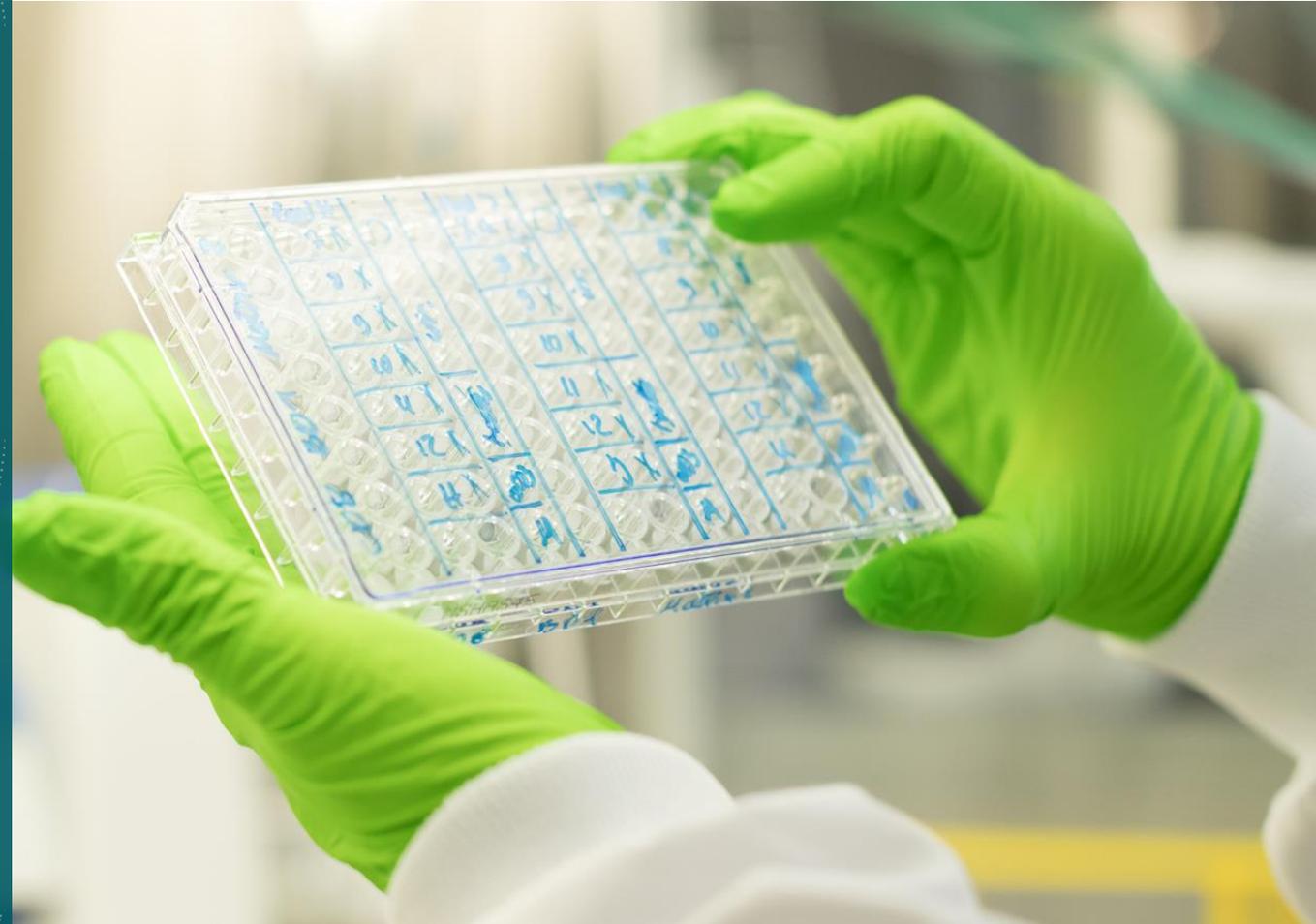


BIONTECH

Next Generation Immunotherapy

Bank of America
Healthcare Conference

May 2020



This slide presentation includes forward-looking statements

Forward-Looking Statements

Various statements in this slide presentation concerning the future expectations of BioNTech, its plans and prospects, including the Company's views with respect to the potential for mRNA therapeutics and vaccines, its expectations with respect to the timing and results of clinical trials and release of clinical data (both in respect of its proprietary product candidates and of product candidates of its collaborators), the development of commercial capabilities and the transition of BioNTech to a fully integrated biopharmaceutical company, its expectations with respect to interactions with regulatory authorities such as FDA and EMA, including the potential approval of BioNTech's or its collaborators' current or future drug candidates, and expected royalty and milestone payments in connection with BioNTech's collaborations, constitute forward-looking statements. Words such as "expects," "plans," "potential," "target," "continue" and variations of these words or similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Such statements are based on the current beliefs and assumptions of the management team of BioNTech and on the information currently available to the management team of BioNTech, and are subject to change. The Company will not necessarily inform you of such changes. These forward looking statements are subject to known and unknown risks, uncertainties, assumptions and other factors that could cause the Company's actual results, performance or achievements to be materially different than any future results, performance or achievements expressed or implied by the forward-looking statements. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including the initiation, timing, progress, results and cost of the Company's research and development programs and its current and future preclinical studies and clinical trials; the timing of and the Company's ability to obtain and maintain regulatory approval for its product candidates; the Company's ability to identify research opportunities and discover and develop investigational medicines; the Company's expectations regarding the size of the patient populations for its product candidates, if approved for commercial use; the Company's estimates of its expenses, ongoing losses, future revenue and capital requirements and its needs for or ability to obtain additional financing; the Company's ability to identify, recruit and retain key personnel; the Company's and its collaborators' ability to protect and enforce its intellectual property protection for its proprietary and collaborative product candidates, and the scope of such protection; the development of and projections relating to the Company's competitors or its industry; the Company's ability to commercialize its product candidates, if approved; the rate and degree of market acceptance of the Company's investigational medicines; the Company's ability to manage its development and expansion; regulatory developments in the United States and foreign countries; the Company's ability to manufacture its product candidates with advantages in turnaround times or manufacturing cost; and the Company's ability to implement, maintain and improve effective internal controls. The preceding list is not intended to be an exhaustive list of all of the Company's forward-looking statements. Any forward-looking statements represent the Company's views only as of today and should not be relied upon as representing its views as of any subsequent date. The Company explicitly disclaims any obligation to update any forward-looking statements. The mRNA vaccines and other product candidates discussed in this slide presentation are investigational products being developed by BioNTech and its collaborators and are not currently approved by the FDA, EMA or any other regulatory authority.

Agenda

Overview and business outlook

Deeper dive on our key programs



mRNA vaccines – FixVac and iNeST

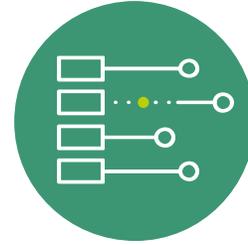
COVID-19 vaccine program (project “Lightspeed”)

Antibodies

Closing Remarks

Next generation immunotherapy

Harnessing the full potential of the immune system



Broad suite of novel technology platforms



Immunotherapies for cancer and infectious diseases



Fully integrated with in-house GMP manufacturing



Industry-leading global collaborations

We collaborate with global leaders in our industry

Oncology Collaborations with at least one program in the clinic

50:50
Cost and Profit share (2016)

Genentech

50:50
Cost and Profit share (2015)

 **Genmab**

Cost and Profit share (2015)

SANOFI 

Other Oncology, Infectious Diseases and Rare Diseases Collaborations

Co-development
Co-commercialization
(2018)

GENEVANT

Research Collaboration
and License Agreement
(2018), Collaboration
Agreement (2020)



Strategic R&D
Alliance (2018)

University of
Pennsylvania

R&D
Agreement
(2019)

*BILL & MELINDA
GATES foundation*

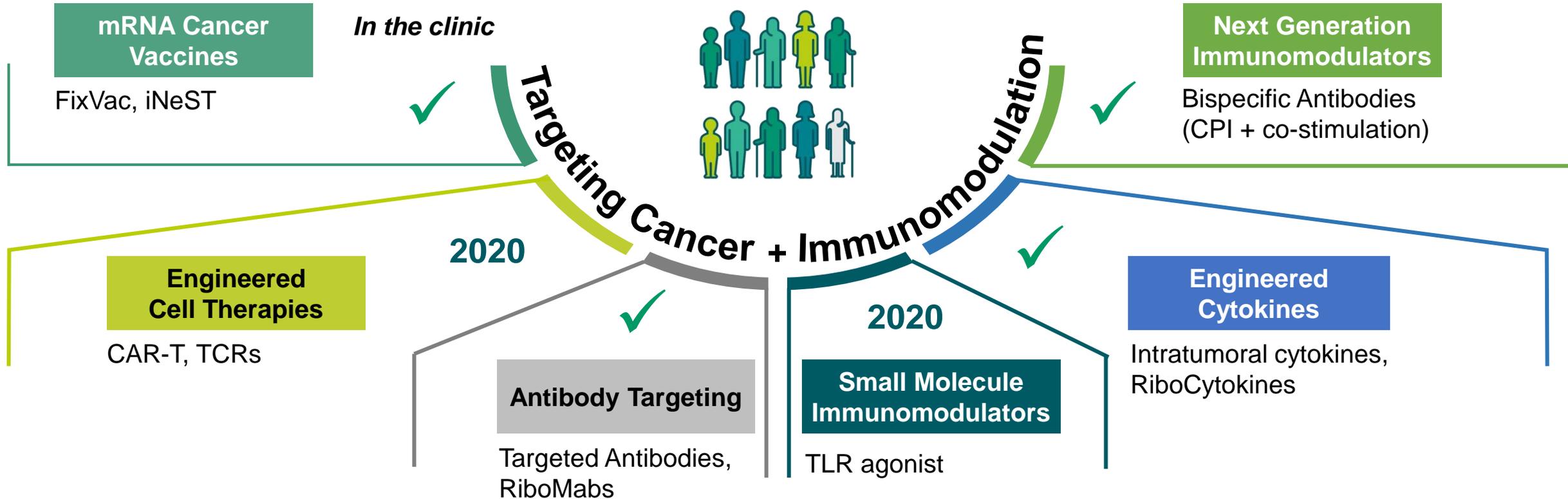
Licensing
Agreement
(2015)

Lilly

Co-development in
China
(2020)

FOSUNPHARMA

Our IO strategy exploits complementary therapeutic programs



Potential for multiple blockbuster opportunities with powerful combinations

Compelling data generated from innovative immunotherapy approaches

Approved PD1-/PD-L1
Inhibitors

+

mRNA Cancer
Vaccines

- **FixVac Melanoma (BNT111):** Induces objective responses in CPI-experienced patients
- **iNeST (BNT122):** Currently in Phase 2 in combination with CPI in 1L Melanoma. 2 adjuvant trials planned in 2020

mRNA Cancer
Vaccines

+

Engineered
Cytokines

- **Ribocytokine IL-2 (BNT151):** Amplification of vaccine induced T cell response in pre-clinical studies

Engineered
Cell Therapies

+

mRNA Cancer
Vaccines

- **BNT211:** Novel CLDN-6 CAR-T approach utilizing CAR-T Amplifying RNA Vaccine (**CARVac**).
- Significant amplification of CAR-T cells in preclinical studies (published in Science, 2020)

We plan to initiate FIH⁴ trials for our preclinical product candidates across all platforms

Drug class	Platform	Product Candidate	Indication (Targets)	Rights Collaborator	Milestones
Oncology					
mRNA	FixVac	BNT116	NSCLC	fully-owned	
	RiboMabs (mRNA-encoded antibodies)	BNT141	multiple solid tumors	fully-owned	Phase 1 start in 1H 2021
		BNT142	multiple solid tumors (<i>CD3+CLDN6</i>)	fully-owned	Phase 1 start in 1H 2021
	RiboCytokines (mRNA-encoded Cytokines)	BNT151	multiple solid tumors (<i>optimized IL-2</i>)	fully-owned	Phase 1 start in 1H 2021
		BNT152+ BNT153	multiple solid tumors (<i>IL-7, IL-2</i>)	fully-owned	Phase 1 start in 1H 2021
Engineered Cell Therapies	CAR-T Cells	BNT211	multiple solid tumors (<i>CLDN6</i>)	fully-owned	Phase 1/2 start in 2H 2020
		BNT212	pancreatic, other cancers (<i>CLDN18.2</i>)	fully-owned	
	TCRs	undisclosed	Solid tumors	Eli Lilly	
		to be selected	all tumors	fully-owned	
SMIM ¹	Toll-Like Receptor Binding	BNT411	solid tumors (<i>TLR7</i>)	fully-owned	Phase 1 start in 2H 2020

mRNA	Infectious Disease Immunotherapies	BNT161	Influenza	Pfizer	Start first study in H1 2021
		undisclosed	up to 10 indications	Penn ²	First phase 1 trial to start 1H 2021
		undisclosed	HIV and tuberculosis	Bill & Melinda Gates Foundation	
	Rare Disease PRT ³	BNT171	Not disclosed	Genevant (global 50:50 profit/loss)	First phase 1 trial to start in 1H 2021
		undisclosed	4 additional rare disease indications		

¹Small Molecule Immunomodulators; ²We are eligible to receive worldwide licenses; ³Protein Replacement Therapy; ⁴First in Human

Significant newsflow expected over next 12-18 months

	Platform	Candidate	Indication (<i>Target</i>)	Next milestones ³
mRNA	FixVac	BNT111	Advanced Melanoma	Start Phase 2 with registrational potential in 2H 2020 Report Phase 1: publication upcoming
		BNT112	Prostate Cancer	
		BNT113	HPV16+ H&N Cancer	Start Phase 2 with registrational potential in 2H 2020
		BNT114	Triple Negative Breast Cancer	Data update Phase 1 in 2H 2020 ⁴
	iNeST	RO7198457 (BNT122)	1L Melanoma with CPI	Enrollment update in 2H 2020 ¹
			Multiple ST (basket trial) NSCLC (adjuvant) undisclosed (adjuvant)	Data update Phase 1/2 at AACR Virtual II in June Start Phase 2 in 2H 2020 Start Phase 2 in 2H 2020
	Intratumoral Immunotherapy	SAR441000 (BNT131)	Solid tumors (<i>IL-12sc, IL-15sushi, GM-CSF, IFNα</i>)	Data update Phase 1/2 in 2H 2020 ²
	RiboMabs	BNT141	Multiple ST	Start Phase 1 in 1H 2021
		BNT142	Multiple ST (<i>CD3+CLDN6</i>)	Start Phase 1 in 1H 2021
	RiboCytokines	BNT151	Multiple ST (<i>Optimized IL-2</i>)	Start Phase 1 in 1H 2021
BNT152/153		Multiple Solid Tumors (<i>IL-7, IL-2</i>)	Start Phase 1 in 1H 2021	
CAR-T Cells	BNT211	Multiple ST (<i>CLDN6</i>)	Start Phase 1/2 in 2H 2020	
Others	Next-Gen CP Immunomodulators	BNT311	Multiple ST (<i>PD-L1x4-1BB</i>)	Data update Phase 1/2 in 2H 2020
	TLR7 Ligand	BNT411	Multiple ST (<i>TLR7</i>)	Start Phase 1 in 2H 2020
	Infectious and Rare Diseases	BNT161	Influenza	Start first study in 1H 2021
BNT162		COVID-19	Data update in June/July 2020	
		Up to 10 Infectious Disease Indications	Start phase 1 in 1H 2021	
		5 Rare Disease Indications	Start first Phase 1 in 1H 2021	

¹⁰ 1We expect this update to include an update on the ongoing study, including patient enrollment numbers, with full efficacy and safety data for an interim update expected in the second half of 2021; ²As the trial is sponsored and conducted by Sanofi, the timing of data updates is not under our control, and is subject to change by Sanofi. ³Our expectations for timing of milestones beyond 2020 are premised on and subject to the achievement of earlier milestones on their expected timelines. Press releases will be issued once first patient has been dosed.

⁴BNT122 (iNeST) is also being investigated in arm 2 (N=15) of the 3 arm TNBC-MERIT trial, with BNT114 as an optional treatment; BNT114 is investigated in arm 1 (N=12) and arm 3 (N=15) of the TNBC-MERIT trial (total patients in study: N=42);

ST: solid tumors

Agenda

Overview and business outlook

Deeper dive on our key programs

mRNA vaccines – FixVac and iNeST

COVID-19 vaccine program (project “Lightspeed”)

Antibodies

Closing Remarks

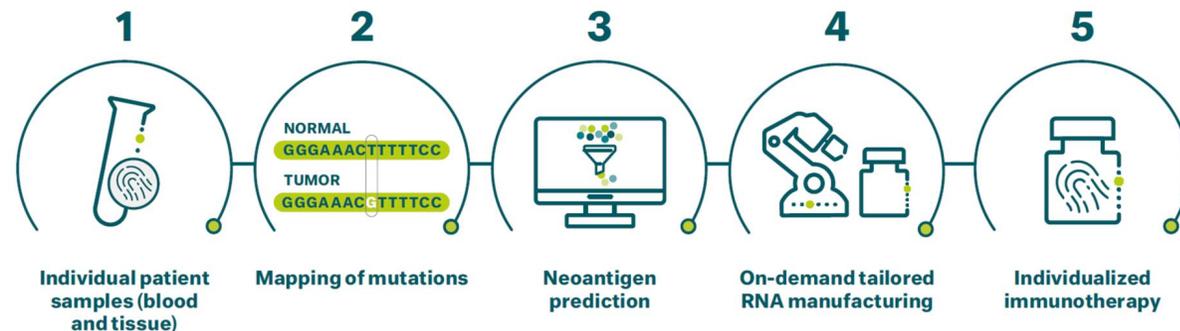
Our mRNA vaccine platforms: FixVac and iNeST

FixVac



- **Off-the-shelf mRNA immunotherapy**
- **Targeting a fixed combination of shared antigens**
 - Non-mutated antigens shared among patients with a specific cancer type
 - Applicable for almost all types of tumor antigens

iNeST

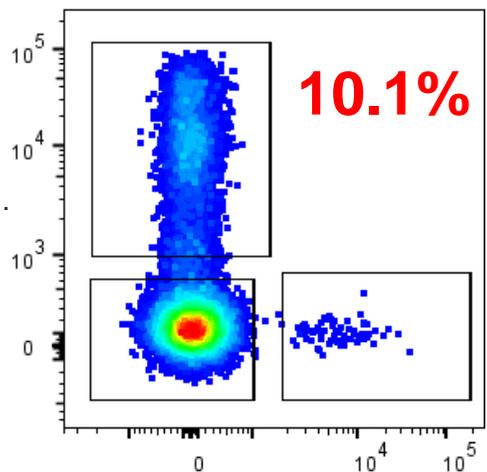


- **Fully individualized mRNA immunotherapy**
- **Targeting 20 neo-antigens unique to each patient**
 - Vast majority of neo-antigens are unique to individual patients
 - Applicable across solid tumor types

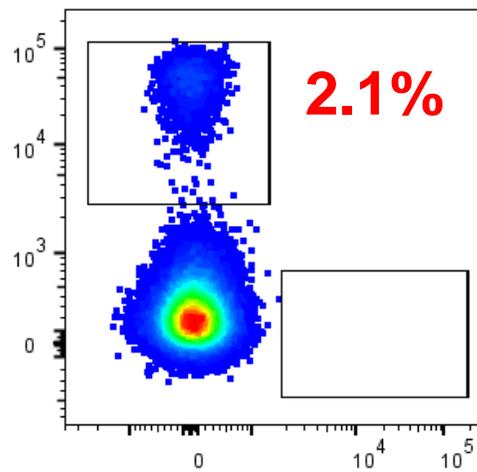
- **Proprietary RNA-LPX formulation for systemic dendritic cell targeting**
- **Strong immunogenicity observed *in vivo* via TLR7-driven adjuvant effect**
- **Potent induction of strong *ex vivo* CD4+ and CD8+ T cell responses**

Our RNA-LPX vaccine approach

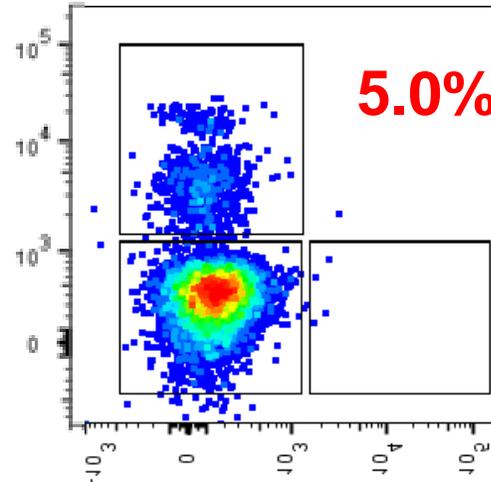
Strong vaccine-induced *ex vivo* CD8+ T cell responses¹ across different cancer types



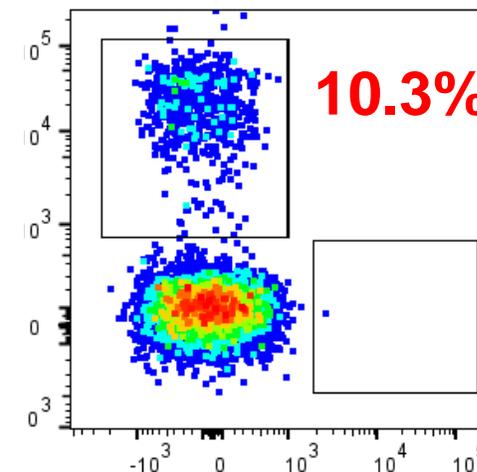
NY-ESO-1
Melanoma
BNT111, Lipo-MERIT trial



MAGE-A3
Melanoma
BNT111, Lipo-MERIT trial



HPV16-E7
Head Neck Cancer
BNT113, HARE40 trial



Mutant Neoantigen
TNBC
BNT114, TNBC MERIT trial

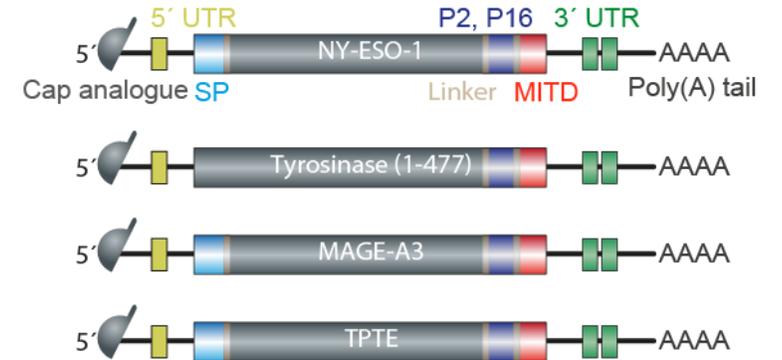
FixVac

iNeST

FixVac: BNT111 Interim clinical activity data in advanced melanoma

Summary

- Advanced melanoma patients (stage III, IV); dose range: 14µg -100µg
- Out of **74 patients** with available follow-up radiological imaging **42 patients** were assessed for preliminary analysis as of July 29, 2019
- **of 25 patients** with metastatic melanoma who received **BNT111 monotherapy** following progression on CPI* and in some cases other therapies
 - 3 patients with partial response (PR)
 - 1 patient with metabolic complete response¹
 - 7 patients with stable disease (SD)
 - 14 progressive disease (PD)
- **of 17 patients** with metastatic melanoma who received **BNT111 in combination** with CPI after progression on CPI monotherapy
 - 6 patients with partial response (PR)
 - 2 patients with stable disease (SD)
 - 9 progressive disease (PD)
- Adjuvant cohort of 32 patients still in study

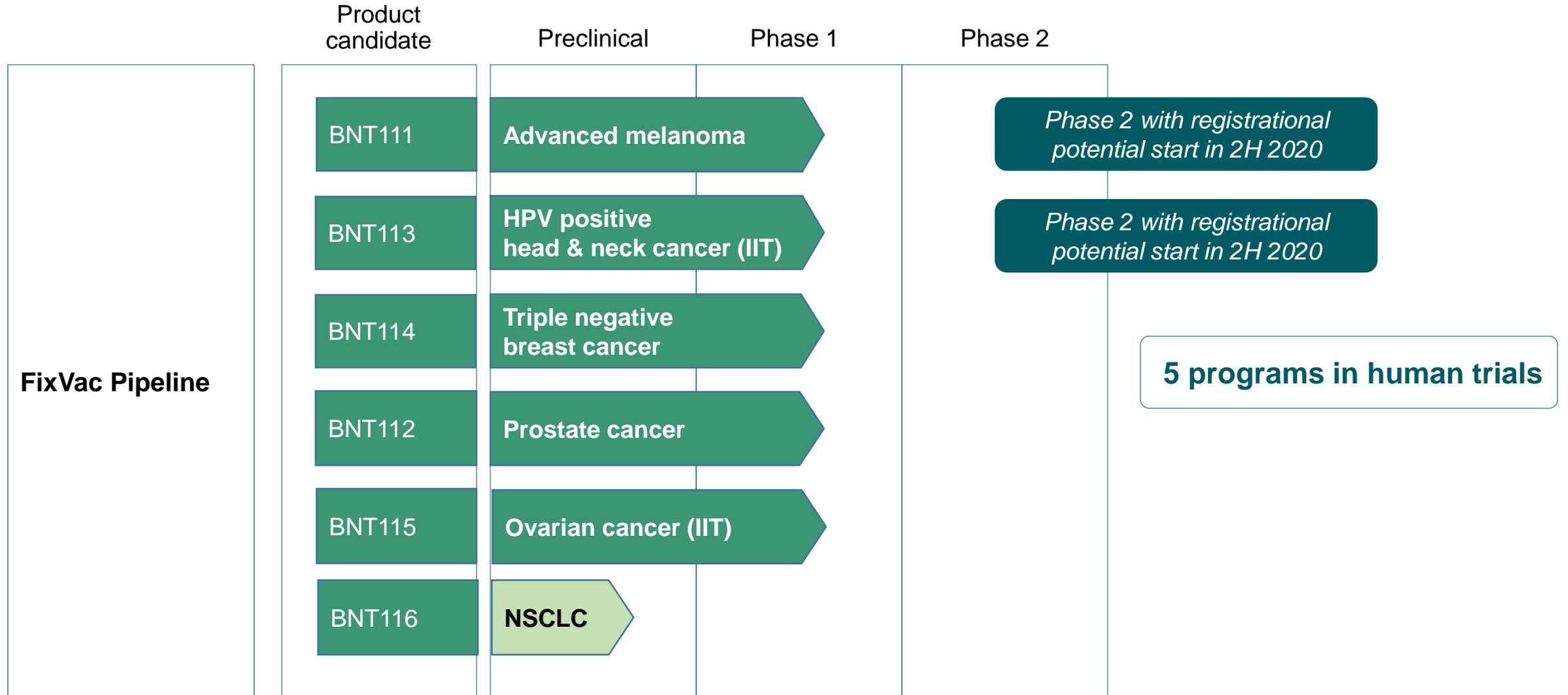


Cumulative patient coverage of FixVac melanoma targets is over 90%

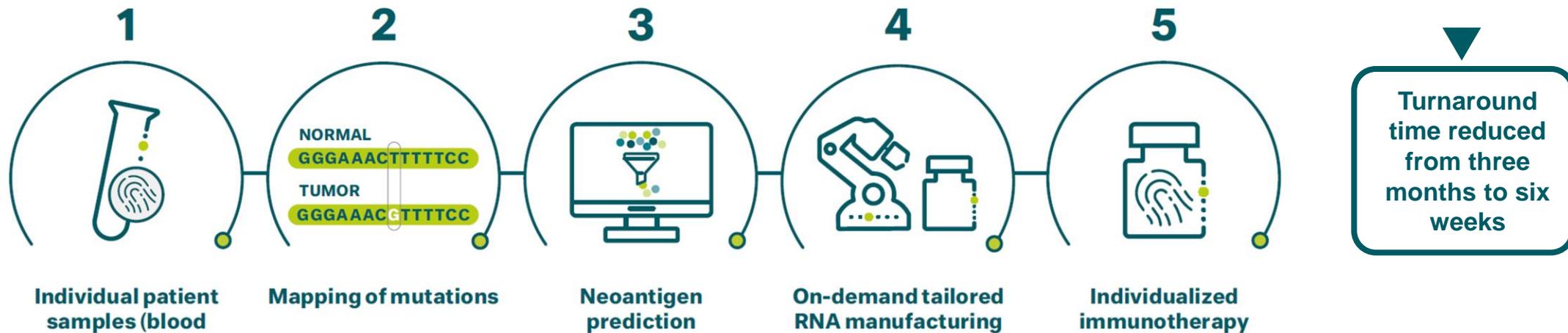
Report phase 1 data 1H 2020

Start phase 2 with registrational potential in 2H 2020

FixVac: a flexible format designed to be rapidly adapted for different tumors

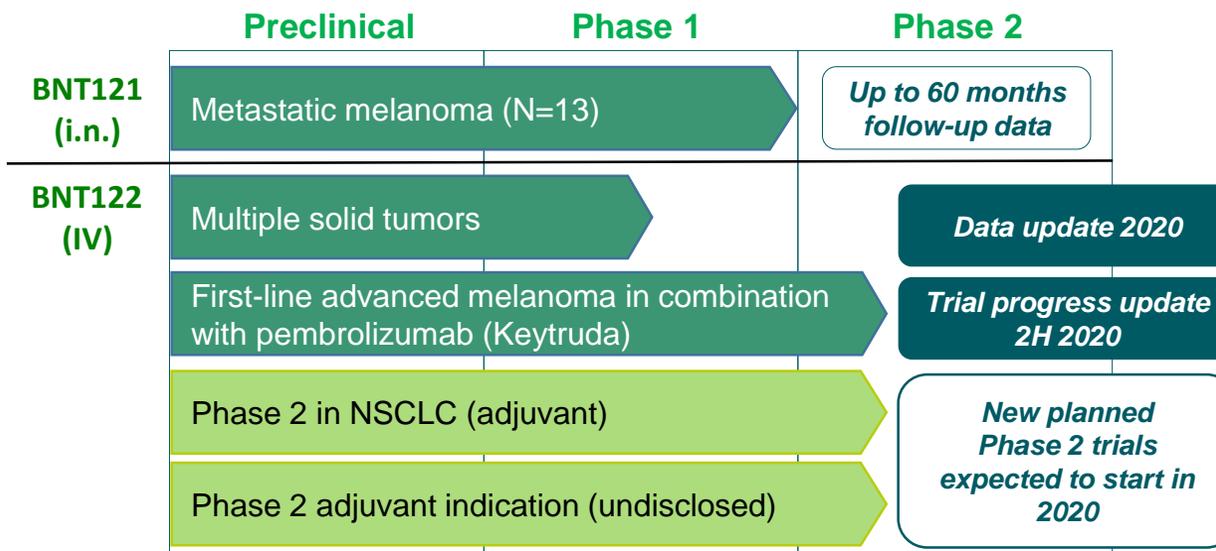


Individualized Neoantigen Specific Immunotherapy (iNeST)



Overview

- Targeting multiple neoantigens
- Intended to be a universal approach applicable for the majority of cancers
- 50:50 profit/loss share with Genentech



Currently being evaluated in ≥ 8 solid tumor indications

Digitization and automation for neo-antigen vaccine manufacturing



Paperless documentation



Semiautomatic manufacturing

- 2 mRNA GMP production facilities: Idar-Oberstein (GMP since 2011) and Mainz (GMP since 2018)
- Construction and GMP licensure of new Mainz facility for iNeST expected in 2022/2023
- Partnered with Siemens to develop automated production processes

Agenda

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mRNA vaccines – FixVac and iNeST

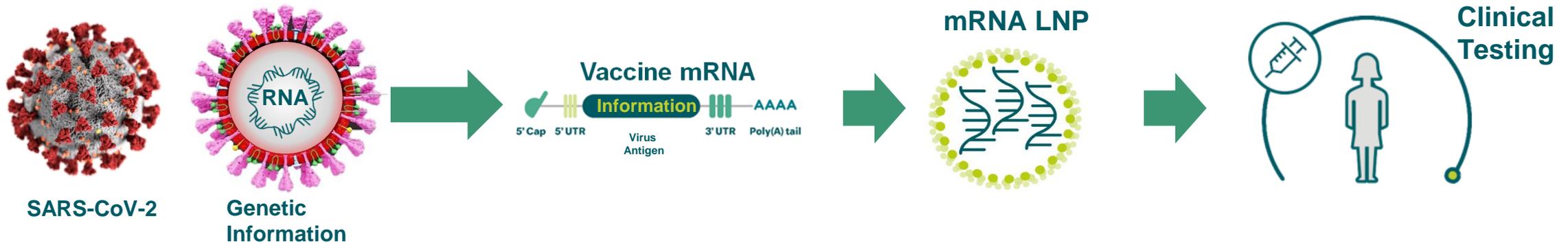
COVID-19 vaccine program (project “Lightspeed”)

Antibodies

Closing Remarks

mRNA pharmaceuticals as pandemic vaccines

- Synthetic variants of naturally occurring genetic molecules
- Biochemically defined biopharmaceuticals
- High purity and free of animal product
- Inherent immune-activating qualities with no need for additional adjuvant
- Stimulates both antibody and T-cell immune response at low doses
- More than 400 patients does in cancer setting since 2013 (both safety and efficacy)
- Highly scalable production with potential to manufacture hundreds of millions of doses



Rapid progress for COVID-19 vaccine program with global consortium

- “Lightspeed” program includes both vaccines and therapeutics
- BNT162: mRNA-based vaccine aimed at preventing COVID-19 infection
- Exploits highly potent Lipid-Nano-Particulate (LNP) mRNA vaccine platforms for the prevention of infectious diseases
- Preclinical activity demonstrated in multiple infectious disease models including Influenza, Ebola Virus, Zika Virus, HIV and others
- To be manufactured at state-of-the-art GMP certified mRNA manufacturing facilities in Europe
- First cohorts of BNT162 Phase 1/2 clinical trial have been dosed in Germany and USA



- Collaboration for co-development and distribution outside of China
- R&D sites from both companies
- Builds on previous R&D collaboration for mRNA-based vaccines for influenza



- Joint development in China and collaboration to conduct trials in China
- BNTX to receive up to \$135m in upfront, investment and milestones
- Companies to share gross profits from sales in China

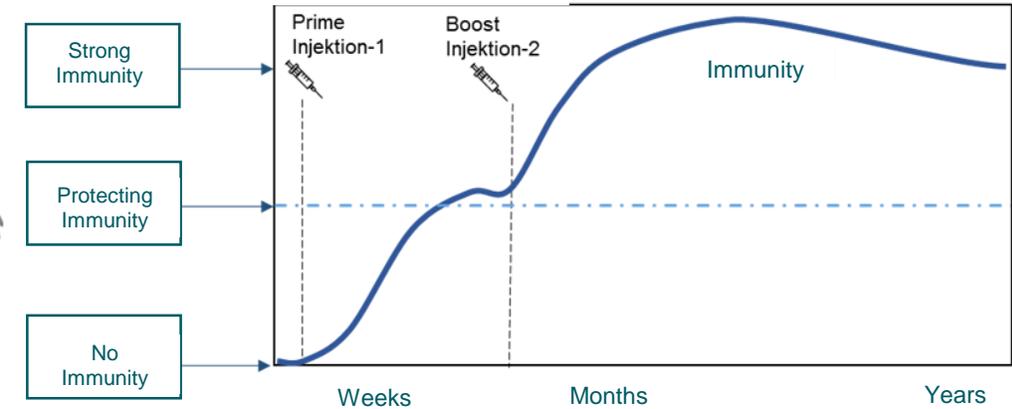
Global BNT162 clinical development program ongoing

Phase 1/2 trials ongoing in Europe and US

- Testing of 4 vaccine candidates across different countries
- Evaluating safety, efficacy and optimal dose
- Evaluating effects of repeated immunization for 3 candidates using uRNA or modRNA and one prime-only using saRNA
- Potentially accelerated approval pathways being discussed with global regulators



Prime / boost vaccine

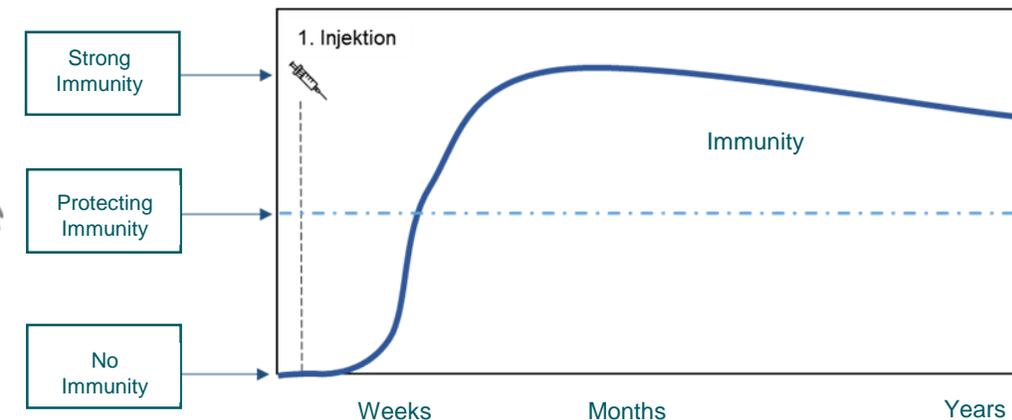


Designs

- Europe: dose escalation part up to 200 healthy subjects aged 18 to 55
- US: seamless study design with several thousand subjects; Initial dose-finding part up to 360 healthy subjects aged 18-85
- Dose range 1 μg to 100 μg
- Single-dose and 2-dose regimens to be tested in initial trial



Prime-only vaccine



First cohorts dosed in each geography
First clinical data expected June/July 2020

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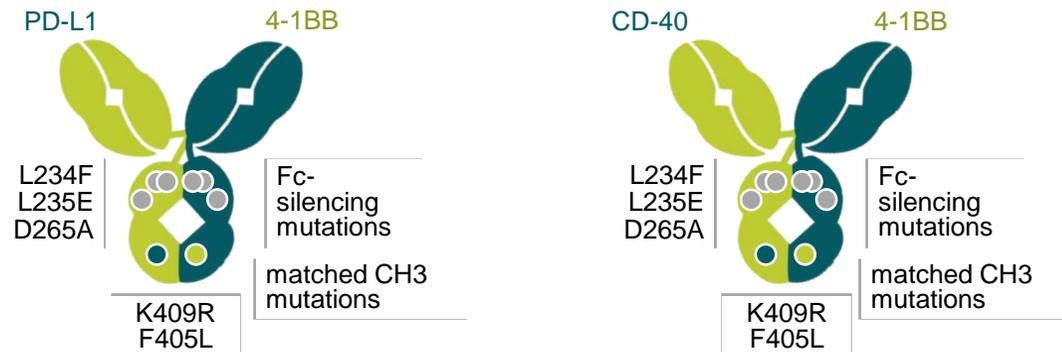
Closing Remarks

Bispecific Next-Gen CP immunomodulators and targeted cancer antibodies

BNT311 and BNT312: Next-Gen checkpoint immunomodulators

Two bispecific antibodies partnered with Genmab

- Potential “first-in-class” bispecific antibodies
- Conditional activation of immuno-stimulatory checkpoint activity
- 50:50 profit/loss share
- Both programs are now in the clinic



Product Candidate	Preclinical	Phase 1	Phase 2
BNT311 (GEN1046)	PD-L1x4-1BB	Ph1/2a	Data update 2H 2020
BNT312 (GEN1042)	CD-40x4-1BB	Ph1/2a	

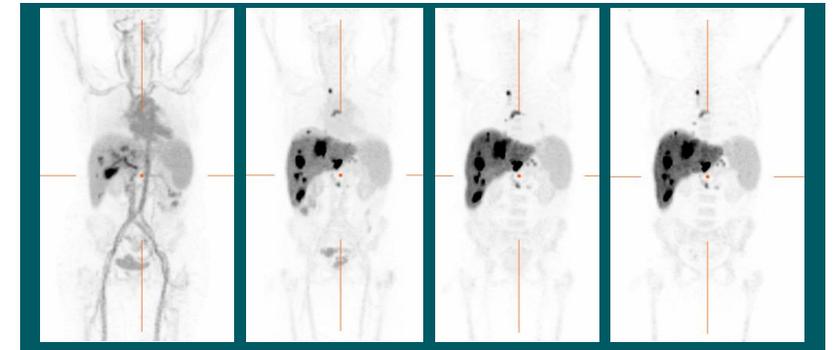
BNT321: Ab targeting Cancer Associated Carbohydrate sLe^a

- Subnanomolar affinity, potent cell killing by ADCC & CDC
- Targets sialyl Lewis A epitope (sLe^a) present in a range of glyco-proteins (CA19-9): specifically expressed in pancreatic and other cancers
- CA19-9 also a prognostic marker and functionally associated with carcinogenesis¹

Preliminary data

- 6 patients evaluated in combo with chemotherapy
 - 4 / 6 met the criteria for PR and 2 / 6 met the criteria for SD
 - BNT321 was generally well tolerated by all 6 patients

PET/CT imaging study with MVT-2163 (PET conjugated Ab version; ⁸⁹Zr-DFO-HuMab-5B1)



Product Candidate	Preclinical	Phase 1	Phase 2
BNT321 (MVT-5873)	sLe ^a		

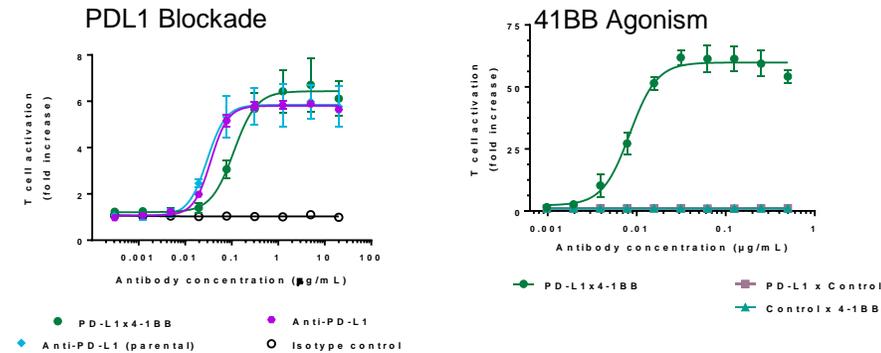
¹ Engle et al, Science 2019: The glycan CA19-9 promotes pancreatitis and pancreatic cancer in mice
CP: checkpoint; PR: partial response; SD: stable disease

Next-Gen checkpoint immunomodulator: GEN1046 (BNT311)

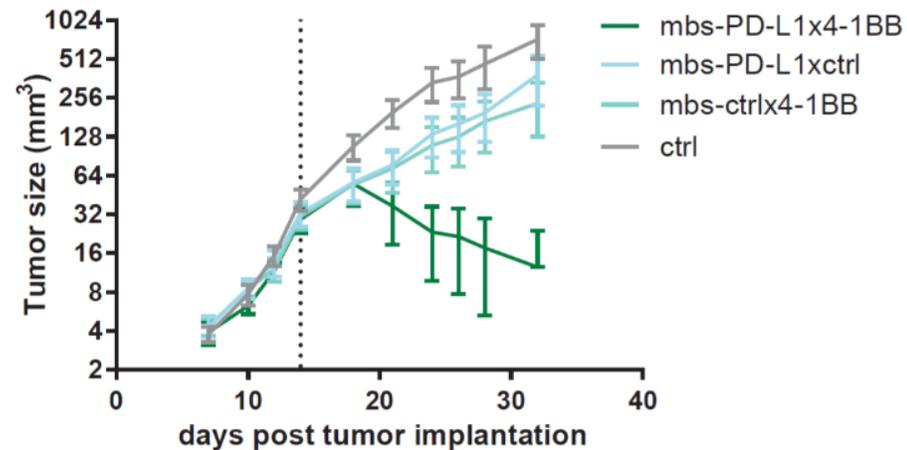
Characteristics

- Bispecific antibody combining constitutive CPI blockade and conditional co-stimulatory activity
- Enhanced proliferation of antigen specific activated T cells in the presence of PD-L1+ cells

Mode of Action



Preclinical antitumor activity beyond PDL1 blockade



1 Constitutive PD-L1 blockade & conditional 4-1BB agonism

2 Increased tumor infiltrating lymphocyte (TIL) expansion in human tumor tissue cultures *ex vivo*

3 Induced tumor regression of murine tumors superior to pure PD-L1 blockade and is associated with an increase in tumor-specific CD8 T-cells

Bispecific antibody GEN1046 (BNT311): Phase 1/2a in solid tumors

First-in-human, open-label, dose-escalation trial with expansion cohorts to evaluate safety of GEN1046 (PD-L1x4-1BB) in subjects with malignant solid tumors

- **Enrollment:** 192
- **Data update:** 2H 2020
- **Tumor types:** Malignant Solid Tumors

Intervention:

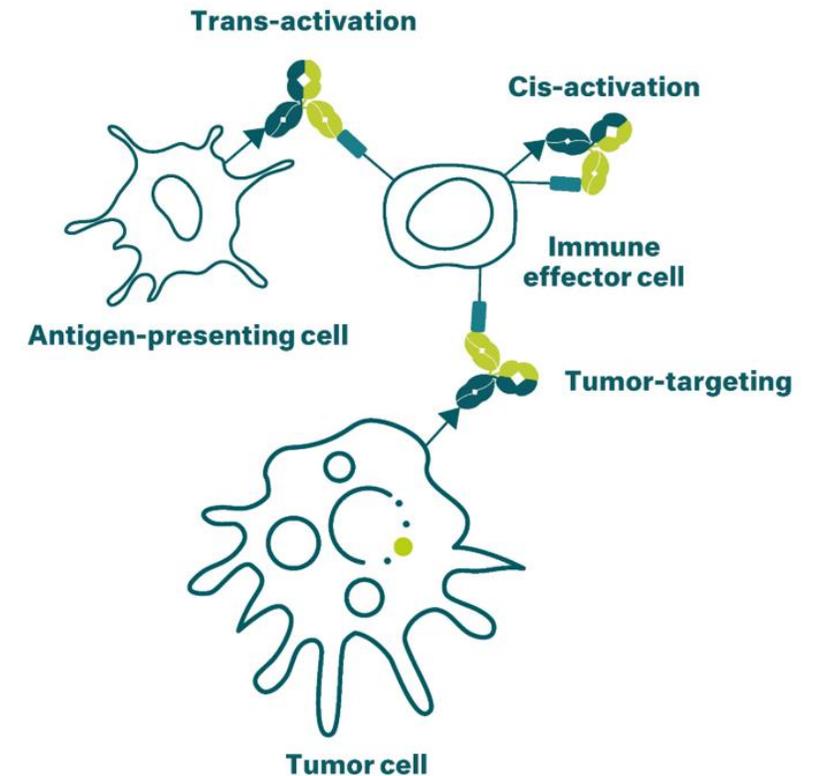
- GEN1046 (BNT311) is a PD-L1x4-1BB bispecific antibody that induces conditional activation of T cells through 4-1BB stimulation which is dependent on simultaneous binding to PD-L1
- GEN1046 (BNT311) IV once every 21 days
- Dose levels determined by the starting dose and the escalation steps taken in the trial

Description:

- Open-label safety trial
- Two parts, a dose escalation (phase 1, first-in-human) and an expansion part (phase 2a)

Key Primary endpoints:

- Dose limiting toxicity
- Adverse events
- Safety laboratory parameters



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First Quarter 2020 Financial Results (unaudited)

- Cash and cash equivalents of EUR 452m (USD 495m) as of March 31, 2020
- Additional EUR 217m (USD 236m) due in 2Q 2020 from Pfizer and Fosun Pharma (equity investments and non-dilutive deal upfront payments, partially received already)
- Net cash used in operating activities and investments into property, plant and equipment on track with previous guidance of EUR 300m (USD 329m¹) for base business plan (prior to impact of Neon Therapeutics acquisition and BNT162 program)
- Majority of BioNTech development costs for BNT162 program in 2020 will be funded via Pfizer and Fosun Pharma cost sharing, equity investments and upfront payments.

Building a next generation immunotherapy company



Rapid progress in key pipeline programs in both oncology and infectious diseases



Multiple data read-outs & late-stage trial starts anticipated in 2H 2020



Expanded transatlantic operations with newly established R&D hub in Cambridge, U.S.



Strong momentum toward our vision of building a global immunotherapy company

The Biontech logo is displayed in a bold, sans-serif font. The letters 'B', 'I', 'O', 'N', 'T', 'E', and 'C' are in a light blue color, while the letters 'H' and 'H' are in a yellow color. The logo is positioned in the upper left quadrant of the page.

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