THE FUTURE OF VACCINES

COWEN & COMPANY 37TH ANNUAL HEALTHCARE CONFERENCE

BOSTON
MARCH 2017
This presentation includes forward-looking statements that involve risks, uncertainties and other factors, many of which are outside of our control that could cause actual results to differ materially from the results discussed in the forward-looking statements. Forward-looking statements include statements regarding our short-term objectives and opportunities, financial expectations for the full year and financial preparedness as of year end, as well as statements concerning our plans, objectives, goals, future events, performance and/or other information that is not historical information. All such forward-looking statements are expressly qualified by these cautionary statements and any other cautionary statements which may accompany the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made, except as required by law.
MULTIPLE LAYERS OF VALUE

Validated Platform (NIH, BARDA, BMS, Janssen)

- 1 approved product
- 8 active programs

Expertise in T-Cell Stimulation & Antibody Response

- 2 focus areas
  - Infectious Disease & Oncology

Broad Pipeline & Late-Stage Candidates

- 3 Phase 3 Products
  - Multiple near-term milestones

Strong Revenue Base to Re-Invest in Clinical Pipeline

- $1.2B in US government contracts
- $900M in revenues over past 10 years
- $975M BMS deal - PROSTVAC
- $358M Janssen deals - Ebola and HPV
BROAD PARTNERSHIPS IN THERAPEUTIC VACCINES

**Janssen**
- **Ebola** license and production agreement
- **HPV** license agreement

**Bristol-Myers Squibb**
- Option license agreement on **PROSTVAC**, including clinical collaboration

**NIH**
- Development of **IMVAMUNE** and procurement for national stockpile

**National Cancer Institute**
- Research and development agreement on **PROSTVAC**, **CV301** and **Brachyury**
## PIPELINE

### INFECTIOUS DISEASES

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>INDICATION</th>
<th>ONGOING STUDIES</th>
<th>PRECLINICAL</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>MARKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMVAMUNE liquid-frozen</td>
<td>Smallpox</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMVAMUNE freeze-dried</td>
<td>Smallpox</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MVA-BN Filo</td>
<td>Ebola/Marburg</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MVA-BN RSV</td>
<td>RSV</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MVA-BN HPV</td>
<td>Chronic HPV Infection</td>
<td>-</td>
<td></td>
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</tbody>
</table>

### CANCER IMMUNOTHERAPY

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>INDICATION</th>
<th>ONGOING STUDIES</th>
<th>PRECLINICAL</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>MARKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROSTVAC</td>
<td>Prostate Cancer</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV301</td>
<td>Lung Cancer (NSCLC)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MVA-BN Brachyury</td>
<td>Metastatic Tumors</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Approved in the European Union under the trade name IMVANEX® and in Canada under the trade name IMVAMUNE®. Phase 3 registration studies are ongoing in the United States.
## SHORT TERM VALUE DRIVERS

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROSTVAC</td>
<td>Phase 3 interim analysis &amp; top-line data / BMS license</td>
</tr>
<tr>
<td></td>
<td>Phase 2 combination studies</td>
</tr>
<tr>
<td>CV301</td>
<td>Phase 2 NSCLC POC / additional collaborations and indications</td>
</tr>
<tr>
<td>RSV</td>
<td>Phase 2 data read out / initiate larger efficacy study</td>
</tr>
<tr>
<td>Janssen</td>
<td>Initiate HPV Phase 1 / license additional indications</td>
</tr>
<tr>
<td>IMVAMUNE</td>
<td>Phase 3 liquid-frozen data &amp; Priority Review Voucher</td>
</tr>
<tr>
<td></td>
<td>RFP for freeze-dried version</td>
</tr>
</tbody>
</table>
66 million American lives require a safer smallpox vaccine

BARDA Broad Agency Announcement 2010

Bavarian Nordic is one of only two biotechnology companies that have successfully navigated the US Government development and procurement process to recognize >$1B in revenues to date... and potentially $2B more in coming years
SUCCESSFUL PARTNERSHIP WITH THE US GOVERNMENT
CONTRACTS AWARDED OF ~$1.2B TO DATE, OF WHICH MORE THAN $900M HAS BEEN RECEIVED

Developing, producing, supplying liquid frozen IMVAMUNE

- **RFP-1**
  - IMVAMUNE Smallpox Vaccine
  - $14M
  - NIH

- **RFP-2**
  - IMVAMUNE Smallpox Vaccine
  - $100M
  - NIH

- **RFP-3**
  - IMVAMUNE Smallpox Vaccine
  - $500M
  - BARDA

- **RFP-2 Expansion**
  - IMVAMUNE Smallpox Vaccine
  - $16M
  - NIH

- **RFP-3 Expansion**
  - IMVAMUNE Smallpox Vaccine
  - $49M
  - BARDA

- **Delivery Contract**
  - IMVAMUNE Smallpox Vaccine
  - $228M
  - BARDA

- **RFP Freeze Dried**
  - IMVAMUNE Smallpox Vaccine
  - $40M
  - BARDA

- **RFP Freeze Dried Expansion**
  - IMVAMUNE Smallpox Vaccine
  - $55M
  - BARDA

- **Bulk Order**
  - IMVAMUNE Smallpox Vaccine
  - $233M
  - BARDA

Developing freeze dried vaccine

- **MVA-BN Marburg**
  - $18M
  - NIH

- **MVA-BN Foot-and-Mouth Disease**
  - $1M
  - DHS

- **MVA-BN Burkholderia**
  - $500K
  - DOD DTRA

- **MVA-BN Marburg Expansion**
  - $15M
  - NIH

Expanding MVA-BN platform
Our RSV vaccine can derive a broad antibody and T-cell response, as well as mucosal and humoral protection—something which has never been seen in a singular vaccine to date.

Phase 1 data demonstrated safety and tolerability.

Data from 400 patient Phase 2 trial anticipated summer 2017.
RSV - A LARGE UNMET MEDICAL NEED
NO APPROVED PROPHYLACTIC VACCINE

### Disease Burden
*Adults 65 and older, USA*

<table>
<thead>
<tr>
<th></th>
<th>RSV</th>
<th>Influenza*</th>
<th>Pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of infections</td>
<td>2,400,000</td>
<td>2,900,000</td>
<td>1,300,000</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>200,000</td>
<td>260,000</td>
<td>340,000</td>
</tr>
<tr>
<td>Deaths</td>
<td>14,000</td>
<td>15,000</td>
<td>22,000</td>
</tr>
</tbody>
</table>

* Average of 3 past seasons, 2010-2013; includes vaccine averted cases
MVA-BN RSV
RSV VACCINE CANDIDATE IN PHASE 2 DEVELOPMENT

• Phase 2 development in elderly ongoing
• Also exploring pediatric population
• Construct was designed for a balanced immune response to minimize the risk of enhanced disease & encourage cross strain reactivity

MVA-BN RSV
• Encodes two main surface proteins F & G
• Encodes the G surface protein from both RSV subtype A&B - poor cross reactivity between RSV subtypes
• Encodes two highly conserved internal RSV proteins (N & M2) - good inducers of T cell responses
RSV PHASE 1 POSITIVE TOP LINE RESULTS

Safety
• No unexpected and/or serious adverse reactions

• Vast majority of events represent local and systemic reactions typical for vaccines and resolved rapidly without intervention (≤5 days)

• Low incidence of local and systemic reactions typical for vaccines and comparable between age groups

Immunogenicity
• Dose response and differences between age groups was observed in the immune responses

• Antibodies against RSV significantly boosted in the majority of subjects

• 2-fold increase in both IgG and IgA in elderly

• Boosted neutralizing antibodies against both RSV subtypes (A&B)

• T cell responses were boosted in all elderly subjects

• 3-5 fold increase in T cell responses (F, G, N proteins & whole RSV)

• Robust T cell response

6 month follow-up data confirms durability of all antibody and T cell responses
PHASE 2 ELDERLY STUDY INITIATED

Randomized, blinded, placebo controlled dose ranging study in 400 volunteers

- Objective: Identify optimal dose and schedule
- Topline data available mid-2017

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Vaccine Dose (Inf.U)</th>
<th>Schedule (Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>80</td>
<td>1x10^8</td>
<td>Vaccine</td>
</tr>
<tr>
<td>2</td>
<td>80</td>
<td>1x10^8</td>
<td>Vaccine</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>5x10^8</td>
<td>Vaccine</td>
</tr>
<tr>
<td>4</td>
<td>80</td>
<td>5x10^8</td>
<td>Vaccine</td>
</tr>
<tr>
<td>5</td>
<td>80</td>
<td>-</td>
<td>Placebo</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OUR COLLABORATION WITH JANSSEN

A sustained partnership

- Janssen took almost 5% equity stake in BN upon signing Ebola deal
- Successful combination of Janssen’s AdVac and MVA-BN; durable immune responses confirmed in Phase 1
- Validation of our MVA-BN technology & manufacturing (2M doses delivered)
Our vaccine platform has been found to be a potent stimulator of T-cells directed at particular tumor targets, breaking tolerance and inflaming tumors.

Studies from two decades of research have demonstrated our cancer vaccines to be safe and well-tolerated and have shown promise in extending overall survival.
PROSTVAC
PRIME/BOOST PSA TARGETED “OFF THE SHELF” CANCER VACCINE

Heterologous prime/boost regimen

Vaccinia or MVA + Fowlpox

Subcutaneous administration

PSA
CEA, MUC-1
HER-2
Brachyury

Tumor antigens with epitopes enhanced for HLA binding

Prostate, lung, head & neck, bladder, colorectal, breast, ovarian and renal cancers

TRICOM (TRIad of COstimulatory Molecules)
Enhance T-Cell activation in synergistic manner

Strengthen the anticancer immune response

Safe and well tolerated (11 clinical trials)
Injection site reactions and flu-like symptoms
PROSTVAC INDUCES AN ANTIGEN CASCADE AGAINST PROSTATE CANCER CELLS

Summary of T-cell responses from six PROSTVAC clinical trials

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-Specific Immune response</td>
<td>56.7% (59/104)</td>
<td>28 days after last vaccine</td>
</tr>
<tr>
<td>Median fold increase in PSA-specific immune response</td>
<td>5X</td>
<td>PSA response 30 / 10^6 cells</td>
</tr>
<tr>
<td>Antigen Cascade</td>
<td>67.9% (19/28)</td>
<td>flu response 33 / 10^6 cells</td>
</tr>
<tr>
<td>Anti-PSA Ab</td>
<td>0.57% (2/349)</td>
<td></td>
</tr>
</tbody>
</table>

PROSTVAC CANCER IMMUNOTHERAPY
PHASE 3 STUDY STATUS

PROSPECT (N=1,297)
A Randomized, Double-blind, Global Phase 3 Efficacy Trial of PROSTVAC in Metastatic Castration-Resistant Prostate Cancer

Primary endpoint: Overall survival

Final data anticipated in 2017

<table>
<thead>
<tr>
<th>Analysis #</th>
<th>Events</th>
<th>Survival Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interim #1</td>
<td>214</td>
<td>40%</td>
</tr>
<tr>
<td>Interim #2</td>
<td>321</td>
<td>60%</td>
</tr>
<tr>
<td>Interim #3</td>
<td>427</td>
<td>80%</td>
</tr>
<tr>
<td>Final</td>
<td>534</td>
<td>100%</td>
</tr>
</tbody>
</table>

Injections

- Average in Phase 3 was 6.1 injections
- Randomized Phase 2 trial had average of 5.4 injections
- An increased number of injections is expected to improve the clinical outcome for patients receiving the active drug.

1) Subjects who have completed study treatment phase or have completed 7th dosing visit. N=1,279
2) Kantoff et al., Journal of Clinical Oncology, January 2010

Phase 2 randomized trial (N=122)
## ENTRY CRITERIA

<table>
<thead>
<tr>
<th>Randomized Phase 2</th>
<th>PROSPECT Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENTRY CRITERIA</strong></td>
<td></td>
</tr>
<tr>
<td>ECOG &lt; 2</td>
<td></td>
</tr>
<tr>
<td>No visceral metastases</td>
<td></td>
</tr>
<tr>
<td>Asymptomatic (no cancer-related pain requiring narcotics)</td>
<td></td>
</tr>
<tr>
<td>No prior chemotherapy</td>
<td></td>
</tr>
<tr>
<td>• Gleason score ≤ 7 (from original biopsy)</td>
<td>• Removed Gleason score exclusion</td>
</tr>
<tr>
<td></td>
<td>- Gleason grade not associated with treatment effect in other phase 3 mCRPC trials (sip-T, ipilimumab)</td>
</tr>
<tr>
<td>• No alkaline phosphatase exclusion</td>
<td>• Changed to exclude patients with alk phos &gt; 2 times ULN</td>
</tr>
<tr>
<td></td>
<td>- Excludes more advanced metastatic disease</td>
</tr>
<tr>
<td>• No LDH exclusion</td>
<td>• Changed to exclude patients with LDH &gt; 2 times ULN</td>
</tr>
<tr>
<td></td>
<td>- Excludes more advanced metastatic disease</td>
</tr>
<tr>
<td>• No PSA doubling time (PSA-DT) exclusion</td>
<td>• Added exclusion for patients with PSA-DT &lt; 1 month</td>
</tr>
<tr>
<td></td>
<td>- Excludes patients with fast growing tumors</td>
</tr>
<tr>
<td>• Minimum PSA value for determination of CRPC = 5 ng/mL (PCWG1)</td>
<td>• Minimum PSA value for determination of CRPC lowered to 2 ng/mL (PCWG2)</td>
</tr>
</tbody>
</table>
PROSTVAC STUDIES
SPAN PROSTATE CANCER DISEASE LANDSCAPE

Hormone dependent
Nonmetastatic

Castration resistant
Metastatic

No pain

Pain

death

Tumor volume

chemotherapy, radiation therapy

chemotherapy

hormonal, immunotherapy

surgery

mono (NCI)

hormonal combo (NCI)

mono (NCI)

ipi combo (NCI)

mono (NCI)

radiation combo (NCI)

mono (NCI)

hormonal combo (NCI)

mono (NCI)

mono (NCI)

mono (MUSC)

ipi combo (UCSF)

ipi + nivo combo (NCI)

mono (NCI)

chemotherapy combo (NCI)

mono (NCI)

mono (NCI)

chemotherapy, radiation therapy

chemotherapy

hormonal, immunotherapy

No pain

Pain

COMPLETED (8)
ONGOING (10)
PLANNED (1)
## COMMERCIAL LICENSE WITH BRISTOL-MYERS

<table>
<thead>
<tr>
<th>Milestone:</th>
<th>Value</th>
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<tbody>
<tr>
<td>Upfront payment</td>
<td>$60M</td>
</tr>
<tr>
<td>License</td>
<td>$80M</td>
</tr>
<tr>
<td>Phase 3 data</td>
<td>$50M</td>
</tr>
<tr>
<td>Data-driven milestones</td>
<td>$180M*</td>
</tr>
<tr>
<td>Regulatory milestones</td>
<td>$110M</td>
</tr>
<tr>
<td>Sales milestones</td>
<td>$495M</td>
</tr>
<tr>
<td>Tiered royalties on future sales</td>
<td>High teens up to mid-twenties</td>
</tr>
</tbody>
</table>

* Based on Phase 2 data
CV301 CANCER IMMUNOTHERAPY
DESIGNED FOR THE TREATMENT OF MULTIPLE CANCERS

Developing CV301 in combination with other immune modulating agents, such as checkpoint inhibitors
• Phase 2 proof-of-concept study of CV301 plus OPDIVO ongoing

New and improved construct leverages existing clinical data
• Preliminary evidence of efficacy generated in multiple clinical studies
• Safety data with over 300 subjects treated

MVA-BN + CEA + MUC-1 = CV301

Lung, Breast, Colorectal, Ovarian, Gastric, Bladder, Liver and Renal cancer
PHASE 2 CV301 & NIVOLUMAB COMBINATION IN NSCLC

Safety CV301 single agent (N=18) & Single dose combination with nivolumab (N=22)

Randomization

CV301 + nivolumab  N=60
nivolumab (Mono)    N=60

Endpoints: Safety, tolerability
Primary endpoint: OS
Secondary endpoints: ORR, DOR, PFS, Immune effects

Multi-center trial: Up to 20 sites in USA

- On August 15th BN and BMS announced a joint collaboration for the supply of drug material (nivolumab)
  - BMS will supply nivolumab at no cost to BN
- Bavarian Nordic retains all commercial rights to CV301
Brachyury expression is highly correlated with metastatic disease, and multi-drug resistance.

Brachyury is not expressed in most normal tissue.

Brachyury is the master driver of epithelial to mesenchymal transition (EMT), which is a major driver of metastasis.

**Indications**
- Chordoma (ultra-orphan disease)
- Triple negative breast cancer
- Merkel Cell Carcinoma
- NSCLC
- SCLC
- Multiple solid tumors

**Development Strategy**
- NCI Phase 1 and Phase 2 trials
- NCI Phase 2 chemotherapy combination trial(s)
- NCI EGFR TKI combination trial(s)
- NCI and BN immune checkpoint inhibitor combinations
FINANCIALS & GUIDANCE

• Robust cash position allows for continued investment in R&D

• Revenues of more than USD140m for the fourth consecutive year

• 31mm shares outstanding
### LONG TERM PROSPECTS

<table>
<thead>
<tr>
<th>Product</th>
<th>Status</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROSTVAC</strong></td>
<td>Approved &amp; marketed</td>
<td>Label expansion</td>
</tr>
<tr>
<td><strong>CV301</strong></td>
<td>POC established with CPI combinations</td>
<td>Accelerated approval in NSCLC</td>
</tr>
<tr>
<td><strong>RSV</strong></td>
<td>Phase 3</td>
<td>Approved &amp; marketed</td>
</tr>
<tr>
<td><strong>Janssen</strong></td>
<td>Ebola approval</td>
<td>2 or more commercial targets in clinic</td>
</tr>
<tr>
<td><strong>IMVAMUNE</strong></td>
<td>US approval</td>
<td>CDC procurements for SNS</td>
</tr>
<tr>
<td><strong>Brachyury</strong></td>
<td>Approaching POC in metastatic and orphan disease</td>
<td></td>
</tr>
<tr>
<td><strong>BN funded projects</strong></td>
<td></td>
<td>2 undisclosed targets in clinic</td>
</tr>
<tr>
<td><strong>Partnerships</strong></td>
<td></td>
<td>Additional platform partnerships, commercial &amp; government</td>
</tr>
</tbody>
</table>
ANTICIPATED SELECTED MILESTONES

IMVAMUNE
- U.S. RFP for freeze-dried IMVAMUNE
- Top-line data for Phase 3 non-inferiority study
- Priority Review Voucher

PROSTVAC
- Phase 3 top-line data including interim analyses
- Initiate NCI-sponsored Phase 2 study in combination with ipilimumab and nivolumab
- Data from NCI-sponsored Phase 2 trials

RSV
- MVA-BN RSV Phase 2 dosing study read out
- MVA-BN RSV Phase 2 field efficacy initiation

CV301
- CV301 + nivolumab proof-of-concept study initiation in lung cancer
- CV301 + checkpoint inhibitor proof-of-concept studies in additional indications

Janssen
- Initiate HPV Phase 1 study in cervical cancer
- Potential expanded collaboration with Janssen on two additional infectious disease targets
- Data from Phase 2 and Phase 3 studies of the Ebola prime-boost vaccine regimen
- Ebola vaccine pending approval for emergency use by WHO

Brachyury
- MVA-BN Brachyury Phase 2 initiation