Activating the patient’s immune system to fight cancer

3Q 2018 Report
1 November 2018
Important
NOTICE AND DISCLAIMER

This report contains certain forward-looking statements based on uncertainty, since they relate to events and depend on circumstances that will occur in future and which, by their nature, will have an impact on the results of operations and the financial condition of Targovax. Such forward-looking statements reflect the current views of Targovax and are based on the information currently available to the company. Targovax cannot give any assurance as to the correctness of such statements.

There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in these forward-looking statements. These factors include, among other things, risks or uncertainties associated with the success of future clinical trials; risks relating to personal injury or death in connection with clinical trials or following commercialization of the company’s products, and liability in connection therewith; risks relating to the company’s freedom to operate (competitors patents) in respect of the products it develops; risks of non-approval of patents not yet granted and the company’s ability to adequately protect its intellectual property and know-how; risks relating to obtaining regulatory approval and other regulatory risks relating to the development and future commercialization of the company’s products; risks that research and development will not yield new products that achieve commercial success; risks relating to the company’s ability to successfully commercialize and gain market acceptance for Targovax’s products; risks relating to the future development of the pricing environment and/or regulations for pharmaceutical products; risks relating to the company’s ability to secure additional financing in the future, which may not be available on favorable terms or at all; risks relating to currency fluctuations; risks associated with technological development, growth management, general economic and business conditions; risks relating to the company’s ability to retain key personnel; and risks relating to the impact of competition.
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

- **Immune activators**: Oncolytic viruses, vaccines
- **Immune boosters**: CAR-Ts, TCRs
- **Immune modulators**: Checkpoint inhibitors
- **Targeted therapy**: TKIs, PARPs, gene therapy, etc.

Targovax focus

Surgery - Radio - Chemo
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**

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

**TG**
Neoantigen vaccine

*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.

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target</th>
<th>Type of deal</th>
<th>Deal value</th>
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</thead>
<tbody>
<tr>
<td>Boehringer Ingelheim</td>
<td>ViraTherapeutics</td>
<td>M&amp;A Phase I/II oncolytic virus</td>
<td>USD 250m up-front cash</td>
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<tr>
<td>MERCK</td>
<td>Viralytics</td>
<td>M&amp;A Phase I/II oncolytic virus</td>
<td>USD 400m up-front cash</td>
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<tr>
<td>Janssen</td>
<td>BeneVir</td>
<td>M&amp;A Pre-clinical oncolytic virus</td>
<td>USD 140m up-front cash, Up to USD 1b total value</td>
</tr>
<tr>
<td>Bristol-Myers Squibb</td>
<td>PsiOxus Therapeutics</td>
<td>BD partnership Pre-clinical oncolytic virus</td>
<td>USD 15m milestone payment, Up to USD 1b total value</td>
</tr>
</tbody>
</table>
2 TG neo-antigen vaccine

3. ONCOS oncolytic virus program
4. 3Q 2018 Financials
The RAS gene is mutated in 90% of pancreatic and 50% of colorectal cancers.

- 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.

Fernandez-Medarde; RAS in Cancer and Developmental Diseases; Genes & Cancer. 2011;2(3)
## TG01 in Resected Pancreatic Cancer: Signal of Efficacy Seen in Phase I/II Trial

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| **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 |
SECOND PATIENT COHORT PERFORMING BETTER

- 2nd cohort: optimized dosing regimen
- 77% 2-year survival rate (10/13)
- mOS not yet reached
- 9 patients alive at time of analysis

- 1st cohort: full dosing regimen
- 68% 2-year survival rate (13/19)
- mOS 33.1 months (from surgery)
- ESPAC4 mOS 27.6 months
- 5 patients alive at time of analysis

TG01 resected pancreas cancer trial overall survival
DISEASE FREE SURVIVAL FROM SURGERY

- 1st cohort
- 2nd cohort

Censored: No progression on latest scan collected

- 2nd cohort (n=13)
- Median DFS 19.5 months
- ESPAC4 mDFS 13.1 months
- 1st cohort (n=19)
- Median DFS 13.9 months

Time to disease-free survival (months)

Proportion disease-free
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

<table>
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<tr>
<th>TG01 indication</th>
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<tbody>
<tr>
<td>Ph I/II completed</td>
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<tr>
<td>Next steps being reassessed</td>
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<tr>
<td>~40,000 incidents</td>
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2
Colorectal cancer

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<tr>
<th>TG02 lead indication</th>
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<tbody>
<tr>
<td>Ph I trial ongoing</td>
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<tr>
<td>50% mutRAS</td>
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<tr>
<td>~0.5m incidents</td>
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</tbody>
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3
Lung cancer (NSCLC)

<table>
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<tr>
<th>TG02 potential future indication</th>
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<tbody>
<tr>
<td>30% mutRAS</td>
</tr>
<tr>
<td>~0.5m incidents</td>
</tr>
</tbody>
</table>

4
All mutRAS cancers

<table>
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<tr>
<th>TG02 + TG03 long-term potential</th>
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<tbody>
<tr>
<td>Up to 30% of all cancer patients</td>
</tr>
</tbody>
</table>

Source: Global data, Riva et al. Plos One 2017

Estimated total addressable patient number with RAS mutations in US, EU and China
TG DEVELOPMENT STRATEGY OVERVIEW

TG pivotal development
Future indication TBD

Collaborative pancreas trial
Pursue opportunities for investigator-led trials in pancreatic cancer

CPI combination clinical trial
Evaluate clinical benefit of TG vaccination in combination with PD-1/L1 blockade

Pre-clinical package
Generate supporting pre-clinical TG data package, incl. CPI and ONCOS combination

TG01-01 phase I/II data in pancreatic cancer
TG02-01 ongoing phase I trial in colorectal cancer
TG01 historical Hydro Pharma data
3 ONCOS oncolytic virus program

4. 3Q 2018 Financials
ONCOS
CLINICAL DEVELOPMENT STRATEGY

1 Path-to-market
Mesothelioma

- 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

SOURCE: Global Data, EU big 5 + US
ONCOS

CLINICAL PROGRAM OVERVIEW

- **Compassionate use program**
  - 115 patients

- **Phase I trial**
  - 12 patients
  - 7 indications

- **Peritoneal cancer**
  - Phase I/II
  - up to 78 patients

- **Prostate cancer**
  - Phase I
  - up to 15 patients

- **Mesothelioma**
  - Phase I/II
  - Randomized
  - 30 patients

- **Melanoma**
  - Phase I
  - up to 12 + 12 patients

- **Ovarian and colorectal cancers**
  - Combination with Imfinzi®
  - Intraperitoneal administration
  - Collaboration with MedImmune / AZ, CRI, & Ludwig

- **Ovarian and colorectal cancers**
  - PoC in CPI refractory patients
  - Combination with Keytruda®
  - Memorial Sloan Kettering

- **Prostate cancer**
  - Combination with dendritic cell vaccine (DCVAC)
  - Collaboration with Sotio

- **Prostate cancer**
  - Combination with SoC chemo
  - Randomized vs. SoC

- **Prostate cancer**
  - Shortest path-to-market
  - Orphan drug designation
  - Collaboration with MedImmune / AZ, CRI, & Ludwig

**Completed trials**

**Ongoing trials sponsored by Targovax**

**Ongoing trials sponsored by partner**
ONCOS-102 in malignant pleural mesothelioma

DEVELOPMENT STRATEGY AND INDICATIVE TIMELINES

2018

Ongoing
Phase I/II, randomized
30 patients

2019

Planned
Expansion of randomized Phase II
~60 additional patients (N=90)

2020

Future
Phase III
n=TBD

2021

2022

- 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**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td><strong>Safety</strong></td>
<td><strong>Innate immune activation</strong></td>
<td><strong>Adaptive immune activation</strong></td>
<td><strong>Efficacy</strong></td>
</tr>
<tr>
<td>✓ First safety review completed with no safety concerns</td>
<td>✓ Systemic increase of several pro-inflammatory cytokines (6/6 patients)</td>
<td>✓ Increase in the relative level of cytotoxic CD8+ T-cells (4/4 patients)</td>
<td>✓ Complete response in one out of six patients</td>
</tr>
<tr>
<td>✓ ONCOS-102 first time in melanoma treatment</td>
<td></td>
<td>✓ Increase in PD-1 expression on CD8+ T-cells (4/4 patients)</td>
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</tbody>
</table>

*SOURCE: Checkmate Pharmaceutical, press release 17 April 2018*
MELANOMA COMPLETE RESPONSE CASE EXAMPLE

Received 3 injections of ONCOS-102 and 2 Keytruda infusions

Baseline

Day 22

Day 63

Two immunotherapies received prior to study (Yervoy and Keytruda)
3Q 2018 Financials
**TARGOVAX HAS A SOUND FINANCIAL POSITION**
with cash to complete the planned clinical program into 2020

<table>
<thead>
<tr>
<th>Operations</th>
<th>The share</th>
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</thead>
<tbody>
<tr>
<td><strong>Cash end of 3Q - Sep 30\textsuperscript{th} 2018</strong></td>
<td><strong>Market Cap - at share price NOK ~9</strong></td>
</tr>
<tr>
<td>173 / 21 NOK million USD million</td>
<td>470 / 57 NOK million USD million</td>
</tr>
<tr>
<td><strong>Net cash flow - total 3Q</strong></td>
<td><strong>Daily turnover - rolling 6 month avg.</strong></td>
</tr>
<tr>
<td>-27 / -3 NOK million USD million</td>
<td>2.5 / 0.3 / 0.5 NOK million USD million % of share capital</td>
</tr>
<tr>
<td><strong>Annual run rate - last four quarters</strong></td>
<td><strong>Analyst coverage</strong></td>
</tr>
<tr>
<td>112 / 14 NOK million USD million</td>
<td><strong>DNB, ABG Sundal Collier, Arctic, Redeye, Edison</strong></td>
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</table>
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

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

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\(\text{mOS}\) Median Overall Survival

\(\text{TBD}\) To Be Determined

\(\text{ORR}\) Objective Response Rate

\(\text{CR}\) Complete Response

\(\text{CPI}\) Cytotoxic T lymphocyte–pamiduronic acid

\(\text{PD-1}\) Programmed death protein-1

\(\text{IMFINZI}\) Atezolizumab

\(\text{KEYTRUDA}\) Pembrolizumab

\(\text{DCVAC}\) DC Vaccines

\(\text{ONCOS}\) Oncolytic Adenovirus

\(\text{PD}\) Programmed death ligand-1