



vaxxinity 

Harnessing the power of the immune system to fight disease

**Vaxxinity Corporate Overview**  
September 2022

# Forward Looking Statements

This presentation contains forward-looking statements within the meaning of the federal securities laws. Forward-looking statements generally are accompanied by words such as “will,” “expect,” “continue,” “plan,” “target,” “potential,” “milestone,” “opportunities,” and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include statements regarding our discovery, research and development activities, in particular our development plans for our product candidates and potential future candidates, including anticipated clinical development timelines, and the potential for such product candidates to be used to treat human disease. These statements are based on various assumptions, whether or not identified in this presentation, and on the current expectations of management. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as, and must not be relied on as, a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions. These forward-looking statements are subject to a number of risks and uncertainties discussed in our Annual Report on Form 10-K for the year ended December 31, 2021 and Form 10-Q for the quarter ended June 30, 2022, which have been filed with the Securities and Exchange Commission (SEC) and are available on the SEC's website at [www.sec.gov](http://www.sec.gov). Actual results could differ materially from the results implied by these forward-looking statements. There may be additional risks that we presently do not know, or that we currently believe are immaterial, that could also cause actual results to differ from those contained in the forward-looking statements. In addition, forward-looking statements reflect our views and expectations, plans, or forecasts as of the date of this presentation. While we may elect to update these forward-looking statements at some point in the future, we specifically disclaim any obligation to do so, except as required by law. These forward-looking statements should not be relied upon as representing our assessments of any date subsequent to the date of this presentation.

A woman's profile is shown in silhouette against a dark, starry background. Overlaid on her head is a complex network of glowing blue lines and dots, representing a digital or neural network. The overall color palette is dark teal and blue, with a gradient of light green and yellow at the bottom.

# An expansively disruptive approach to chronic disease:

Efficiency of  
vaccines

+

Validation of mAbs in  
chronic disease

=

New class of  
therapeutics

Alzheimer's

Parkinson's

Migraine

Hypercholesterolemia

Others

# Vaxxinity has a worldwide, perpetual, royalty-free license to its commercially validated, patented, synthetic peptide vaccine platform

**1985**

## Founding of United Biomedical, Inc. (UBI)

- Authored >90 publications and >300 issued patents
- Research supported by 5 NIH grants and other non-dilutive funding

**2004**

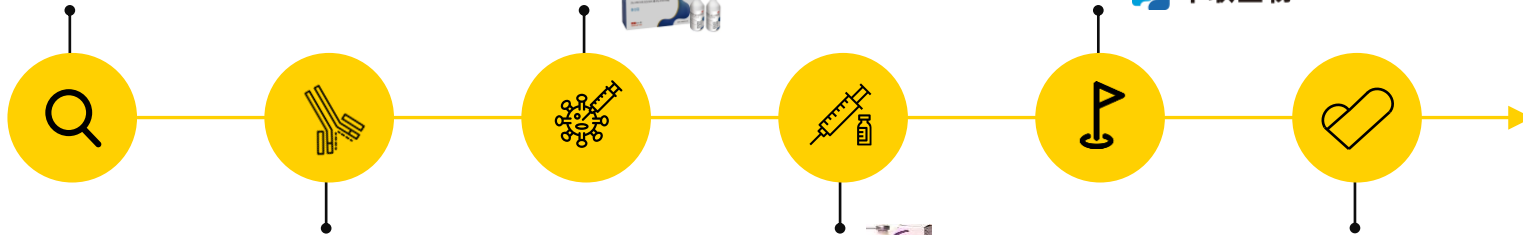
## Approval of First Fully Synthetic-Peptide Vaccine against Infectious Disease

- Foot and Mouth Disease vaccine for swine approved as new drug in China
- Captured approx 50% market share in China within 3 years
- Hundreds of millions doses annually

**2016-19**

## 2 Public Listings of UBI Group of Subsidiaries

- UBI Pharma, Taiwan 2016
- Shanghai Shen Lian Biomedical, Shanghai STAR 2019



**1996**

## Approval of First Fully Synthetic Peptide-Based Diagnostic Test

- HIV diagnostic test approved by US FDA
- HCV diagnostic test receives CE mark
- Partnerships with Organon Teknica, Roche, and BioMerieux for global commercialization

**2015**

## Approval of First Fully Synthetic Peptide Vaccine against self-antigen

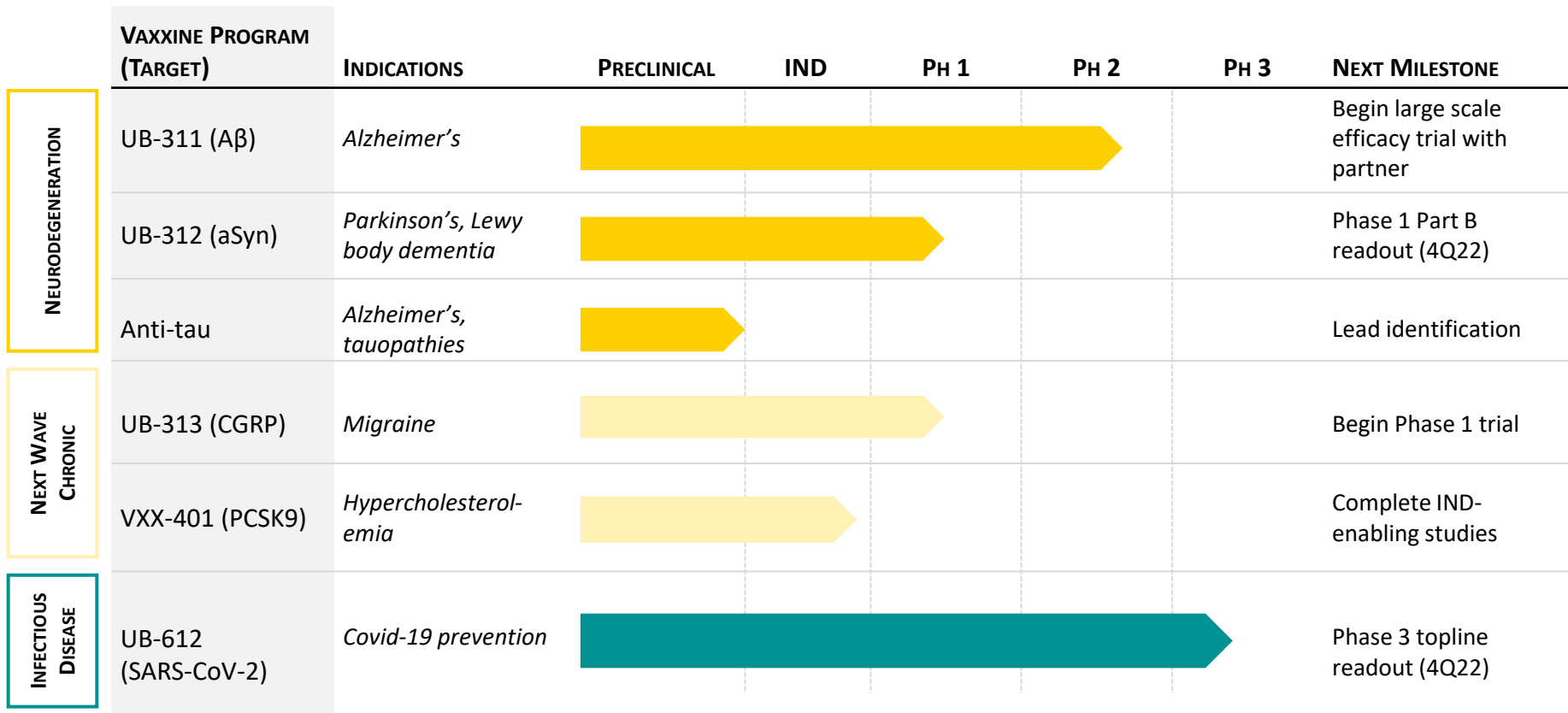
- Anti-LHRH vaccine for swine immunocastration in Taiwan
- Partnership with top-10 animal health company for global commercialization
- 1 of only 2 vaccines licensed in world for humans or animals against self-protein

**2021**

## Formation of Vaxxinity as a standalone company

- Combination of United Neuroscience & COVAXX (previously subsidiaries of UBI Group)

# Vaxxinity's pipeline spans multiple therapeutic areas

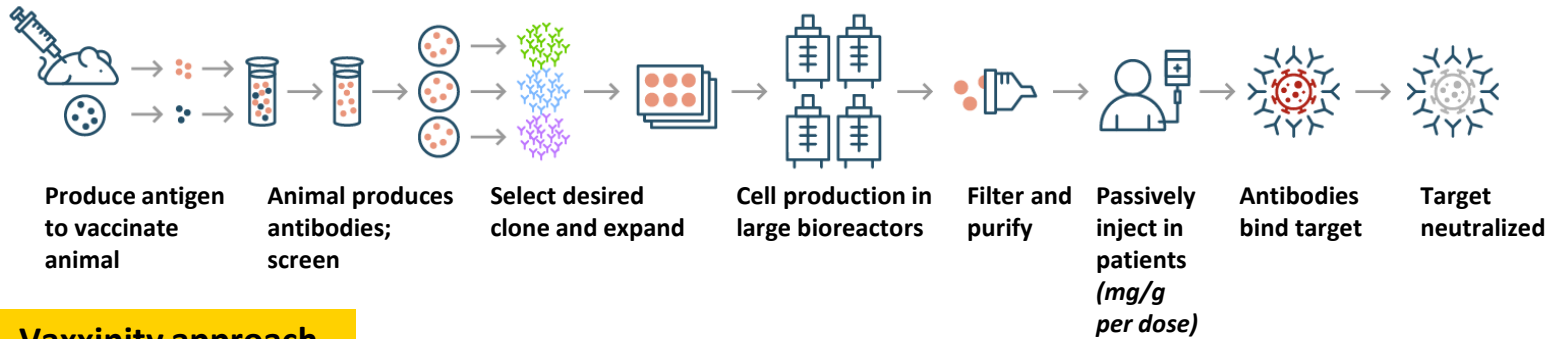




## Synthetic Peptide Vaxxine Platform

# Vaxxinity's technology aims to bring the safety, efficacy and convenience of vaccines to the treatment of chronic diseases, turning the body into its own drug factory

## mAb approach



## Vaxxinity approach



# Vaccines have succeeded in preventing infectious disease, but why not chronic disease?

## Traditional vaccines face challenges overcoming immune tolerance



### Low Response Rate

Small percentage of responders (e.g., generally <50%)



### Low Titers

Unable to achieve therapeutic levels of antibody (e.g., cannot cross BBB or see meaningful efficacy)



### Off-Target Response

Majority of immune response directed at carrier molecule (e.g., KLH toxoid carrier) vs. desired target epitope




### Safety Concerns

Elicit serious adverse effects (e.g., T-cell mediated inflammation) that result in program termination

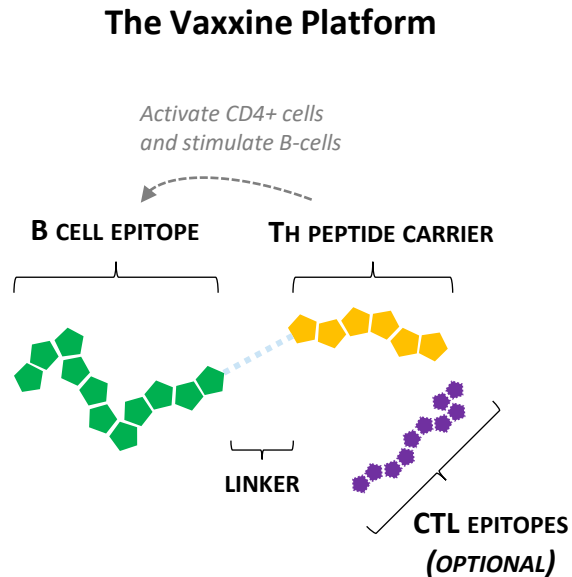


# MABs are highly efficacious in chronic disease, yet inaccessible due to high cost, inconvenience, and manufacturing complexity

		Monoclonal Antibodies (mAbs)	 Vaxxinity Product Candidates are Designed to be...
<b>Efficacy Mechanism</b>		✓ Specific and targeted	✓ Specific and targeted
		✗ Limited duration due to ADA	✓ Long duration of action
<b>Safety Mechanism</b>		✓ Target specific	✓ Target specific
<b>Administration</b>	Dose frequency	✗ Bi-weekly or monthly	✓ Quarterly to annually
	Route	✗ IV infusion or SC	✓ IM injection
<b>Cost</b>	Manufacturability	✗ Complex biologic process	✓ Simple, chemical process
	Accessibility	✗ Expensive	✓ Cost-effective
	Scalability	✗ Unstable	✓ Stable
	Distribution	✗ Requires infusion clinics	✓ Strong existing network

# Our synthetic peptide vaccine platform combines the power of monoclonals with the convenience and accessibility of vaccines

Components
B cell epitopes
Th peptide carriers
CTL epitopes <i>(Combined in Viral Pathogen Targets)</i>
Proprietary linker and formulation

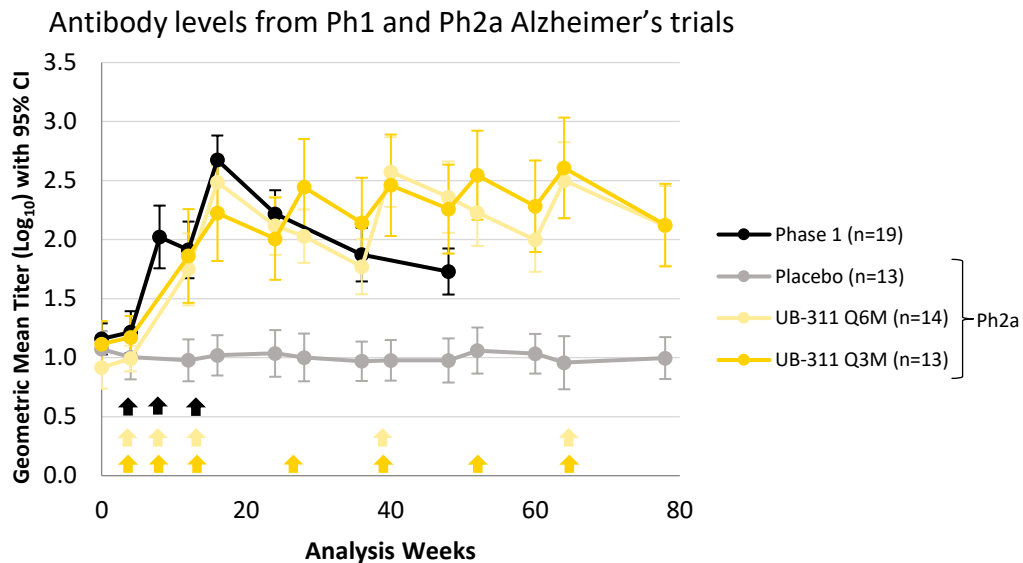


Potential Advantages
Break immune tolerance with high response rate and titers
Minimize off-target response
Long-acting response
Synthetic, low-cost, scalable
Plug & Play, modular

Proprietary synthetic peptides trigger a highly targeted immune response

# Platform consistently breaks immune tolerance to generate antibodies

<b>Publicly Presented Proof of Concept Data</b>
<b>High response rate and titers</b> 98% of patients, comparable to mAb
<b>Well-tolerated</b> avoiding T-cell inflammation
<b>High affinity, specific antibodies</b> against aggregated amyloid
<b>Penetration across BBB*</b> at ~0.2% rate





## Neurodegeneration programs

- UB-311 (A $\beta$ ) for Alzheimer's
- UB-312 (aSyn) for Parkinson's and other synucleinopathies

# UB-311 anti-A $\beta$ product candidate for Alzheimer's disease

## Data through Phase 2a LTE

- **98% responder rate, with long duration of response**
- **Well tolerated**
- **High antibody affinity and specificity** to toxic aggregated A $\beta$
- **Antibodies penetrate BBB** (NHPs)
- **Exploratory efficacy & biomarker endpoints directionally favor UB-311** (Ph2a)
- **Ease of administration**
- **Target dose = Q3M 300 $\mu$ g IM**

## Large Market

- 44 million worldwide, including 6 million in US
- \$2.8 trillion global problem by 2030

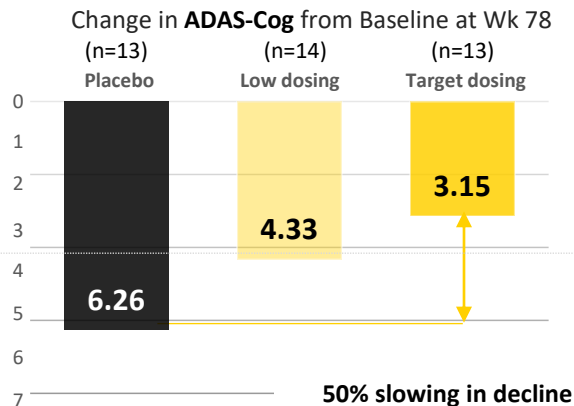
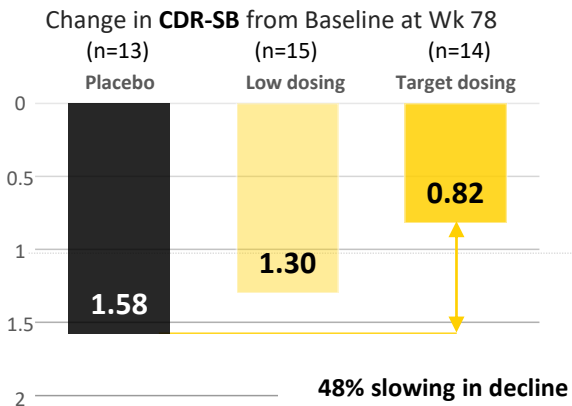
**FDA Fast Track Designation  
Granted May 2022**

**Next step:** Begin registrational-quality Phase 2b efficacy study with partner

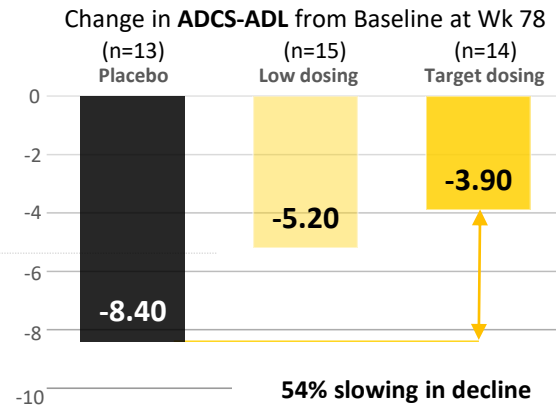
# UB-311 slowed cognitive and functional decline across multiple measures by approximately 50% in Ph2a

**Ph2a (estimation study not powered for statistical significance)**  
**Secondary endpoint results suggest UB-311 may slow decline by up to ~50% in MCI-mild AD**

## Cognitive Measures

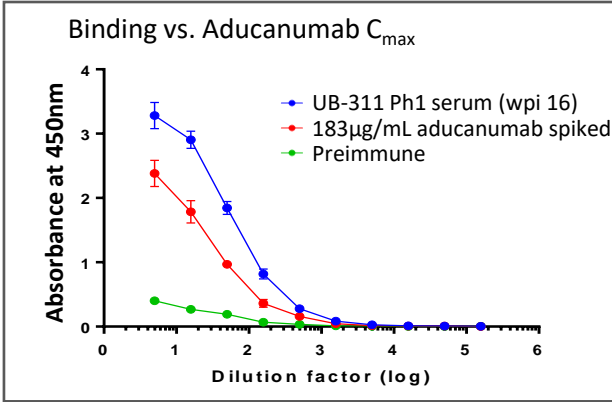


## Functional Measure



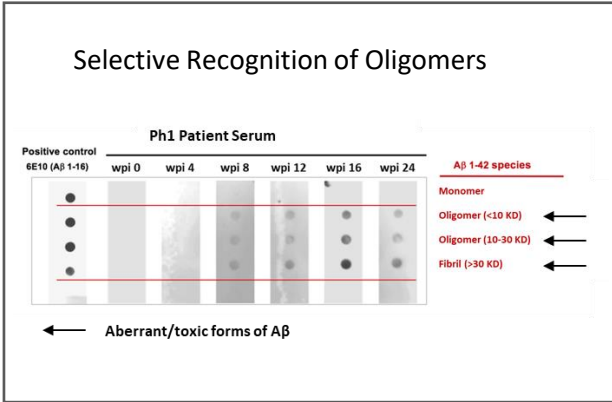
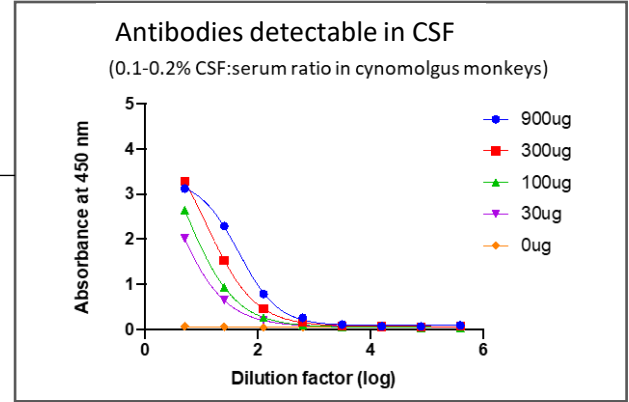
- Phase 2a double-blind, placebo-controlled study
- Not powered for statistical significance
- Presented at CTAD 2020 conference

# UB-311 shows evidence for target engagement



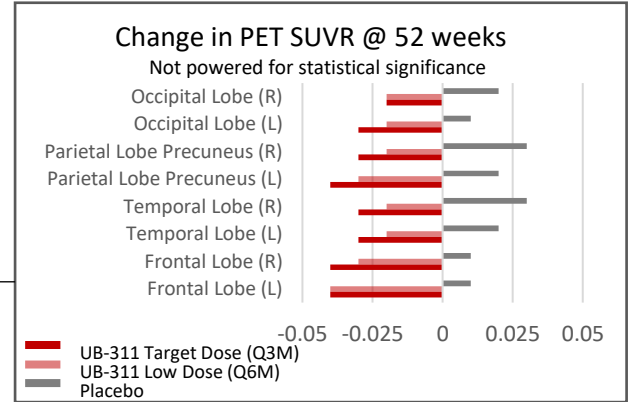
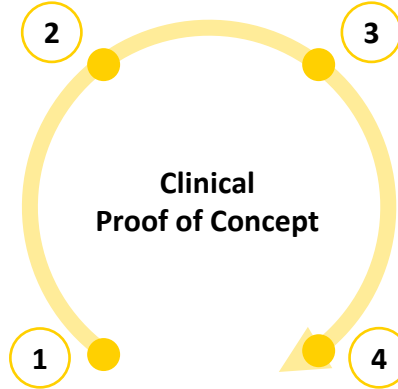
**Concentration comparable to mAb**

**Antibodies penetrate BBB**



**Antibodies specific to toxic oligomers**

**Amyloid reduction in brain**



# UB-312 anti-aSyn product candidate for Parkinson's disease

## Data through Phase 1 Part A

- **100% responder rate** at target dose
- **Well tolerated**
- **High antibody affinity and specificity** to pathologic oligomeric & fibrillar aSyn
- **Antibodies penetrate BBB**
- **Reduces pathology in brain and gut**

## Large Market

- 10 million worldwide, including 1 million in the US
- \$52 billion burden in US alone

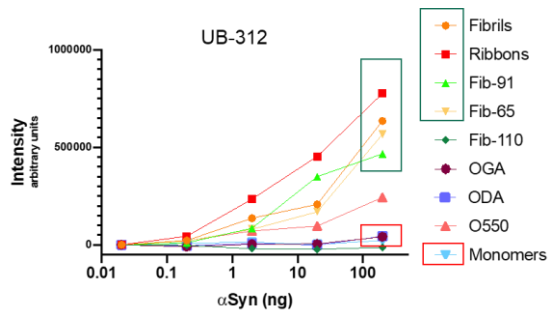
Awarded **MJFF grant** for exploration of target engagement markers in PD

**Next step: Phase 1 Part B end-of-treatment analysis (Parkinson's patients) 4Q22**



# UB-312 overcame immune tolerance in 100% of patients in Ph1 Part A, and showed evidence of target engagement in preclinical models

## Selective Recognition of Aggregates

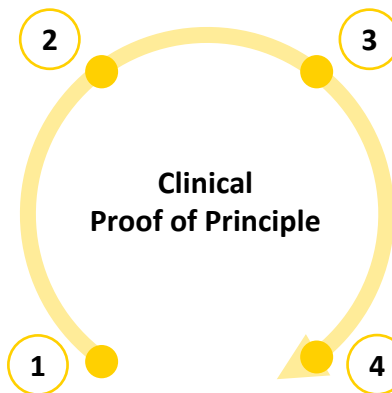
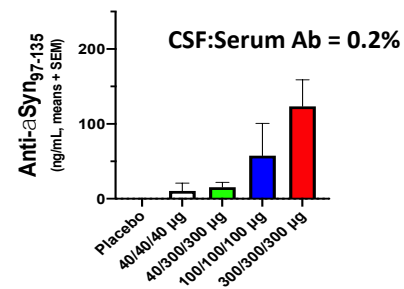


Antibodies target toxic aggregates and avoid monomers

Antibodies penetrate BBB

## Anti-aSyn Antibodies in CSF (Week 21)

UB-312 Ph1 Part A (n=28)

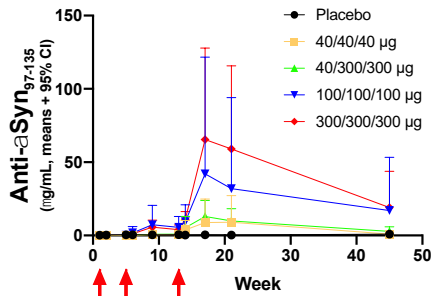


Overcomes immune tolerance

Reduces pathology

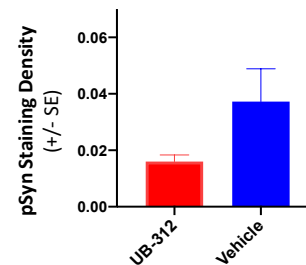
## UB-312 induced Anti-aSyn Antibodies

UB-312 Ph1 Part A (n=28)



## Reduced Alpha-Synuclein in brain

Inoculation model in Tg mouse model





## Next wave chronic programs

- UB-313 (CGRP) for migraine
- VX-401 (PCSK9) for hypercholesterolemia

# Beyond neurodegeneration, our Vaxxine Platform is promising in preclinical studies for other large indications like migraine...

## Data through Preclinical POC

- **High titers** across species
- Selectively targets **CGRP C-terminus**
- **Inhibited CGRP-induced cAMP** in human cells dose-dependently
- **Binding potency & functional activity** comparable to mAbs
- **Activity in animal model** comparable to mAbs

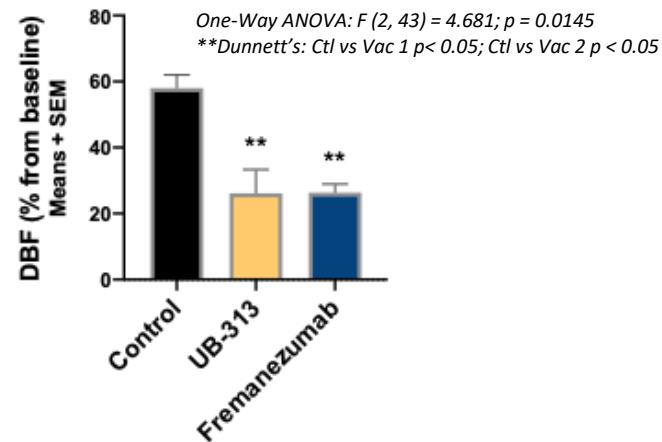
## Large Market

- 1 billion globally, including 39 million in US
- \$7.4 billion CGRP market expected by 2026

## Reduced Capsaicin-Induced Dermal Blood Flow

Head-to-head versus marketed mAb

14wpi, n=16 mice per treatment group, 14 in control group



First subjects dosed (3Q22); Phase 1 enrollment ongoing

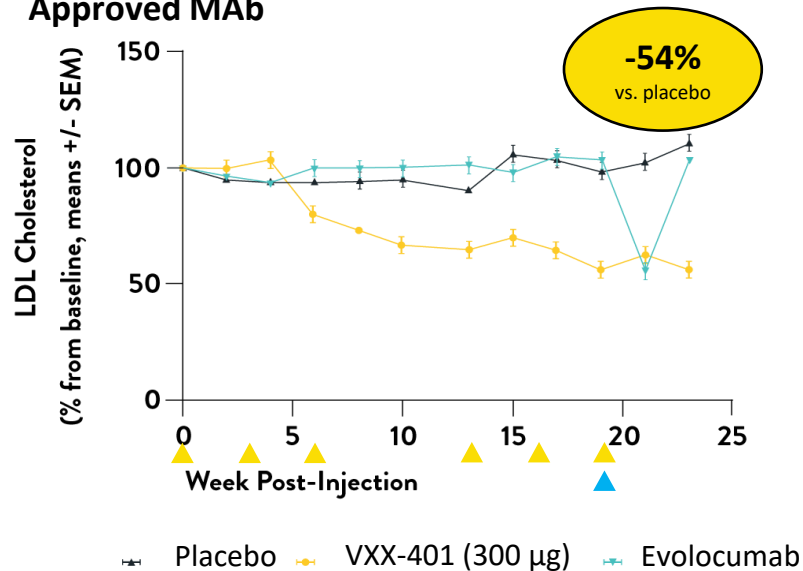
**Next step:** Top-line read-out 1H23

# ...and PCSK9 for hypercholesterolemia

## Data through Preclinical POC

- High titers and high response rate
- Decreases LDL-cholesterol by 40-50% in non-human primates vs. placebo
- Proof of concepts achieved in guinea pigs and non-human primates
- Preclinical POC data supports:
  - Continued development into clinic
  - Reduction of cholesterol by a therapeutically meaningful degree for a sustained period

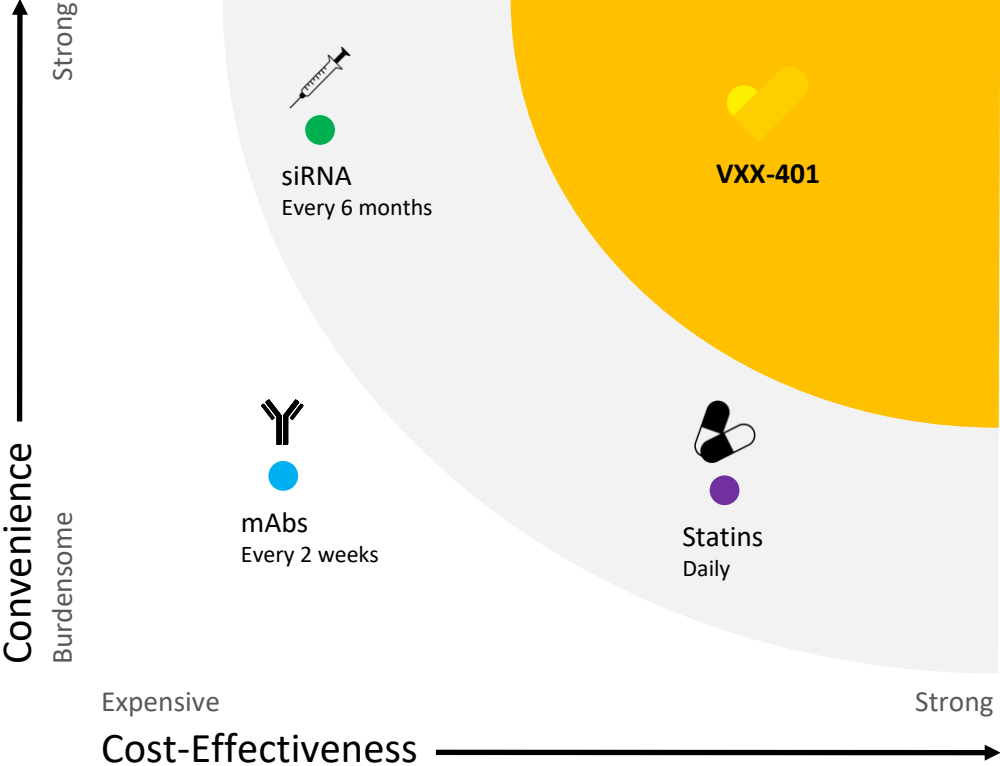
## VXX-401 Reduces LDL-c Comparable to Single Dose of Approved MAb



Placebo and VXX-401 groups received IM injections at weeks 0, 3, 6, 13, 16, 19. Evolocumab group received one 3 mg/kg SC injection at week 19.  
N = 3 NHPs in VXX-401 group, 6 NHPs across 2 control groups  
This was a non-optimized vaccine formulation using the same peptide immunogen as VXX-401.

**Next step: Complete IND-enabling studies**

# Our vision is to vaccinate the world against coronary heart disease, with a convenient and cost-effective LDL-cholesterol lowering vaccine



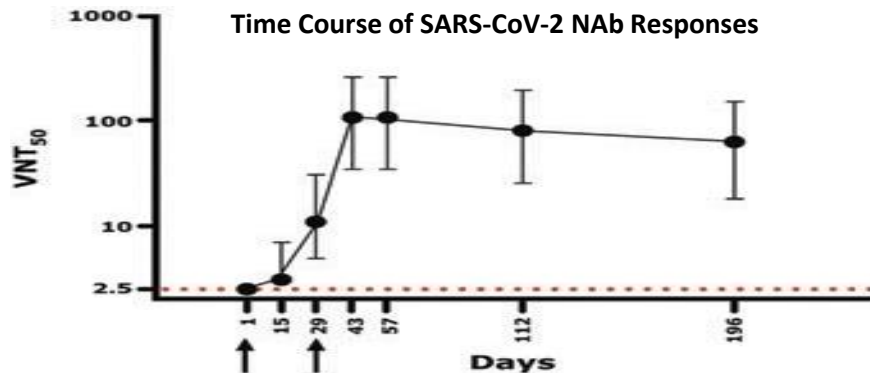


## UB-612 Heterologous Booster for COVID-19

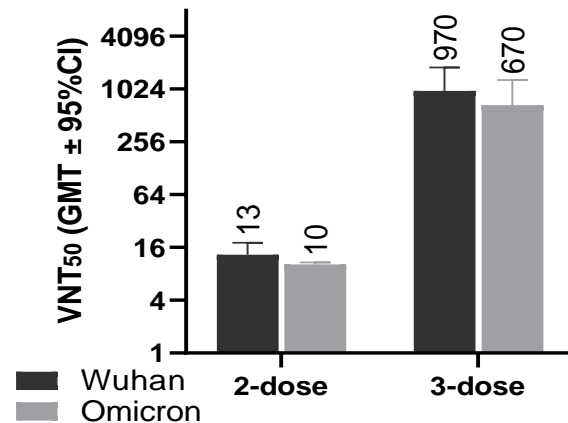
# UB-612 Next Generation COVID-19 heterologous booster vaccine candidate

## Data through Phase 2

- **Three doses of UB-612 elicits >3 times higher titers of neutralizing antibodies against Omicron variant** than reported by an approved mRNA vaccine [1]
- **High cross-reactivity** against multiple SARS-CoV-2 variants [2]
- **Long antibody half-life of 195 days**



Third dose of UB-612 elicits high neutralizing antibodies against the Omicron variant of SARS-CoV-2

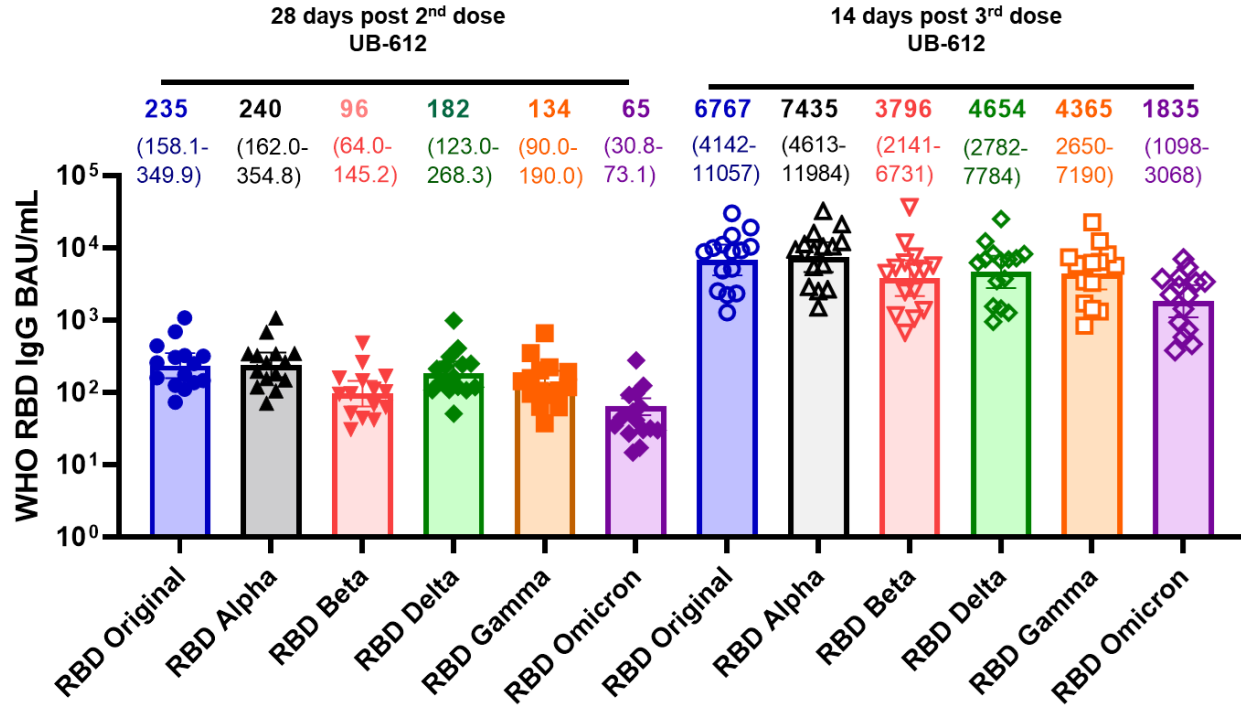


[1] See Muik, A. et al, Science. 2022.

[2] Comparison to historical data generated from comparator vaccines. Goldblatt et al, Vaccine 2022.

Data from a micro-neutralization assay of sera from subjects who received 100µg UB-612 yielded an estimated neutralizing titer half-life of 195 days (CI: 136, 349) using an exponential model

# UB-612 elicits high anti-RBD IgGs across multiple SARS-CoV-2 VoCs after 2 and 3 doses



IgG binding titers against SARS-CoV-2 major variants of concern in sera collected 28 days after 2 doses and 14 days after 3 doses of UB-612 (100µg) from Phase 1 trial participants (n=15). Assay performed at Goldblatt Lab, University College London

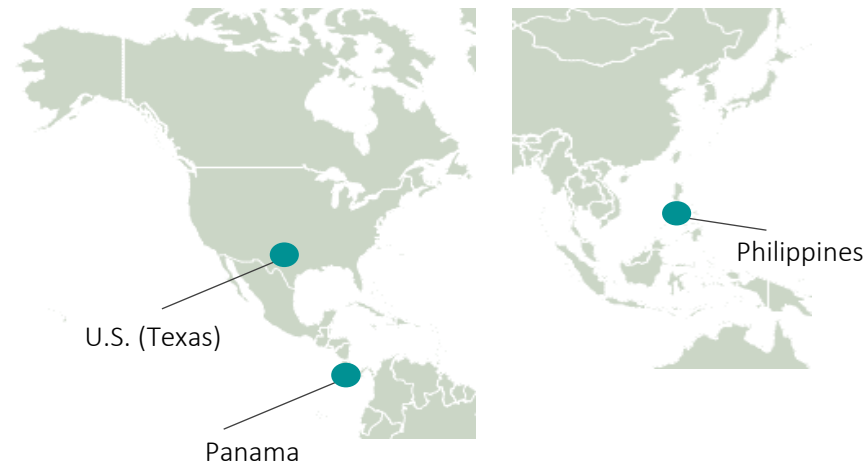


# UB-612 Phase 3 Study Design as a Heterologous Boost Candidate for COVID-19

## Phase 3 Design (n=1010)

- 1:1 randomization to receive a booster dose of UB-612 (100 µg) in **patients who have received a different vaccine 3 months or more** before the study start
- Incorporates three (3) different vaccines:
  - inactivated (Sinopharm BIBP)
  - adenoviral (ChAdOx1-S vaccine)
  - mRNA (BNT162b2 vaccine)
- **Primary Measures Include:** Boost in neutralizing antibody titers against Wuhan strain at Day 29
- **Secondary Measures Include:** Boost in neutralizing antibody titers against Omicron strain at Day 29

Phase 3 supported by CEPI grant (April 2022)



Next update: Ph3 topline readout 2H22

# UB-612 2022 Accomplishments; Anticipated 2023 Milestones

2022

2023

## Clinical

- ✓ **UB-612 elicited >3 times higher titers of neutralizing antibodies** against Omicron variant vs. approved mRNAs
- ✓ Demonstrated high cross-reactivity against multiple SARS-CoV-2 variants
- ✓ Long antibody half-life of 195 days
- ✓ Initiated Global Phase 3 Study for Heterologous Boosting
- Ph3 topline readout

- Full Phase 3 data readout
- Publication of UB-612 as a Heterologous Boost

## Regulatory

- ✓ Met with several Global Health Authorities, confirming trial design and path to authorizations
- ✓ Initiated rolling **submission for conditional marketing authorization to MHRA in UK** (3Q22)

- File BLA in multiple countries



## Management and Financials

# Our experienced leadership team has an established track record of developing vaccines and mAbs



**Mei Mei Hu**

*President & CEO*

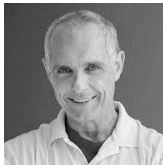
- 4 successful spinouts, including COVAXX & UNS
- McKinsey & Co.
- Fortune 40 under 40



**Lou Reese**

*Executive Chairman*

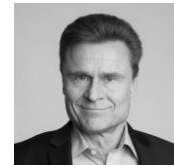
- Serial entrepreneur and E&Y Entrepreneur Finalist
- JPMorgan



**Peter Powchik**

*Member, Board of Directors*

- SVP, Development at Regeneron, oversaw approval of first 7 drugs



**Ulo Palm**

*Chief Medical Officer*

- Cofounder, CMO of Ordaos
- SVP Allergan and SVP Forest Laboratories



**René Paula**

*General Counsel*

- Former COO, Bionic Solution, Inc.



**Amy Fix**

*Chief Regulatory Officer*

- Head of Regulatory Arcellx, Novavax, and Baxter



**JC Dodart**

*SVP, Preclinical*

- VP at Lilly, Merck and Wave over 20 years
- Professor of Neurology at Harvard



**Dario Mirski**

*SVP, Neuro & Chronic*

- Bayer, Novartis, and Otsuka over 20 years

REGENERON

SANOFI

MERCK

MedImmune

NOVARTIS

McKinsey & Company

Lilly

Baxter













NOVAVAX

AstraZeneca

IPSEN

Allergan

# Upcoming Near-Term Catalysts Supported by Strong Balance Sheet

Program	2022		2023
	1H	2H	1H
UB-311 (Aβ)	 FDA Fast Track Designation		 Begin large scale efficacy trial with partner
UB-312 (aSyn)	 Ph1 Part B Start	 EOT Analysis	
Anti-tau		 Lead ID	
UB-313 (CGRP)		 Ph1 Start	 Ph1 Topline
VXX-401 (PCSK9)		 Lead ID	 Ph1 Start
UB-612 (SARS-CoV-2)	 Ph3 start	 Ph3 Topline	 Authorization

## June 30, 2022

### Unaudited balance sheet

Cash and cash equivalents\*\* \$113.8M

Common shares outstanding 125,948,595

Anticipated cash runway sufficient for at least the next 12 months



# DEMOCRATIZE HEALTH.

Our vision is to provide cheaper, safer, more convenient,  
and effective medicines for chronic disease to all.



## Appendix

# Our mission: to democratize health through technology

## First biologic revolution



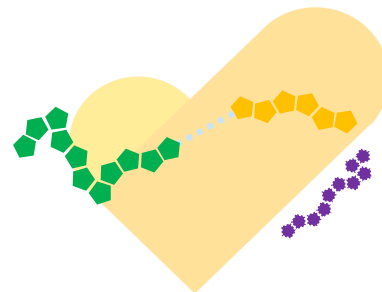
Vaccines against infectious disease

## Second biologic revolution



Monoclonal antibodies (mAbs)  
against chronic disease

## Third biologic revolution\*



**Vaccines Against Chronic Diseases**

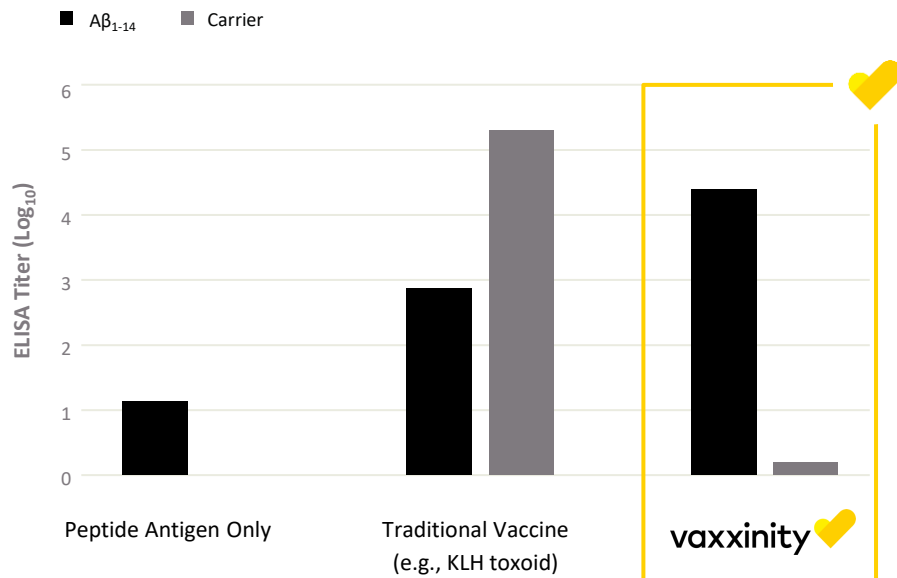


# Unlike traditional vaccines, Vaxxinity's platform can break immune tolerance to elicit a robust B-cell response with minimum off-target activity

- **No other self-antigen immunotherapy that we know of can achieve this**
- **Vaxxinity can break immune tolerance selectively, with potential for greater safety** (based on clinical studies to date)
  - Higher titer levels than traditional vaccines
  - Antibody concentrations comparable to therapeutic mAbs
  - Over 90% of response to the desired B-cell epitope rather than to the carrier, suggesting greater safety than traditional vaccines

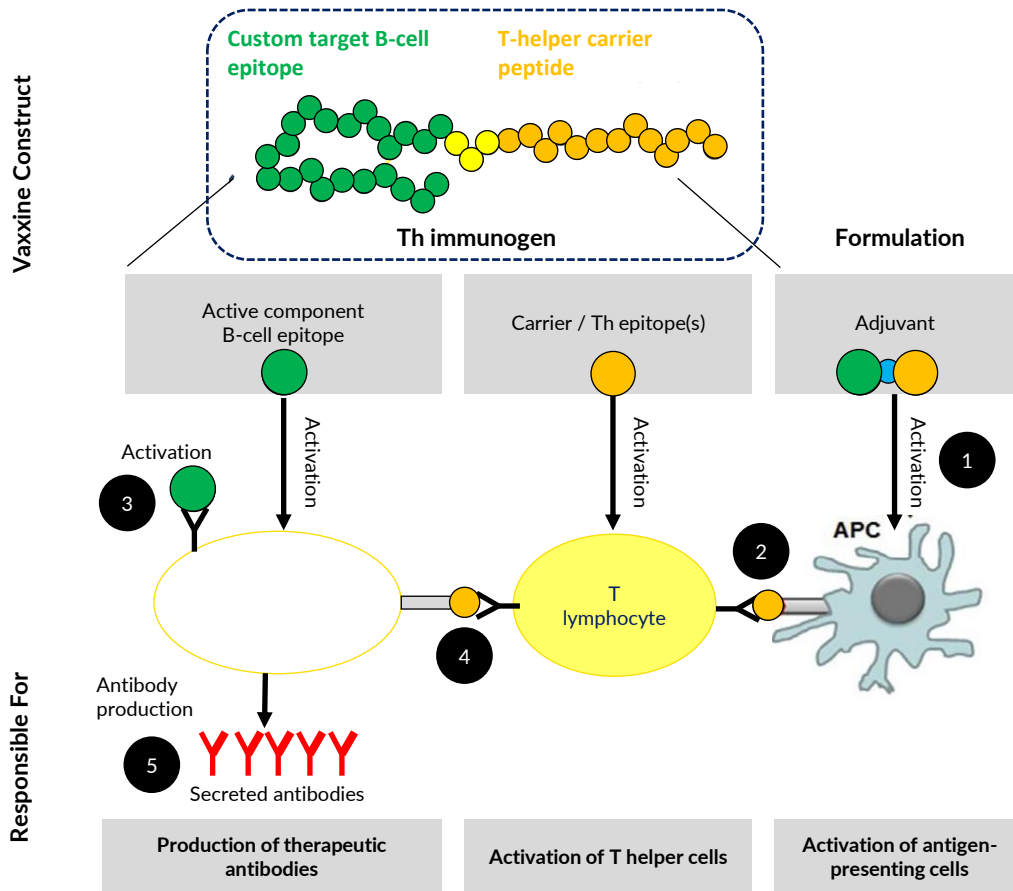
## Alzheimer's Example: Immunogenicity of A $\beta$ Peptides (Log Scale)

Guinea pigs @ 6WPI, n=6



**Repeatable across 6 clinical trials, multiple species and over 10 targets**

# How does it work? Mechanism of action



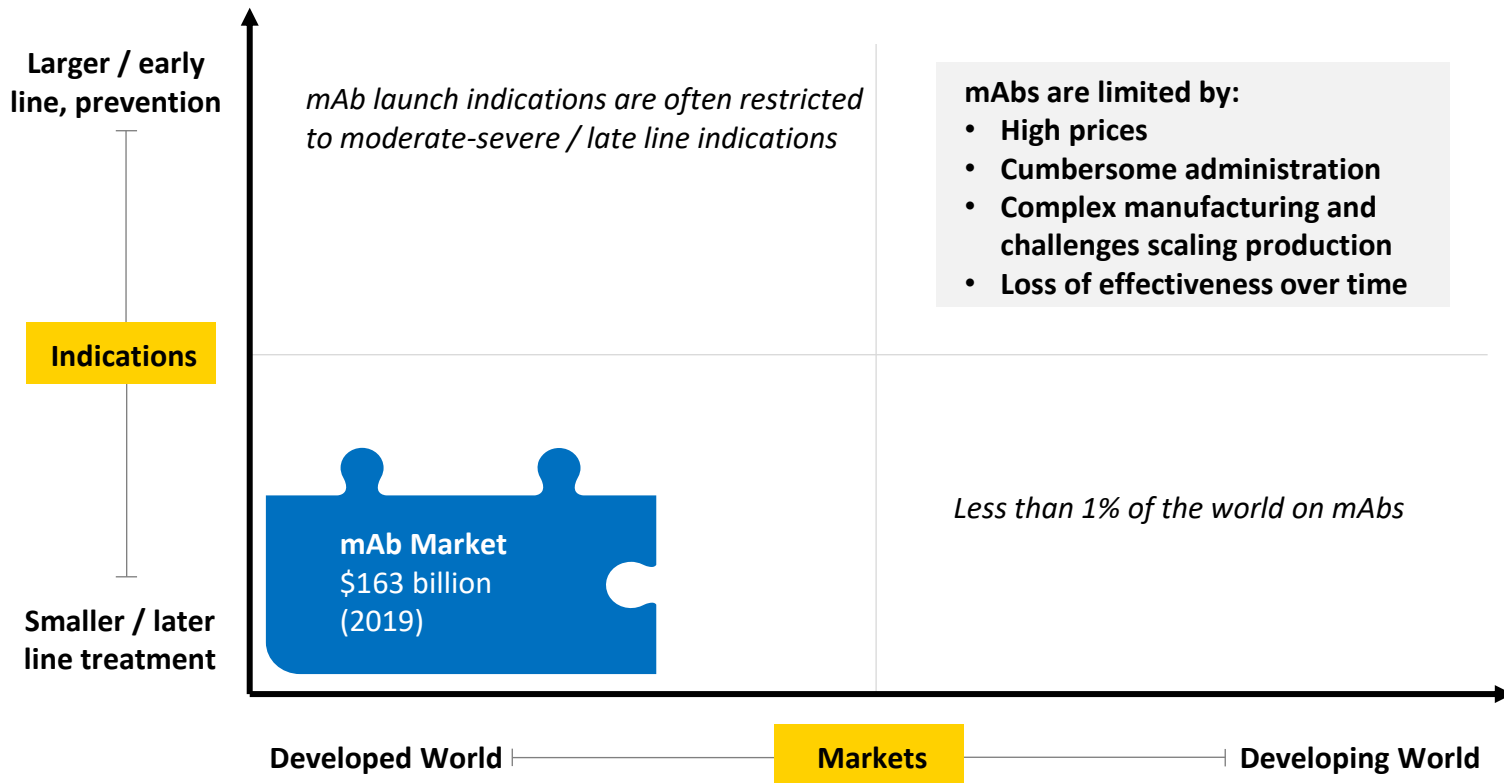
1. The immunogen is taken up by an APC, such as a DC. Antigen uptake leads to DC maturation and migration to the draining lymph nodes where the DCs interact with CD4+ T-helper cells.
2. DCs engulf and process the antigen internally and present the T-helper epitope on major histocompatibility complex ("MHC") Class II molecules. The presentation activates immunogen-specific CD4+ T-helper cells causing them to mature, proliferate, and promote B cell stimulatory activity.
3. B cells with receptors that recognize the target B cell epitope bind, internalize, and process the immunogen. The binding of the B cell receptor to the immunogen provides the first activation signal to the B cells.
4. When B cells function as APCs and present the T-helper epitope on MHC Class II molecules, interaction with immunogen-specific CD4+ T-helper cells provides a second activation signal to B cells, which causes them to differentiate into plasma cells.
5. B cell epitope-specific plasma cells produce high affinity antibodies against the target B cell epitope. Of particular importance for neurodegeneration targets, these antibodies are produced in sufficient concentrations to cross the BBB.

**B cells will not produce antibodies without activation from Th carrier peptide-specific CD4+ T-helper cells, so boost required**

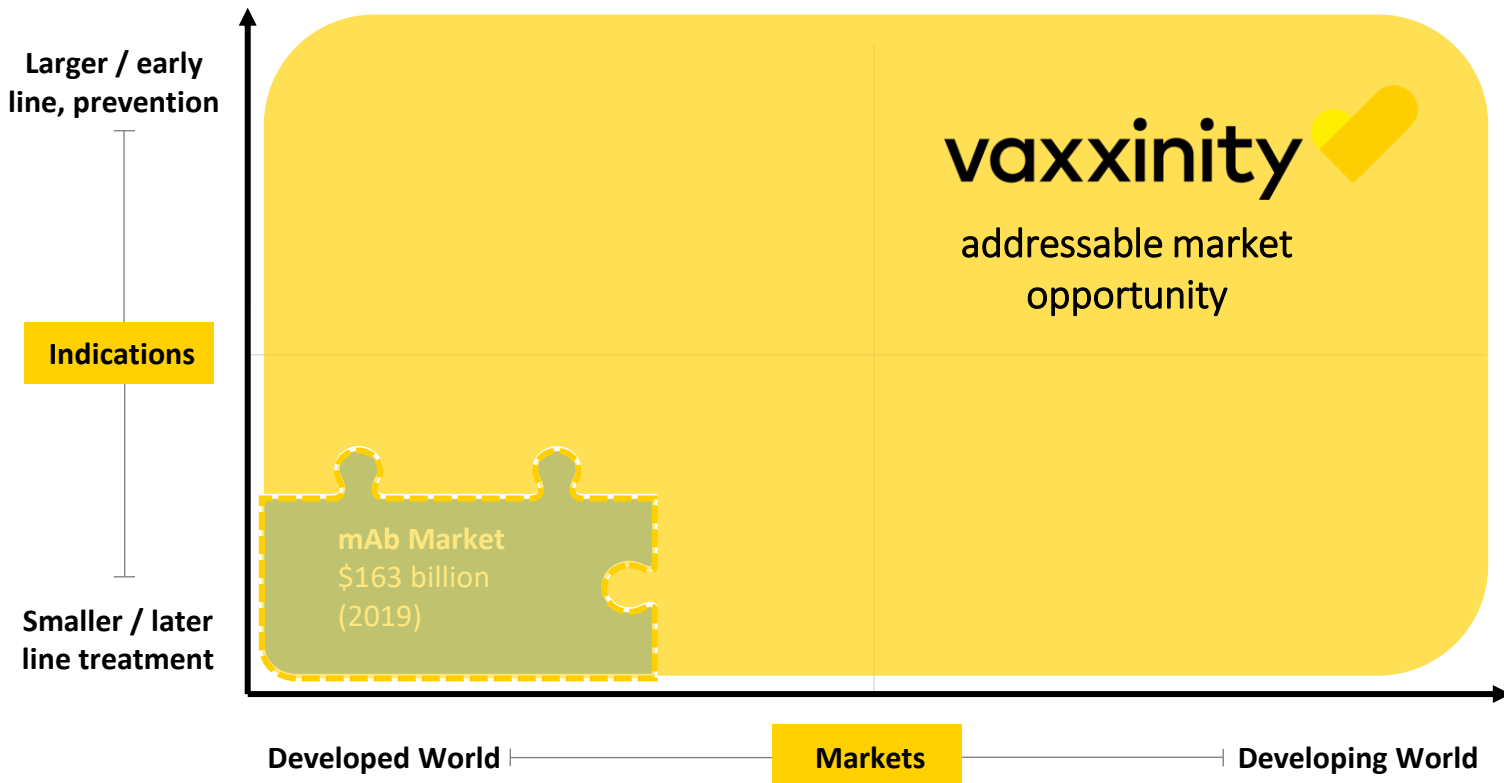
Platform consistently well tolerated, no significant safety observations, and elicits targeted antibodies in ~100% of subjects

	Commercial	Clinical	Nonclinical
# of Doses Administered	> 3 billion in large animals	~7,800	Tens of thousands
Exposure	6-12mo	Up to 3 years	Up to 2 years
Safety	<ul style="list-style-type: none"> <li>• Excellent</li> <li>• Market differentiator allowing for &gt;50% share</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to placebo</li> <li>• Most common AE injection site reaction</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal except injection site reaction (expected)</li> </ul>
Proof of Concept	<ul style="list-style-type: none"> <li>• Commercially licensed in infectious disease (FMDV)</li> <li>• One of two vaccines in world approved against endogenous target (LHRH)</li> </ul>	<ul style="list-style-type: none"> <li>• Antibodies generated against 3 different targets</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;10 animal POCs achieved</li> </ul>

# Despite their gross sales, cost/convenience limitations of mAbs have constrained patient access and market penetration



# Vaxxinity's Mission: Better treatments for dramatically more patients, and greater market penetration



# Vaxxinity outperforms other vaccine technologies

	<b>Vaxxinity</b>	<b>ACI</b>	<b>Affiris**</b>	<b>Axon</b>	<b>Araclon</b>	<b>Novartis</b>	<b>Capo</b>
<b>Technology</b>	<b>Proprietary Vaxxine + CpG</b>	Liposomes + MPLA	KLH + Alum	KLH + Alum	KLH + Alum	VLP + Alum	DNA
<b>Commercialized?</b>	<b>Yes*</b>	No	No	No	No	No	Yes
<b>Indications (target)</b>	<b>Neuro (A<math>\beta</math>, <math>\alpha</math>Syn, tau) Chronic (CGRP, PCSK9)</b>	Neuro (A $\beta$ , tau)	$\alpha$ Syn	Neuro (tau)	Neuro (A $\beta$ )	Neuro (A $\beta$ )	Neuro (A $\beta$ )
<b>Most advanced stage</b>	<b>Ph2</b>	Ph2	Ph 1	Ph2	Ph2	Ph 2	Preclinical
<b>Subjects dosed (number of studies)</b>	<b>&gt;3,800 (6)</b>	132 (5)	72 (3)	180 (4)	151 (2)	>170 (4)	NA
<b>Seroconversion rate</b>	<b>&gt;98%</b>	49%	86%	97%	92%	68%	NA
<b>Magnitude of response</b>	<b>Very High</b>	Very Low	Medium	High	Low	Low	NA
<b>Off-target activity?</b>	<b>No</b>	Yes	Yes	Yes	Yes	Yes	NA
<b>Clinical benefits (biomarker driven)?</b>	<b>Directional on exploratory endpoints</b>	No	No	Yes	NR	NR	NA

\*Commercialized in animal health

\*\*Clinical  $\alpha$ Syn vaccine assets recently acquired by ACI

NR – no record, NA – not applicable

# Alzheimer's: UB-311 is well tolerated over 3 years of repeat dosing, with no brain swelling or significant safety issues observed

n (%)	UB-311 Ph1	UB-311 Ph2a Main Trial		
	UB-311 n=19	Placebo n=14	UB-311 Low Dose (Q6M) n=15	UB-311 Target Dose n=14
Patients with an AE	16 (84.2)	13 (92.9)	13 (86.7)	10 (71.4)
Patients with an SAE	1 (5.3)	2 (14.3)	3 (20.0)	1 (7.1)
Patients permanently discontinuing treatment due to AE	0	1 (7.1)	0	0
Patients permanently discontinuing treatment due to ARIA	0	0	0	0
Number of all-cause deaths	0	0	0	0
ARIA-E	NR	0	0	0
ARIA-H* microhemorrhage	NR	2 (14.3)	2 (13.3)	1 (7.1)
ARIA-H* superficial siderosis	NR	0	0	1 (7.1)

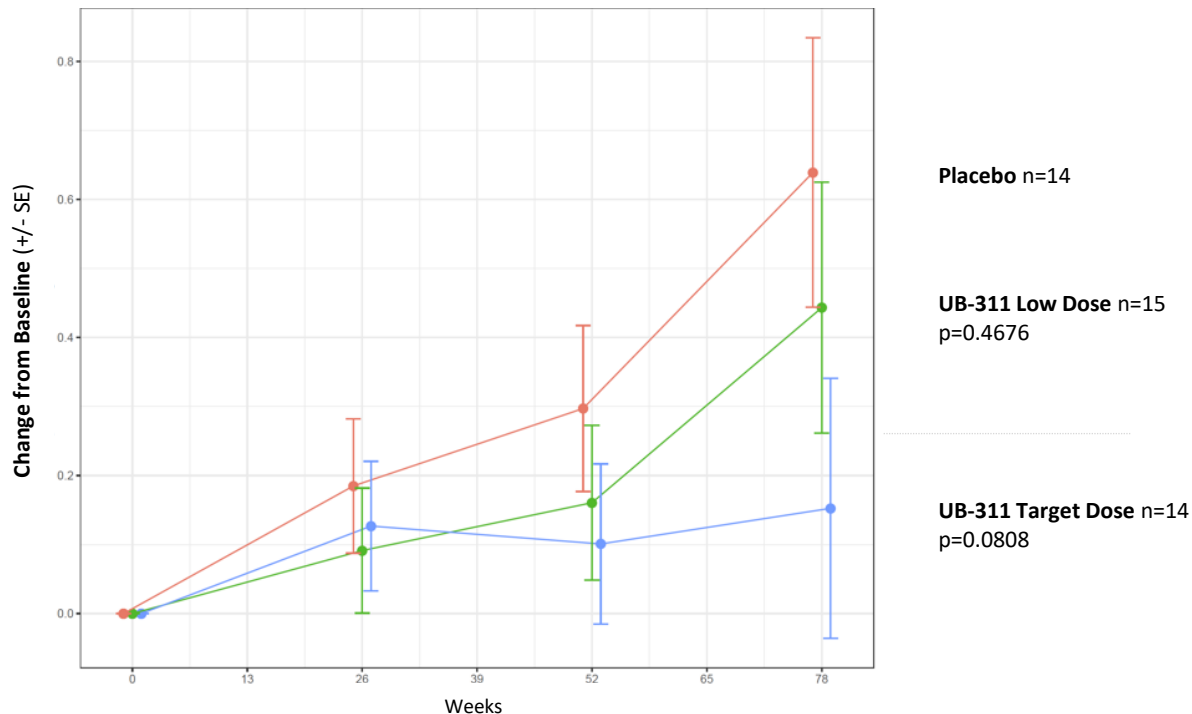
- **Most common TEAE is site injection reactivity** occurring equally in placebo and treatment groups
- **No TEAE causing discontinuation or withdrawal** in Phase 1 or Phase 2a main study

Presented at CTAD 2020 conference (UB-311) and CTAD 2019 (aducanumab)  
One case of ARIA-E was observed in the UB-311 Ph2a Long Term Extension trial

\*New ARIA cases only

# Alzheimer's: Clinical and biomarker composite endpoint suggest overall dose dependent disease-modifying effect in Ph2a

Composite efficacy endpoint\*: Clinical (ADAS-Cog, CDR-SB, ADCS-ADL) + Brain Connectivity (fMRI) + Pathology (PET SUVR)

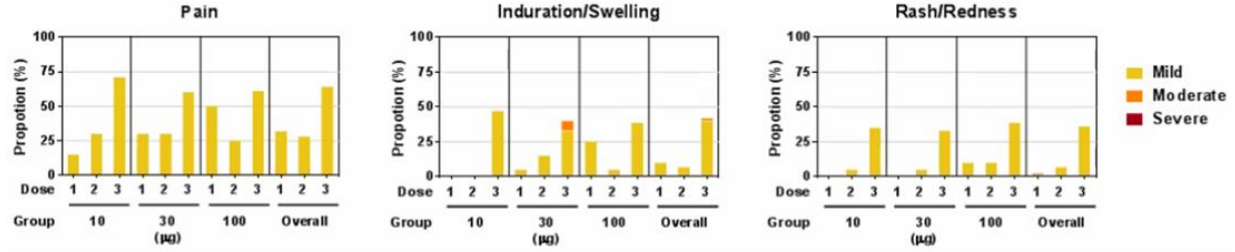


**UB-311 shows slowing of overall disease progression**

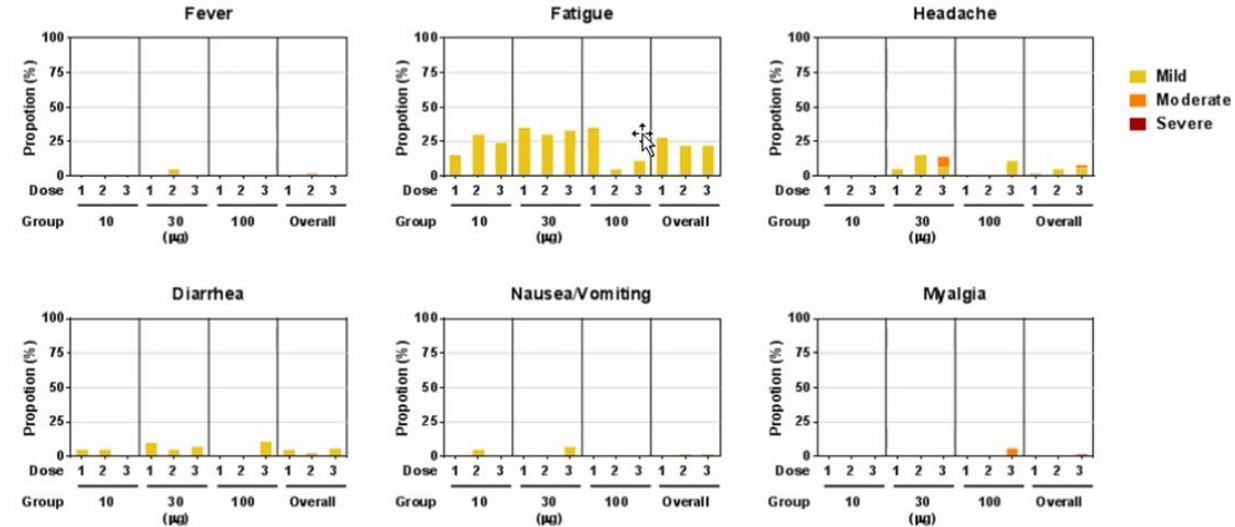


# UB-612 is well tolerated after booster dose, with no significant safety findings to date

## Local Solicited Adverse Events



## Systemic Solicited Adverse Events



Solicited adverse event data from Phase 1 and Phase 1 extension (n=50) suggests that UB-612 is well tolerated after each of three doses across varying dose levels.

# Potential future pipeline therapeutic areas

