vaccibody

Using an Inflammatory Chemokine Linked to the Antigen Generates a Rapid, Strong and Broad Immune Response

Cell-mediated therapies for infectious diseases

July 22nd 2021

Forward-looking statement

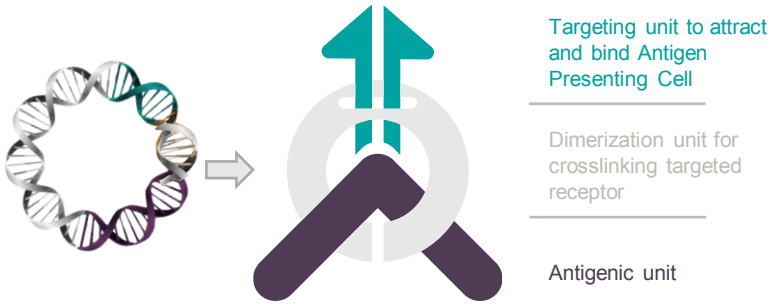
This announcement and any materials distributed in connection with this presentation may contain certain forward-looking statements. By their nature, forward-looking statements involve risk and uncertainty because they reflect the company's current expectations and assumptions as to future events and circumstances that may not prove accurate.

A number of material factors could cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements.

Flexible Vaccibody™ platform can fuel multiple, precise products customized for each indication

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

APC targeted vaccine platform



Vaccine modalities

The Vaccibody™ platform is agnostic in terms of delivery format:

- DNA vaccine
- mRNA vaccine
- Viral vector vaccine
- Fusion protein subunit vaccine

The Vaccibody™ platform allows for flexibility both within the molecule and through the mode of delivery
Vaccibody™ is very well tolerated and provides large potential for combination therapies

Applicable to develop specific vaccine products for cancer, infectious diseases and autoimmunity

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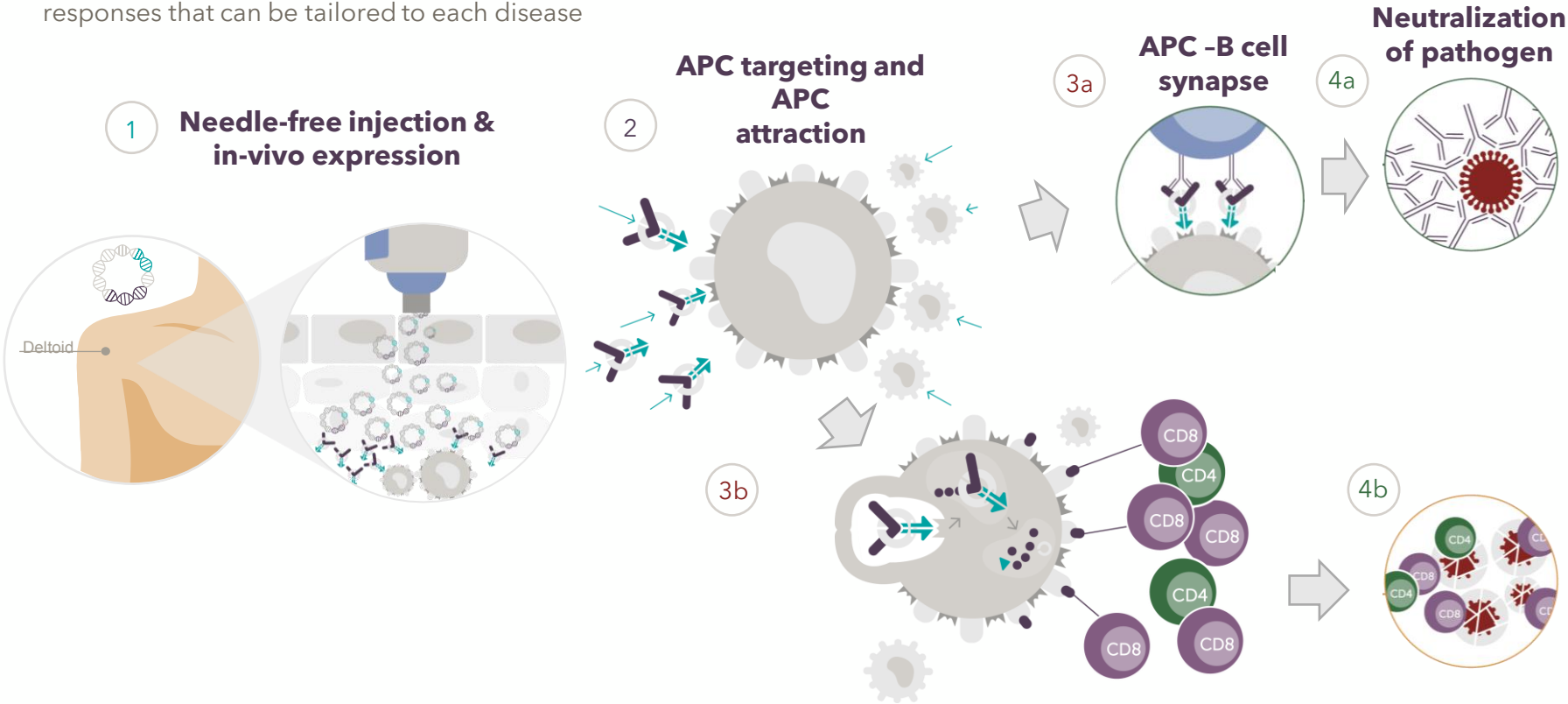
Vaccibody mechanism of action

The APC targeting vaccine technology platform creates unique rapid, strong and broad immune responses that can be tailored to each disease



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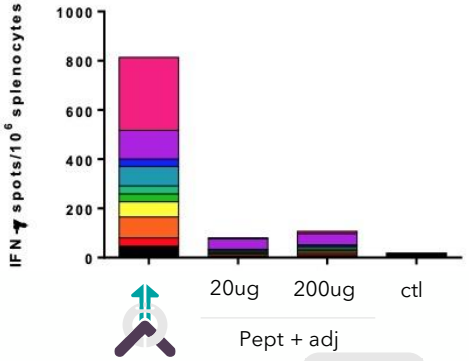
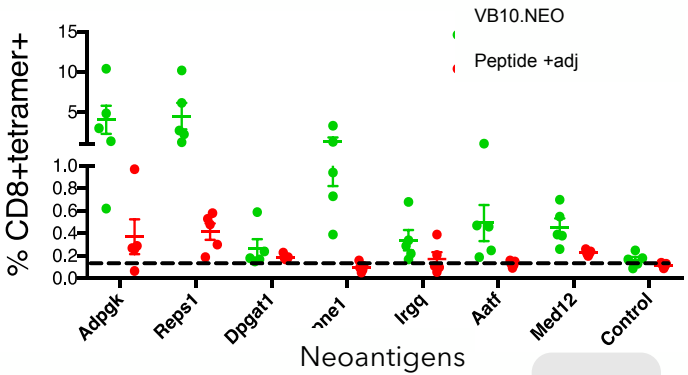
Vaccibody induce rapid and strong T cell responses with unique increased breadth of the CD8 T cell response

VB10.NEO elicits a more potent and broad CD8 T cell response than multiple other vaccine technologies

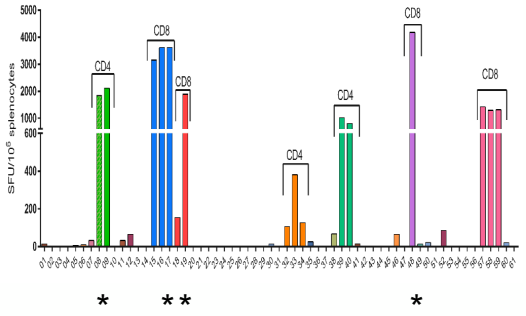


B16 melanoma



MC38 colon carcinoma

Genentech



SARS-CoV2

Pipeline

Broad oncology coverage and strong partnerships. Leveraging platform within infectious diseases

Program	Indication	Discovery	Preclinical	Phase I	Phase II	Phase III	Partnerships
Oncology							
Individualized							
VB10.NEO	Melanoma, lung, bladder, renal, head & neck	○	○	○	●	○	Genentech [1] Nektar [2] Therapeutics [2]
VB10.NEO	Locally advanced and metastatic tumors	○	○	●	○	○	Genentech [1, 3]
Off the shelf							
VB10.16	HPV16 positive cervical cancer[4]	○	○	○	●	○	
Undisclosed	Undisclosed targets within shared antigens	●	○	○	○	○	
Infectious disease							
VB10.COV2	SARS-CoV-2	○	○	●	○	○	Adaptive Biotechnologies [5]
Undisclosed	Undisclosed targets within infectious disease	●	○	○	○	○	

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1) Genentech has an exclusive license to VB10.NEO; 2) Collaboration with Nektar Therapeutics on combining NKTR-214 (bempegaldesleukin) with VB10.NEO in trial arm 5B (SCCHN); 3) In combination with atezolizumab; 4) Roche supplies atezolizumab; 5) SARS-CoV-2 T cell epitopes excl. licensed from Adaptive

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Adaptive Biotechnologies - Vaccibody collaboration and license agreement

- Exclusive license to COVID-19 vaccines based on Adaptive's set of validated shared T cell epitopes based on analysis of 6500+ patient samples
- Vaccibody leads development, manufacture and commercialization of the vaccine products
- Clinical trial with second-generation SARS-CoV-2 RBD as well as T cell based vaccine candidates, planned for Q4 2021

The future unmet needs of Covid-vaccines

2nd generation vaccine inducing neutralization against multiple current and future VoC

- Vaccibody's RBD vaccine has the potential to offer rapid and strong levels of neutralizing antibody responses against multiple VoC

3rd generation vaccine - universal broadly protective T cell vaccine

- Increasing evidence of the importance of broad T cell responses against COVID-19 also offering long-term memory responses with limited sensitivity to viral mutations
- Vaccibody aims to develop a vaccine which boosts and broadens the most clinically relevant and conserved T cell responses against multiple SARS-CoV-2 epitopes identified by Adaptive Biotechnologies
- Aim to induce long-lasting protective immunity across all population groups and across current and future variants

Therapeutic vaccines

- Rapid onset of broad T cell-based immunity opens potential for safe, effective, easy-to-administer product to reduce severity of illness and clear infection

Adaptive has validated a large set of T cell epitopes in clinical samples

Adaptive applied its immune medicine platform to identify and validate immuno-dominant T-cell epitope hotspots

Sequence information using samples from more than 6500 patients impacted by COVID-19 plus 150,000+ SARS-CoV-2 specific TCR-antigen pairs across the viral genome

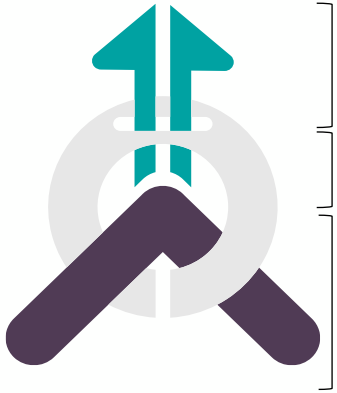
Launched T-Detect™ COVID, which is the first-in-class T-cell-based clinical test for Covid-19 with FDA Emergency Use Authorization

Vaccibody's SARS-CoV-2 vaccines to enter clinic

- **Exploit the protective role of both the humoral and cellular immune system**

VB2129 - RBD candidate

RBD vaccine tailored to the B1.351 (Beta) VoC to generate RBD-specific antibody and T cell immunity



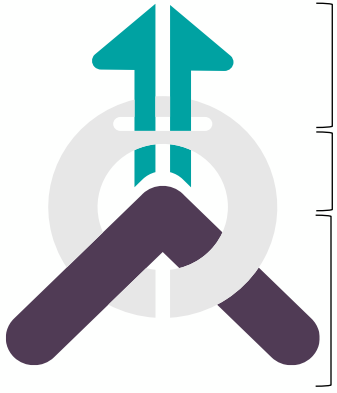
Targeting unit

Dimerization unit

Antigen unit
B1.351 VoC RBD
- K417N, E484K and N501Y mutations

VB2210 - T cell candidate

T-cell epitope vaccine inducing broadly protective T cell responses



Targeting unit

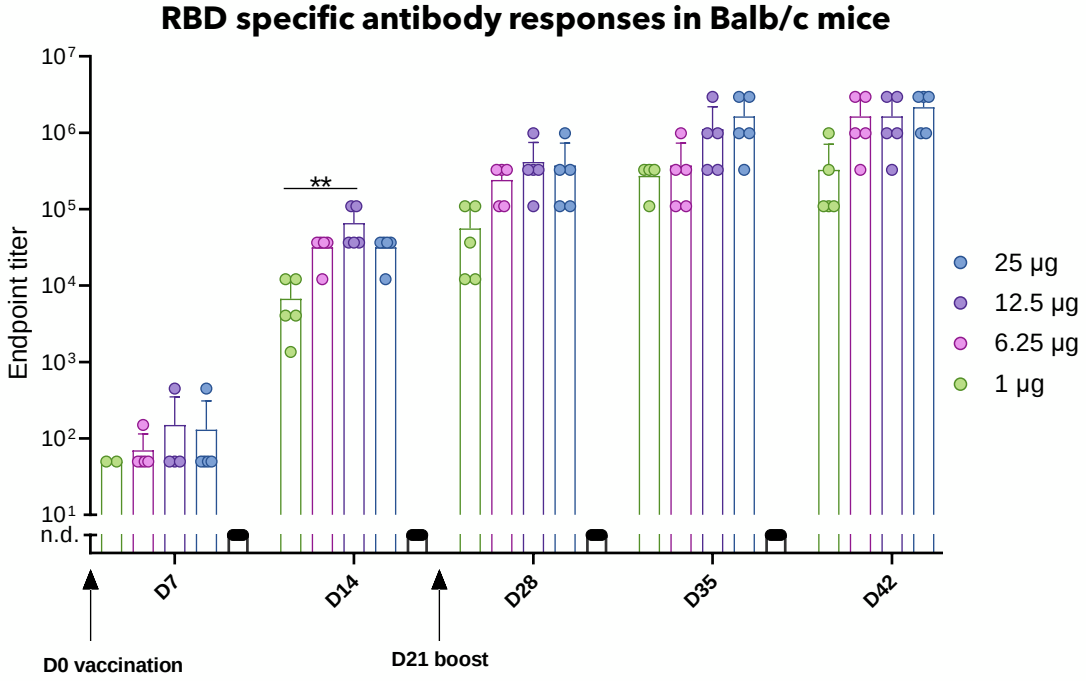
Dimerization unit

Antigen unit
Validated T cell epitopes identified by *Adaptive Biotechnologies*

RBD candidate VB2129 induces rapid, strong and persistent antibody responses

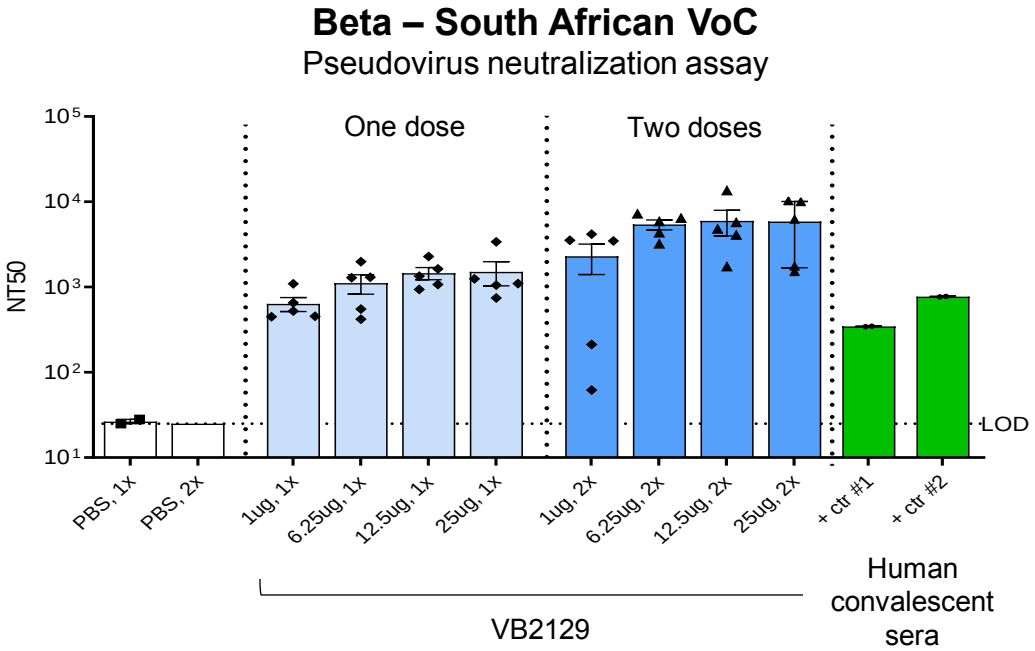
Rapid, strong and long-lasting antibody responses induced after vaccination with the B1.351 RBD specific vaccine

- Rapid: Ab detected already day 7 after one vaccination even with low dose (1µg)
- Strong responses: >10^6 endpoint titer
- Confirming the results achieved with the previously published Vaccibody RBD vaccine against Wuhan WA1/2020



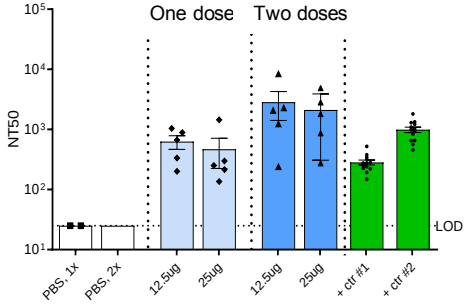
**(p<0.01), Tukey's multiple comparisons test

RBD candidate VB2129 induces potent virus neutralization responses across VoC

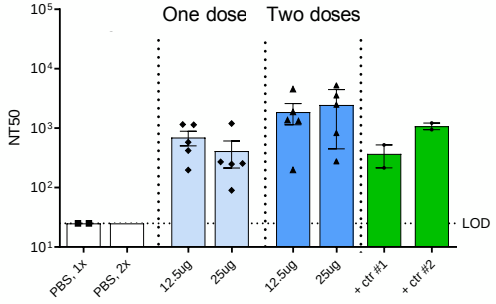


NT50: Neutralization titers that achieved 50% neutralization

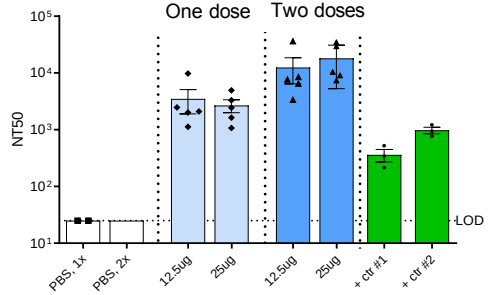
Wuhan
Original strain



Alpha
UK VoC



Gamma
Brazilian VoC



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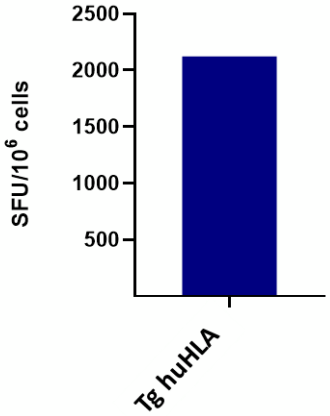
T cell candidate VB2210- Strong immunogenicity in 3 mouse models

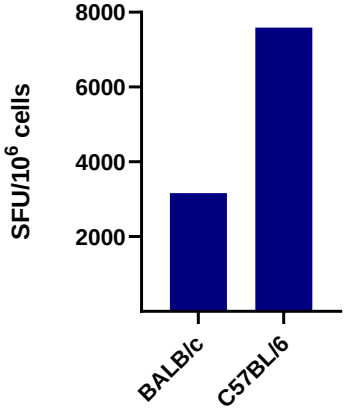
Tg huHLA
BALB/c
C57BL/6



Animals
Transgenic mice expressing human HLA

Dose 50 µg

Recall peptides
Pools only for HLA restricted epitopes



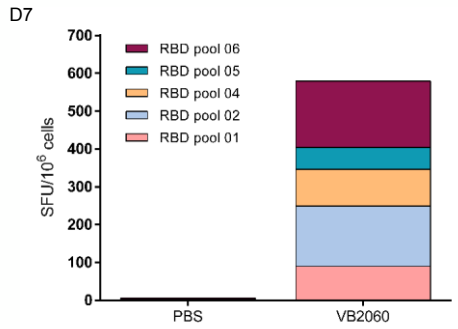
Animals
C57BL/6 and BALB/c wt

Dose 25 µg

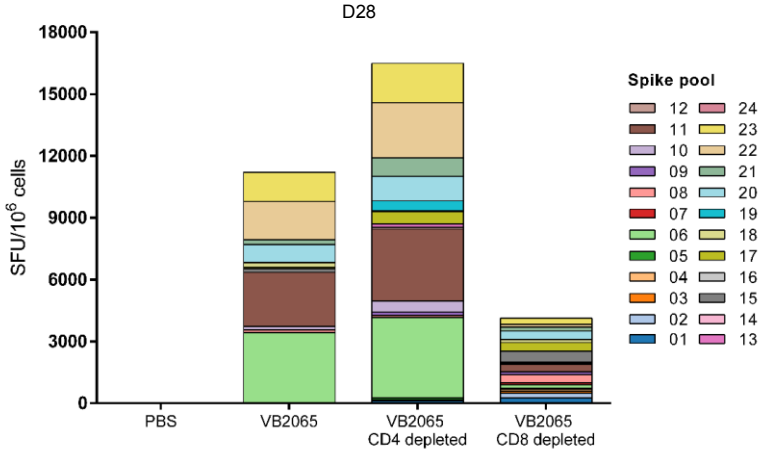
Recall peptides
Pools overlapping all the epitopes included in the construct

- VB2210 induces strong responses post 1 vaccination against HLA specific epitopes in humanized HLA tg mice
- The strong T cell responses observed in two additional mice models show the breadth of the T cell response independent of MHC selection

RBD-specific IFN-γ T cell responses in splenocytes



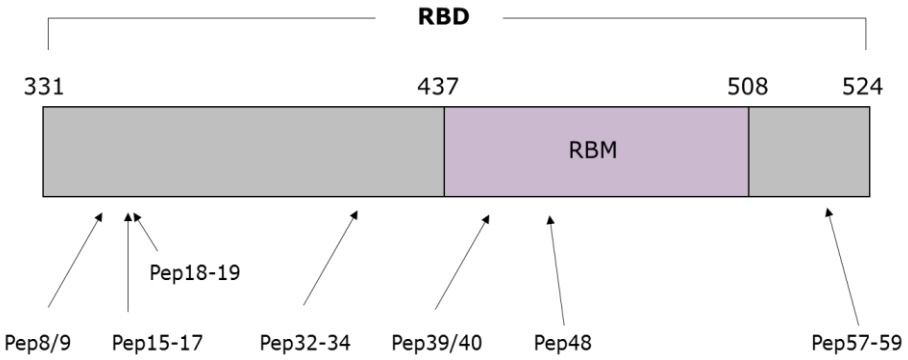
Spike-specific IFN-γ T cell responses in splenocytes



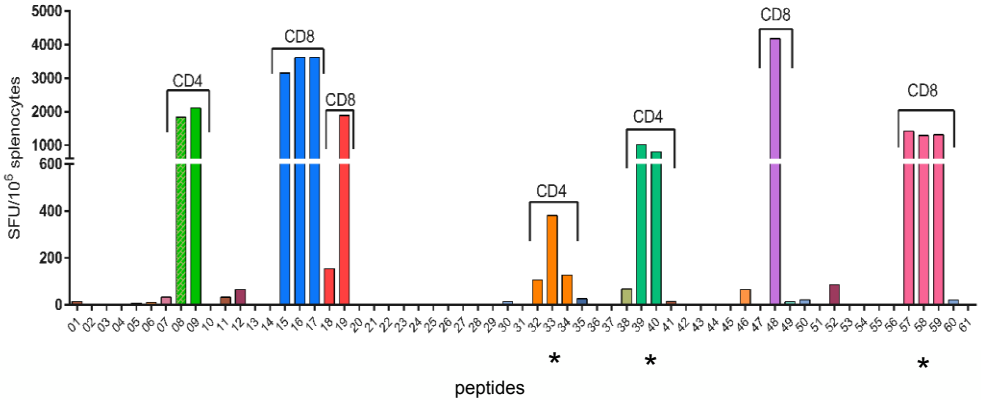
Rapid and Strong, dose dependent T cell responses

- Strong T cell responses induced to multiple pools of RBD from day 7 post 1st dose
- VB2065 which includes the longer Spike antigen induces very strong, CD8+ T cell dominated responses (16000 SFU/10^6 splenocytes)

Position of immunodominant epitopes in RBD



T cell response to individual overlapping peptides



VB10.COV2 induces broad and CD8 dominated T cell responses

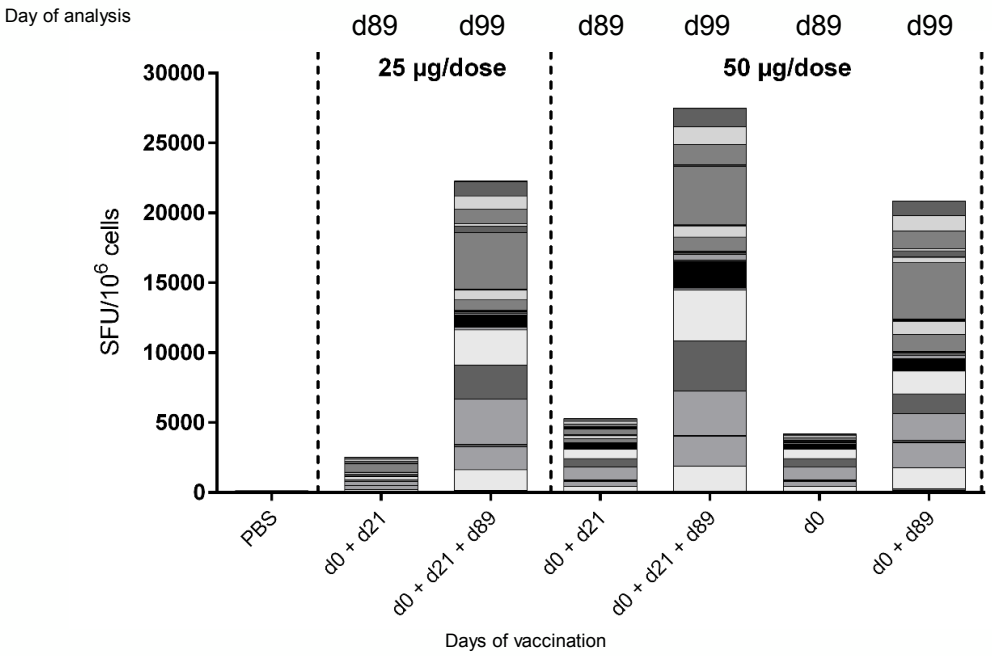
Strong, dominating CD8 T cell responses against RBD in VB2060

- 4 distinct CD8 epitopes
  - 1 described by others*
- 3 distinct CD4 epitopes
  - 2 described by others*

Consistent with Vaccibody's platform data MIP-1α targeting ensures processing of presentation of a broader set of epitopes than seen with other vaccine technologies.

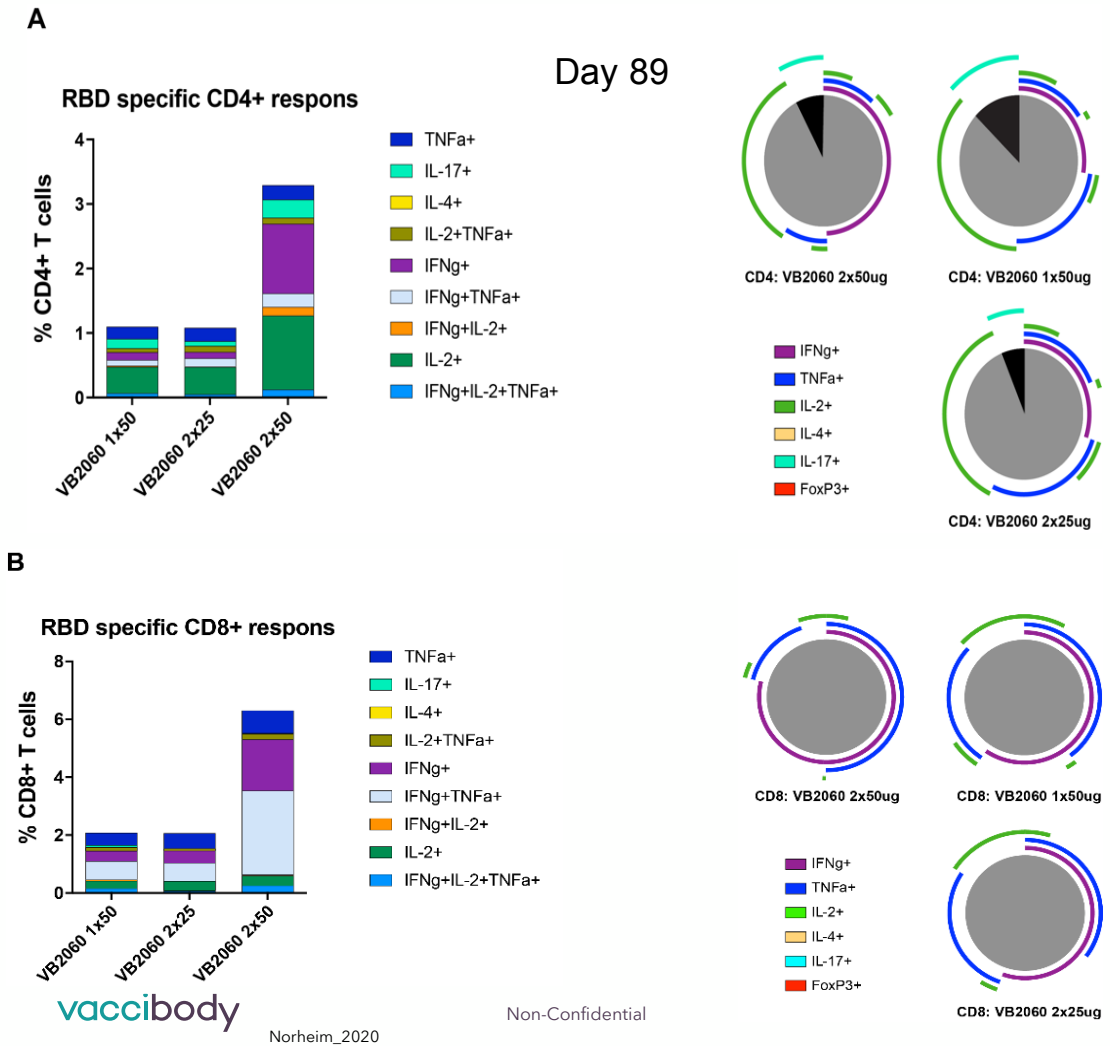
Norheim_2020

RBD-specific IFN-γ T cell responses in splenocytes



The T cell response is long-lasting and effective memory responses are generated

- Vaccine-induced T-cell dose response remains strong even at day 89 post 1 or 2 doses VB2060
- A boost at day **89** induce strongly increased T cell response (day 99) which indicate effective memory responses



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Norheim_2020

VB2060 induce attractive T cell profile

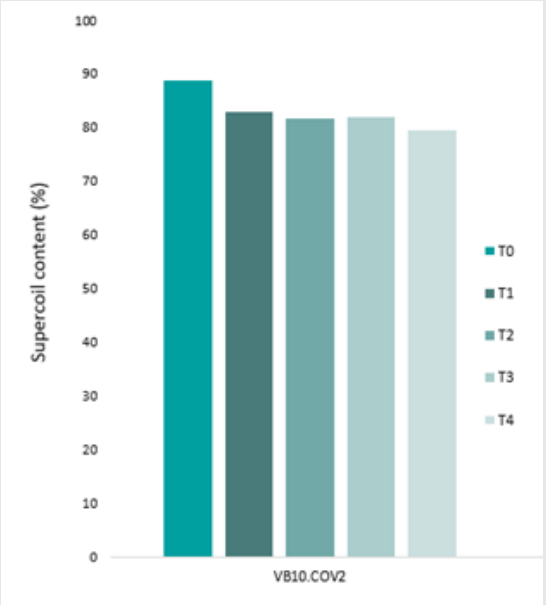
- High percent of $CD4^+$ and $CD8^+$ T cells responding to RB
  - 2-6% RBD-specific CD8 T
  - 1-3 % RBD-specific CD4 T
- The response is dominated by multifunctional CD8 + T cells and Th1 CD4+ T cells

Product Supply for Phase 1/2 trial

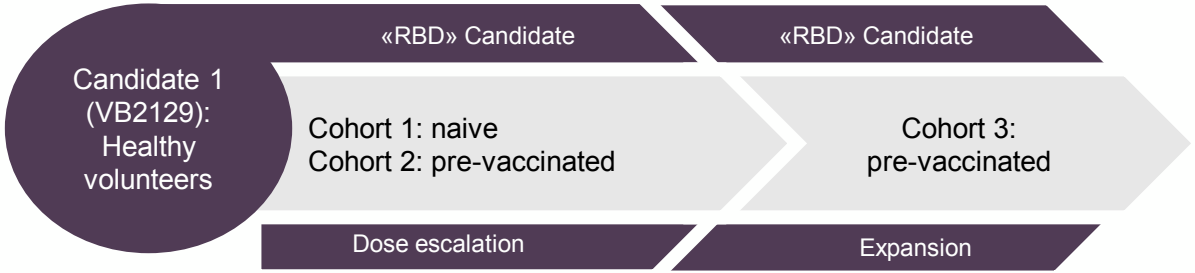
- Vaccibody is using an already established manufacturing process to ensure rapid supply of clinical trial material for the VB-D-01 trial
- Manufacturing is progressing as planned for both CoV-2 candidates
- Initial stability data indicate long-term thermal stability of the VB10.COV2 candidate(s).
  - 4 weeks at 37ºC,
  - 10 weeks at 25ºC
  - More than 52 weeks at 2-8ºC

Stability of VB10.COV2

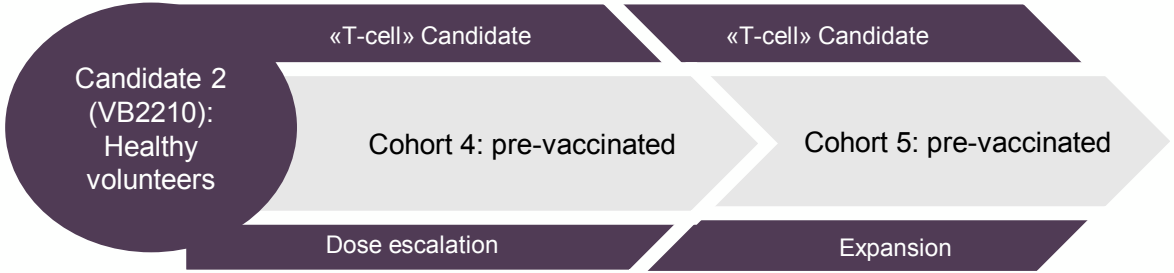
- Stability testing of VB10.COV2 under stressed conditions at 37ºC for 4 weeks (T0, T1, T2, T3 and T4)
- Stability indicating parameter is the monomeric supercoiled topology



VB-D-01 investigating two candidates as prime in vaccine naive and a booster in previously vaccinated subjects



A Phase 1/2, open label, dose escalation trial to determine safety and immunogenicity of two SARS-CoV-2 virus vaccine candidates (C1) and (C2) in healthy adult volunteers



Summary Vaccibody against Covid-19

- Rapid onset of immunogenicity; potential for low dose and one dose efficacy
- Candidate 1 show strong neutralization towards all 4 VoC tested so far, in combination with RBD-specific Th1/CD8 T cell responses
- Exclusive access to set of validated T cell epitopes identified by Adaptive Biotechnologies
- Candidate 2 induce strong T cell responses post 1 dose against broad range of SARS-CoV-2 antigens

Vaccines against infectious diseases - wide range of pathogens addressed

Rapid, strong humoral and T-cell responses seen across a range of pathogens *

Indication	Antigen	Species tested
COVID-19	RBD from Spike plus T cell epitopes from multiple Ag	Mice
Ebola	GP	Guinea pigs
Influenza	Hemagglutinin (H1, H3, H5, etc), M1,M2, NP and variants	Mice, ferrets, pigs, rhesus macaques
Tuberculosis	Ag85B, ESAT-6, Rv2660c	Mice, goats
Herpes simplex virus 2	gD	Mice
Malaria	RH5, PfAMA1, PvDBP	Mice
HIV	gp120, RSC3 and variants	Mice
Tetanus	Tetanus toxin fragment C	Human (in vitro)
Infectious salmonanemia	HA	Salmon

* Not exhaustive

Flexible platform providing opportunities within infectious diseases

- Rapid onset of immune responses
  - Potential for one dose and therapeutic efficacy
- Complex and multiple antigen design
  - Potential for broader protection and pan-pathogen vaccines
- Tailored products to each disease and it's correlate of protection
  - Create vaccines with unique, controlled immune response profile
- Standard manufacturing process and formulation, painless administration
  - Rapid response, low CoGs, thermostability, global distribution

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