vaccibody

Vaccibody AS

Capital Markets Day

November 12, 2019

Agnete B Fredriksen
President & CSO

&

Michael Engsig
CEO

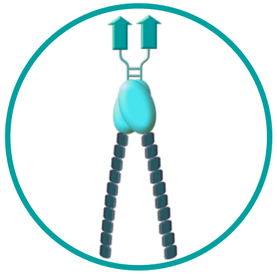
Capital Markets Day - Program

• 14.00-14.10	Introduction	Michael Engsig
• 14.10-15.00	Update on the VB N-01 study including the clinical data	Agnete Fredriksen
• 15.00-15.45	Status of the cancer vaccine field and development of novel immunotherapies	Ulrich Granzer
• 15.45-16.05	Company update	Michael Engsig
• 16.05-16.30	Questions & Answers	All
• 16.30-17.30	Mingling, snacks and drinks	All

Agenda

1. Introduction

2. Update on the VB N-01 study including the clinical data



3. Status of the cancer vaccine field and development of novel immunotherapies

4. Company update and Q&A

Experienced International Management Team with Solid Drug Development Experience

- Privately-held clinical stage immuno-oncology company, 28 employees
- Proprietary, patented cancer vaccine technology and early clinical proof-of-concept
- Experienced, international management team with oncology expertise and biotech pedigree driving development
- Founded in 2007 in Oslo, Norway

Michael Engsig
Chief Executive Officer

KLIFO
Takeda NYCOMED

Agnete Fredriksen, PhD
President and Chief Scientific Officer

Co-founder

Siri Torhaug, MD
Chief Medical Officer

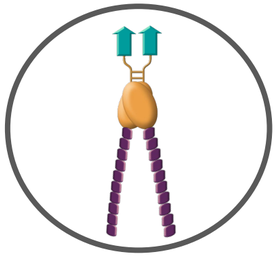
AstraZeneca
NOVARTIS

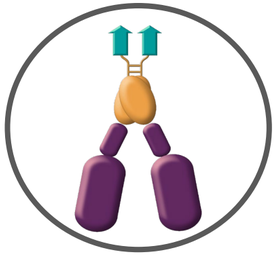
Mette Husbyn, PhD
Chief Technical Officer

GE Healthcare
Lytix Biopharma

Vaccibody Product Pipeline

PROGRAM	DISCOVERY	PRE-CLINICAL	PHASE I	PHASE II	PHASE III
MELANOMA LUNG (NSCLC) BLADDER RENAL HEAD AND NECK	VB10.NEO				
HEAD AND NECK	VB10.NEO + NKTR-214			NEKTAR	
PRECANCEROUS CERVICAL LESIONS	VB10.16				
CERVICAL	VB10.16 + Atezolizumab (CPI)				Roche





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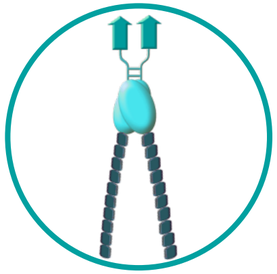

3. Status of the cancer vaccine field and development of novel immunotherapies

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Vaccibody – Proprietary Vaccine Technology Platform

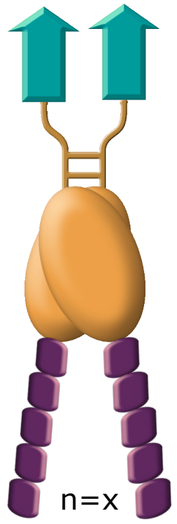
The Vaccibody Technology Platform is developed based on the concept of **targeting antigen to Antigen Presenting Cells (APCs)** in order to create more efficacious vaccines

Exchangeable DNA Cassette

Vaccibody DNA Vaccine Plasmid

VB10.NEO

In vivo expression



Vaccibody in Protein Format

Target to Antigen Presenting Cell

Dimerization for crosslinking target receptor

Antigen moiety

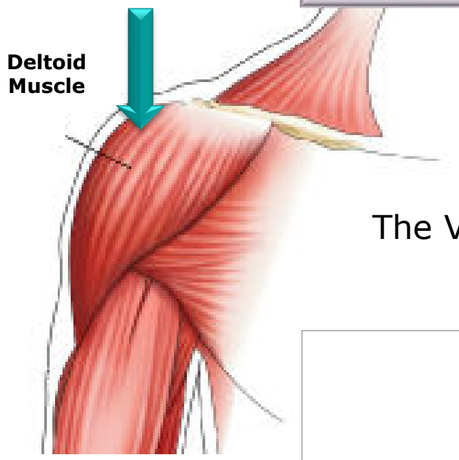
Mechanism of Action: the Multiple Effects of MIP-1α as Targeting Unit

Administration (i.m.) of DNA plasmid

***In vivo* protein expression and secretion**

Target – Attract – Mature – Deliver – Cross-present

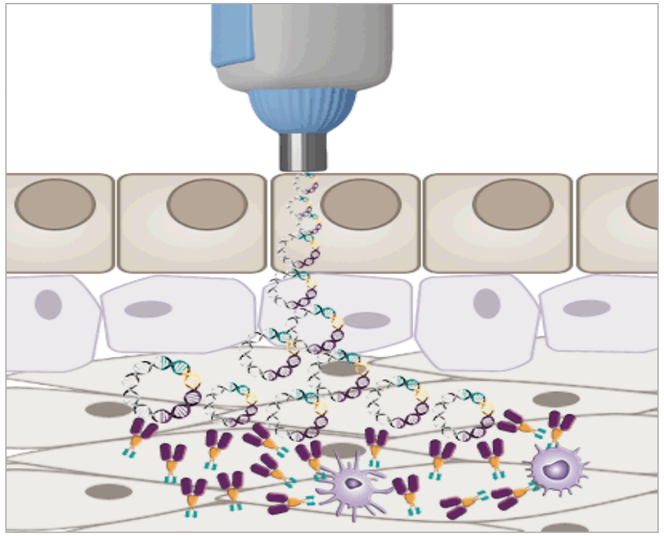
MIP-1α: Skewing the immune system to a CD8+ killer T-Cell response

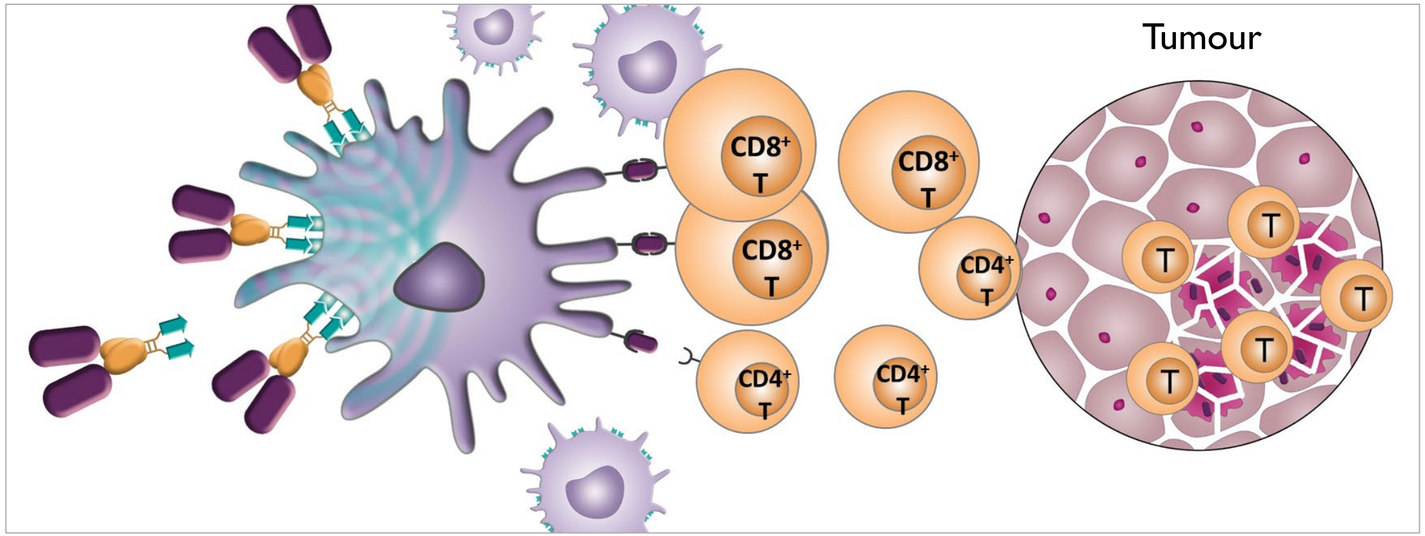


The Vaccibody uses the muscle cell as a factory

- Direct targeting & attraction of antigen presenting cells, high local vaccine concentration
- Enhanced T cell immunity obtained with fewer and lower doses
- Faster and longer lasting immune responses
- **Stronger potential to kill cancer cells**

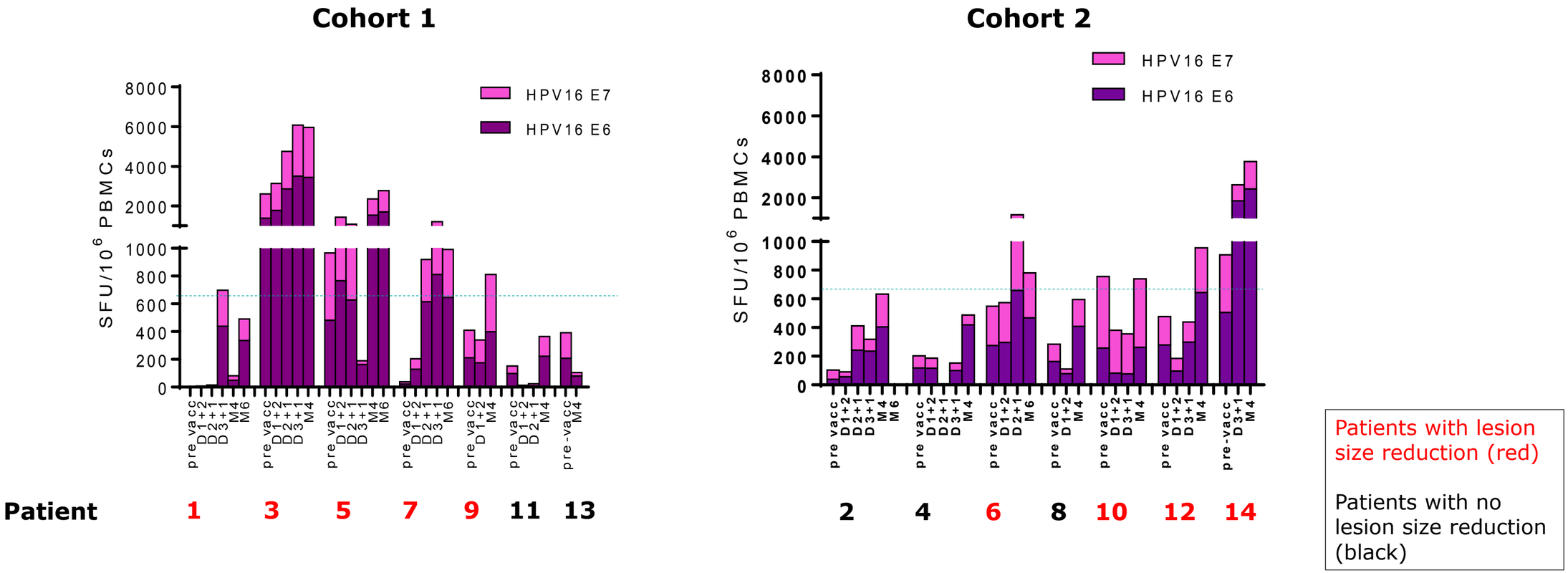
PharmaJet®





Targeting is elicited by the MIP-1α chemokine

Strong Correlation Between Strength of Induced HPV16-Specific Immune Response and Lesion Size Reduction in the Dosing Phase

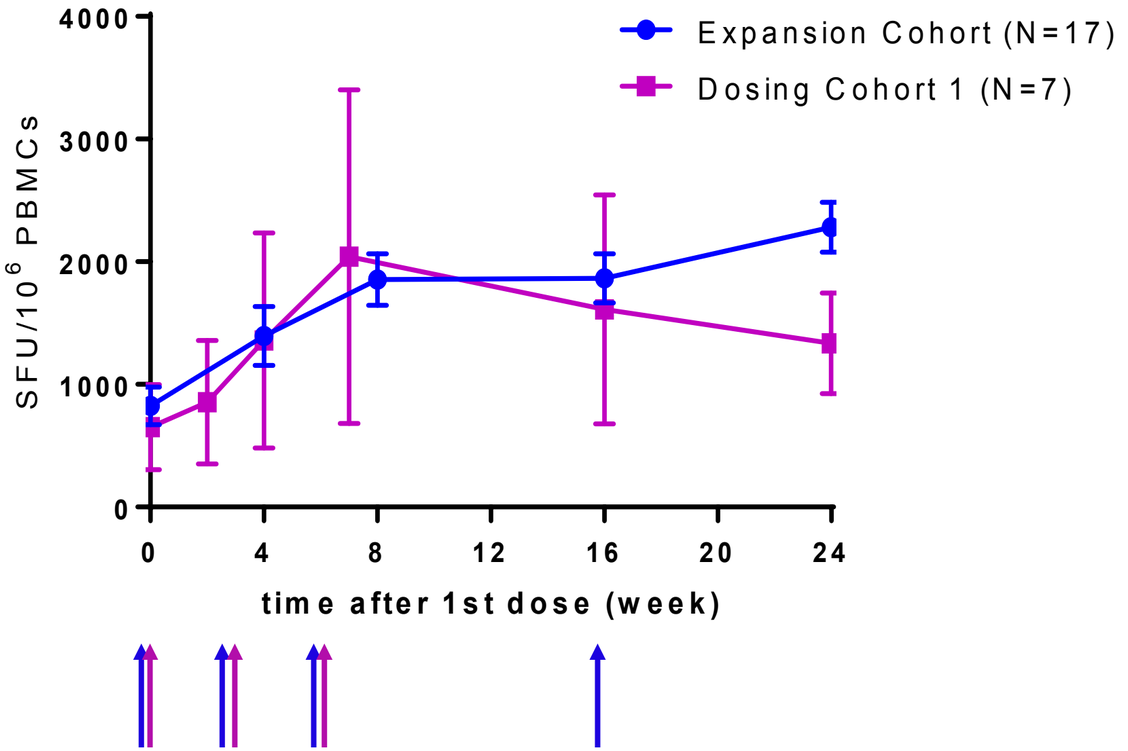


Patients with lesion size reduction (red)

Patients with no lesion size reduction (black)

- All 9 patients with strong HPV16-specific T cell responses (>650 spots/mill) experienced reduction of the lesion size after vaccination with VB10.16
- A fourth vaccination at week 16 was implemented in phase IIa to boost and prolong T cell responses

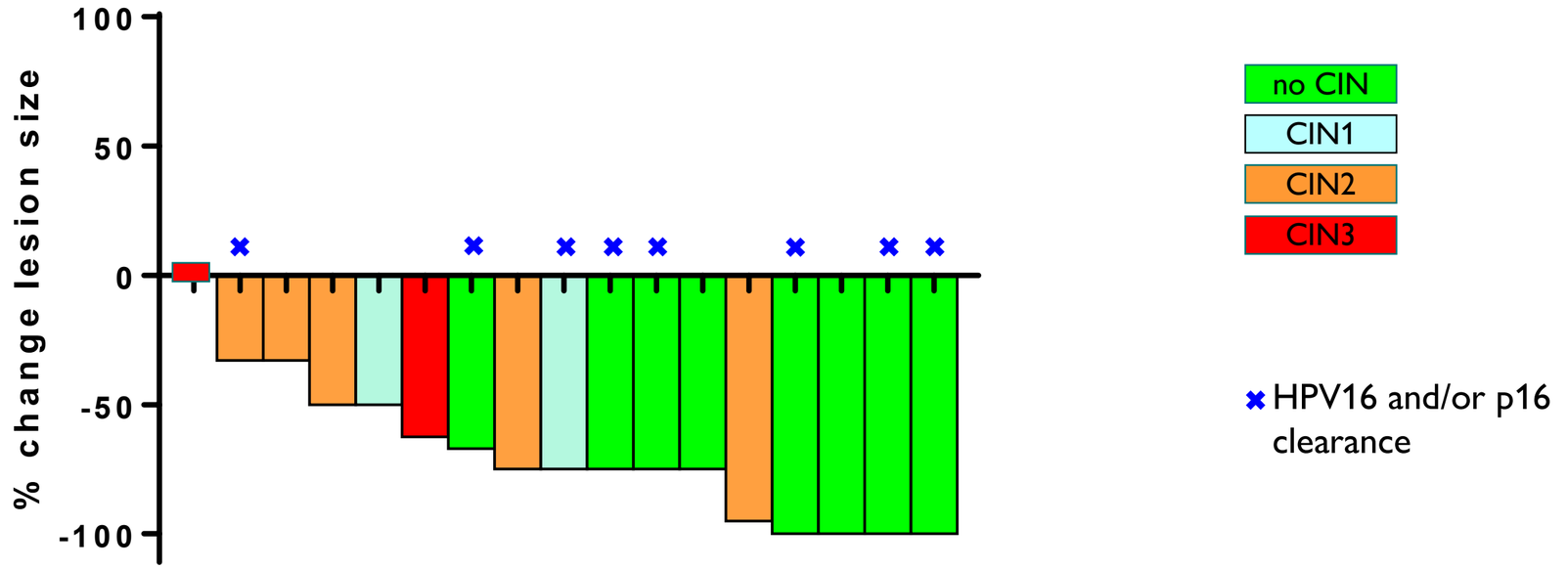
Adding an Extra Dose Increased the Immune Response



- The vaccination regimen from cohort 1 (week 0, 3 and 6) plus a booster vaccination at week 16 was introduced in the Expansion Cohort. Stronger, long-lasting responses
- 16 of 17 patients (94%) from the Expansion Cohort elicited increased HPV16-specific T cell responses after vaccination with VB10.16

Promising Clinical Efficacy with Excellent Safety; Improved in Expansion Phase

Best response data
(At enrollment: 10 CIN3 and 7 CIN2 patients)



VB10.16 as a monotherapy in HPV16-positive, precancerous cervical lesions induces:

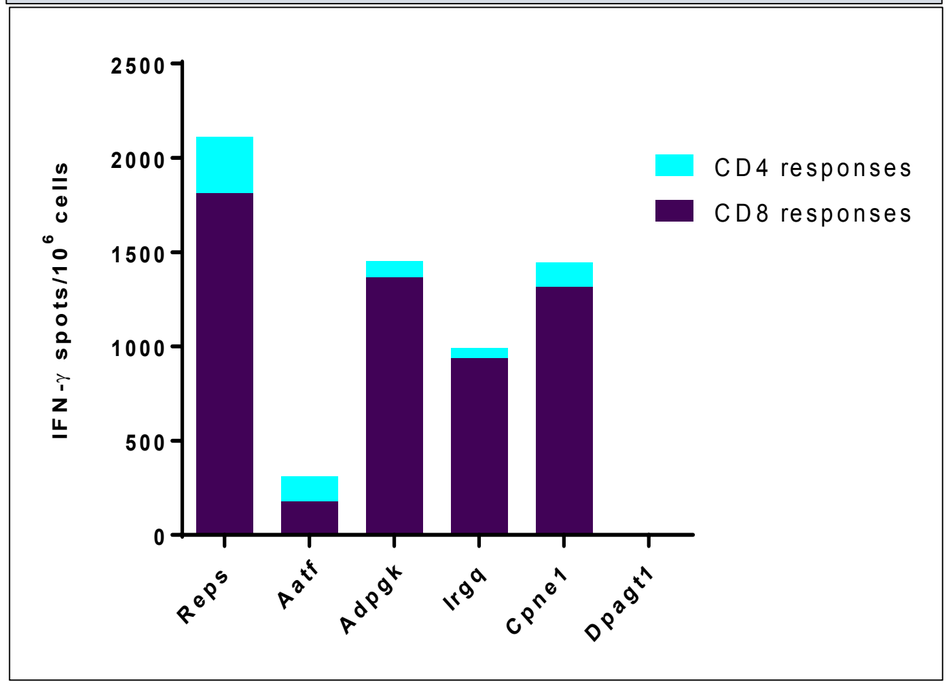
- Lesion size reduction in all patients followed >4 months
- CIN regression to CIN1 or no CIN in 10 patients
- HPV16 and/or p16 clearance in 8 patients

VB10.NEO Has a Unique Ability to Induce Strong Neoepitope-Specific CD8 T-Cell Responses

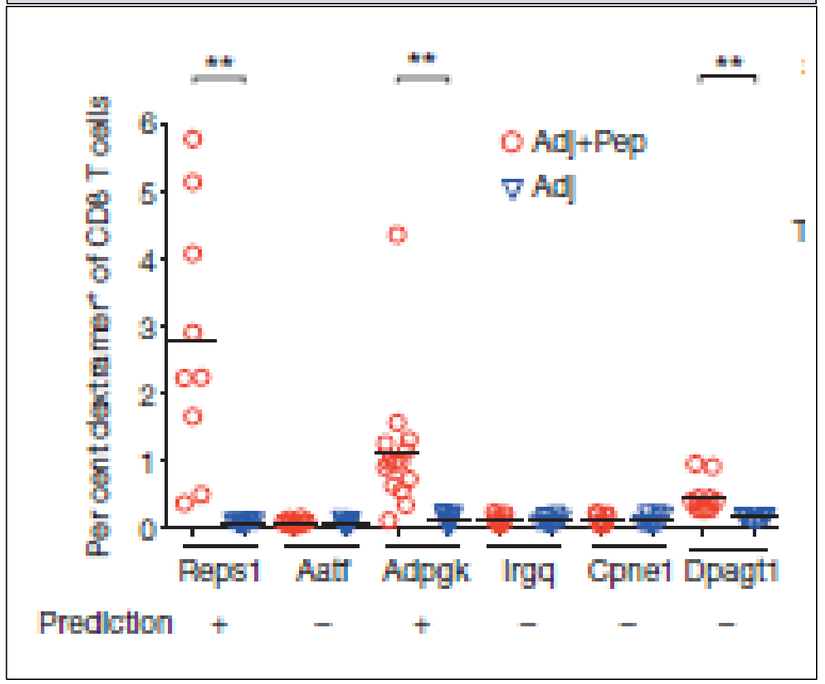
MC38 colon carcinoma mouse model

Yadav et al., 2014

VB10.NEO



Peptide + poly I:C + anti-CD40 mAb



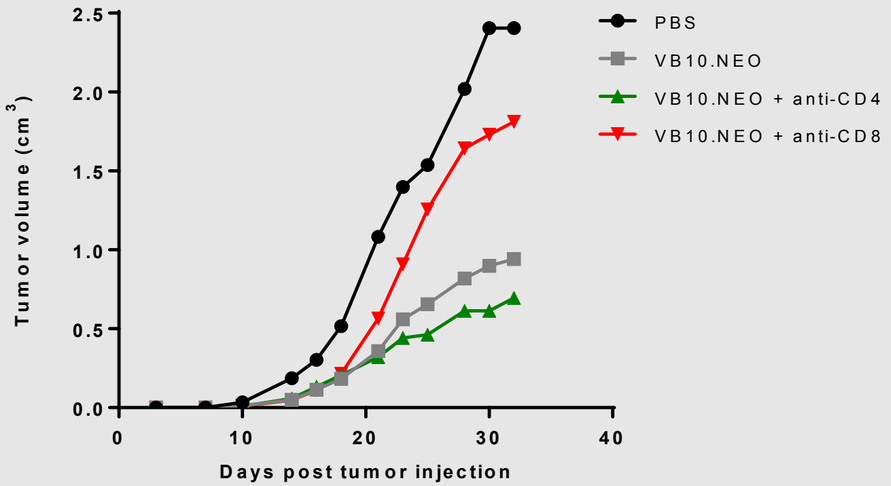
-VB10.NEO induces a strong CD8 T cell response, combined with a CD4 response to **5 of 6** MC38 neoantigens.

-**Three** of these neoepitopes have been shown to be **non-immunogenic delivered as peptide + adjuvant**

-**VB10.NEO has a unique ability to induce strong CD8 responses to neoantigens** (Confirmed in multiple models)

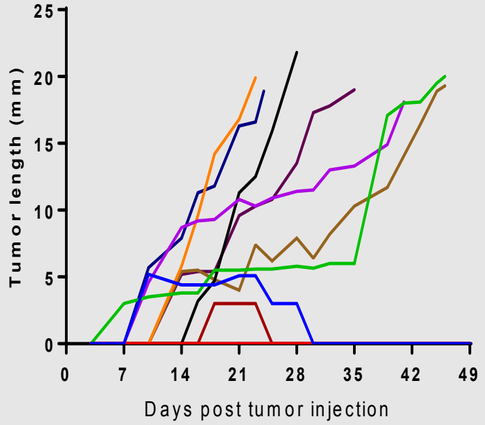
Neoepitope-Specific CD8 T-cells Are Crucial for Tumour Protection

Average, all groups

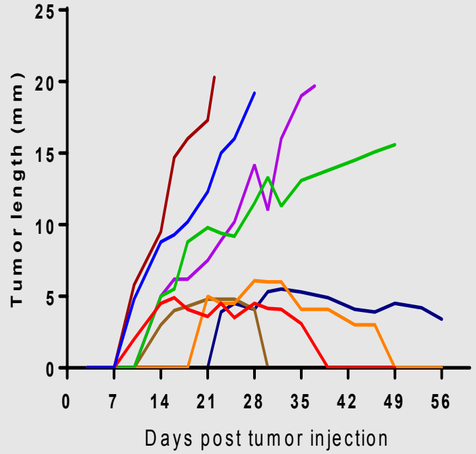


Individual growth curves

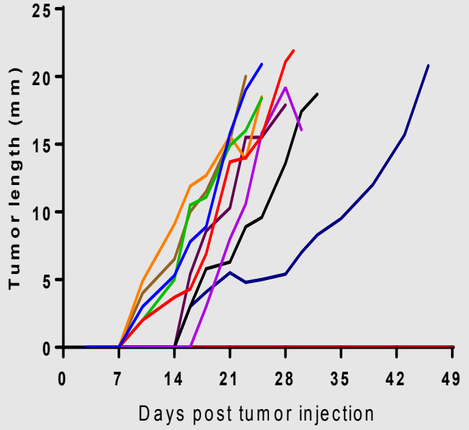
VB10.NEO



VB10.NEO + anti-CD4



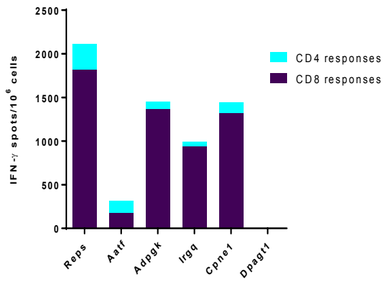
VB10.NEO+ anti-CD8



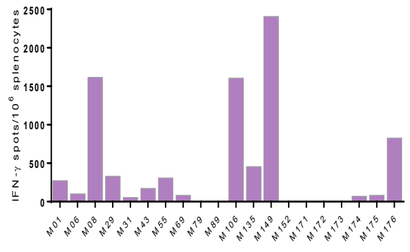
Depletion of CD8 T cells prohibit tumour protection in VB10.NEO vaccinated mice, indicating a crucial role of neoepitope-specific CD8 T cells for anti-tumour efficacy

VB10.NEO Has Proven to Induce an Effective Anti-Tumour Response

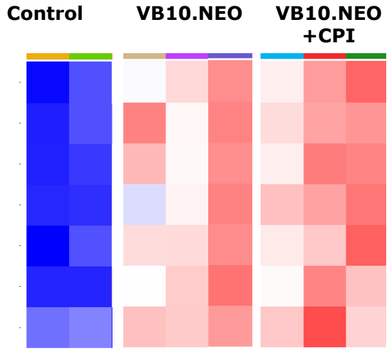
Neoepitope-specific CD8+ T cell response in spleen



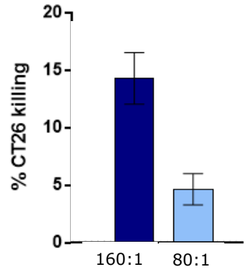
Neoepitope-specific T cell response in tumor



Influx of cytotoxic T cells in tumor (TILs)

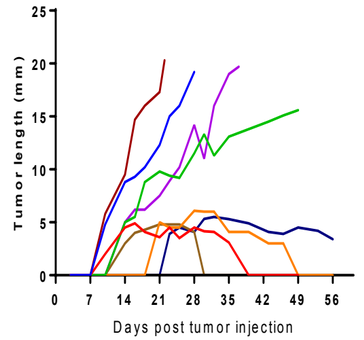


TILs recognize and kill tumor cells



Effector:target cell ratio

Tumor protective immune responses elicited in vaccinated mice

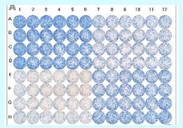


Strong scientific rational and proven mechanism of action leading to anti-tumor efficacy

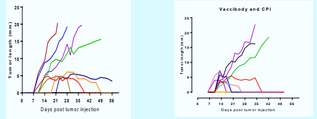
Proprietary NeoSELECT Was Developed to Match VB10.NEO's Mode of Action

In vivo mouse experiments

IFN-γ ELISpot (CD8/CD4)
- > 350 neoantigens
- 2 mouse strains
- 4 tumour models



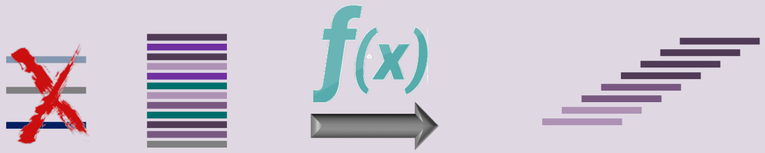
Anti-tumour efficacy



Literature
External data sets

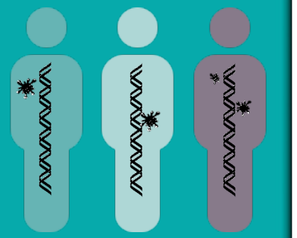
NeoRANK™

Neoantigen filtering and ranking
Trained and verified on *in vivo* mouse data



+++ Criteria rel. for clinical response +++

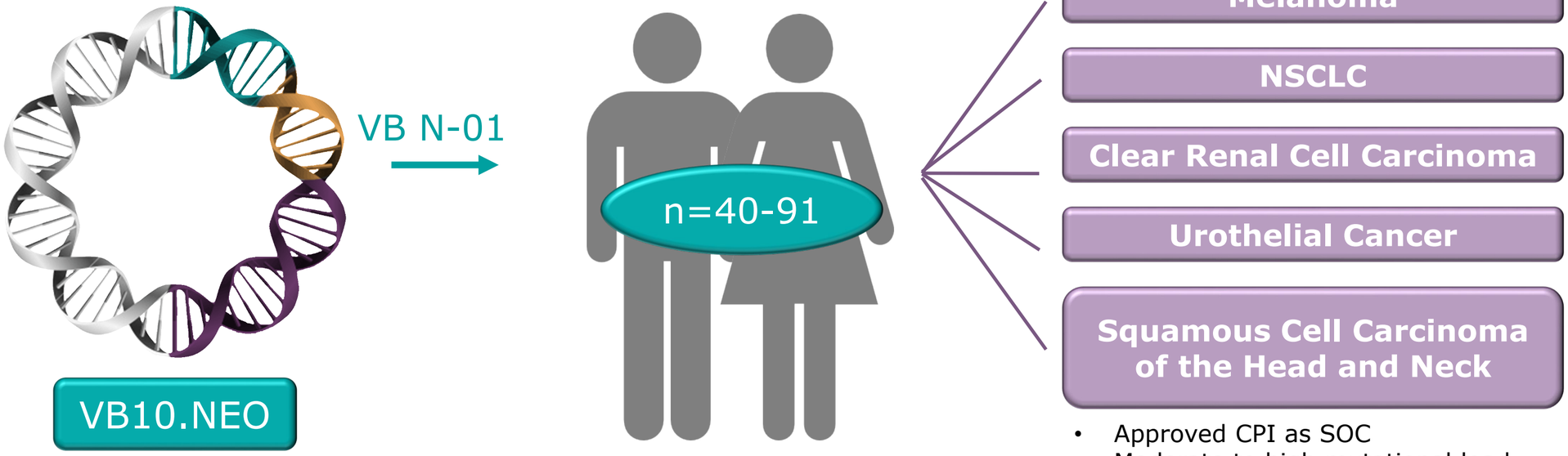
VB10.NEO Patients



Optimization in close collaboration with regulatory authorities

VB N-01 Clinical Trial Was Designed to Evaluate VB10.NEO in Five Indications

VB N-01: An open labelled first human dose phase 1/2a study to evaluate safety, feasibility and efficacy of multiple dosing with individualized VB10.NEO immunotherapy in patients with locally advanced or metastatic melanoma, NSCLC, clear renal cell carcinoma, urothelial cancer or squamous cell carcinoma of head and neck, who did not reach complete responses with current standard of care immune checkpoint blockade

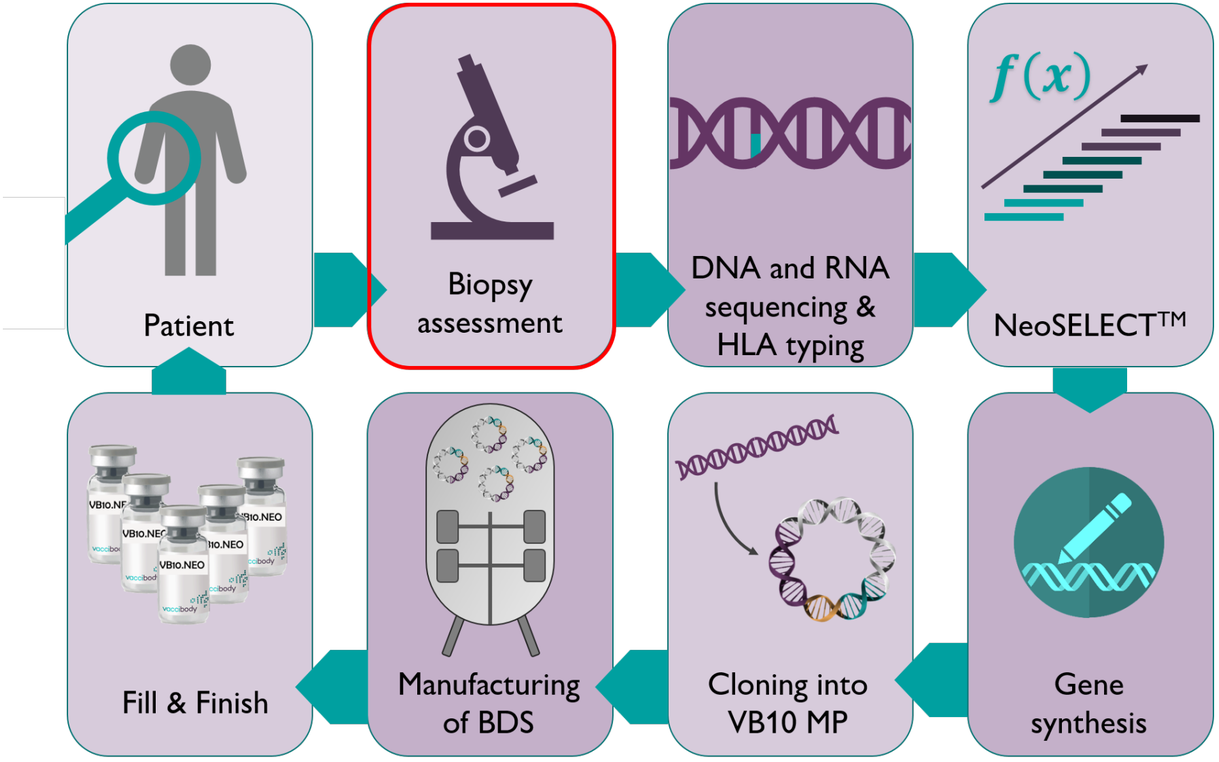


- Approved CPI as SOC
- Moderate to high mutational load

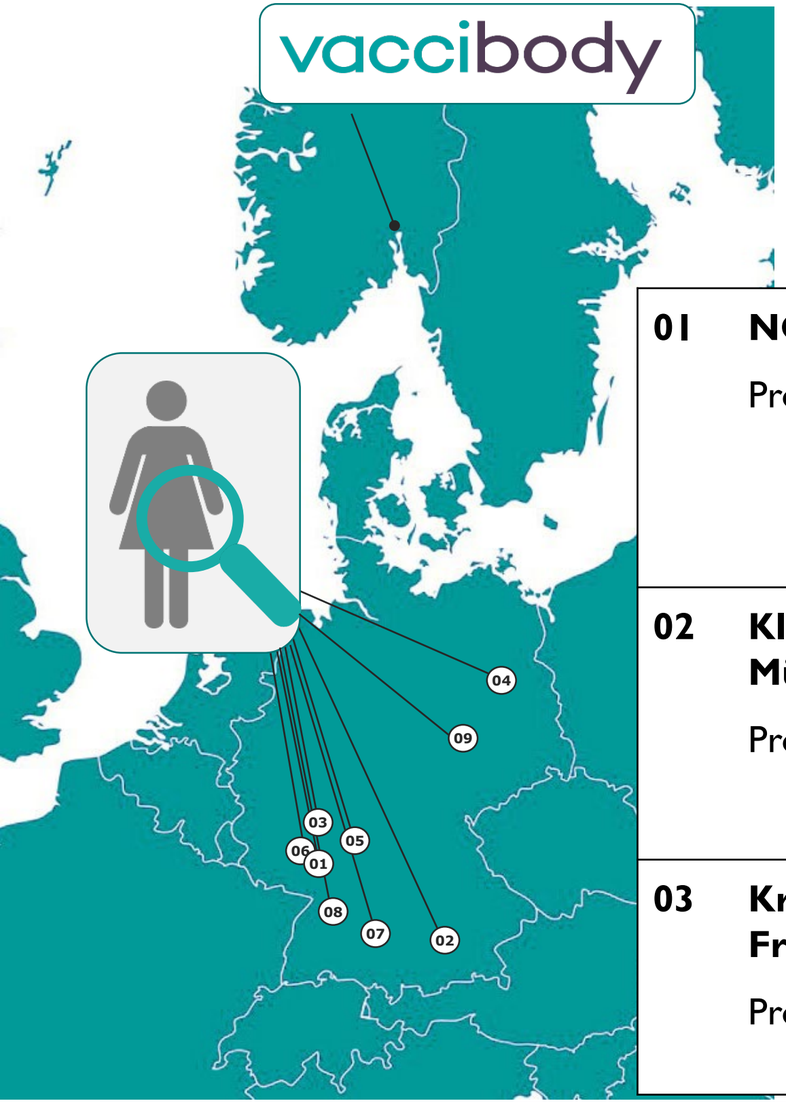
High focus on successful and fast manufacturing

- So far, 100% manufacturing success rate for patients providing a successful biopsy **- Best in class**
  - Top choice of 20 neoepitopes used for every patient
  - Proven feasibility and stability data from all initial batches

- Confidence in reaching best in class manufacturing time before reaching market
  - Good dialogue with regulatory authorities
  - One roof strategy to be implemented before market approval



Nine Leading Clinical Sites in Germany Are Engaged & Aimed for Initiation by Q4

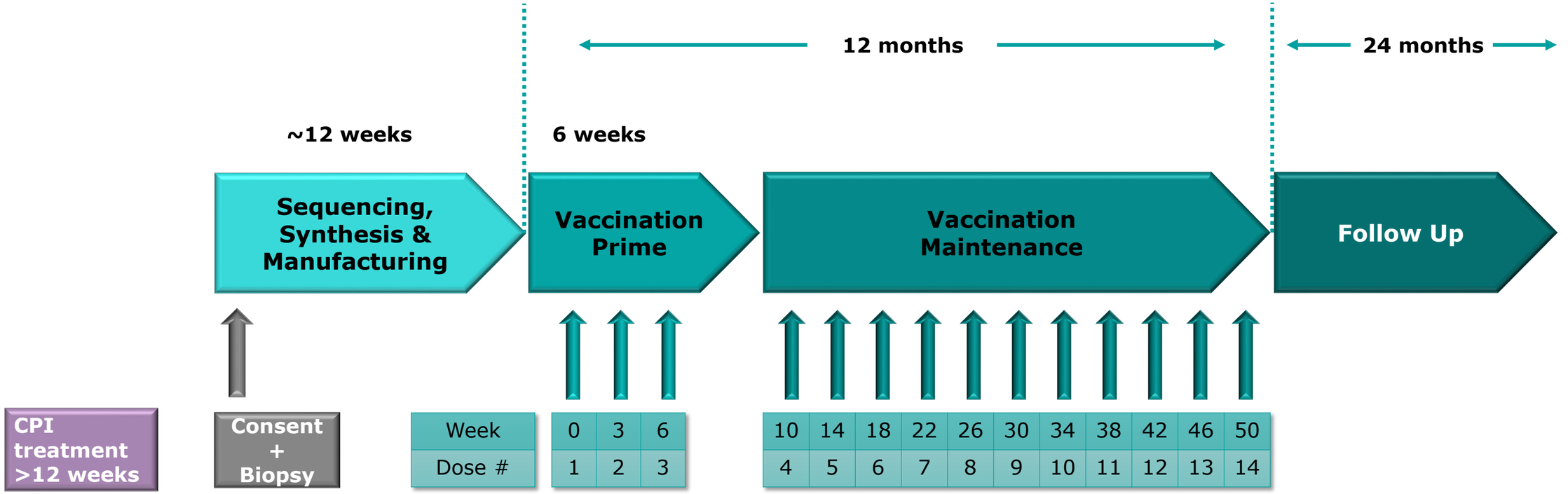


01	**NCT Heidelberg** Prof. Krauss*	04	**Charité Campus Benjamin Franklin, Berlin** Dr. Ochsenreither	07	**Universitätsklinikum Ulm** Dr. Laban
02	**Klinikum rechts der Isar, München** Prof. Krackhardt	05	**Universitätsklinik Würzburg** Dr. Gesierich	08	**Universitätsklinikum Tübingen** Dr. Mauz
03	**Krankenhaus Nordwest, Frankfurt** Prof. Jäger	06	**Universitätsmedizin Mannheim** Prof. Utikal	09	**Universitätsklinkum Halle (Saale)** Dr. Eisenmann

Site not yet activated

* Coordinating Investigator

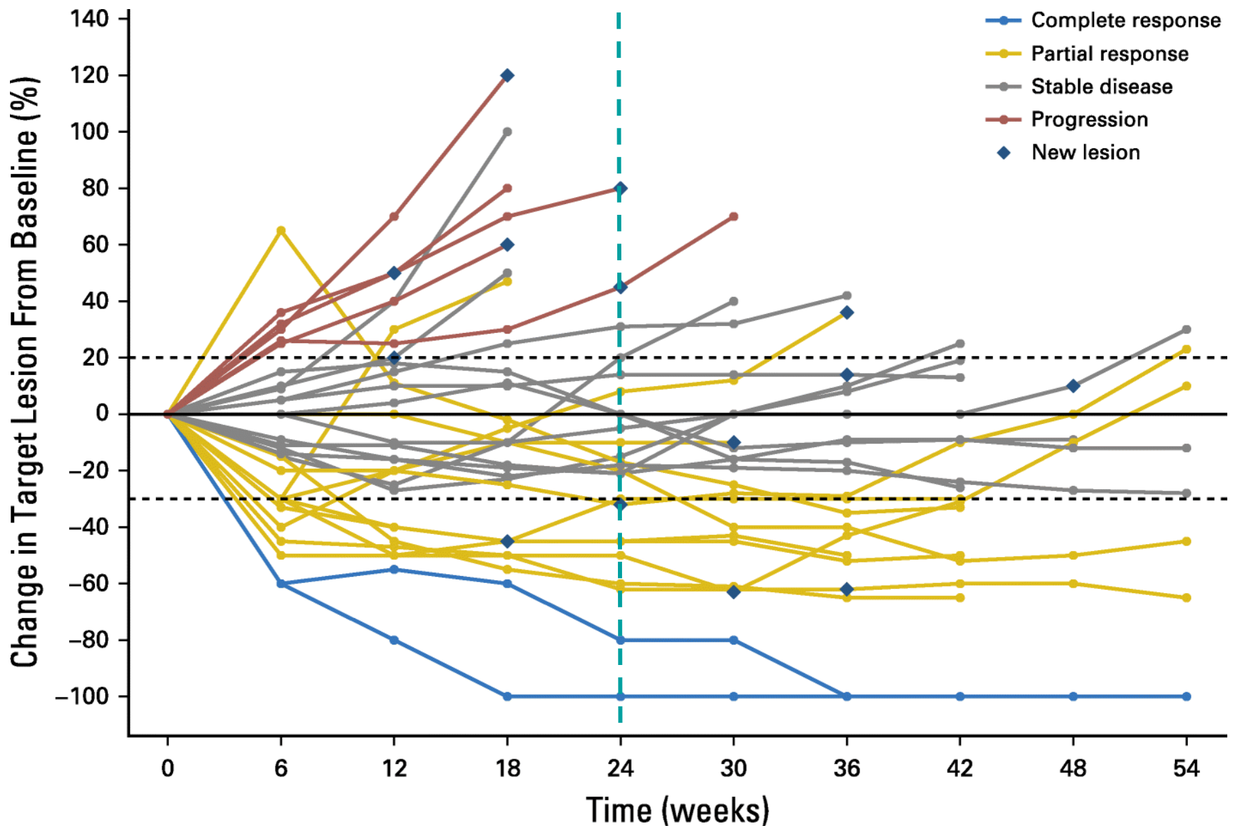
Treatment Schedule for Patients Enrolled in the VB N-01 Trial



- Inclusion criteria: previous treatment with checkpoint inhibitor for >12 weeks at enrollment.
- With ~12 weeks manufacturing time, patients have been treated at least 6 mnths on CPI before 1st dose VB10.NEO
- Limited tumour reduction expected from continous checkpoint inhibitor treatment after 6 months.

*CPI: checkpoint inhibitor

Treatment Design Allows Evaluation of VB10.NEO-Induced Clinical Responses



Not Vaccibody data

- After 6 months on CPI treatment, most patients are stable or relapse (progressive)
- If they progress, they normally continue to progress

Tsimberidou et al., 2018

Heavily Pre-Treated Patients Treated with CPI Monotherapy for 9-32 Months Before Adding VB10.NEO

patient	indication	diagnosed	age	prior therapy	TNM	TMB	months CPI before VB10.NEO	Best response on CPI	status at screening	status at start VB10.NEO
01-002	SCCHN	2005	53	S, Rt, T, ct, o	N2M1	low	32	SD	SD	PD
01-004	SCCHN	2015	69	S, Rt, ct, ch	T4Nx	low	15	SD	SD	SD
01-006	SCCHN	2017	68	S, ch, ct, ipi	T2N2M1	med	18*	SD	SD	PD
01-010	SCCHN	2015	60	S, Rt, ct	T4N2M1	low	12	SD	SD	*PR*
02-003	melanoma	2000	81	S	M1	high	10	PR	SD	SD
02-007	NSCLC	2018	54	S, Rt, ch	T2N1M1	med	9	SD	SD	PD
01-001	RCC	2014	69	S	T1N1M1	low	16	SD	SD	SD
01-003	RCC	2005	64	S, T, o	T1aN1M1	low	5*	PD	PD mixed	PD
01-005	RCC	2006	58	S, Rt, T	T1bN1M1	low	11	SD	SD	SD
02-002	RCC	2013	76	S, IT	T3bN0M0	low	8+15	PR	SD	PD
01-007	RCC	2017	55	S, T	T3aN1M1	low	14	PR	SD	SD
01-008	RCC	2017	62	S, T	T2N1M1	low	14	SD	SD	SD
01-009	RCC	2011	57	S, Rt, o	T1bNXM1	low	31	SD	SD	SD
01-011	RCC	2007	58	S, o	T2N0M0	low	26	PR	SD	SD

S: Surgery
Rt: Radiotherapy
T: Targeted Therapy
Ct: Cetuximab
Ch: Chemotherapy
ipi: Ipilimumab
O: Other

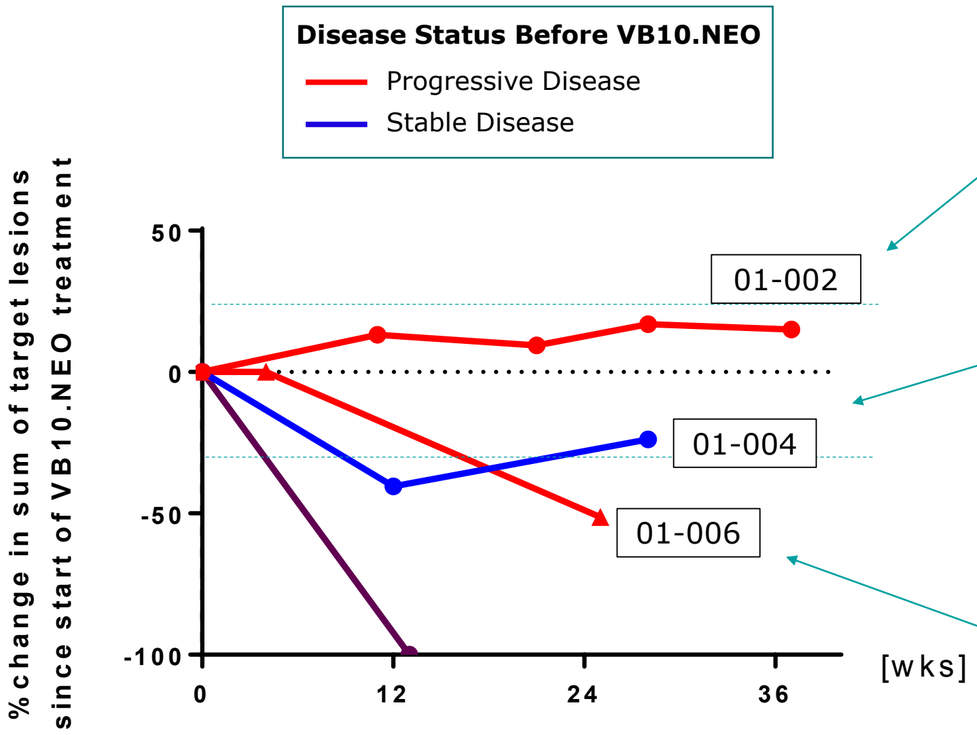
TMB: Tumor Mutational Burden

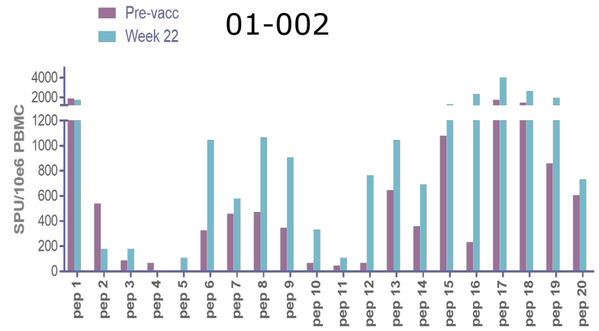
SD: Stable Disease
PD: Progressive Disease
PR Partial Response
* Stopped CPI

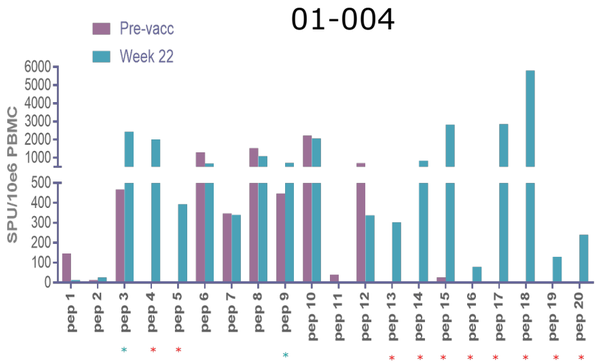
- 14 patients have been evaluated for clinical response to VB10.NEO (2-9 months follow up time)
- All patients had been treated with CPI for 9-32 months before adding VB10.NEO. 5 patients relapsed before the first vaccination
- 11 patients showed low TMB, 2 medium TMB (SCCHN, NSCLC) and 1 high TMB (melanoma)

SCCHN (Head & Neck): Clinical Responses Observed After VB10.NEO Initiation in All Patients

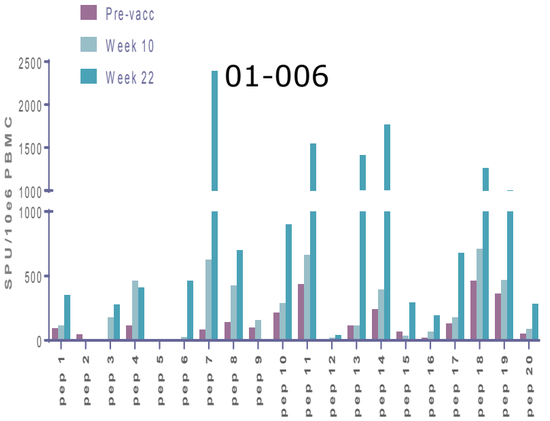
Tumour shrinkage or stabilization of progressing lesions







Strong immune responses in all assessed patients

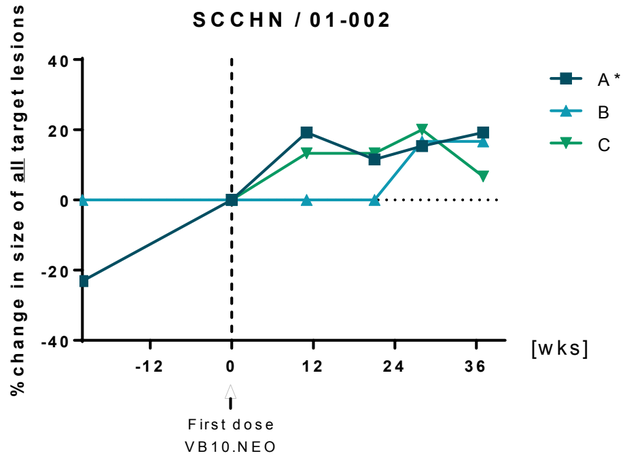


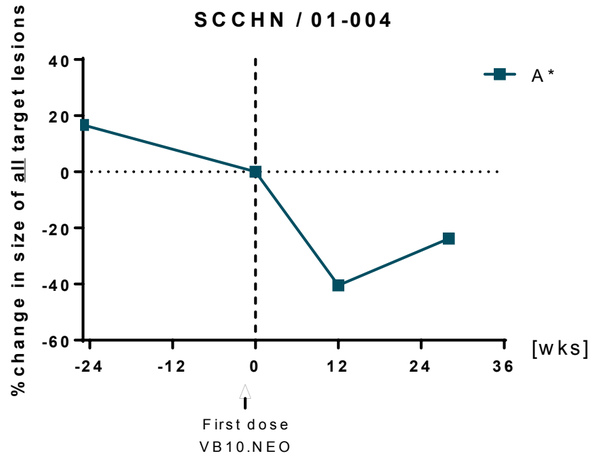
Head & Neck (SCCHN; 4 patients)

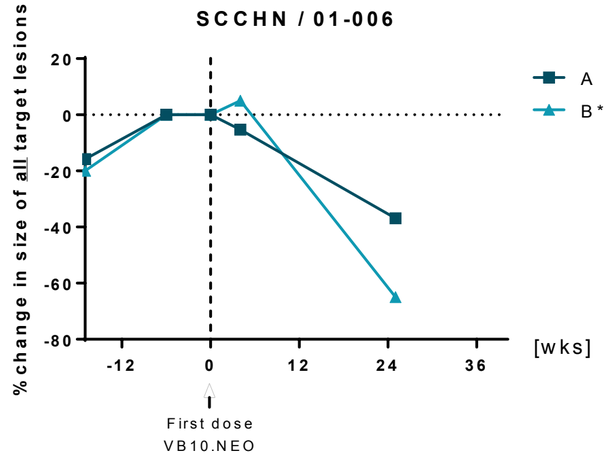
- VB10.NEO induced strong immune responses leading to clinical responses in all assessed SCCHN patients

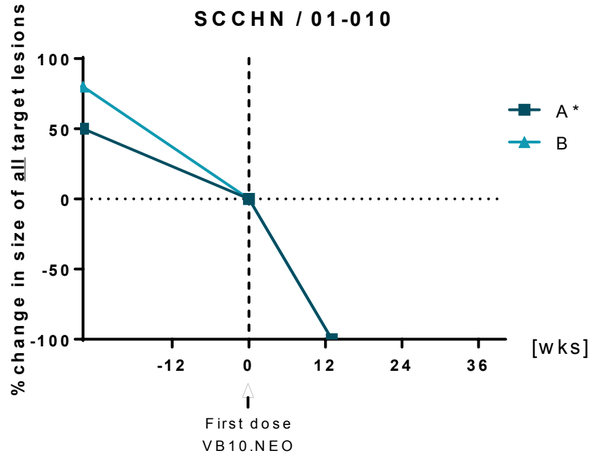
SCCHN: Squamous Cell Carcinoma of the Head and Neck

SCCHN (Head & Neck): Change in All Individual Target Lesions Before and After VB10.NEO Treatment







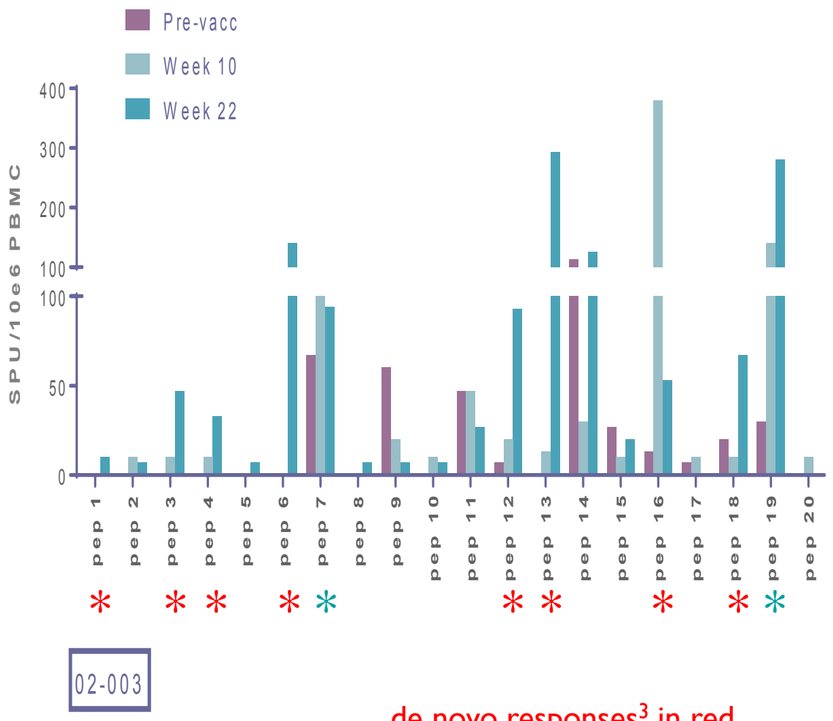


Key Learnings (Head & Neck)

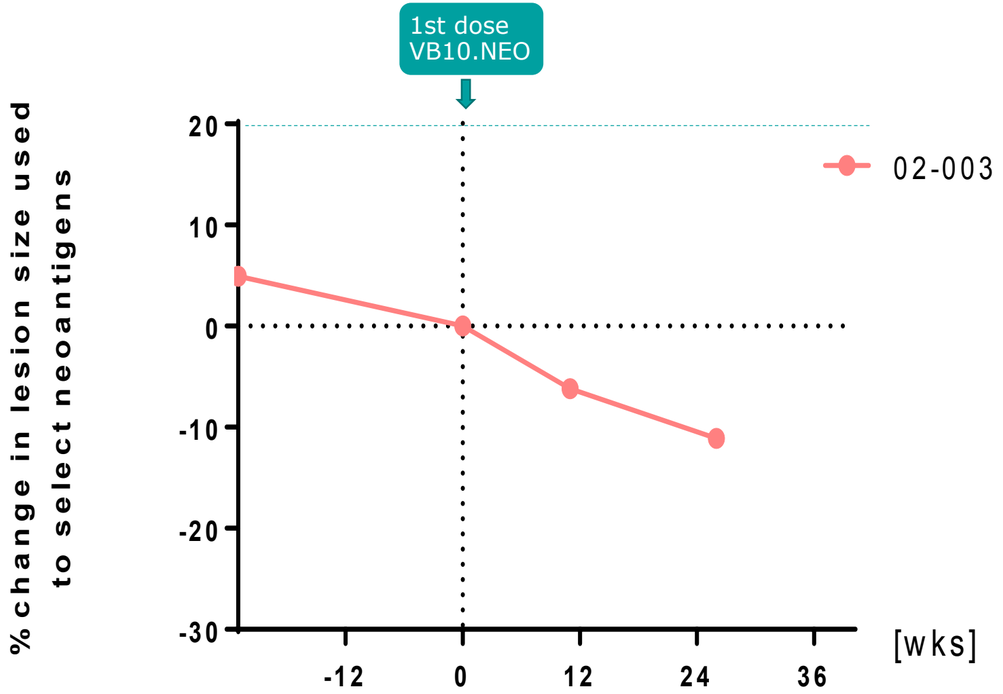
- All SCCHN patients show a positive change in the lesion size development after VB10.NEO treatment start
- Multiple lesions respond
- The lesion used to select neoepitopes responds best. Next best response is seen in lesions from the same region

SCCHN: Squamous Cell Carcinoma of the Head and Neck

Melanoma (Skin): VB10.NEO Induce Several de novo T Cell Responses and Increased Tumour Shrinkage



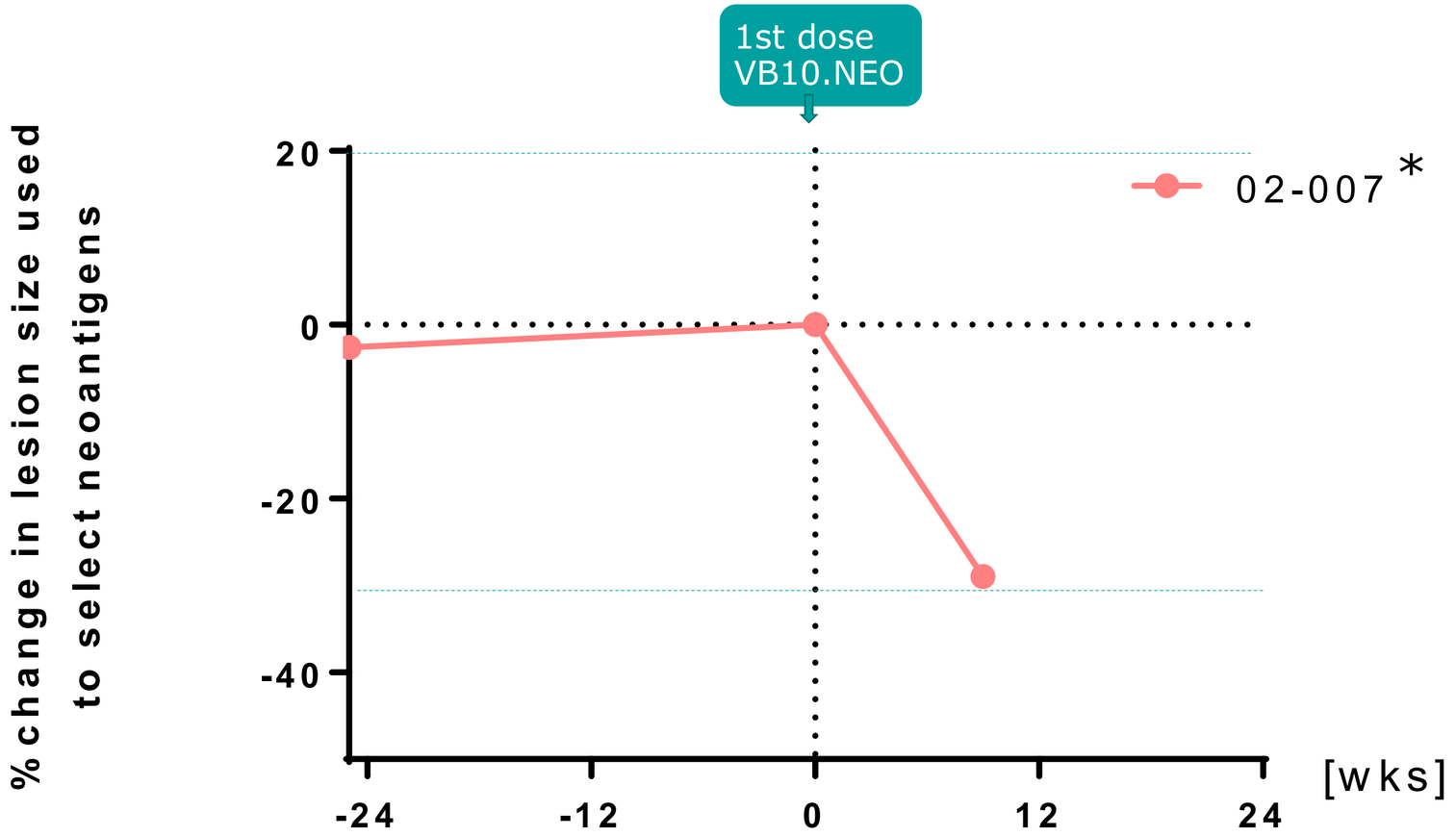
de novo responses[3] in red



Melanoma (1 patient)

- VB10.NEO induces an increased T cell response against several of the selected neoepitopes
- Immune responses are weaker than tested in SCCHN so far, but the majority are *de novo* responses
- An increased reduction in is observed after the first dose VB10.NEO in the large target lesion (81-72mm)

NSCLC (Lung): Rapid Reduction in Target Lesion Size after VB10.NEO Treatment



* Immune response not yet assessed (too early)

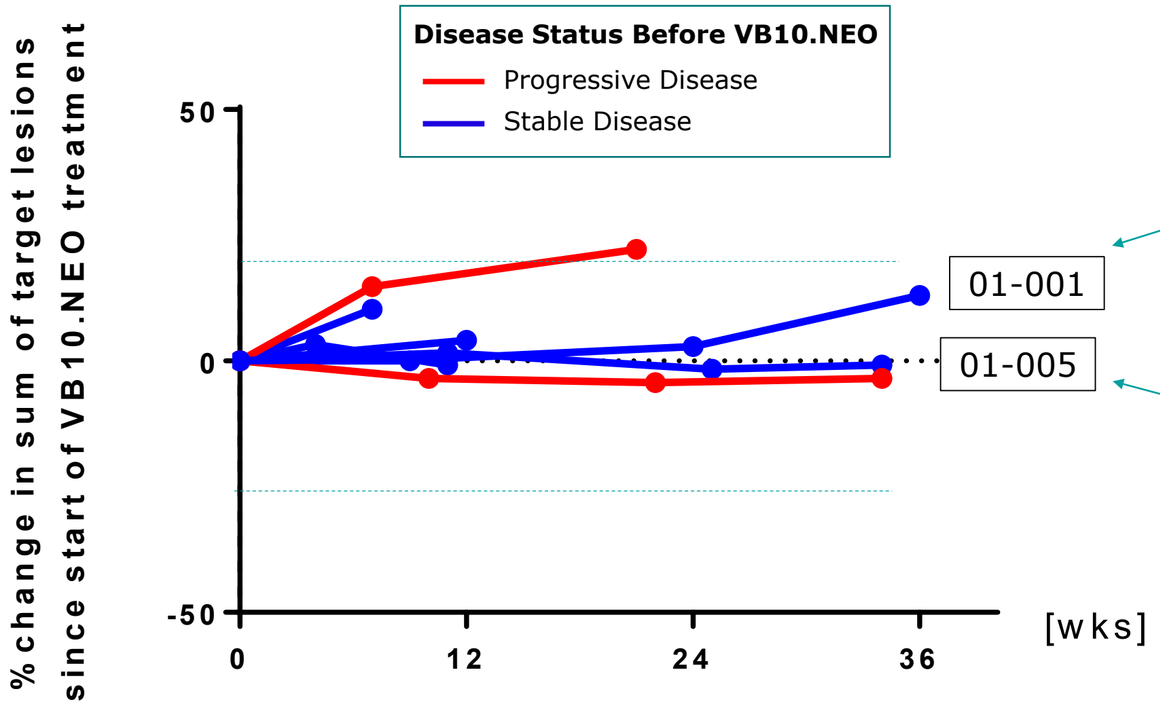
NSCLC (Lung Cancer):

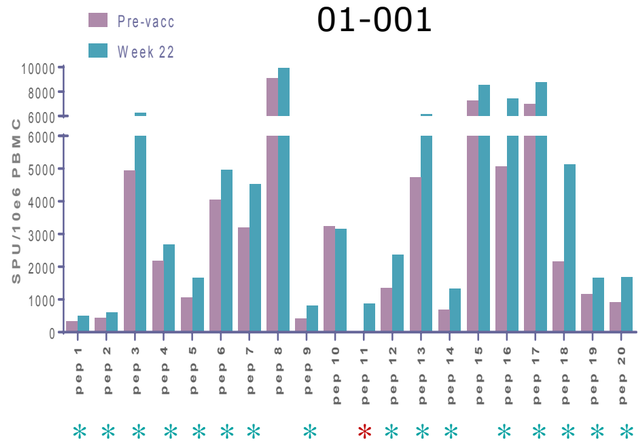
- Rapid reduction in the target lesion (lung lesion used to select neoantigens) 9 weeks after VB10.NEO was started

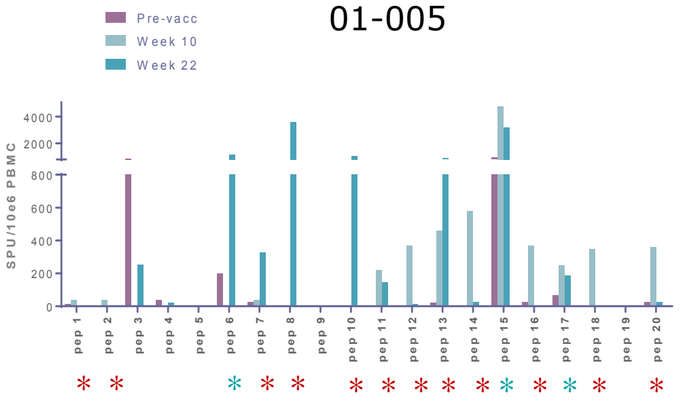
NSCLC: Non Small Cell Lung Cancer

RCC (Renal): Reduced Growth and Long-Term Continuous Stable Lesions

Clinical responses after VB10.NEO initiation







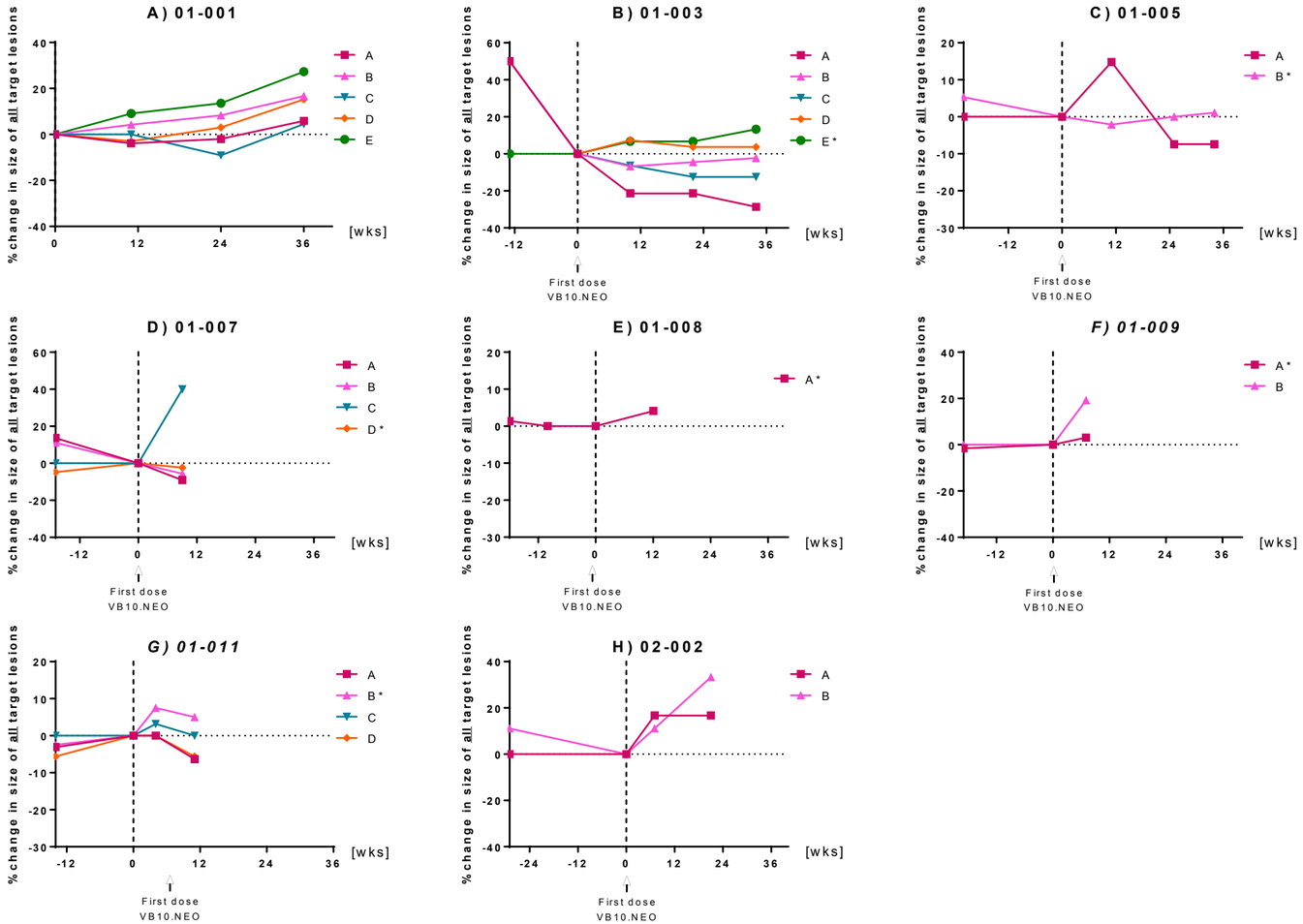
Data shown for the two RCC patients with strongest immune response

Renal Cell Carcinoma:

- Limited changes were observed in the RCC patients post VB10.NEO treatment
- Importantly, none of the lesions used to select neoantigens have progressed (>20%) post 1st dose VB10.NEO

RCC: Renal Cell Carcinoma

RCC (Renal): Change Was Seen in All Individual Target Lesions Before and After Treatment with VB10.NEO

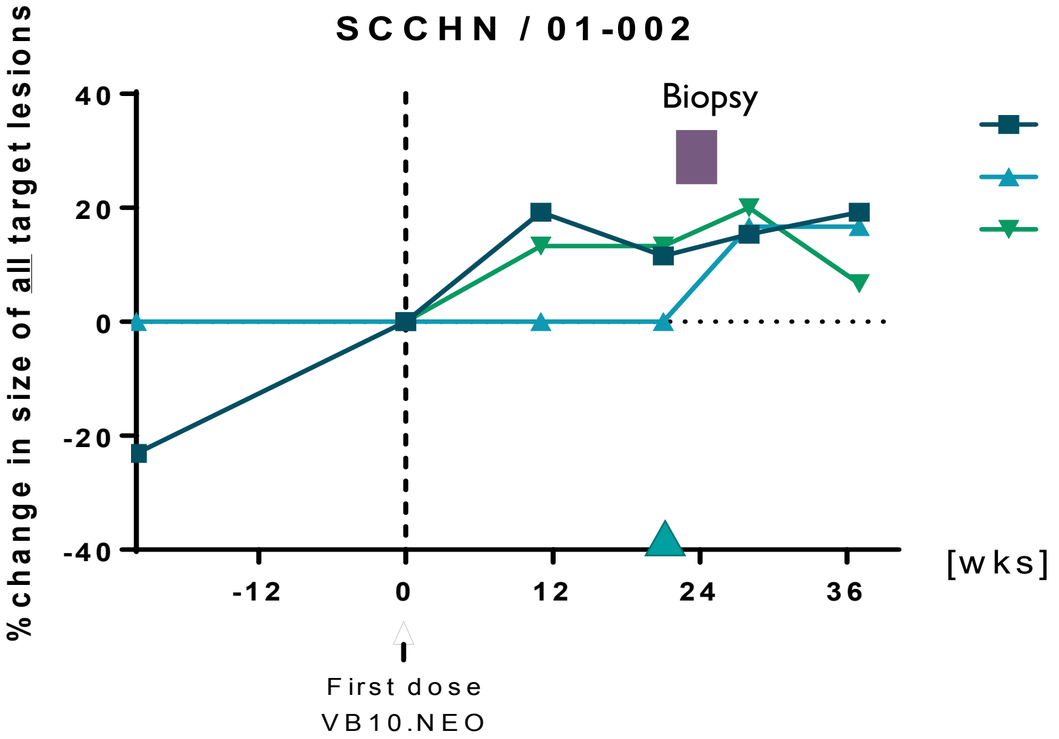


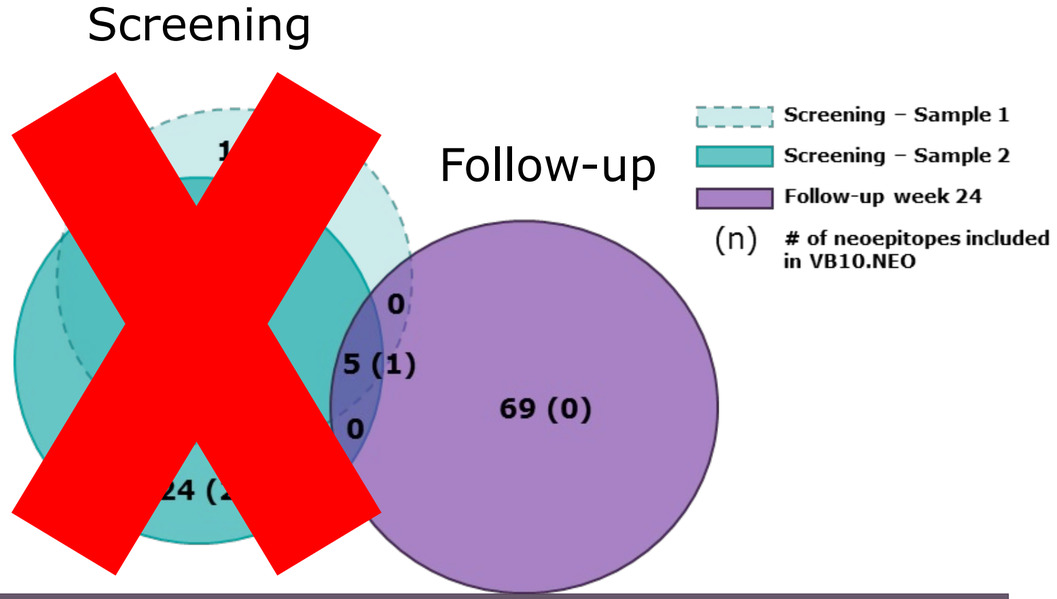
Key Learnings (Renal Cancer)

- Most RCC patients enrolled so far have multiple large target lesions.
- More limited changes observed so far after vaccination.
- Interestingly, none of the lesions used to select neoepitopes have progressed (>20%)

RCC: Renal Cell Carcinoma

SCCHN Case study: A Closer Look at Tumour Cells (patient 01-002)





Strong evidence that VB10.NEO has caused killing of all tumour cells with the 19 neoepitopes targeted by the vaccine

- Both cervical LN lesions were growing before the first dose of VB10.NEO; Both lesions stabilized up to at least week 37
- One of these lesions was used to select neoepitopes for vaccine design
- Tumour cells that were found at screening were no longer found 6 months after starting VB10.NEO

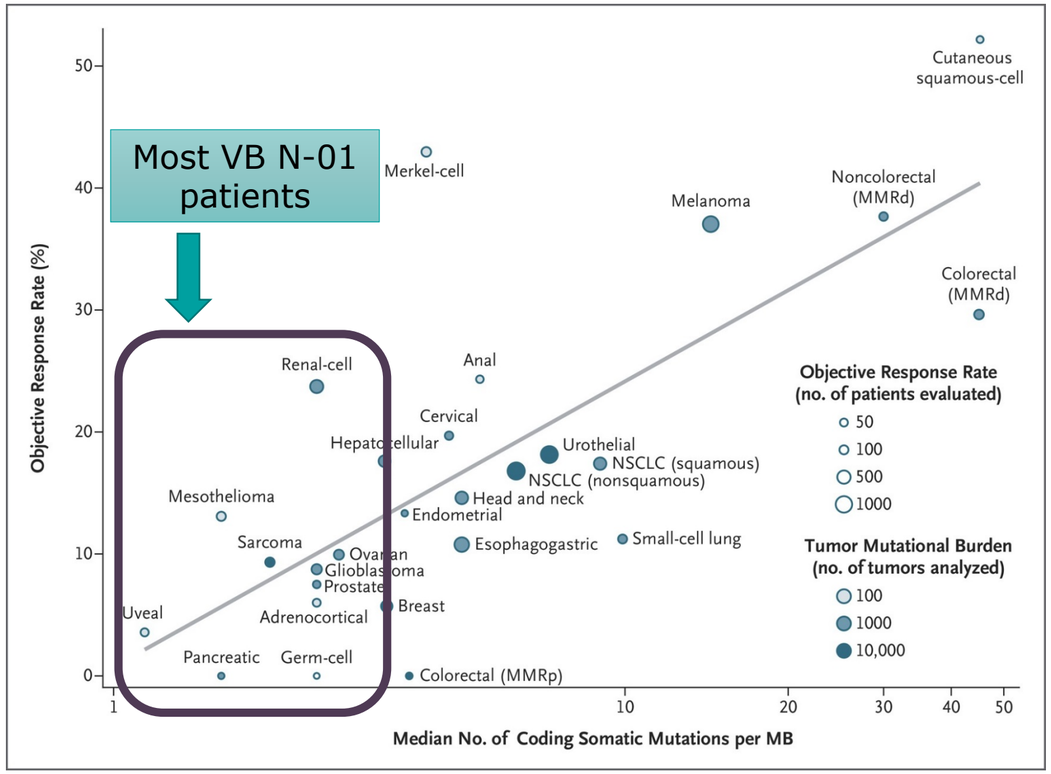
SCCHN: Squamous Cell Carcinoma of the Head and Neck

Summary of Clinical Observations: VB10.NEO Causes Shrinkage of Tumours and Stabilization of Progressing Lesions

VB10.NEO is the first cancer vaccine to show a strong ability to shrink tumours in multiple patients with advanced metastatic disease

- Kinetics: Shrinkage occurs 9-24 weeks after first dose VB10.NEO
- Lesion: Optimal shrinkage in lesion used to select neoepitopes
- Tumour cells with neoantigens targeted by vaccine are specifically killed.
- Other parameters?

Patients with High TMB Responds Better to Immunotherapies



Strong relationship between Tumor Mutational Burden (TMB) and response to CPI

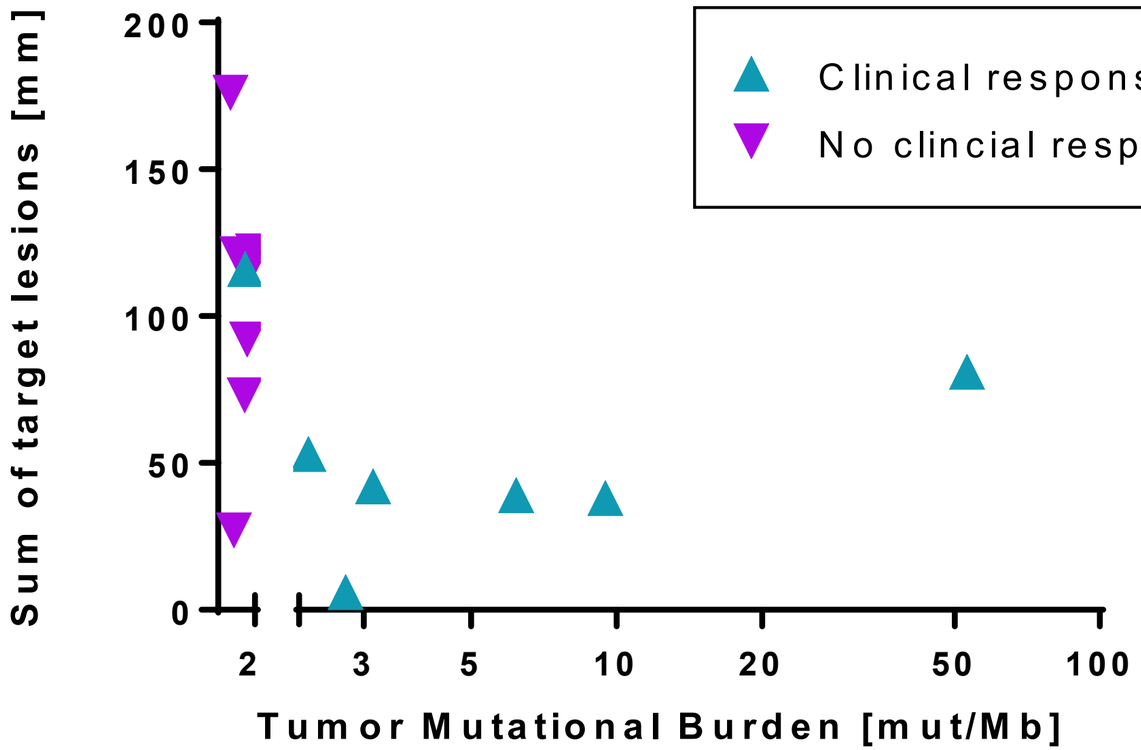
Limits response to already existing neoantigen-specific T cell repertoire

Patients with low TMB have worse prognosis on CPI

Our patient population is at the lower end of the TMB scale for their indications (and did not have a objective response on CPI alone)

Source: Yarchoan et al., 2017 NEJM
TMB: Tumor Mutational Burden

Clinical Response Was Seen Even in Patients with Low TMB, Indicating Potential in a Broad Setting and Large Number of Indications



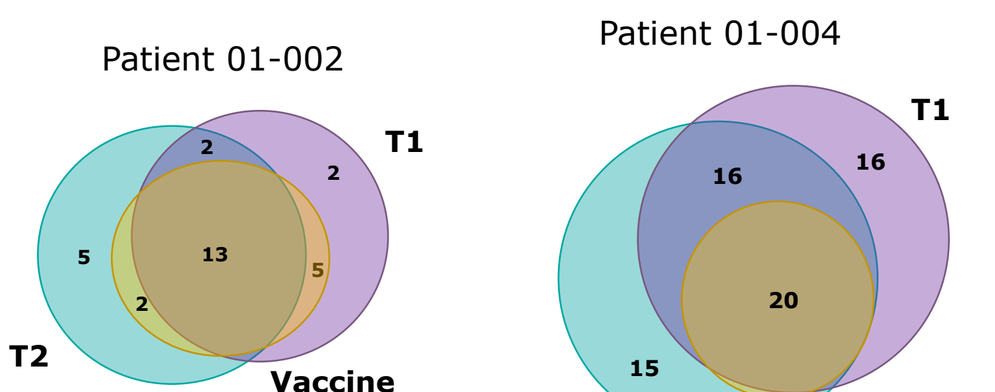
Broad potential for vaccine-induced clinical responses identified

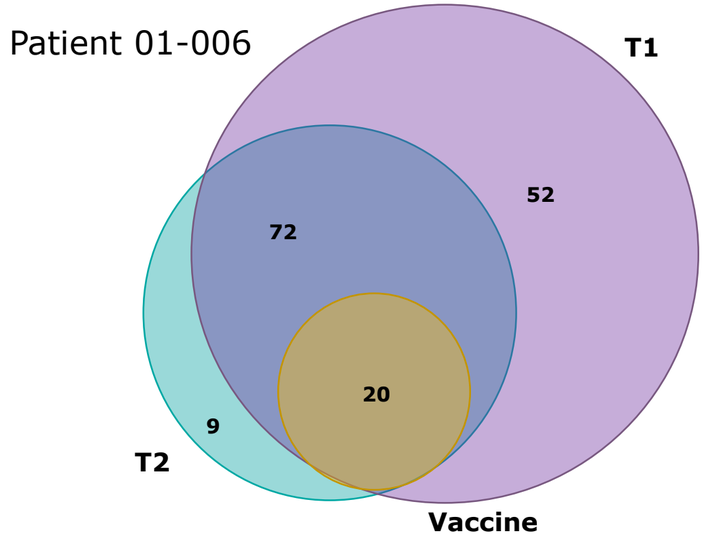
- The Renal Cell Cancer patients in our VB N-01 trial have the lowest TMB and the largest tumour burden among all included patients
- Data indicates a broad potential for vaccine-induced clinical responses

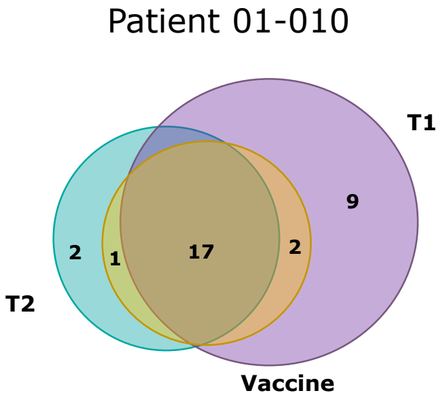
TMB: Tumor Mutational Burden

Patients with Clinical Response Had a Higher Number of Neoepitopes - and Thus a Better Opportunity to Select High-Quality Neoepitopes

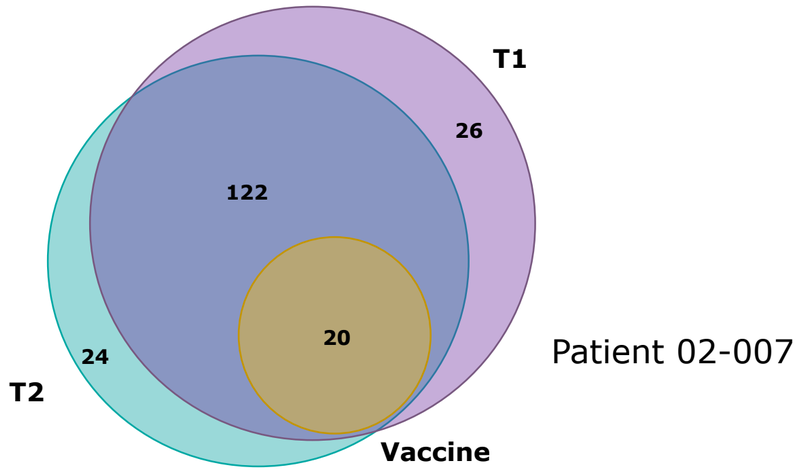
SCCHN





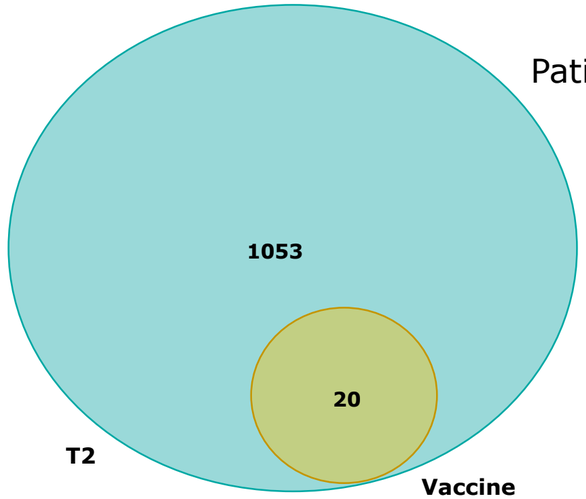


Lung



Patient 02-007

Melanoma

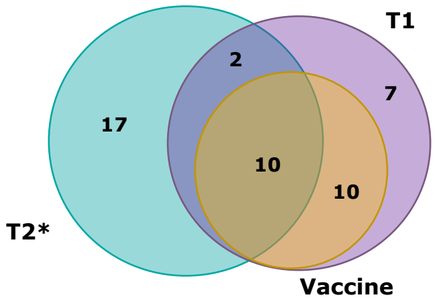


SCCHN: Squamous Cell Carcinoma of the Head and Neck
NSCLC: Non Small Cell Lung Cancer

Lower Quality Neoepitopes in Renal Cancer Patients Make It More Difficult to Develop a Potent Vaccine

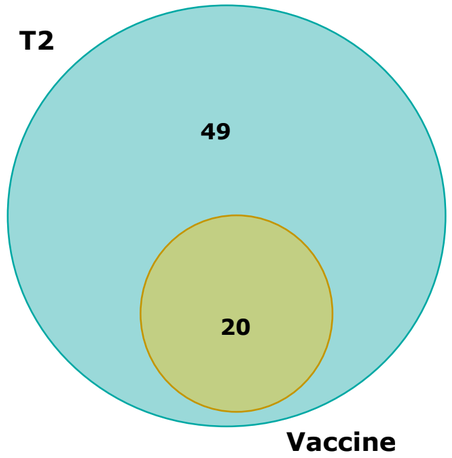
RCC

Patient 01-001

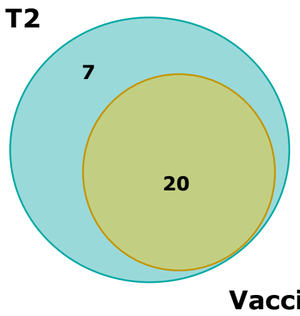


*Not used in neoepitope selection

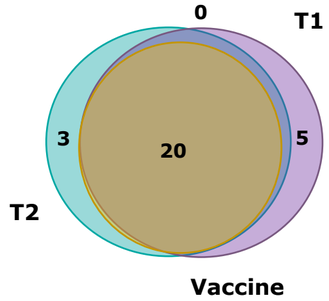
Patient 01-003*



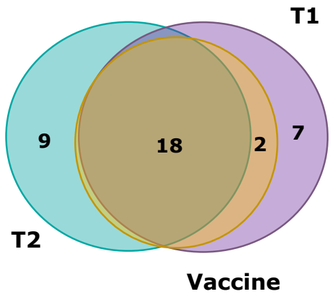
Patient 01-005*



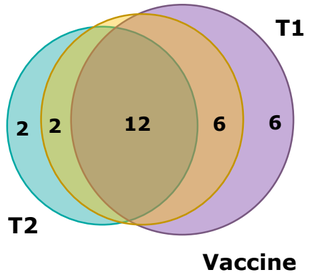
Patient 01-007



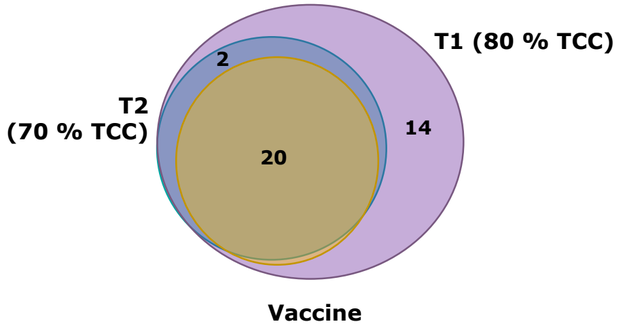
Patient 01-008



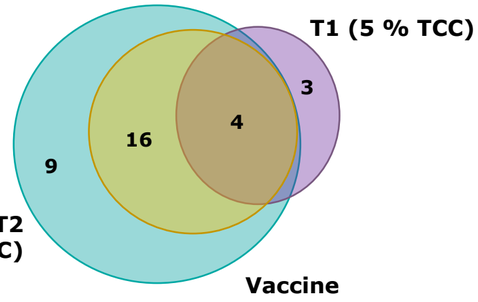
Patient 02-002



Patient 01-009



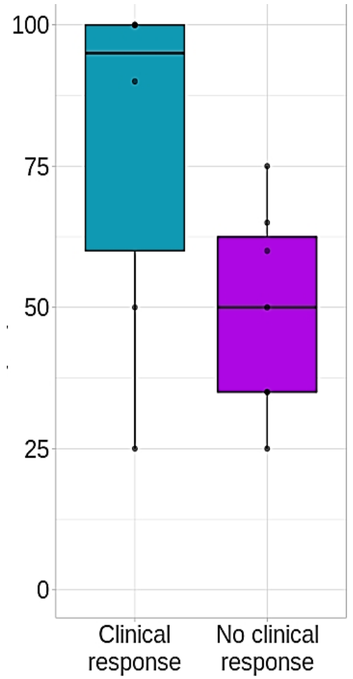
Patient 01-011



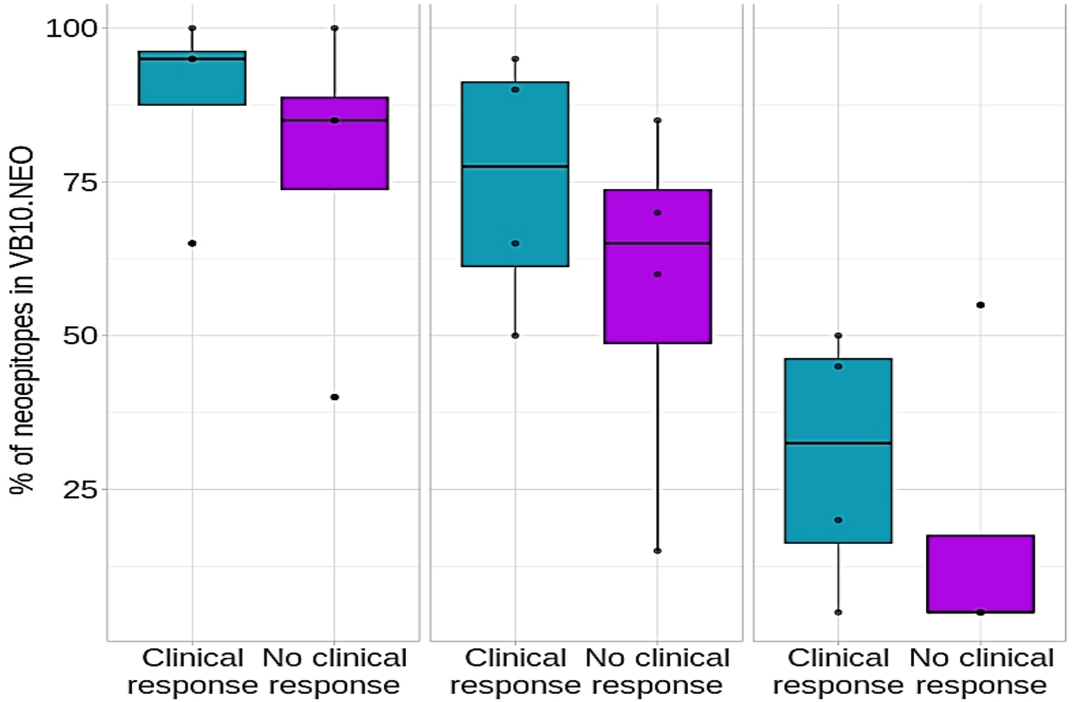
RCC: Renal Cell Cancer

Patients With Clinical Responses Have the Strongest Immune Response Profile and Highest Frequency of High-Quality Neoepitopes

Frequency of high quality neoepitopes vs change in lesion size



Frequency of immunogenic neoepitopes vs change in lesion size



Patients with clinical response after VB10.NEO vaccinations have

- Highest frequency of high quality neoepitopes

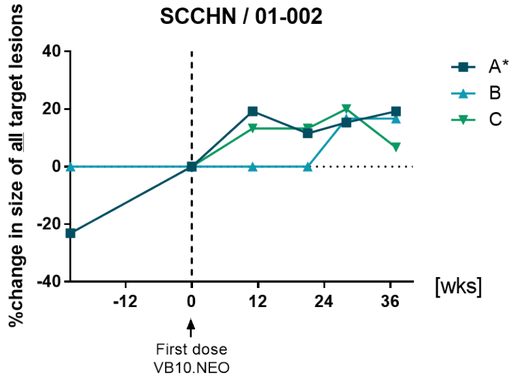
Patients with clinical reponse after VB10.NEO vaccinations have

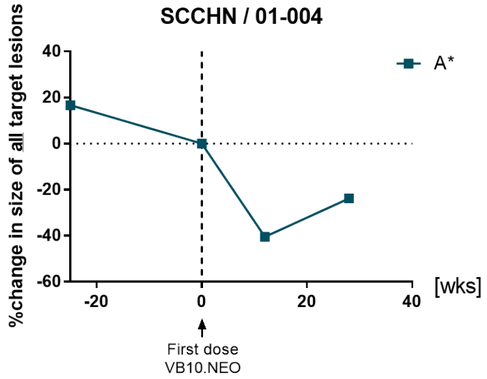
- A) Highest frequency of immunogenic neoepitopes
- B) Highest frequency of increased response after vaccination
- C) Highest frequency of de novo immune responses

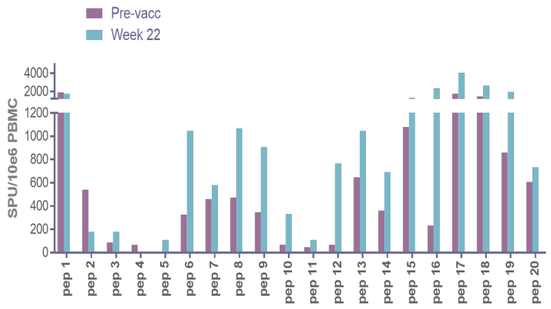
Clinical response is here defined as reduction in the sum of target lesions by at least 10% or stabilization of prior progressing lesions

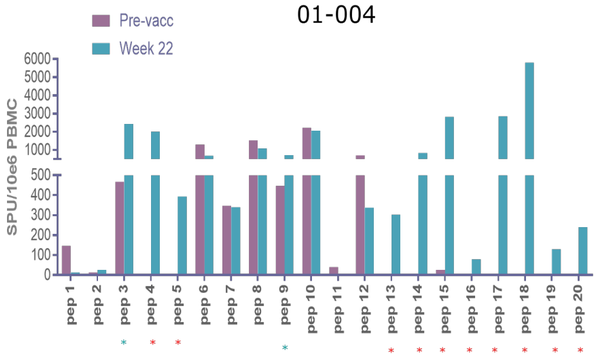
Strong, Dominating CD8 T Cell Responses Are Correlated with Clinical Responses

CD8 dominated responses

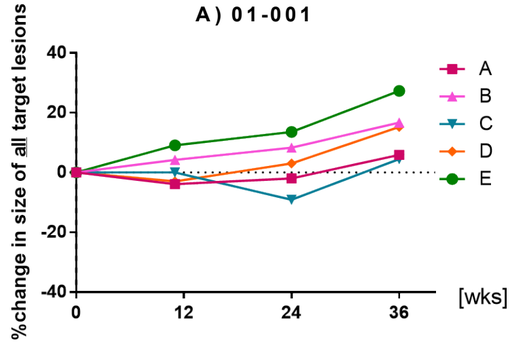


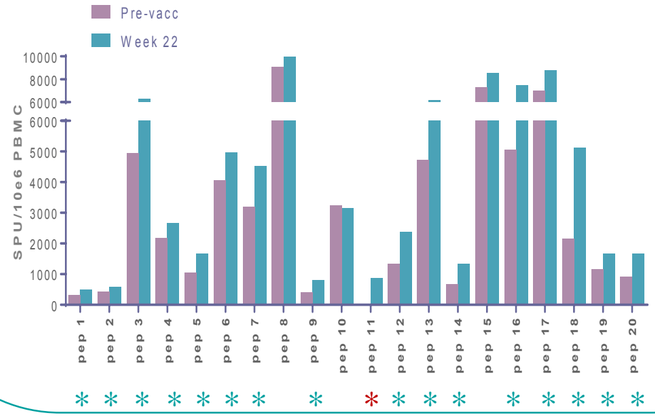






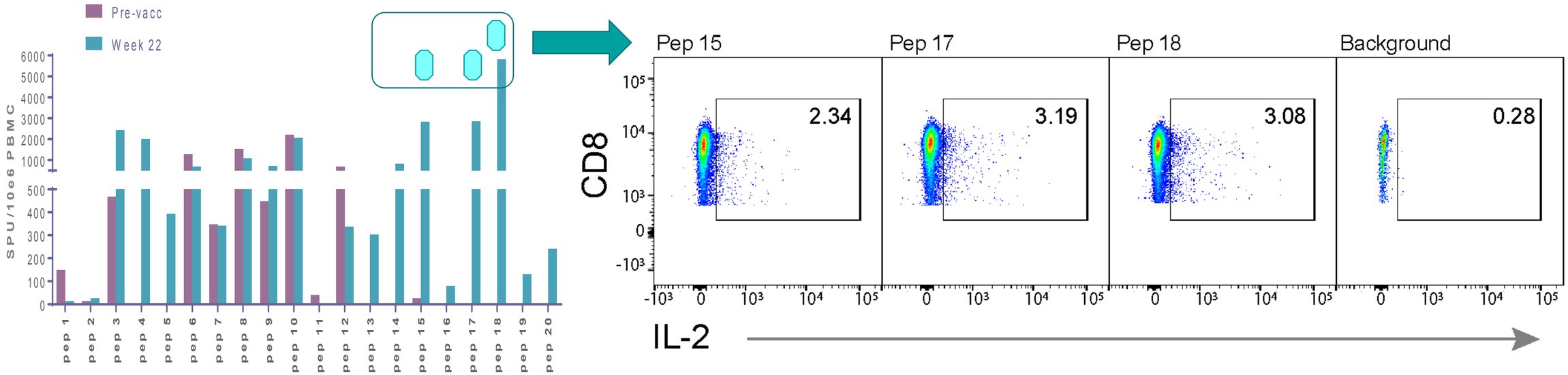
CD4 dominated responses





Neoepitope-specific CD8 dominating immune responses in SCCHN patients with clinical response

3 epitopes from 01-004



- The strongest de novo responses* were characterized as dominating CD8 T cell responses by FACS analysis in SCCHN patient 01-004. Also secreting IL-2.

* As identified by IFN-γ ELISpot

Key Highlights

1 Breakthrough data with Neoantigen Oncology Vaccine Platform in multiple indications

- Ongoing basket trial across 5 solid tumour indications
- VB10.NEO is the first cancer vaccine to show a strong ability to shrink tumours in multiple patients with advanced metastatic disease
- Tumour shrinkage is observed even after long-term PD-1 / PD-L1 treatment (CPI) where CPI is no longer expected to provide further response
- A strong correlation is found between high quality neoantigens, CD8+ T cell immune responses and clinical responses
- In-house, proprietary best in class neoantigen selection tool
- Safe and well-tolerated intramuscular delivery of DNA vaccine

2 Differentiated Manufacturing Process

- Rapid, robust manufacturing process with competitive COGS
- Proven 100% success rate with all patient-specific vaccines with top 20 selected neoantigens
- Proprietary NeoSELECT platform to quickly identify tumour neoantigens

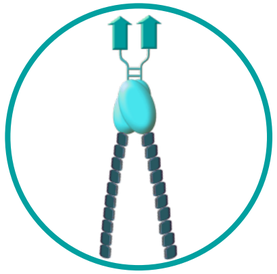
3 Vaccine platform with unique mechanism of action

- Unique targeting of antigen presenting cells providing best in class immune responses
- Proven ability to induce rapid and strong CD8 responses that correlates with clinical efficacy
- Platform technology provides potential for expansion beyond oncology into. Preclinical data within a variety of infectious diseases and tumour models.

Agenda

1. Introduction

2. Update on the VB N-01 study including the clinical data

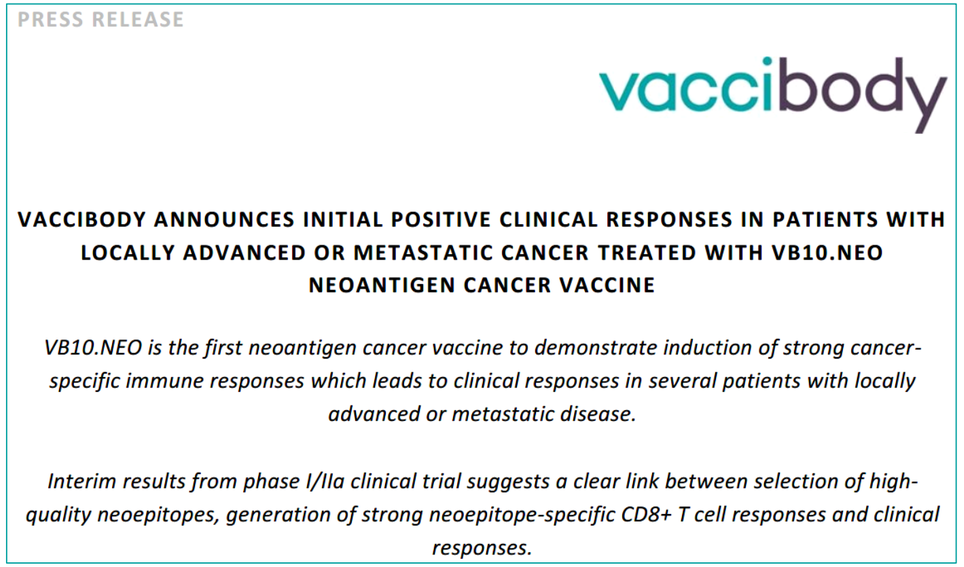


3. Status of the cancer vaccine field and development of novel immunotherapies

4. Company update and Q&A

Vaccibody Achievements

- **Clinical proof of principle established from VB C-01**
  - Ability to raise an antigen specific immune response in humans
  - Immune response translate into meaningful clinical improvement in pre-cancer setting
- **Promising initial data from VB N-01**
  - Developed a promising concept for addressing patients own immunogenic somatic mutations in cancers
  - Proven feasibility in value chain from biopsy to patient specific cancer vaccine product
  - Well tolerated product for IM administration
- Demonstrated neoantigen vaccine can raise best in class specific immune response against somatic mutations and resulting best in class clinical responses across tumour types
- **Technology platform that can be applied to a range of diseases with unmet medical need**



PRESS RELEASE

vaccibody

VACCIBODY ANNOUNCES INITIAL POSITIVE CLINICAL RESPONSES IN PATIENTS WITH LOCALLY ADVANCED OR METASTATIC CANCER TREATED WITH VB10.NEO NEOANTIGEN CANCER VACCINE

VB10.NEO is the first neoantigen cancer vaccine to demonstrate induction of strong cancer-specific immune responses which leads to clinical responses in several patients with locally advanced or metastatic disease.

Interim results from phase I/IIa clinical trial suggests a clear link between selection of high-quality neoepitopes, generation of strong neoepitope-specific CD8+ T cell responses and clinical responses.

Vaccibody's Solid Base

- 299 mNOK in cash and cash equivalents as of Sept 30, 2019
- Diverse and active shareholder base, approx. 280 shareholders
- Raised 509 mNOK in equity since inception
- Traded "over the counter" by Arctic, ABG, DNB, Carnegie

- Solid IP base with multiple layers of protection
- Experienced and engaged team

Update since September Capital Markets Day

VB10.NEO

- First VB10.NEO clinical data released* - major de-risking factor
- 100% manufacturing success rate
- On track to initiate enrollment in NEKTAR arm of VB N-01 during Q4 2019
- Accelerating efforts to progress VB N-01 trial - opening 6 new clinical sites (total of 9)

VB10.16

- On track to vaccinate first patient in Q1 2020 in VB C-02
  - First Central approval by an Ethics Committee (Bulgaria, first of six countries incl Norway)

Organization

- New Chief Medical Officer to begin in January 2020

* http://www.vaccibody.com/portfolio_page/vb10-neo-an-individualized-neoepitope-cancer-vaccine-induces-positive-clinical-responses-in-patients-with-locally-advanced-or-metastatic-solid-tumours-maryland-november-2019/

Outlook next 6 months

Clinical trial for cancer neoantigen vaccine (VB10.NEO)

- Decision of design for 1st expansion cohort

Nektar collaboration

- Approval of additional arm with combination of VB10.NEO and NKTR-214
- First patient dosed in clinical trial evaluating the combination

Clinical trial in cervical cancer combining VB10.16 and checkpoint inhibitor atezolizumab

- First patient dosed in the clinical trial evaluating the combination of VB10.16 and atezolizumab

In Summary

Achievements

- Vaccibody technology platform provides best in class broad and strong immune response translating into clinical response across indications
- Clinical proof of concept for both VB10.16 and VB10.NEO
- Cutting edge experience in manufacturing and supply chain
- Strong collaboration partners to improve positioning

Key priorities to drive asset value

- Progress clinical activities
- Expand footprint
- Strengthen manufacturing setup
- Leverage our technology platform

Vaccibody team ready to execute and deliver!

vaccibody

www.vaccibody.com