Q2 2018

INTERIM RESULTS AS OF JUNE 30, 2018



FORWARD-LOOKING STATEMENTS

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.

RECENT HIGHLIGHTS



RSV

- Positive Phase 2 data supports annual booster vaccination
- Phase 3 design to be discussed with FDA later in 2018

Broadening our immunotherapy strategy

 Intravenous and intra-tumoral administration of CV301 and BN-Brachyury will be evaluated clinically in 2019

CV301

- First of three planned Phase 2 trials combining CV301 and checkpoint inhibitors initiated
- NSCLC will not be starting Phase 2; Phase 1 data H2 2018

BN-Brachyury

- Orphan Drug designation granted
- Pivotal registration trial in chordoma starting H2 2018

Strengthened cash preparedness; increased flexibility

• 2018YE cash upgraded to 2,100 mDKK as result of EIB loan



AT THE FOREFRONT OF RSV VACCINE DEVELOPMENT

Novel Vaccine Design

Encodes 5 distinct targets of RSV to stimulate a broad protective immune response (T-cell and antibody response) mimicking a natural infection of RSV

$$-F_{(A)} - G_{(A)} - G_{(B)} - N - M2$$

Competitive Advantages

- Induction of a broad T-cell and antibody response against RSV
- Induction of mucosal immunity
- Durable immune response lasting longer than an RSV season
- Based on MVA-BN live virus adjuvant with a favorable safety profile



MVA-BN RSV PHASE 2 BOOSTER STUDY DESIGN

Key objectives of booster study

- Get clarity on long-term durability of immune response (12 months)
- Evaluate effect of a single booster dose after primary vaccination with a single shot using same doses as in the main study (N=88)



MVA-BN RSV PHASE 2 BOOSTER STUDY SUMMARY



- Broad RSV antibody response remained elevated in at least 60% of the subjects 1 year post a single vaccination
- An annual booster induced a broad and robust immune response
 - Rapid increases of neutralizing and total antibodies against both RSV subtypes
 - Increases in mucosal RSV specific IgA (correlate of protection)
 - Broad, robust, and cellular immune response to all 5 RSV proteins
 - Effect was most notable in subjects with the weakest immunity prior to the annual booster vaccination
- Findings support an annual vaccination strategy with MVA-BN RSV

MVA-BN RSV PHASE 2 BOOSTER STUDY IMMUNOGENICITY DATA (serum IgG)

- Durable antibody response over baseline after 1 year post single vaccination
- Significant increases after booster with higher peak levels compared to initial booster



MVA-BN RSV PHASE 2 BOOSTER STUDY RSV SPECIFIC ANTIBODY RESPONSES



• Desired booster effect achieved with annual revaccination

Immune responses compared to <u>annual</u> <u>baseline</u> (week 56)

- 1.3 to 2-fold increases in antibody responses after annual booster vaccination compared to annual baseline
- Subjects have a higher baseline immunity 1 year after initial vaccination

Immune responses compared to <u>pre-</u> <u>vaccination baseline</u> (week 0)

- 1.5 to 3-fold increases in antibody responses compared to pre-vaccination levels
- Similar responses to those reported in main study



Antibody increases demonstrated by Geometric mean fold increase (GMFI), 2 weeks after vaccination

MVA-BN RSV PHASE 2 BOOSTER STUDY HIGHER MUCOSAL ANTIBODY RESPONSES IN SUBJECTS WITH LOW IMMUNITY

 Annual booster induces stronger mucosal antibody responses in subjects with weakest immunity



MVA-BN RSV PHASE 2 BOOSTER STUDY RSV-SPECIFIC T CELL RESPONSES (ELISPOT)

- T cell responses to most RSV specific antigens remain elevated after 1 year
- Annual booster vaccine rapidly increases T cell responses to all RSV antigens



BROADENING OUR IMMUNOTHERAPY STRATEGY

- ATEGY
- Our current approach relies on stimulation of killer T cells against tumorassociated antigens supported by checkpoint inhibition
- New findings support intra-tumoral and intravenous administration of vaccine as a more potent approach with ability to activate other arms of the immune system and/or change the suppressive microenvironment of tumors creating a more inflamed tumor

Intra-tumoral administration	Intravenous administration		
 Intra-tumoral injection with MVA-BN: Stimulates T cells Alters the tumor microenvironment, as also seen with other agents actively being investigated to alter the immune-suppressive environment created within solid tumors 	 Intravenous administration of MVA-BN induces: Systemic cytokines More and better killer T cells (CTLs) and tumor growth control Stimulation of natural killer cells (NK cells) Enhanced responses when vaccine also encoded CD40L 		
Phase 1 planned in H1 2019 with CV301	• Phase 1 planned in H1 2019 with BN-Brachyury		

INTRA-TUMORAL & INTRAVENOUS ADMINISTRATION OF MVA-BASED VACCINES

Compelling preclinical data

Intra-tumoral administration

Delayed tumor growth in model with intratumoral administration of MVA



Tumor regression in model with intravenous administration of MVA + tumor associated antigen (TAA) + anti-PD-1 inhibitor





Wild type colon adenocarcinoma model MC38

Transgenic melanoma model B16.tg

CV301 CANCER VACCINE WITH POTENTIAL IN MULTIPLE SOLID TUMORS



Our goal is to demonstrate rapid proof of concept for the combination of CV301 and checkpoint inhibitors across multiple cancers

- Three Phase 2 studies across multiple indications will have started by 2018YE
- Adaptive trial designs with multiple short term data points (ORR, DoR, PFS)

Colorectal cancer

Phase 2 study of CV301 plus OPDIVO (nivolumab) and chemotherapy in micro satellite stable mCRC (n=78)

Endpoints: ORR, PFS, OS

Sponsored by Rutgers University Initiated July 2018

Bristol-Myers Squibb

Colorectal & Pancreatic

Phase 2 study of CV301 plus IMFINZI (durvalumab) and maintenance chemotherapy in metastatic CRC or pancreatic cancer (n=52)

Endpoints: ORR, PFS, DoR, OS

Sponsored by Georgetown University Planned for H2 2018

Bladder cancer

Phase 2 study of CV301 plus TECENTRIQ (atezolizumab) in 1st and 2nd line treatment of metastatic urothelial cancer (n=26)

Minimum efficacy thresholds must be met prior to expansion of cohorts (n=68)

Endpoints: ORR, PFS, DoR, OS

BN sponsored trial Planned for H2 2018



10,000 living with Chordoma

BN-BRACHYURY POTENTIAL REGISTRATION PATHWAY IN ULTRA ORPHAN CANCER: CHORDOMA

- Topline results from Phase 1 with prime-boost anticipated in H2 2018
- Phase 2 in combination with radiation to be initiated soon:
 - Patients with advanced, incurable chordoma; at least 1 measurable lesion eligible for radiation therapy
 - Primary endpoint: Objective response rate (radiation alone <5% ORR at 6 months)
 - Potential for Breakthrough Designation

Stage 1

- 10 patients
- Only proceed to stage 2 if at least 1 objective response occur

Stage 2

- Enroll additional 19 patients
- ORR goal total = 4/29 patients

Chordoma

- a rare cancer in the bones of the skull base and spine

US & EU:

• 1,000 new cases annually

BN-BRACHYURY QUICK EFFICACY SEEKING TRIAL (QUEST)

- Multi-company collaboration led by the NCI will evaluate BN-Brachyury as backbone therapy in multiple combination settings in metastatic castration-resistant prostate cancer (mCRPC)
- Sequential cohorts of **BN-Brachyury** with:
 - M7824, anti PD-L1/ anti-TGF-β (EMD Serono),
 - ALT-803, IL-15 superagonist (Altor Biosciences) and
 - Epacadostat, IDO inhibitor (Incyte)



ClinicalTrials.gov Identifier: NCT03493945

OUR COLLABORATION WITH JANSSEN A LONG-TERM VALUE DRIVER



4 license agreements in place

- The combination of Janssen's AdVac + MVA-BN has demonstrated robust and sustained immune responses in people
- The synergistic benefit of combining our technology has been key to establishing collaborations in blockbuster indications
- Equity investments have made JNJ a major shareholder with ownership of 5.77%



FREEZE-DRIED IMVAMUNE CONTRACT WITH USG TIMELINES AND REVENUES





Bulk vaccine



Construction of fill/finish plant



Freeze-dried IMVAMUNE

FINANCIAL RESULTS AND OUTLOOK

- Financially on target with modest revenues as expected during H1 as most revenues from IMVAMUNE bulk vaccine will occur in H2
- A total of 350 mDKK will be invoiced for IMVAMUNE in 2018, including RoW contracts
- Other revenue of 150 mDKK relates to already signed R&D contracts
- Our FY cash preparedness was recently upgraded by 250 mDKK as result of new loan facility obtained from the European Investment Bank

		mDKK	mUSD	
	H1 2018	FY2018E	H1 2018	FY 2018E
Revenue	98	500	15	78
EBIT	(280)	(385)	(44)	(60)
Cash preparedness	2,211*	2,100	346	329

Cash preparedness includes cash, cash equivalents, investments in securities

and the aggregate amount of undrawn credit lines.

* DKK 288 million deducted by loans related to repo transactions

USD/DKK = 6.39

ANTICIPATED SELECTED MILESTONES



IMVAMUNE

- Filing of BLA for liquid-frozen IMVAMUNE (H2, 2018)
- Initiation of a Phase 3 IMVAMUNE freeze-dried lot consistency study (H1, 2019)
- Anticipated FDA approval and award of a Priority Review Voucher (2019)

RSV

- Initiate discussions with the FDA on regulatory pathway for approval (H2, 2018)
- Decide on the feasibility of a human challenge study (H2, 2018)

JANSSEN

- Initiate Phase 1 study of MVA-BN HIV+AdVac (H2, 2018*)
- Initiate Phase 1 study of MVA-BN HPV+AdVac (H2, 2018*)

CV301

- Initiate Phase 2 study in combination with atezolizumab in bladder cancer (H2, 2018)
- Initiate Phase 2 study in combination with durvalumab in colorectal cancer (H2, 2018)
- Results from Phase 1/1b NSCLC combination (H2, 2018)
- Initiate a Phase 1 intratumoral administration in patients with solid tumors (H1, 2019)

BRACHYURY

- Results from Phase 1 study (H2, 2018)
- Initiate Phase 2 study in chordoma (H2, 2018)
- Initiate Phase 1 intravenous administration (H1, 2019)



