ACTIVATING THE PATIENT'S IMMUNE SYSTEM TO FIGHT CANCER

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TWO IMMUNE ACTIVATOR PLATFORMS

Lead product candidate

ONCOS Oncolytic virus

- o Genetically armed adenovirus
- Triggers production of T cells targeting the patient's specific tumor
- \circ 180 patients treated
- Encouraging clinical efficacy



Pipeline product

TG Neoantigen vaccine

- Shared neoantigen, therapeutic peptide vaccine
- Triggers the T-cell response to oncogenic RAS driver mutations
- o IOVaxis has option to China rights



ONCOS-102 MODE OF ACTION





Antigen processing T-cell activation





- Intra-tumoral or intraperitoneal 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

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



ONCOS DEVELOPMENT STRATEGY

1 Establish path-to-market

Activate refractory tumors



Mesothelioma

 $\circ~$ Potential for first line, limited competition

Anti-PD1 refractory melanoma

 $\circ~$ Benchmarking arena for immune activators

3 Expand CPI indications



Peritoneal malignancies

 $\circ\,$ Metastases from ovarian and colorectal cancers

4 Expand platform



Next generation oncolytic viruses

- Double transgenes
- $\circ~$ Novel targets and modes of action



ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



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ONCOS-102 Phase I single agent proof-of-concept CD8+ T-CELL INFILTRATION CORRELATES WITH SURVIVAL

Fold-change CD8+ T-cell count vs. survival

 $r = 0.75 \quad p = 0.005$



Case example #1 – Ovarian cancer

- Failed on 5 types of chemotherapy
- >1,000-fold increase in CD8+ T-cell infiltration
- Stable disease for 3 years, survived for 3.5 years

Case example #2 – Mesothelioma

- Radio- and chemotherapy refractory
- o **130-fold increase** in CD8+ T-cell infiltration
- 47% reduction of tumor on PET 6 weeks after last ONCOS-102 injection, survived 18 months



ONCOS-102 CLINICAL DEVELOPMENT PROGRAM



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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

MELANOMA PHASE I TRIAL DESIGN

ONCOS-102 + KEYTRUDA COMBINATION IN ANTI-PD1 REFRACTORY MELANOMA



Imaging CPO: Cyclophosphamide



CLINICAL RESPONSE IN 3 OUT OF 9 PATIENTS (33% ORR)



^{*} Withdrawn due to clinical PD

Length of grey bars indicate time from first ONCOS-102 injection to discontinuation/EoS

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

Patient characteristics

Tumor stage at enrolln RECIST 1.1:	nent: IIIb T4a, N2b, M0 CR, week 9-27	Prior therapi	es: Surgery (x3) Ipilimumab Dabrafenib + Trameti Keytruda	nib				
Tumor response, 1 of 1 injected lesion								
Baseline	Week 3	Week 9	Week 18	Week 27 (EoS)				
CalNax								

Progression on Keytruda

3x ONCOS-102 only

3x ONCOS-102 & 2x Keytruda 3x ONCOS-102 & 5x Keytruda

3x ONCOS-102 & 8x Keytruda



ONCOS-102 + KEYTRUDA DATA IN CONTEXT

ANTI-PD1 REFRACTORY MELANOMA BENCHMARK DATA



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				January 2020 Clinical and immune activation data
	Melanoma Combination w/Keytruda				1H 2020 Clinical and immune activation data
	Peritoneal malignancies Collaborators: Ludwig, CRI & Combination w/Imfinzi	AZ			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

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
- o 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

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 in 1H 2020