<table>
<thead>
<tr>
<th>Modality</th>
<th>Program</th>
<th>Abstract #</th>
<th>Type</th>
<th>Abstract Title</th>
<th>Date, Time &amp; Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>mRNA</td>
<td>BNT116</td>
<td>1503TiP</td>
<td>TiP</td>
<td>A Phase 2 study of cemiplimab plus BNT116 versus cemiplimab alone in first-line treatment of patients with advanced non-small cell lung cancer with PD-L1 expression ≥50%</td>
<td>Onsite Poster display date&lt;br&gt;Monday, 23 October 2023&lt;br&gt;Session: NSCLC. metastatic</td>
</tr>
<tr>
<td>Protein-based</td>
<td>BNT314</td>
<td>1072P</td>
<td>Poster</td>
<td>DuoBody-EpCAMx4-1BB mediates conditional T-cell co-stimulation and promotes antitumor activity in preclinical models</td>
<td>Onsite Poster display date&lt;br&gt;Monday, 23 October 2023&lt;br&gt;Session: Investigational Immunotherapy</td>
</tr>
<tr>
<td></td>
<td>DB-1305</td>
<td>689P</td>
<td>Poster</td>
<td>DB-1305 (a Trop-2 targeted antibody-drug-conjugate [ADC]) in patients with advanced solid tumors: Preliminary clinical results from the Phase 1/2a study</td>
<td>Onsite Poster display date&lt;br&gt;Monday, 23 October 2023&lt;br&gt;Session: Developmental Therapeutics</td>
</tr>
<tr>
<td>Cell therapies</td>
<td>BNT211</td>
<td>LBA35</td>
<td>Mini oral</td>
<td>BNT211-01: Interim results from a repeat dose escalation study of CLDN6 CAR-T cells manufactured with an automated process ± a CLDN6-encoding CAR-T cell-Amplifying RNA Vaccine (CARVac)</td>
<td>Mini oral session - Developmental therapeutics&lt;br&gt;Monday, 23 October 2023&lt;br&gt;4:30-6 PM CET&lt;br&gt;Valencia Auditorium, Hall 10</td>
</tr>
<tr>
<td></td>
<td>BNT221</td>
<td>1017O</td>
<td>Proffered paper</td>
<td>NTC-001: A Phase I study to test safety and efficacy of BNT221, a non-engineered neoantigen-specific T cell product, in patients with advanced or metastatic melanoma</td>
<td>Proffered Paper session - Investigational immunotherapy&lt;br&gt;Monday, 23 October 2023&lt;br&gt;10:15-11:40 AM CET&lt;br&gt;Burgos Auditorium, Hall 3</td>
</tr>
</tbody>
</table>
BNT314/GEN1059

DuoBody-EpCAMx4-1BB mediates conditional T-cell co-stimulation and promotes antitumor activity in preclinical models.
BNT314/GEN1059\(^1\) – Designed to Boost Antitumor Immune Response Through EpCAM-Dependent 4-1BB Agonistic Activity

**Mechanism of action**

- By cross-linking EpCAM+ tumor cells with activated 4-1BB+ T cells, BNT314/GEN1059 exhibits conditional 4-1BB agonist activity, resulting in enhanced T-cell proliferation and effector functions, such as cytokine secretion and cytotoxic activity.

- BNT314/GEN1059 is hypothesized to boost existing antitumor immune responses and may be further exploited in combination with other immunotherapy.

**Expansion of tumor-infiltrating lymphocytes in human TIL cultures**

**First preclinical disclosure at ESMO 2023:**

DuoBody-EpCAMx4-1BB mediates conditional T-cell co-stimulation and promotes antitumor activity in preclinical models.

Fellermeier-Kopf et al. Presented at ESMO 2023. #1072P

---

1. BNT314 (GEN1059) is partnered with Genmab based on 50/50 sharing of costs and profits.

EpCAM = epithelial cell adhesion molecule; TCR = T cell receptor; CD = cluster of differentiation; MHC = major histocompatibility complex; NK cell = natural killer cell; Treg cell = regulatory T cell.
BNT314/GEN1059\(^1\) – Designed to Boost Antitumor Immune Response Through EpCAM-Dependent 4-1BB Agonistic Activity

Antitumor activity in human EpCAM-transgenic mice
Fellermeier-Kopf et al. Presented at ESMO 2023. #1072P

Results suggest that BNT314/GEN1059 may boost antitumor immunity in cancer patients with EpCAM+ tumors.
The clinical safety and preliminary antitumor activity of DuoBody-EpCAMx4-1BB will be investigated in patients with solid tumors in a first-in-human trial.

---

1. BNT314 (GEN1059) is partnered with Genmab based on 50/50 sharing of costs and profits.
   EpCAM = epithelial cell adhesion molecule
BNT325/DB-1305

DB-1305 (a Trop-2 targeted antibody-drug-conjugate [ADC]) in patients with advanced solid tumors: Preliminary clinical results from the Phase 1/2a study
BNT325/DB-1305\(^1\) - TROP2 ADC

The three components of BNT325/DB-1305\(^1\):

- Humanized anti-TROP2 IgG1 mAb
-Proprietary DNA topoisomerase I inhibitor (P1021)
- Cleavable linker

Key Attributes of BNT325/DB-1305

- Selectively endocytosed into the lysosome of Trop-2+ cells
- Optimized drug-to-antibody ratio: ~4
- Tumor-selective cleavable linker
- Stable linker-payload
- High potency of payload with a short systemic half-life
- Payload mechanism of action: topoisomerase I inhibitor
- Bystander antitumor effect

---

FIH Phase 1/2 to Evaluate Safety, Tolerability and Antitumor Activity of BNT325/DB-1305\(^1\) in Patients with Advanced/Metastatic Solid Tumors

Phase 1/2a study design (NCT05438329)
Multicenter, non-randomized, open-label, multiple-dose, first-in-human (FIH) study, n = 235

**Inclusion criteria**
- Advanced/unresectable, recurrent or metastatic solid tumors
- Relapsed or progressed on or after standard systemic treatments
- ECOG 0-1
- Adequate organ function

**Part 1: Dose Escalation**

**Indications**
- Small cell lung cancer (SCLC)
- HR+/HER2-neg breast cancer
- NSCLC with no EGFR-sensitizing mutation, ALK gene translocation or onco-driver gene mutations
- TNBC without prior sacituzumab govitecan treatment
- TNBC with treatment failure on sacituzumab govitecan

**Key endpoints**
- **Primary:** Phase 1: Assessment of DLT, TEAE, SAE, MTD, RP2D. Phase 2a: TEAEs, SAEs, ORR
- **Secondary:** Pharmacokinetic measures (AUC, Cmax, Tmax, T1/2)

1. Partnered with DualityBio. ECOG = Eastern Cooperative Oncology Group; DL = dose level; Q3W = every three weeks; RP2D = recommended Phase 2 dose; HR = hormone receptor; HER2 = human epidermal growth factor 2 receptor; NSCLC = non-small cell lung cancer; TNBC = triple negative breast cancer; DLT = dose-limiting toxicity; TEAE = treatment emergent adverse events; SAE = serious adverse events; MTD = maximum tolerated dose; ORR = objective response rate; AUC = Area under concentration-time curve; Cmax = maximum observed plasma concentration; Tmax = time to Cmax; T1/2 = terminal elimination half-life
BNT325/DB-1305\(^1\) in Heavily Pretreated Patients with Multiple Solid Tumors

---

Phase 1/2a FIH study (NCT05438329): Baseline characteristics
Marathe O. et al. Presented at ESMO 2023. Poster #689P.

### Baseline patient characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong>, median (range)</td>
<td>59.0 (40.0-78.0)</td>
</tr>
<tr>
<td><strong>Female</strong>, n (%)</td>
<td>26 (59.1)</td>
</tr>
<tr>
<td><strong>Region</strong>, n (%)</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>21 (47.7)</td>
</tr>
<tr>
<td>China</td>
<td>23 (52.3)</td>
</tr>
<tr>
<td><strong>ECOG performance status</strong>, n (%)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>7 (15.9)</td>
</tr>
<tr>
<td>1</td>
<td>37 (84.1)</td>
</tr>
</tbody>
</table>

### Baseline patient characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Median prior lines of therapy</strong>, median (range)</td>
<td>3.0 (1-6)</td>
</tr>
<tr>
<td><strong>Cancer types</strong>, n (%)</td>
<td></td>
</tr>
<tr>
<td>Non-small cell lung cancer</td>
<td>30 (68.2)</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>4 (9.1)</td>
</tr>
<tr>
<td>HR+HER2- breast cancer</td>
<td>2 (4.5)</td>
</tr>
<tr>
<td>Ovarian cancer</td>
<td>2 (4.5)</td>
</tr>
<tr>
<td>Ampullary carcinoma</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Appendiceal cancer</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Duodenal cancer</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Gastric or gastroesophageal junction adenocarcinoma</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Primary malignant neoplasm of fallopian tube</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Triple negative breast cancer</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td><strong>Prior anticancer systemic therapy</strong>, n (%)</td>
<td></td>
</tr>
<tr>
<td>With prior immunotherapy therapy</td>
<td>20 (45.5)</td>
</tr>
<tr>
<td>With prior platinum therapy</td>
<td>39 (88.6)</td>
</tr>
</tbody>
</table>

---


FIH = first in human; ECOG = Eastern Cooperative Oncology Group; HR = hormone receptor; HER2 = human epidermal growth factor receptor 2.
BNT325/DB-1305\textsuperscript{1} Demonstrated Antitumor Activity in Patients With NSCLC and Other Solid Tumors

Phase 1/2a FIH study (NCT05438329): Clinical Efficacy
Marathe O. et al. Presented at ESMO 2023. Poster #689P.

Anti-tumor activity in heavily pretreated patients with 3 median prior lines of treatment

<table>
<thead>
<tr>
<th></th>
<th>Unconfirmed ORR, %</th>
<th>Unconfirmed DCR, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients (n=23)</td>
<td>30.4</td>
<td>87.0</td>
</tr>
<tr>
<td>NSCLC (n=13)</td>
<td>46.2</td>
<td>92.3</td>
</tr>
</tbody>
</table>

• Antitumor activity was also observed in a patient with fallopian tube cancer: 1 unconfirmed PR at 5 mg/kg: ORR, 1/1

Best tumor response for all patients with post-baseline scans (n=23):
BNT325/DB-1305\(^1\) Was Tolerable and TRAEs Were Manageable in Lower Dose Levels

### Phase 1/2a FIH study (NCT05438329): Safety
Marathe O. et al. Presented at ESMO 2023. Poster #689P.

#### Overall safety

<table>
<thead>
<tr>
<th></th>
<th>2 mg/kg (n=1)</th>
<th>4 mg/kg (n=20)</th>
<th>5 mg/kg (n=17)</th>
<th>6 mg/kg (n=6)</th>
<th>Total (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Any TRAEs</td>
<td>0</td>
<td>19 (95.0)</td>
<td>15 (88.2)</td>
<td>6 (100)</td>
<td>40 (90.9)</td>
</tr>
<tr>
<td>Grade ≥3</td>
<td>0</td>
<td>7 (35.0)</td>
<td>5 (29.4)</td>
<td>3 (50.0)</td>
<td>15 (34.1)</td>
</tr>
<tr>
<td>Serious TRAEs</td>
<td>0</td>
<td>3 (15.0)</td>
<td>4 (23.5)</td>
<td>3 (50.0)</td>
<td>10 (22.7)</td>
</tr>
<tr>
<td>Lead to dose reduction</td>
<td>0</td>
<td>1 (5.0)</td>
<td>2 (11.8)</td>
<td>3 (50.0)</td>
<td>6 (13.6)</td>
</tr>
<tr>
<td>Lead to dose interruption</td>
<td>0</td>
<td>6 (30.0)</td>
<td>5 (29.4)</td>
<td>4 (66.7)</td>
<td>15 (34.1)</td>
</tr>
<tr>
<td>Lead to dose discontinuation</td>
<td>0</td>
<td>1 (5.0)</td>
<td>0</td>
<td>0</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Dose-limiting toxicities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3 (50)</td>
<td>3 (6.8)</td>
</tr>
</tbody>
</table>

One patient died by suicide on day 18 after first dose and one patient experienced double pneumonia related AE on day 49.

#### Summary of AEs (≥20%) and all AESI (n=44)

<table>
<thead>
<tr>
<th></th>
<th>TEAEs</th>
<th>TRAEs</th>
<th>AESI*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All grade n (%)</td>
<td>Grade ≥3 n (%)</td>
<td>All grade n (%)</td>
</tr>
<tr>
<td>Stomatitis</td>
<td>33 (75.0)</td>
<td>10 (22.7)</td>
<td>33 (75.0)</td>
</tr>
<tr>
<td>Nausea</td>
<td>13 (29.5)</td>
<td>1 (2.3)</td>
<td>12 (27.3)</td>
</tr>
<tr>
<td>Lymphocyte count decreased</td>
<td>10 (22.7)</td>
<td>6 (13.6)</td>
<td>0</td>
</tr>
<tr>
<td>Infusion related reaction</td>
<td>9 (20.5)</td>
<td>0</td>
<td>9 (20.5)</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td>9 (20.5)</td>
<td>0</td>
<td>7 (15.9)</td>
</tr>
<tr>
<td>Mucosal inflammation</td>
<td>1 (2.3)</td>
<td>1 (2.3)</td>
<td>1 (2.3)</td>
</tr>
<tr>
<td>Interstitial lung disease</td>
<td>1 (2.3)</td>
<td>0</td>
<td>1 (2.3)</td>
</tr>
</tbody>
</table>

* AESI includes interstitial lung disease/pneumonitis, infusion related reaction, diarrhea, stomatitis/mucosal inflammation, and combined elevations of aminotransferases and bilirubin.

**BNT325/DB-1305** was tolerable and all AEs were manageable in lower dose levels (i.e., 2 and 4 mg/kg)

- Three patients dosed at 6 mg/kg experienced dose-limiting toxicities (i.e., stomatitis, febrile neutropenia, and white blood cell decreased), and the maximum tolerated dose was established as 5 mg/kg
- No TEAEs led to death

---

\(^1\) Partnered with DualityBio.  
TRAE = treatment related adverse event. FIH = first in human. AESI = Adverse event of special interest. TEAE = Treatment emergent adverse event.
BNT211-01: Interim results from a repeat dose escalation study of CLDN6 CAR-T cells manufactured with an automated process ± a CLDN6-encoding CAR-T cell-Amplifying RNA Vaccine (CARVac)
BNT211: First-in-Class Approach for CLDN6+ Solid Tumors

CLDN6 CAR T

- αCLDN6 scvf
- CD8 hinge
- 4-1BB
- CD3ζ

- High sensitivity and specificity of 2nd-generation CAR against CLDN6
- CLDN6 is absent from healthy adult tissue, but expressed in a variety of cancers

CLDN6 CARVac

- Clinically proven RNA-lipoplex vaccine for body-wide delivery of antigens to dendritic cells
- Amplification and persistence of CAR-T cells by repeat administration

CLDN6 = Claudin 6; CAR = chimeric antigen receptor.

CLDN6 CARVac

- Full-length CLDN6 RNA
- Liposomes
BNT211: Phase 1/2a, FIH, Open-Label, Multicenter, Dose Escalation Trial in R/R Advanced CLDN6+ Solid Tumors (NCT04503278)

**Inclusion criteria**

- ≥50% tumor cells with 2+/3+ CLDN6 positivity (immunohistochemistry)
- Measurable disease per RECIST v1.1 or elevated tumor marker, ECOG PS 0–1

**Key endpoints**

**Primary:** Safety and tolerability, DLTs

**Secondary:** Immunogenicity, ORR, DCR, DoR, PFS

**Dosing:**
- Escalating doses of CLDN6 CAR-T cells ± CLDN6 CARVac
- Lymphodepletion prior to CAR-T cell infusion on Day 1 (DLTs assessed for 28 days)
- CLDN6 CARVac fixed dose (from Day 4, 50µg then 100µg) Q3W × 5, then Q6W

**Assessments:** Efficacy assessments Q6W (RECIST v1.1) & tumor marker monitoring

**Aim of current analysis:**
Determine the safety and preliminary efficacy of the automated CLDN6-CAR T product ± CARVac

**Phase I dose escalation (manual product): Completed**

**Monotherapy**
- DL1 n=3 1×10^7 CAR-T
- DL2 n=6 1×10^8 CAR-T

**Combination**
- DL1 n=4 + fixed CARVac
- DL2 n=9 + fixed CARVac

**Phase I dose escalation with an (automated product): Ongoing**

**Monotherapy**
- DL0 n=2 1×10^6 CAR-T
- DL1 n=4 1×10^7 CAR-T

**Combination**
- DL1 n=3 + fixed CARVac
- DL2 n=4 + fixed CARVac
- DL3 n=0 2-5×10^8 CAR-T

Data cut-off: 10 Sep 2023. * Crossover to combination not indicated.
BNT211: Dose-Depend Increase in Adverse Events, Further Evaluation Ongoing to Determine RP2D

Data cut-off: 10 Sep 2023. 1 Cohort includes 3 patients dosed with 5×10⁷ CAR-T. 2 Cohort includes 1 patient that did not reach full dose (2×10⁷) and 1 patient treated that received full dose after 50% reduced lymphodepletion. 3 Other indications: 4 patients with lung cancer (different subtypes), 3 with desmoplastic round cell tumors, 2 with esophageal cancer, 1 with endometrial carcinoma and 1 with sinonasal carcinoma. 4 Crossover of patients is not indicated, as option was enabled by safety review committee decision after dose decision for monotherapy cohort without impacting efficacy read out. 5 Most TEAEs ≥G3 were attributed to CAR-T IMP (27/30). Most frequent TEAEs were laboratory findings (43.2%) including decreased blood cell counts, elevated liver function tests as well as levels of bilirubin and ferritin. Accordingly, cytopenia (25%) together with immune system (7%) and hepatobiliary disorders (5%) were reported frequently. 6 Most frequent non-related TESAEs were infections. 7 DLTs include 2 cases of pancytopenia, 1 case of hemophagocytic lymphohistiocytosis and 1 case of liver toxicity together with sepsis. 8 CRS was limited to G1-2 for 21/23 patients with 1 G3 and 1 G4 event. 9 Neurotoxicity was mild and self-limiting in 2 patients. 10 Most patient deaths (11/12) were related to disease progression and 1 patient died from sepsis. Values given as median (range). CAR = chimeric antigen receptor; CLDN6 = claudin-6; CRS = cytokine release syndrome; DL = dose level; DLT = dose-limiting toxicity; G = Grade; ICANS = immune effector cell-associated neurotoxicity syndrome; IMP = investigational medicinal product; TESAE = treatment emergent (serious) adverse event.
BNT211 continues to show encouraging antitumor activity in patients with CLDN6-positive relapsed or refractory advanced solid tumors

Phase 1/2 FIH study (NCT04503278): Efficacy at all dose levels

Data cut-off: 10 Sep 2023. Waterfall plot showing best percent change from baseline in sum of target lesion diameters for patients treated with CLDN6 CAR-T ± CLDN6 CARVac (N = 38). One patient died prior to first assessment (NR = not reached) and BOR was defined as PD. * Patients had non-measurable disease per RECIST 1.1 and BOR was assessed by tumor marker response. ** Patient achieved complete response after surgical removal of tumors. Response data was pending for 6 patients at the data cutoff. Dotted lines show standard response evaluation criteria used to determine objective tumor response for target lesions per RECIST 1.1 (CR = 100%, PR = 30 to 100%, SD = 30 to 20%, and PD = 20% or higher). Graph contains additional data from 5 patients entered manually into the database following the data cut-off date that was not available in formal outputs. BOR = best overall response; CR = complete response; DCR = disease control rate; DL = dose level; EOC = epithelial ovarian cancer; GCT = germ cell tumor; PD = progressive disease; ORR = objective response rate; PR = partial response; SD = stable disease.

<table>
<thead>
<tr>
<th>CLDN6 CAR-T</th>
<th>&lt;DL2</th>
<th>DL2</th>
<th>&gt;DL2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety evaluable patients, n</td>
<td>10</td>
<td>27</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Efficacy evaluable patients, n</td>
<td>9</td>
<td>22</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>Patients with PR/CR, n</td>
<td>1</td>
<td>13</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Patients with SD, n</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Patients with PD, n</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>ORR, %</td>
<td>11.1</td>
<td>59.1</td>
<td>42.9</td>
<td>44.7</td>
</tr>
<tr>
<td>DCR, %</td>
<td>22.2</td>
<td>95.5</td>
<td>71.4</td>
<td>73.7</td>
</tr>
</tbody>
</table>
BNT211 Demonstrates Encouraging Signs of Activity at Dose Level 2

Phase 1/2 FIH study (NCT04503278): Efficacy at all dose level 2

Best response and change in target sum (DL2 only)

<table>
<thead>
<tr>
<th>CLDN6 CAR-T</th>
<th>&lt;DL2</th>
<th>DL2</th>
<th>&gt;DL2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety evaluable patients, n</td>
<td>10</td>
<td>27</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Efficacy evaluable patients, n</td>
<td>9</td>
<td>22</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>Patients with PR/CR, n</td>
<td>1</td>
<td>13</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Patients with SD, n</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Patients with PD, n</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>ORR, %</td>
<td>11.1</td>
<td>59.1</td>
<td>42.9</td>
<td>44.7</td>
</tr>
<tr>
<td>DCR, %</td>
<td>22.2</td>
<td>95.5</td>
<td>71.4</td>
<td>73.7</td>
</tr>
</tbody>
</table>

Data cut-off: 10 Sep 2023. Waterfall plot showing best percent change from baseline in sum of target lesion diameters and spider plot showing percent change in target sum from baseline over time for patients treated with CLDN6 CAR-T ± CLDN6 CARVac at DL2 (N = 22). * Patient had non-measurable disease per RECIST 1.1 and BOR was assessed by tumor marker response. ** Patient achieved complete response after surgical removal of tumors. Response data was pending for 5 patients at the data cut-off. Dotted lines show standard response evaluation criteria used to determine objective tumor response for target lesions per RECIST 1.1 (CR = –100%, PR = 30 to –100%, SD = –30 to 20%, and PD = 20% or higher). Graphs contain additional data entered manually into the database following the data cut-off date that was not available in formal outputs. BOR = best overall response; CR = complete response; DCR = disease control rate; DL = dose level; EOC = epithelial ovarian cancer; GCT = germ cell tumor; PD = progressive disease; ORR = objective response rate; PR = partial response; SD = stable disease.
BNT211: CARVac cohort demonstrating a prolonged persistence of CAR-T cells

Phase 1/2 FIH study (NCT04503278): Pharmacokinetic data

Data cut-off: 1 Sep 2023. BioNTech data on file derived from peripheral blood applying semi-quantitative qPCR directed against CAR transgene. Displayed as copies of transgene per µg of DNA input of isolated PBMC. Pending data up to day 50: 2 patients each in monotherapy and combination cohort. Pending data up to day 90: 3 patients for monotherapy, and 4 patients for combination cohort. CAR = chimeric antigen receptor; CARVac = CAR T-cell amplifying RNA vaccine; DL = dose level; EOC = epithelial ovarian cancer; GCT = germ cell tumor; LLOQ = lower limit of quantification; PBMC = peripheral blood mononuclear cells.

ESMO Congress 2023, Dr. John Haanen; Content of this presentation is copyright and responsibility of the author. Permission is required for re-use.

[Graphs and data tables showing persistence of CAR-T cells over time for different dose levels and CARVac conditions]
Pharmacokinetics: CARVac improved CAR-T persistence, leading to sustained, ongoing detection up to 100 days in several patients at DL2

Safety: Toxicities at higher dose level led to further evaluation of safety via backfilling into several cohorts

Efficacy: Encouraging signs of activity with 13 responses in 22 evaluable patients at DL2 (ORR 59%, DCR 95%)

Pharmacokinetics: CARVac improved CAR-T persistence, leading to sustained, ongoing detection up to 100 days in several patients at DL2

Outlook: Backfilling to determine RP2D for CLDN6 CAR-T cells for a pivotal trial in GCT is currently ongoing

---

CAR = chimeric antigen receptors; CARVac = CAR T-cell amplifying RNA vaccine; CLDN6 = claudin-6; DCR = disease control rate; DL = dose level; GCT = germ cell tumor; ORR = objective response rate; RP2D = recommended Phase II dose.
BNT221

Safety and efficacy of BNT221, a non-engineered neoantigen specific T cell product for adoptive cell therapy of metastatic melanoma
BNT221: A Personalized, Autologous Non-Engineered Neoantigen-Specific T Cell Product

- A systematic, highly reproducible approach to expand neoantigen-specific T cells
- Fully personalized product
- Drug product contains polyclonal neoantigen CD4+ and CD8+ T cell responses
- Potential to circumvent antigen escape

**NEO-STIM**

**PBMC starting material**
- Material obtained from leukapheresis

**Clinical opportunity**
- Broad clinical opportunity due to targeting of personalized mutations

PBMC = peripheral blood mononuclear cell.
Phase 1 First-in-Human Trial (NCT04625205) Evaluating BNT221 in Advanced or Metastatic Melanoma

**Inclusion criteria**

- Adults 18-75 yrs, unresectable or metastatic melanoma
- Progressive disease or intolerant to αPD-1/PD-L1 and αCTLA-4 directed therapies; ≤3 prior regimens in metastatic setting
- At least 1 site RECIST1.1 measurable disease (active CNS metastasis excluded)
- ECOG 0-1
- No active auto-immune diseases

**Key endpoints**

**Primary:** Safety + MTD BNT221 monotherapy, + αPD-1

**Secondary:** ORR (RECIST 1.1), response duration, clinical benefit rate

**Exploratory:** Immune response in peripheral blood and tumor
- Immunogenicity, clinical activity correlation
- Drug product characterization, correlation with clinical activity and safety

CNS: central nervous system; MTD: minimal residual disease; ORR: overall response rate; PD: progressive disease.
**BNT221 in Heavily Pretreated Melanoma Patients**

**Phase 1 FIH study (NCT04625205): Baseline characteristics**

<table>
<thead>
<tr>
<th>Baseline patient characteristics</th>
<th>Total (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (range)</td>
<td>57 (32-72)</td>
</tr>
<tr>
<td>Sex M/F, n (%)</td>
<td>2 (22%) / 7 (78%)</td>
</tr>
<tr>
<td>ECOG 0-1, n (%)</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>Stage IV at entry, n (%)</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>Serum LDH increased, n (%)</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>Tumor Burden at Prescreen median sum of TL, range (mm)</td>
<td>44 (16-177)</td>
</tr>
</tbody>
</table>

**Prior lines of systemic therapy median (min/max)** 3 (2/4)

- Prior αPD-1 therapy, n (%)
  - Adjuvant: 9 (100%)
  - Metastatic: 6 (67%)
  - Both: 4 (44%)
  - Other: 1 (11%)

- Prior αCTLA-4 therapy, n (%): 9 (100%)

- Prior BRAF/MEK-directed therapy, n (%): 2 (22%)

- Other, n (%): 2 (22%)

- All patients had received anti-PD1 and anti-CTLA-4 therapy
- Patients had received a median of 3 prior therapies
Activity Signals Observed Post Single Infusion BNT221 Monotherapy

Phase 1 FIH study (NCT04625205): Clinical Efficacy

Tumor regressions, including prolonged SD in this aPD-1 and aCTLA4 pretreated population

NAC: neoantigen cell dose received; PD: progressive disease; SD: stable disease.
BNT221: Polyclonal T-Cell Responses in Drug Product are Detectable in Peripheral Blood Post-Infusion

Phase 1 FiH study (NCT04625205): T cell response

- Of 12 patients tested, 2 had neoantigen-specific cells detected by flow cytometry in peripheral blood prior to infusion.
- Of the 5 patients with available sample 3-6 weeks post-infusion, all 5 had detectable CD8+ responses and 3 had detectable CD4+ responses.

Detection of specific CD8+ T cells by tetramer

Subset of responses in drug product are detected in periphery at 3-6 weeks

- DP: drug product; NAC: neoantigen cell dose received; NVD: never dosed.
First-in-Human Trial Shows Promising Proof of Concept for BNT221 - a Novel Neoantigen-Focused Cell Therapy Approach

**Safety:** BNT221 demonstrated a manageable safety profile with no DLTs

**Efficacy:** In this αPD-1 and αCTLA-4 pretreated population, monotherapy with BNT221 resulted in tumor shrinkage for 4/9 patients

**Immune response:** BNT221 generates a polyclonal neoantigen-specific T cell product that can be detected post-infusion

**Outlook:**
- Combination of BNT221 with αPD-1 is currently being tested in the clinic
- Apply translational learnings to further optimize the next-generation NEO-STIM process