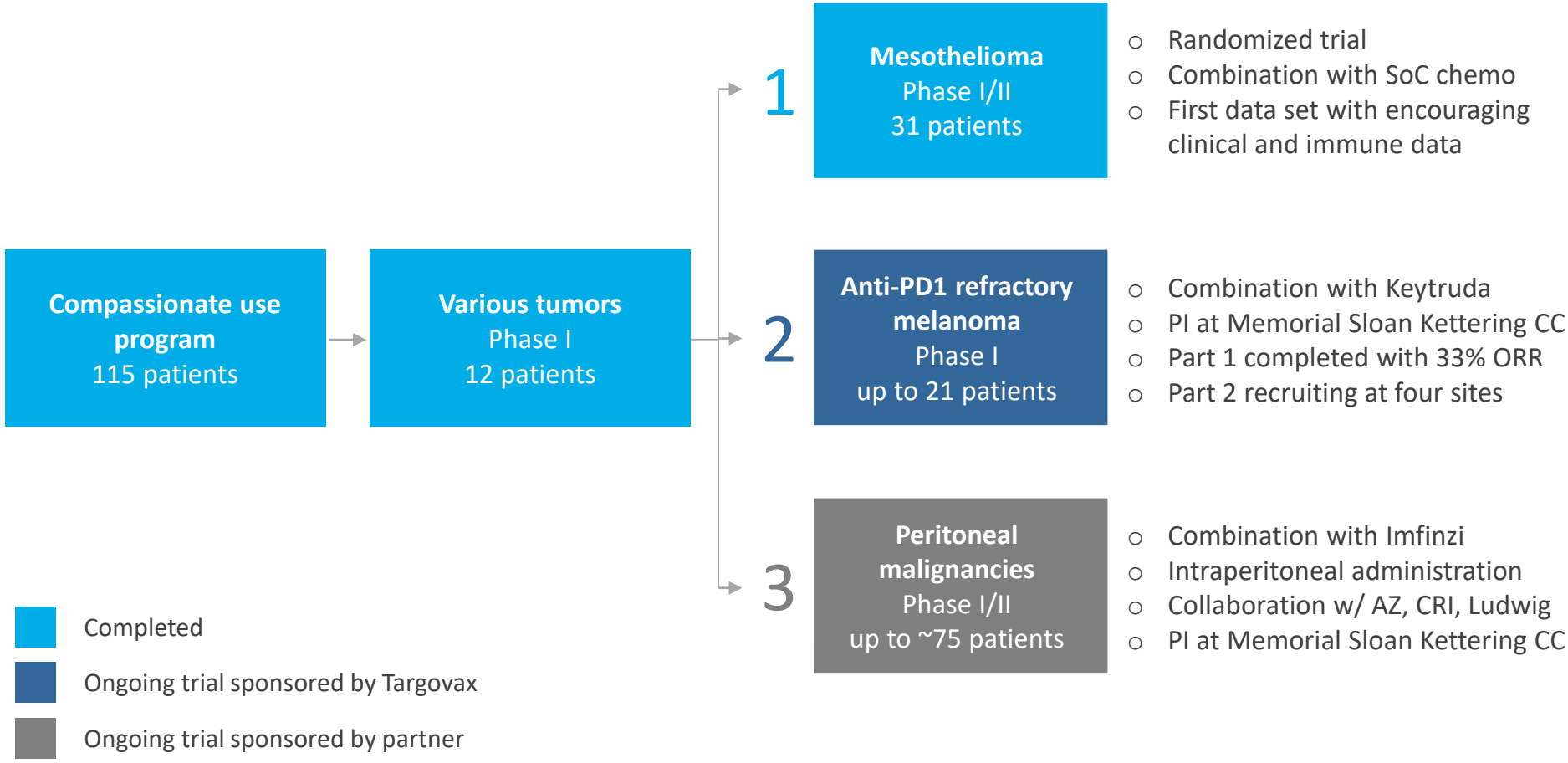
ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



Targovax is also involved in an ongoing combination trial in Prostate cancer were ONCOS-102 is combined with a dendritic cell vaccine (DCVAC). This trial is sponsored by Sotio, a Czech biotech company

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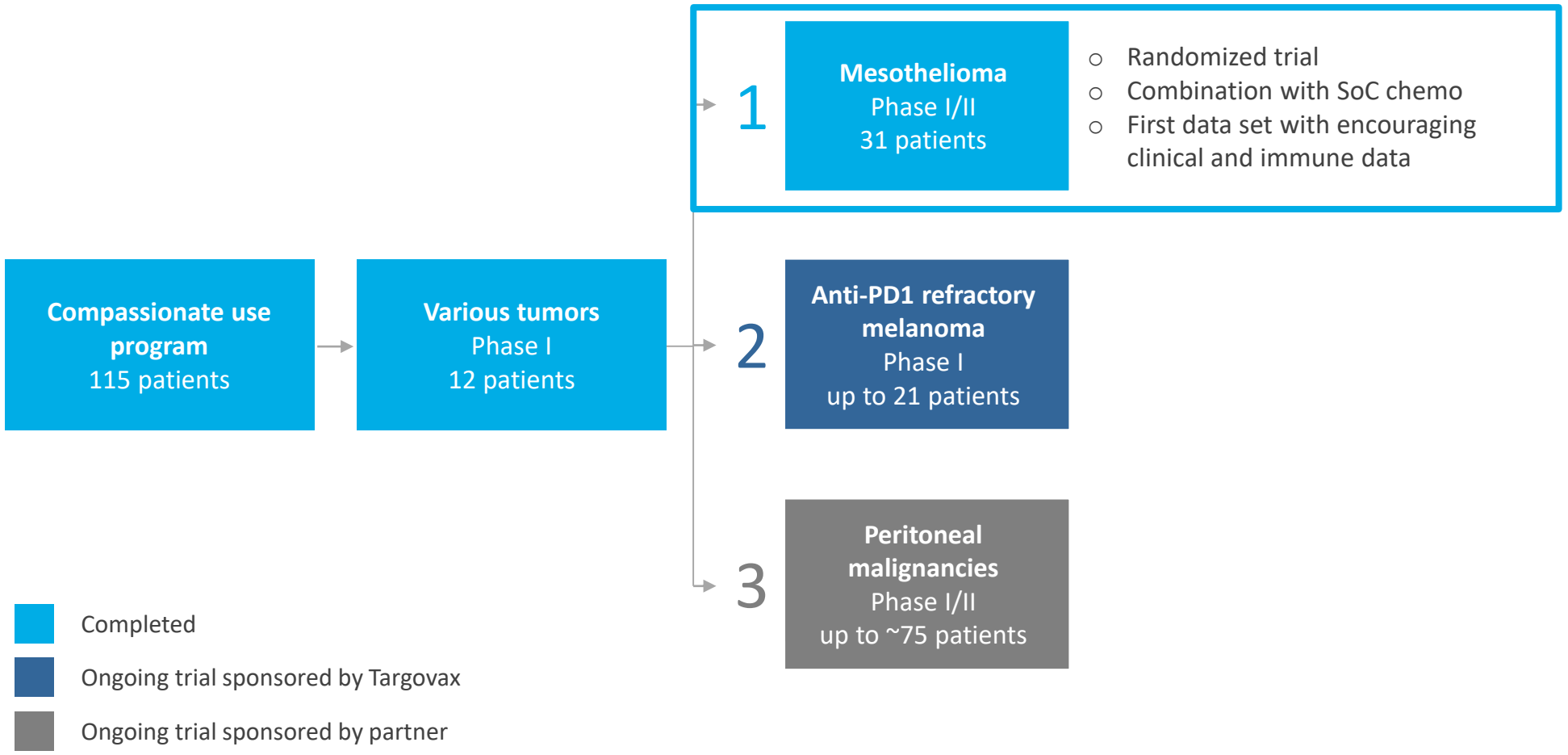
ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



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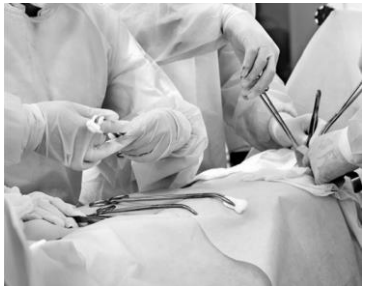
MALIGNANT PLEURAL MESOTHELIOMA

HIGH NEED FOR NEW TREATMENT APPROACHES



Surgery

Only 10% of patients suitable for resection

Technically challenging due to location

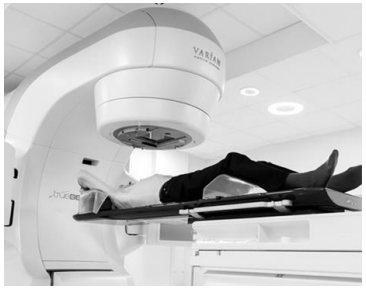
Diagnosis often too late for surgery

Radiotherapy

Rarely effective due to tumor shape

Shape of tumors make them hard to target

Mainly palliative care



Chemotherapy

Standard of care (SoC) has limited efficacy

Only approved SoC option is pemetrexed/cisplatin

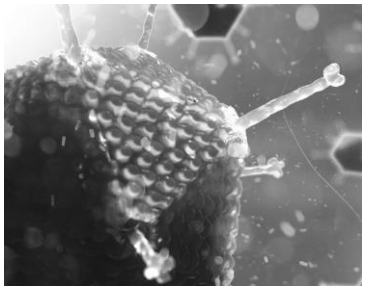
6 month PFS and 12 month median OS in 1st line

Immunotherapy

Mixed signals from early IO trials

CPIs included in NCCN guidelines as 2nd line option

No/few other oncolytic viruses in development



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RATIONALE FOR ONCOS-102 GO-TO-MARKET STRATEGY IN MESOTHELIOMA

Become frontline therapy

- Data so far indicate activity in mesothelioma
- Ongoing randomized trial combining with chemo
- Good safety profile

Orphan Drug Designation

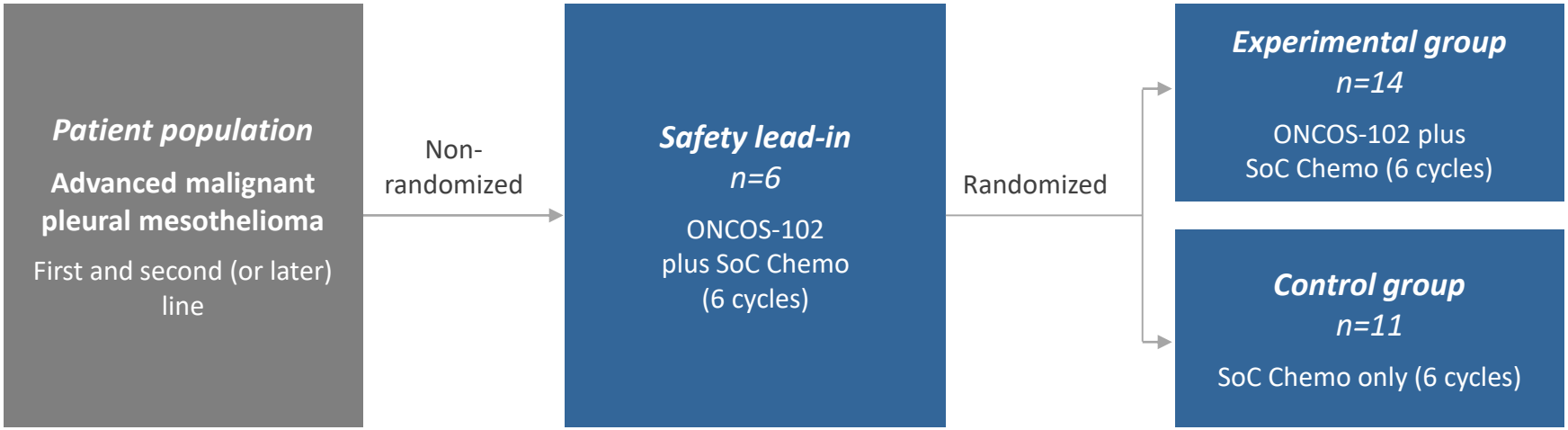
- High unmet medical need; orphan drug designation
- 7-10 year market exclusivity
- Opportunity for accelerated regulatory routes to market

Limited competition

- Few other viruses in development
- ONCOS-102 most advanced
- CPIs are potential combinations

ONCOS-102 MESOTHELIOMA PHASE I/II TRIAL IN COMBINATION WITH CHEMO

STUDY DESIGN



ONCOS-102 MESOTHELIOMA PHASE I/II COMBINATION WITH SOC

PATIENT CHARACTERISTICS AND OUTCOMES

ITT: N = 31 (20+11) PP: N = 30 (19+11)	**Experimental** n= 20	**Control** n= 11	***Comments***
Tumor and disease characteristics at enrollment - Number of lesions - Tumor burden mm (RECIST 1.1) - Stage III - Stage IV	 4.3 87 30% 60%	 3.5 46 27% 46%	*Generally more progressed disease in experimental group*
First line patients (number)	**11 of 20**	**6 of 11**	*No previous chemotherapy*
Median Progression Free Survival (mPFS)	8.9 months	6.8 months	*Early data, many patients censored*
Overall Response Rate (ORR, n=10 / n=6)	30%	33%	
Disease Control Rate (DCR, n= 10 / n=6)	90%	83%	
Second (or later) line patients (number)	**9 of 20**	**5 of 11**	*Received previous chemotherapy*
Median Progression Free Survival (mPFS)	4.5 months	ND	*Early data, many patients censored*
Overall Response Rate (ORR, n=9 / n=5)	11%	60%	
Disease Control Rate (DCR, n=9 / n=5)	67%	80%	

ITT: Intention to treat
PP: Per protocol

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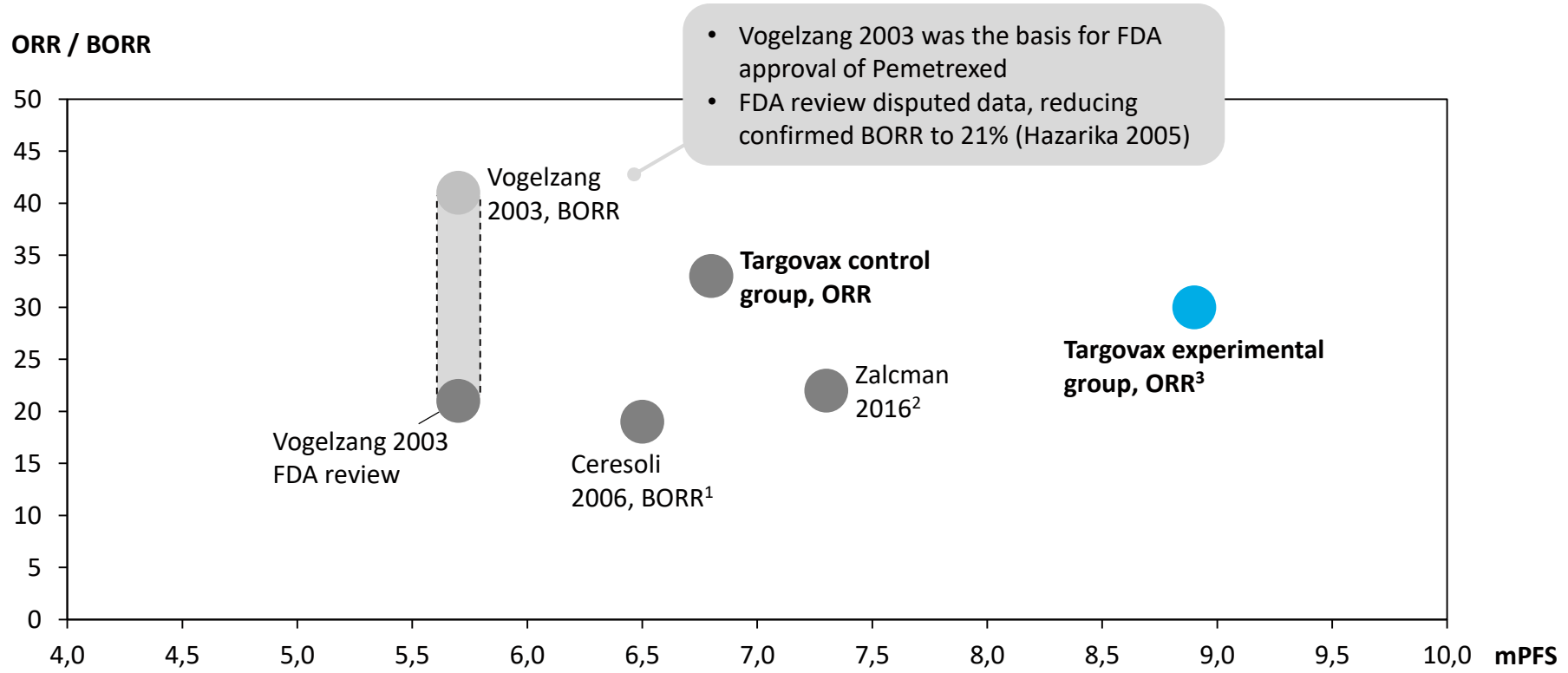
FIRST LINE ONCOS-102 ORR AND EARLY PFS DATA COMPARE FAVORABLY TO HISTORICAL CONTROL

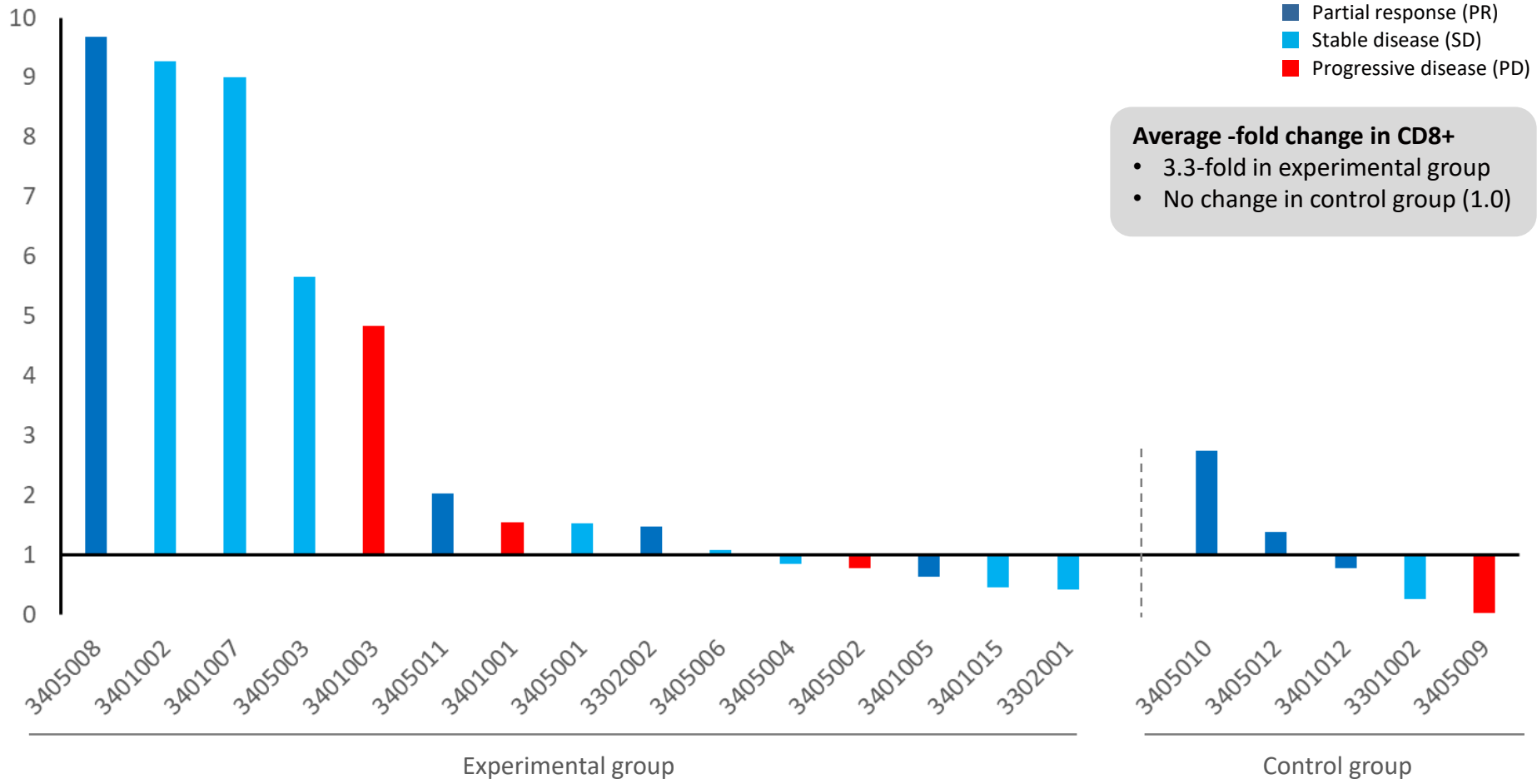


1 Pemetrexed plus carboplatin
2 Zalcman 2016 (Lancet) compared bevacizumab + pem/cis vs pem/cis; data from pem/cis arm only presented on plot. Not specified if ORR or BORR.
3 mPFS in Targovax trial is early and will change: Control group 6 patients (3 censored), Experimental group 11 patients (7 censored)

ONCOS-102 MESOTHELIOMA IMMUNE ACTIVATION

INCREASED T-CELL INFILTRATION IN EXPERIMENTAL GROUP

CD8+ T-cell infiltration -fold change from baseline to day 36 (n=20[1])



Average -fold change in CD8+

- 3.3-fold in experimental group
- No change in control group (1.0)

1: 20 patients with evaluable pre/post biopsies, experimental group n=15 and control group n=5

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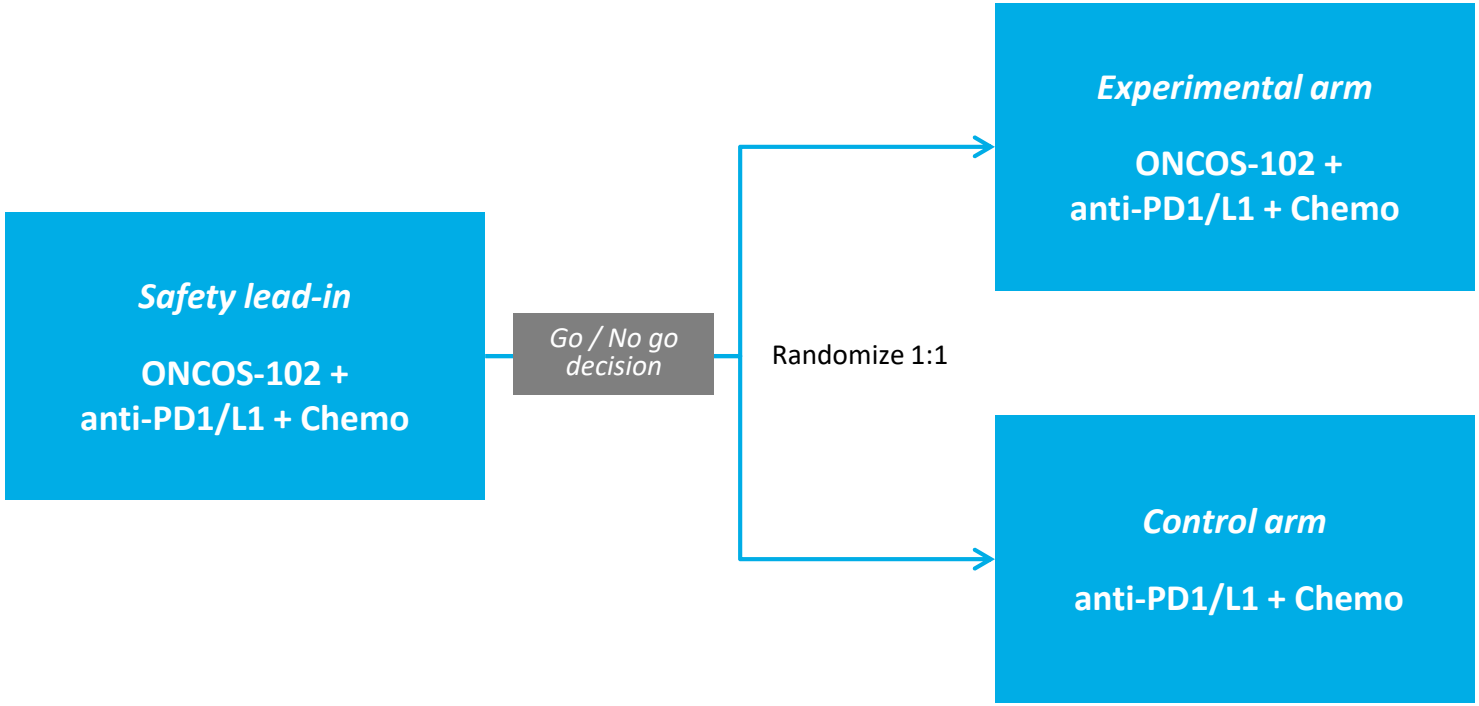
NEXT STEP: ONCOS-102 + ANTI-PD1/L1 + CHEMO TRIPLE COMBINATION IN FIRST LINE MESOTHELIOMA

Study population – malignant pleural mesothelioma:
First line, unresectable, advanced and/or metastatic disease
ca. 100 patients



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ONCOS-102 MESOTHELIOMA PHASE I/II TRIAL

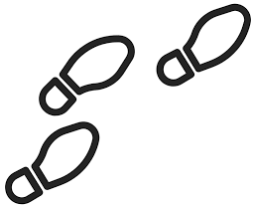
SUMMARY AND NEXT STEPS

Excellent safety profile

- ONCOS-102 and SoC chemotherapy **combination is well-tolerated**

Clinical activity observed

- Emerging data suggest **benefit for ONCOS-102 treated patients** and **compare favorably** to historical control
- Increased **T-cell infiltration** and **PD-L1 expression**
- Robust immune activation **associated with clinical benefit**

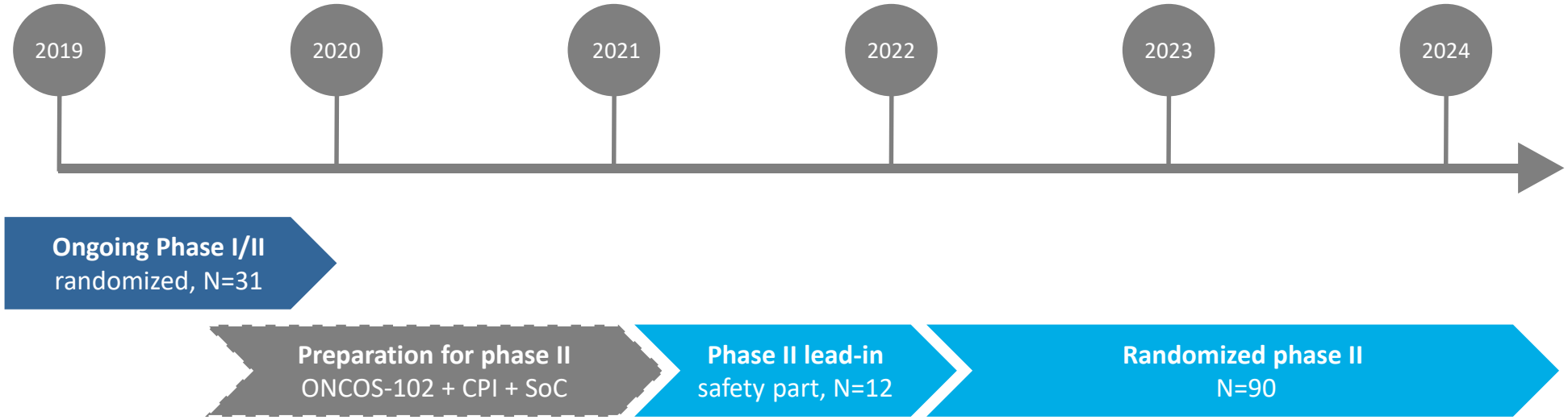


Next steps defined

- **First line** identified as **target population** for follow-up trial
- **Strong rationale** for combination with anti-PD1/L1 CPI
- **Discussion ongoing with pharma partner** for trial collaboration

ONCOS-102 DEVELOPMENT PATH IN MALIGNANT PLEURAL MESOTHELIOMA

STRATEGY AND INDICATIVE TIMELINES



- Phase I/II trial of ONCOS-102 + SoC vs. SoC
- 1st and 2nd to 4th line
- Clinical and immune data Jan 2020

- Phase II trial of ONCOS-102 + CPI + SoC vs. CPI + SoC
- 1st line
- EU and US sites
- 45 patients per arm, plan to expand into registrational trial if data allow

CPI: anti-PD(L)1 checkpoint inhibitor
SoC: Standard of care chemotherapy (pemetrexed / cisplatin)

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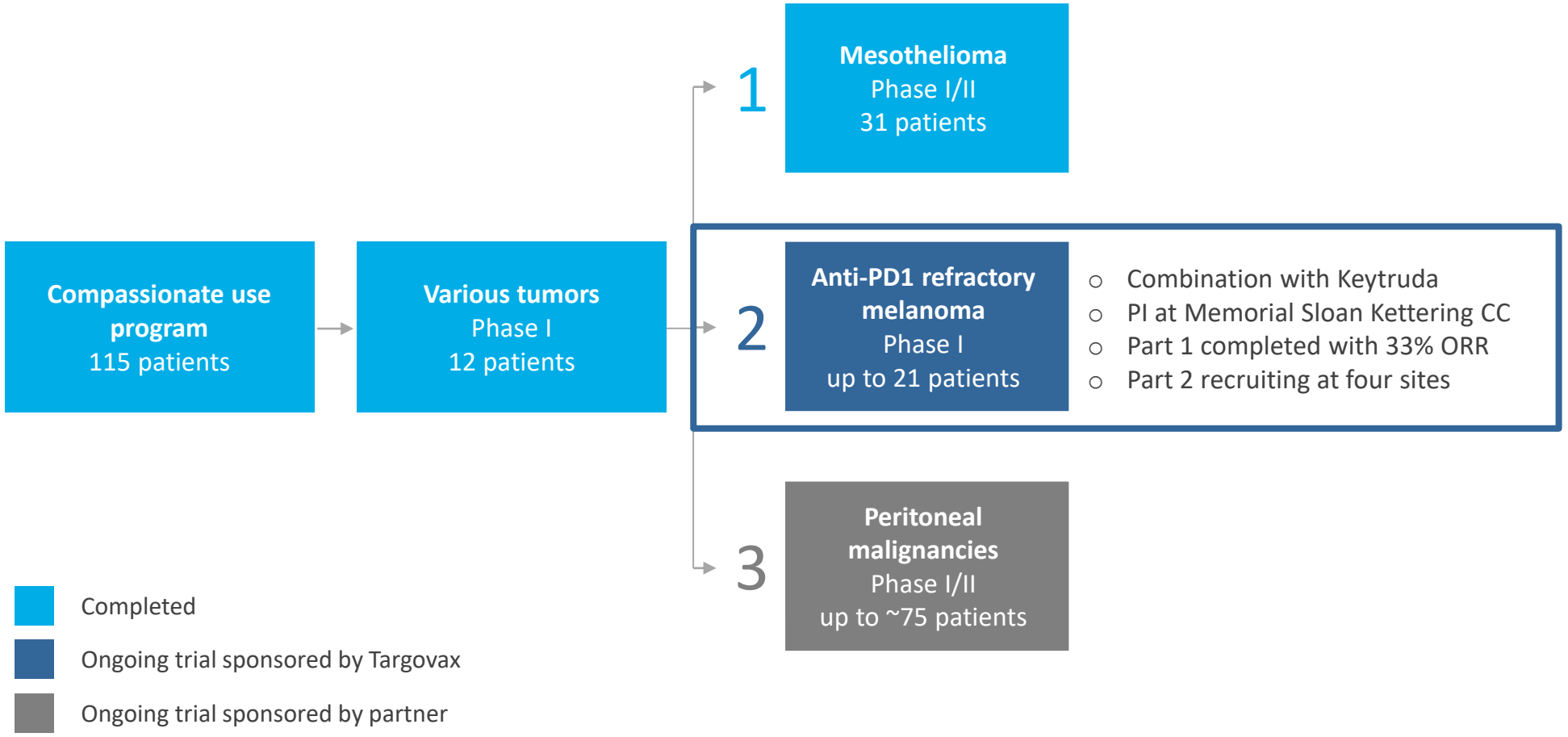
ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



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ONCOS-102 ANTI-PD1 REFRACTORY MELANOMA PART 1

33% ORR AND ROBUST IMMUNE ACTIVATION

Patient population

- Advanced, unresectable **melanoma** with **disease progression following prior treatment with anti-PD1**
- Typically treated with **2-3 immunotherapies prior to inclusion**
- **Median age 73 years (40-87)**
- Poor prognosis, with **few treatment alternatives**

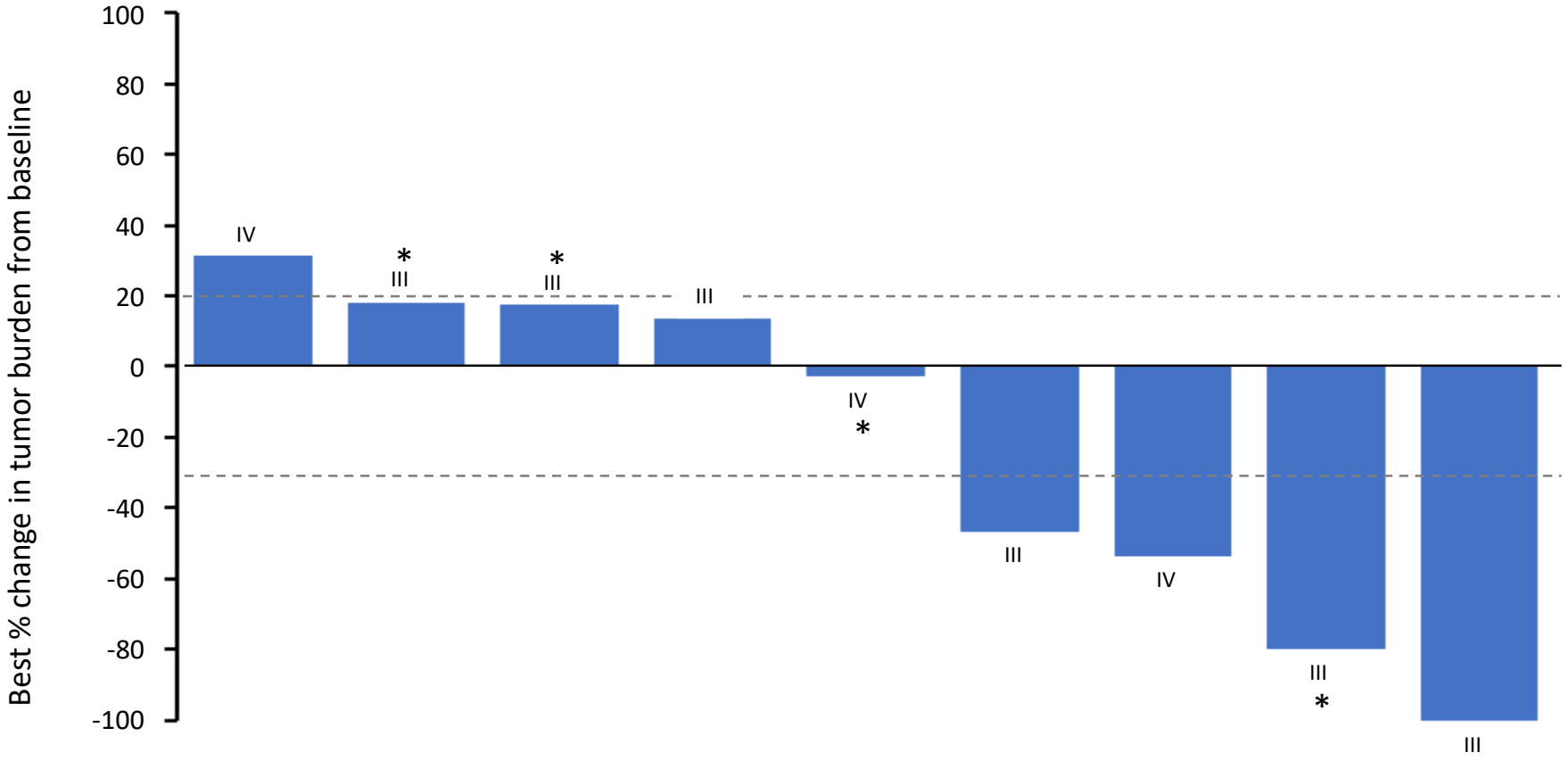
Treatment regime

- **3 ONCOS-102 injections** followed by 5 months of Keytruda

Clinical data

- Safety: **Well tolerated**, no major concerns
- **33% Overall response rate (ORR) after 6 months** by RECIST 1.1 and irRECIST
  - 1 Complete Response (CR)
  - 2 Partial Responses (PR)
- **Robust systemic and local immune activation**

BEST PERCENTAGE CHANGE IN TARGET LESIONS



* Progressive Disease due to non target progression

Letters and numbers indicating disease stage

Preliminary data

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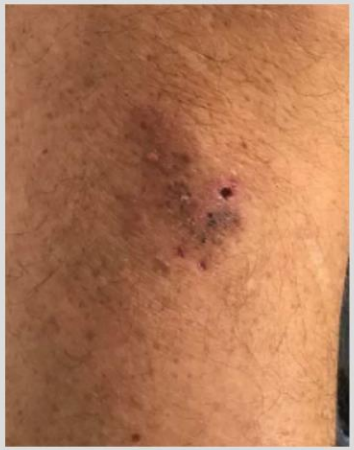
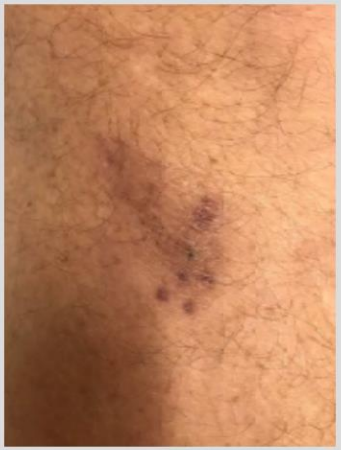
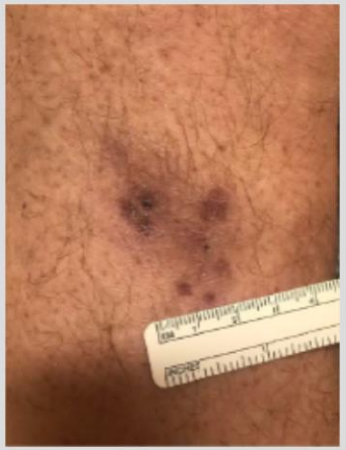
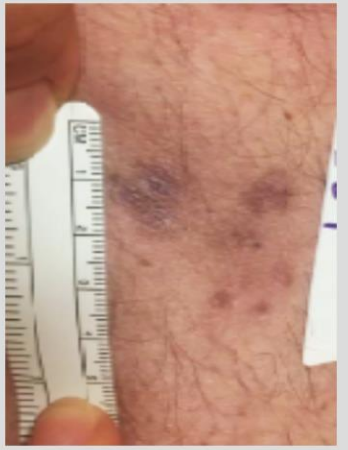
CASE EXAMPLE: PATIENT WITH COMPLETE RESPONSE

Tumor response, 1 of 1 injected lesion

Baseline	*Week 3*	*Week 9*	*Week 18*	*Week 27 (EoS)*
				
Progression on Keytruda	3x ONCOS-102 only	3x ONCOS-102 & 2x Keytruda	3x ONCOS-102 & 5x Keytruda	3x ONCOS-102 & 8x Keytruda

Patient characteristics

Tumor stage at enrolment:	**IIIb** T4a, N2b, M0	**Prior therapies:**	Surgery (x3) Ipilimumab Dabrafenib + Trametinib Keytruda
RECIST 1.1:	**CR**, week 9-27		

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ROBUST LOCAL AND SYSTEMIC IMMUNE ACTIVATION

Inflammatory response and innate immune activation

- Pro-inflammatory cytokine increase: IL-6 (8/8 pts), TNFa (7/8 pts)
- Increase in systemic IFNγ expression (8/8 pts)
- Fever/chills (7/9 pts)

Adaptive immune activation

T-cell tumor infiltration

- Increase in CD8+ T-cell infiltration (8/9 pts)
- Increase in activated[1] CD8+ T-cells (9/9 pts)
- PD1+/CD8+ T-cells in treated lesions (6/7 pts)
- T-cells in non-treated lesions (2/3 pts) on Week 3

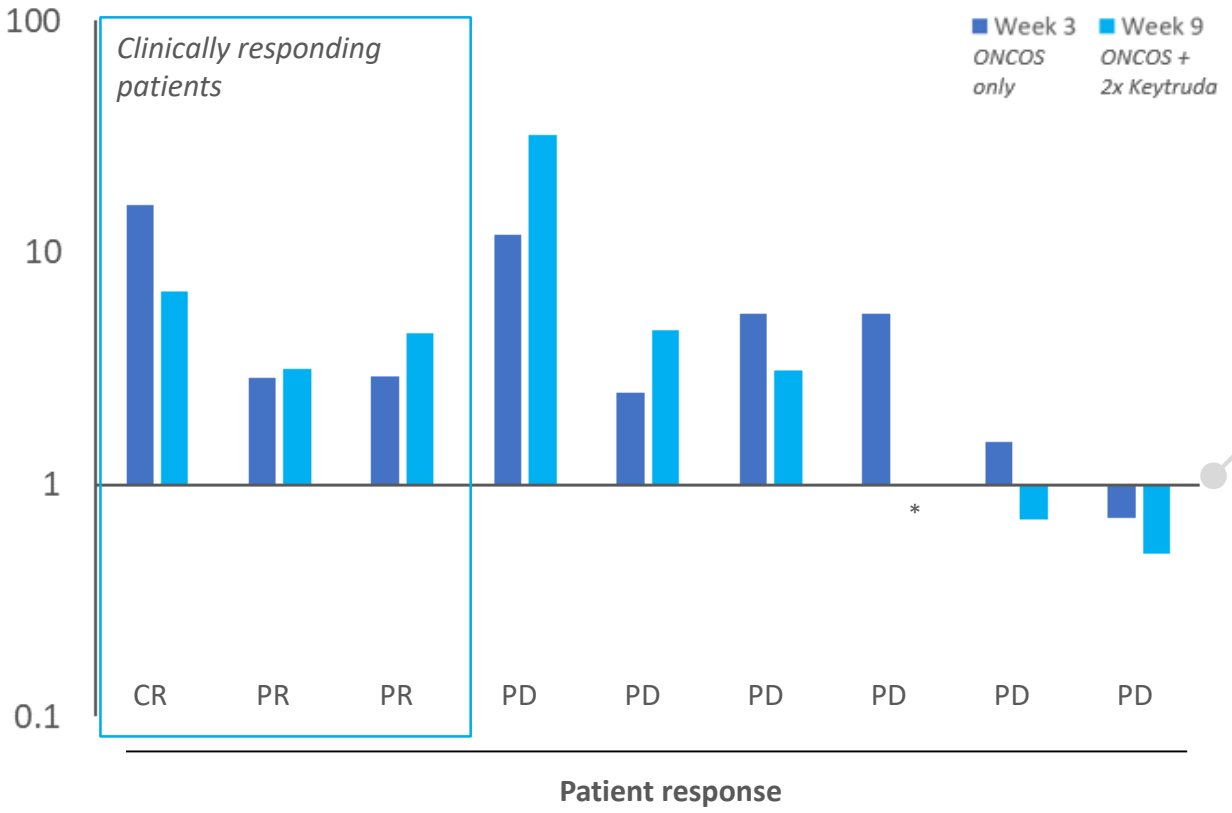
Tumor specific activation

- Systemic increase in tumor specific T-cells (4/9 pts, NY-ESO-1 and/or MAGE-A1)
- Increase in PD-L1 expression in tumor (6/9 pts)
- Melanoma specific cancer markers strongly reduced in 2 of 3 responders

1 Defined as GRZB+/CD8+ T-cells
Unpublished company data

INCREASE IN CD8+ T-CELL INFILTRATION APPEARS TO BE NECESSARY, BUT NOT SUFFICIENT, FOR RESPONSE

CD8+ T-cell infiltration into injected lesions, -fold change from baseline



All 9 patients had low or very low CD8+ T-cell infiltration at baseline

Do not post, unpublished company data

- Week 9 analysis not available

PD: Progressive disease PR= Partial response CR= Complete response

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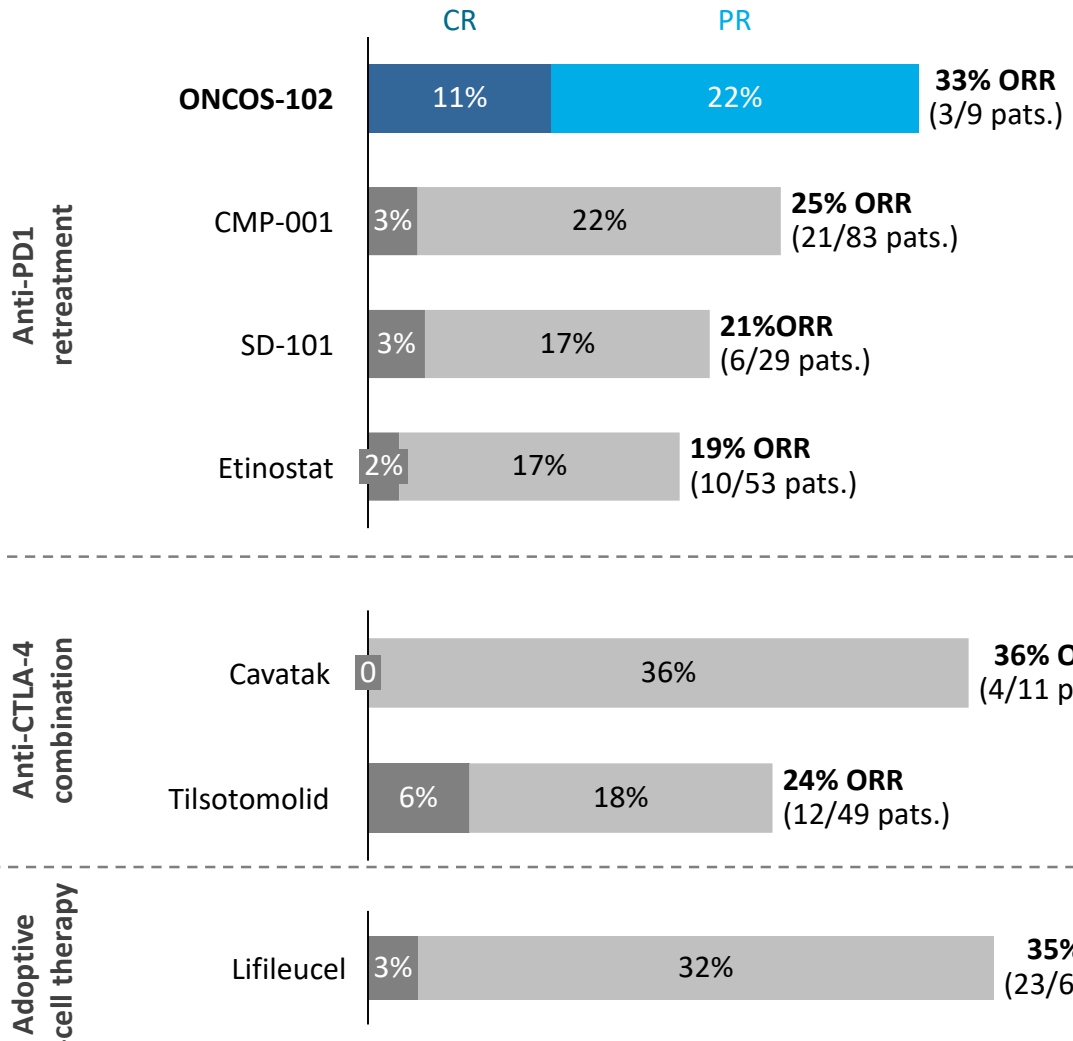
ONCOS-102 + KEYTRUDA DATA IN CONTEXT

ANTI-PD1 REFRACTORY MELANOMA BENCHMARK DATA



Comment

- *Checkmate Pharma, TLR-9 agonist*
- *Data from high dose cohort*
- *Dynavax, TLR-9 agonist*
- *Syndax Pharma, HDAC inhibitor*

Most pats CTLA4 naïve, 10-20% ORR expected

- *Merck (Viralytics), Oncolytic virus, up to 20 injections*
- *Idera, TLR-9 agonist*
- *IOvance, autologous TIL therapy with IL-2*
- *Complex and expensive manufacturing*

SOURCE: Targovax market analysis, November 2019

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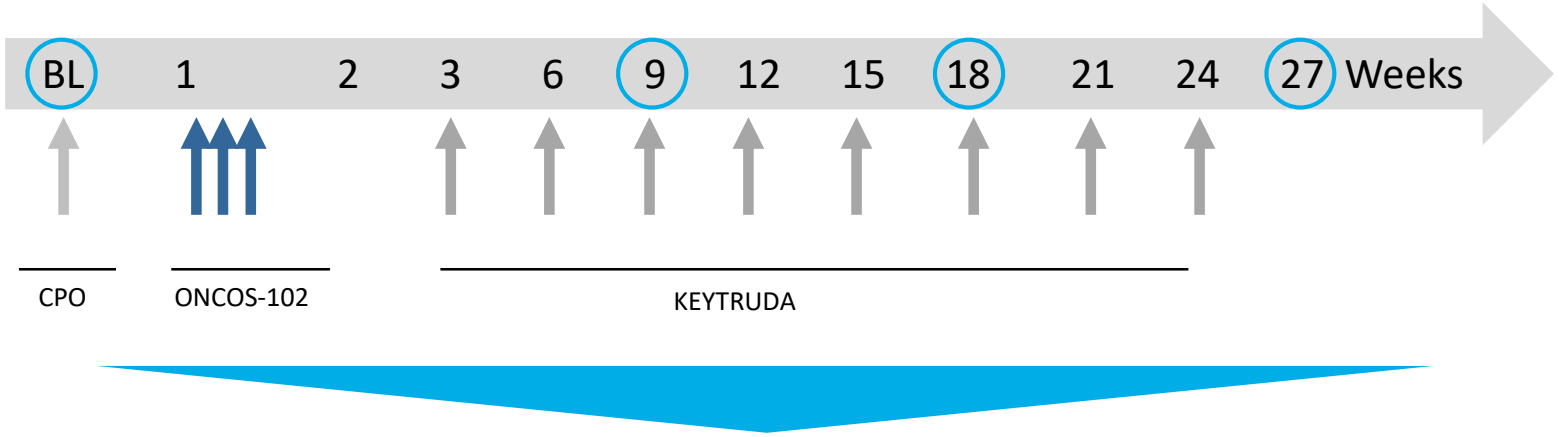
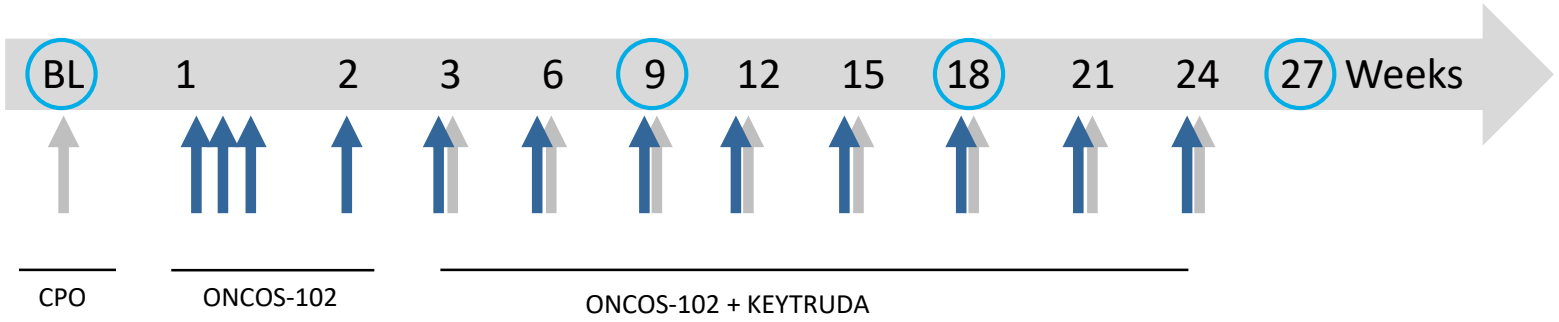
MELANOMA PART 2 IS RECRUITING

UP TO 12 PATIENTS: 12 ONCOS-102 INJECTIONS COMBINED WITH 5 MONTHS KEYTRUDA

Part 1:
3 ONCOS-102 injections



Part 2:
12 ONCOS-102 injections



○ *Imaging*

CPO: Cyclophosphamide

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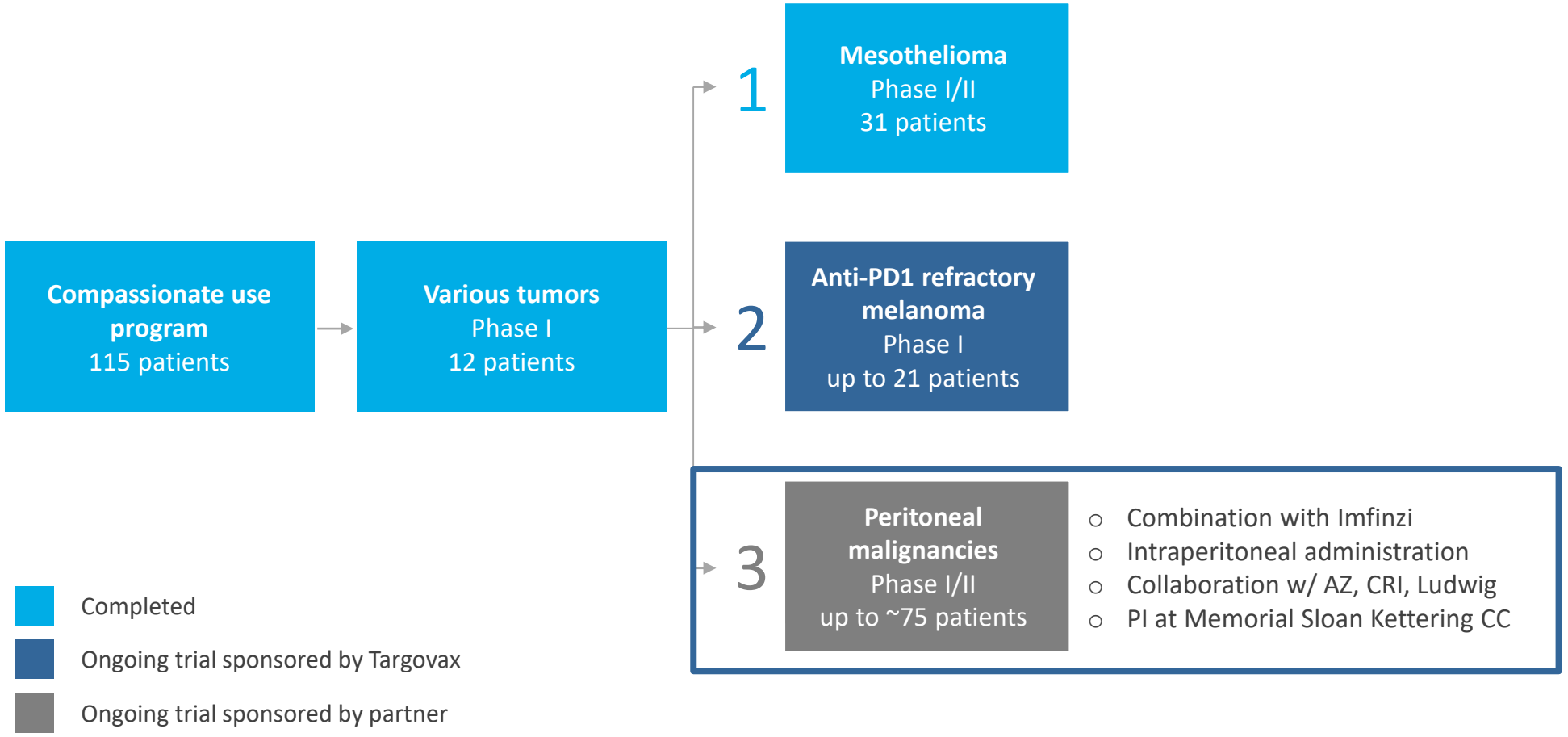
ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



Targovax is also involved in an ongoing combination trial in Prostate cancer were ONCOS-102 is combined with a dendritic cell vaccine (DCVAC). This trial is sponsored by Sotio, a Czech biotech company

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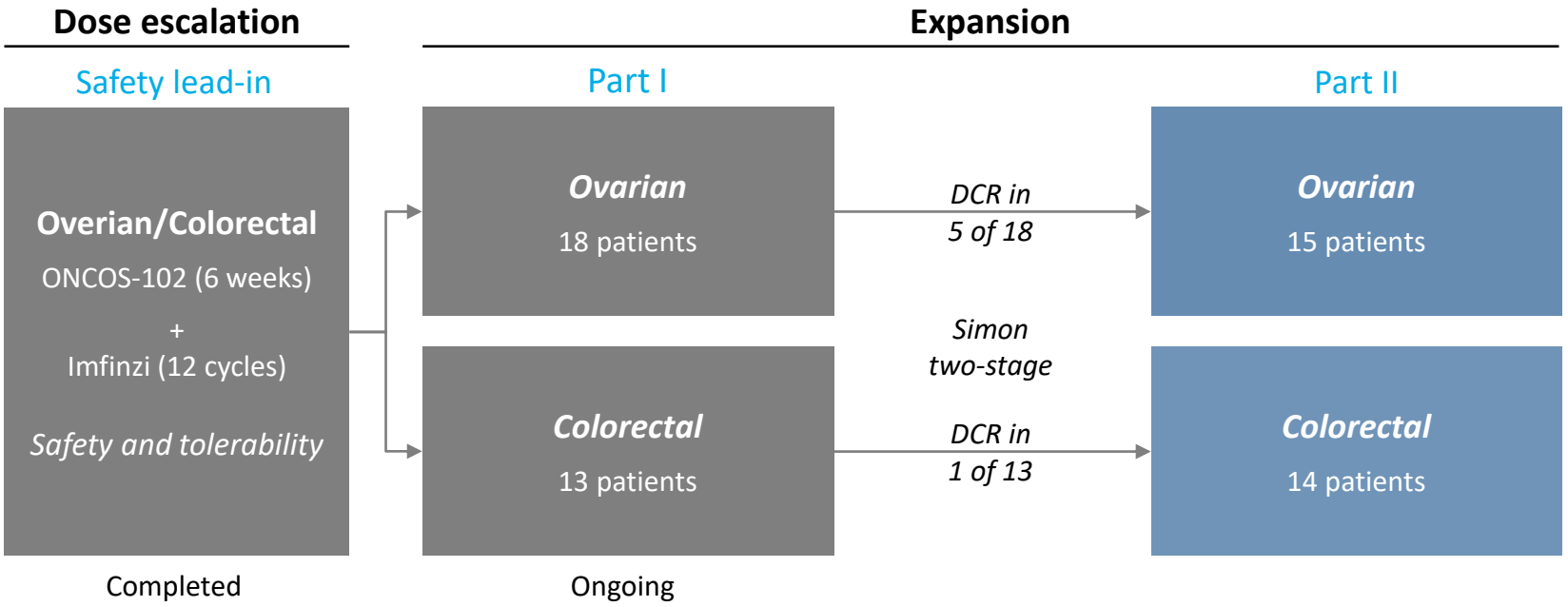
ONCOS-102 IN PERITONEAL MALIGNANCIES

PHASE I/II TRIAL IN COMBINATION WITH IMFINZI

Collaboration with US-based Cancer Research Institute,
Ludwig Cancer Research (trial sponsor) and AstraZeneca

Patient population: peritoneal disease who have failed prior standard chemotherapy and have histologically confirmed platinum-resistant or refractory epithelial ovarian cancer or colorectal cancer



PIPELINE WITH RICH NEAR-TERM NEWS FLOW

Product candidate	Preclinical	Phase I	Phase II	Phase III	Next expected event
ONCOS-102	**Mesothelioma** Combination w/ pemetrexed/cisplatin				**1H 2020** Updated clinical and immune data
	Melanoma Combination w/Keytruda				**1H 2020** Clinical and immune activation data
	Peritoneal malignancies Collaborators: Ludwig, CRI & AZ Combination w/Imfinzi				*Update by collaborator*
	Prostate Collaborator: Sotio Combination w/DCvac				*Update by collaborator*
Next-gen ONCOS	**3 new viruses** Double transgene				**1H 2020** Pre-clinical data

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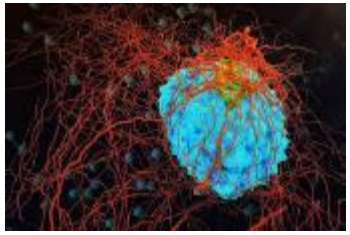
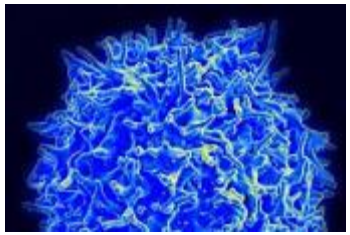
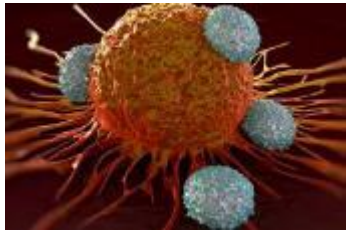
NEXT GENERATION ONCOS VIRUSES HAVE DOUBLE TRANSGENES AND DISTINCT MODES OF ACTION

	Mode of action	Target tumors
 **ONCOS-210 & -212** *Inhibition of tumor growth and vascularization*	○ Interfere with tumor's ability to break down surrounding tissue ○ Induce cell cycle arrest ○ Inhibit angiogenesis	○ Highly invasive or metabolic tumors
 **ONCOS-211** *Counteract immune-suppressive tumor microenvironment*	○ Decrease inhibitory factors from tumor microenvironment ○ Activate T-cells	○ "Cold" uninflamed tumors
 **ONCOS–214** *Enhanced cell killing properties*	○ Induce immunogenic cell death ○ Extend cell killing ability to neighboring non-infected cells	○ High-stroma tumors

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TG01/02 IOVAXIS OPTION AGREEMENT

IOVAXIS THERAPEUTICS

Fighting Cancer with Your Own Weapons

CEO: John Wang

HQ: Nantong, China

Founded: 2018

R&D focus: Shared and personalized cancer vaccines

Topic

- **Exclusive option** to license TG01/02 vaccines for **Greater China and Singapore**
- **License option to be executed** upon approval to **start first clinical trial**
- **IOVaxis clinical trial sponsor** and responsible for local regulatory filings

Terms

- **US$250.000 option fee**
- **US$3m up-front fee** upon option exercise
- **Up to US$100m** total development and commercial **milestones**
- **Tiered royalties** on net sales up to **mid teens**

Next steps

- **File for China IND**
- **Establish full license agreement**
- Define **regional development plan**
- **Initiate** one or more China and Singapore **TG clinical trials, incl. IO combinations**

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SUFFICIENTLY FUNDED TO ADVANCE CLINICAL PROGRAM BEYOND VALUE INFLECTION POINTS

The company

Cash end of 3Q

104 / **11**

NOK million **USD million**

Net cash flow - total 3Q

-31 / **-3**

NOK million **USD million**

Market cap

620 **72**

NOK million **USD million**

Analyst coverage

DNB, H.C. Wainwright, Arctic, ABG Sundal Collier, Redeye, Edison

The shareholders

	Estimated ownership[1]	
Shareholder	**Shares, million**	**Ownership**
HealthCap	12.4	19.6 %
RadForsk	4.4	7.0 %
Nordea	3.7	5.8 %
Thorendahl Invest	1.4	2.2 %
KLP	1.0	1.6 %
Danske Bank (nom.)	0.9	1.4 %
Prieta	0.7	1.1 %
J.P. Morgan Bank	0.7	1.1 %
Sundt	0.7	1.0 %
Morgan Stanley	0.6	0.9 %
10 largest shareholders	**26.4**	**41.6 %**
Other shareholders (4 288)	37.0	58.4%
Total shareholders	**63.4**	**100.0 %**

[1] As per 31 December 2019

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ACTIVATING THE IMMUNE SYSTEM

TO FIGHT CANCER

CLINICALLY PROVEN

One of the furthest developed oncolytic viruses

Strong single agent data

Activation of anti-PD1 refractory tumors

INNOVATIVE PIPELINE

Next generation virus platform in pre-clinical testing

RICH NEWS FLOW

Clinical and immune activation from mesothelioma and melanoma trials

Potential readouts from peritoneal trial