

prothena®

CORPORATE OVERVIEW

May 2024

Forward-Looking Statements

This overview contains forward-looking statements. These statements relate to, among other things, the sufficiency of our cash position to fund advancement of a broad pipeline; the continued advancement of our discovery, preclinical, and clinical pipeline, and expected milestones in 2024, 2025, and beyond; our goal to continue building a biology-directed engine targeting protein dysregulation; our potential to advance, initiate, and complete IND enabling studies for our discovery and preclinical programs; the treatment potential, designs, proposed mechanisms of action, and potential administration of PRX012, BMS-986446/PRX005, PRX123, birtamimab, NNC6019/PRX004, and prasinezumab; potential indications (including prevalence) and attributes of epitopes and antibodies we have identified in our programs; plans for ongoing and future clinical trials of PRX012, BMS-986446/PRX005, birtamimab, prasinezumab, NNC6019/PRX004, PRX123, and PRX019; the expected timing of reporting data from clinical trials of birtamimab, PRX012, prasinezumab, and NNC6019, including any updates regarding our ongoing Phase 1 clinical trial evaluating PRX012 in 2024 and any topline study results for our Phase 3 AFFIRM-AL clinical trial between 4Q 2024 and 2Q 2025; and amounts we might receive under our partnerships and collaborations with Roche, BMS, and Novo Nordisk. These statements are based on estimates, projections and assumptions that may prove not to be accurate, and actual results could differ materially from those anticipated due to known and unknown risks, uncertainties and other factors, including but not limited to those described in the "Risk Factors" sections of our Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission (SEC) on May 8, 2024, and discussions of potential risks, uncertainties, and other important factors in our subsequent filings with the SEC. This overview is made as of May 28, 2024, and we undertake no obligation to update publicly any forward-looking statements contained in this press release as a result of new information, future events, or changes in our expectations.

Our Mission Today

We are Focused on Delivering Life-Saving Therapies...

…for unmet medical needs caused by **diseases of protein dysregulation**



We are Addressing Devastating Proteinopathies Affecting Millions of Patients and Families Worldwide

NEURODEGENERATIVE DISEASES

Alzheimer's disease (AD)

55 million

People worldwide living with Alzheimer's disease or other dementias[1]

7th

Leading cause of death in United States[6]

$1 trillion

In annual US healthcare costs by 2050 from AD and other dementias[8]

Parkinson's disease (PD)

10 million

People living with PD worldwide[2]

Fastest increasing

Neurodegenerative disease[7]

$52 billion

In overall economic burden in the US[9]

RARE PERIPHERAL AMYLOID DISEASES

Amyloid light chain amyloidosis (AL)

60,000-120,000

Patients with Mayo Stage IV AL amyloidosis globally[3]

5.8 months

Median overall survival in Mayo Stage IV patients with AL amyloidosis[4]

Transthyretin amyloidosis (ATTR)

450,000

Estimated number of patients worldwide with wtATTR or ATTRv[5]

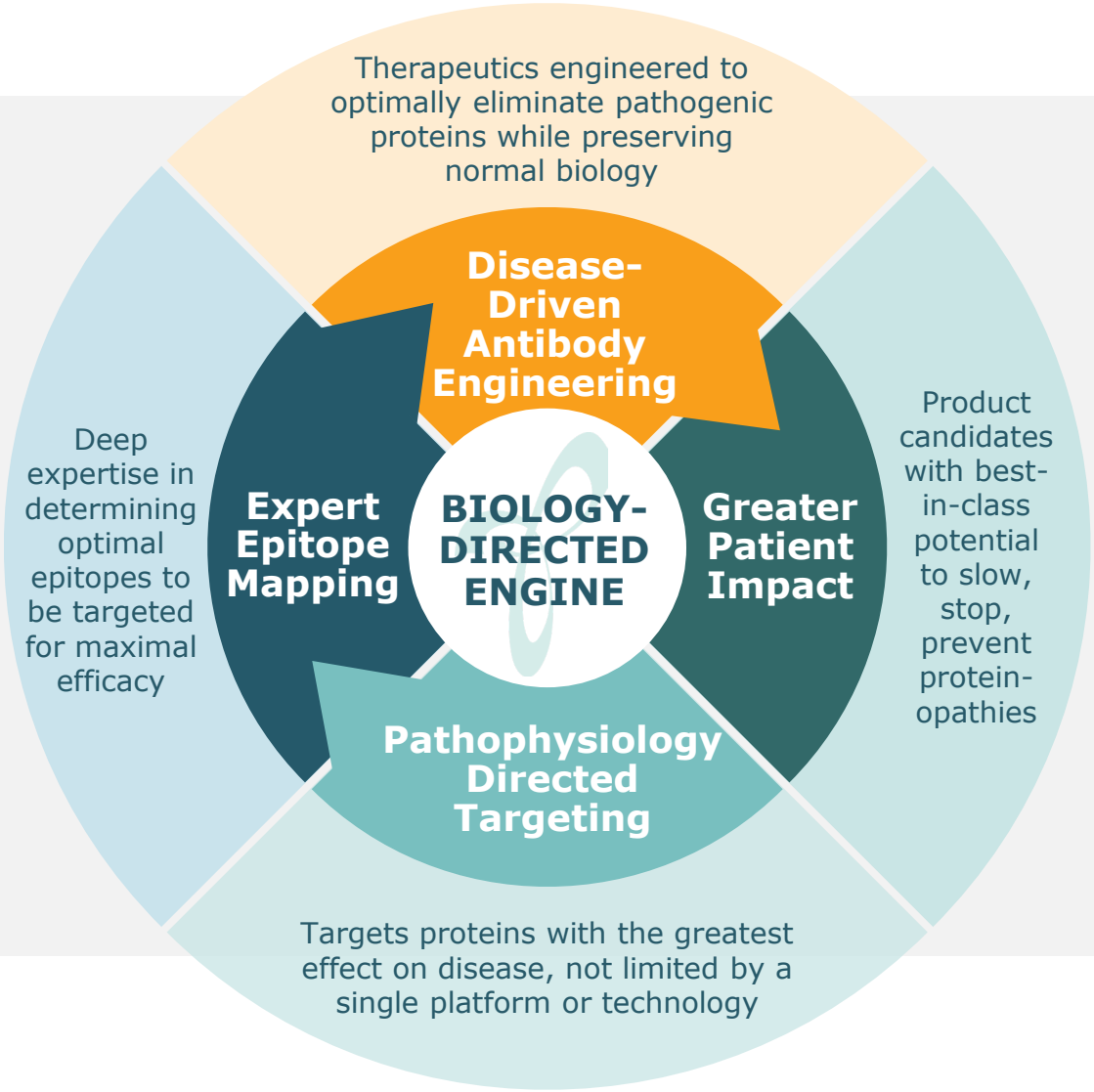
2.08 years

Median overall survival New York Heart Association class III patients with ATTR cardiomyopathy[10]

wtATTR: Wild-Type ATTR. ATTRv: Hereditary amyloid transthyretin.

[1] Alzheimer's Disease International. Dementia Statistics, [2] Parkinson's Foundation. Understanding Parkinson's. Statistics, [3] Kumar N, et al. 2022 *Orphanet J Rare Dis*; Quock T, et al. 2018 *Blood Advances*, [4] Levin M, et al. Available at: https://www.myamyloidosisteam.com/resources/stages-of-amyloidosis; Kumar S, et al. 2012 *J Clin Oncol.*, [5] Gonzalez-Lopez et al, 2017; Mauer et al, 2016; Gagliardi et al, 2018, [6] 2021 Alzheimer's Disease Fact Sheet, National Institute on Aging, NIH, [7] GBD 2015 Neurological Disorders Collaborator Group (2017) Global, regional, and national burden of neurological disorders during 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Neurol* 16, 877-897, [8] Alzheimer's Association Facts and Figures Report 2022, [9] The Economic Burden of Parkinson's Disease - The Michael J. Fox Foundation, [10] Kumar et al 2012, Pinney J et al. 2013; Gonzalez-Lopez E et al. 2017.

Our Biology-Directed Engine Propels Prothena's Progress Across our Broad Pipeline



Multiple Clinical Programs Ongoing

Wholly-owned Phase 3 program

Three partnered Phase 2 programs

Wholly-owned Phase 1 program

Two new INDs cleared by FDA

Strong Collaborations Established

Collaborations with Bristol Myers Squibb, Novo Nordisk[1] and Roche

Leveraging our Phase 3 Rare Peripheral Amyloid Disease Program to Support Commercial Buildout

Transition into a fully integrated commercial biotech through our lead rare disease program

[1] In July 2021 Novo Nordisk acquired NNC6019 (formerly PRX004) and broader ATTR amyloidosis program and gained full worldwide rights. Prothena is eligible to receive up to $1.23 billion in total consideration.

Robust R&D Pipeline

FOCUSED ON NEURODEGENERATIVE AND RARE PERIPHERAL AMYLOID DISEASES

PROGRAM/ INDICATION	PROTEIN TARGET	DISCOVERY	PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3	GLOBAL PARTNER[4]
Birtamimab SPA[1] ODD[2] Fast Track[3] *AL amyloidosis*	Kappa & Lambda Light Chain	AFFIRM-AL (Phase 3)					
Prasinezumab *Parkinson's disease*	α-Synuclein (C-terminus)	PASADENA (Phase 2) | PADOVA (Phase 2b)					Roche
NNC6019 (PRX004) *ATTR amyloidosis*	Transthyretin (misTTR)	Phase 2					novo nordisk
BMS-986446 (PRX005) *Alzheimer's disease*	Tau (MTBR)	Phase 2					Bristol Myers Squibb
PRX012 Fast Track[3] *Alzheimer's disease*	Aβ (N-terminus)	ASCENT (Phase 1)					
PRX123 Fast Track[3] *Alzheimer's disease*	Aβ + Tau	IND cleared					
PRX019 *Neurodegeneration*	Undisclosed Target	IND cleared					Bristol Myers Squibb
Undisclosed *AD in Down syndrome*	Undisclosed Target						

Modalities: mAb | Small Molecule | Vaccine

Aβ, Abeta; AD, Alzheimer's disease; ALS, amyotrophic lateral sclerosis; mAb, monoclonal antibody.
[1] Primary endpoint of all-cause mortality at p≤0.10 under the Special Protocol Assessment (SPA) agreement with FDA; [2] Orphan Drug Designation granted by FDA & EMA; [3] FDA Fast Track designation;
[4] In July 2021 Novo Nordisk acquired NNC6019 (formerly PRX004) and broader ATTR amyloidosis program and gained full worldwide rights. Prothena is eligible to receive up to $1.23 billion in total consideration

Alzheimer’s Disease

Our Team has Pioneered Multiple Scientific Advances in Protein Dysregulation

OUR LEGACY INCLUDES FOUNDATIONAL DISCOVERIES IN THE UNDERSTANDING OF ALZHEIMER'S DISEASE

1986
Athena Neurosciences founded

1996
Athena acquired by Elan

2012
Prothena spins-out from Elan with a wholly-owned drug discovery platform

- **Pioneered fundamental discoveries** elucidating the roles of beta amyloid (Aβ), gamma secretase and beta secretase play in disease[1]
- **First to show** that anti-Aβ immunotherapy prevented and cleared amyloid plaques in the brains of transgenic mice[2]
- **First to demonstrate plaque clearance** by an n-terminus antibody in brains from AD patients[3]
- **Discovered biological cause of ARIA** and vascular recovery following anti-Aβ immunotherapy[4]
- **Developed PRX012, best-in-class anti-Aβ product candidate,** with ~10X greater binding potency to fibrillar Aβ vs. aducanumab[5] and ~20X greater binding potency against protofibrils vs. lecanemab[6]

[1] Games, D., Adams, D., Alessandrini, R. et al. Alzheimer-type neuropathology in transgenic mice overexpressing V717F β-amyloid precursor protein. 1995 Nature; [2] Schenk, D., Barbour, R., Dunn, W. et al. Immunization with amyloid-β attenuates Alzheimer-disease-like pathology in the PDAPP mouse. 1999 Nature; [3] Rinne et al, C-BiP PET assessment of change in fibrillar amyloid-b load in patients with Alzheimer's disease treated with bapineuzumab: a phase 2, double-blind, placebo-controlled, ascending –dose study, 2010, [4] Zago W, Schroeter S, Guido T, et al. Vascular alterations in PDAPP mice after anti-Aβ immunotherapy: Implications for amyloid-related imaging abnormalities. 2013 Alzheimers Dement. [5] PRX012 Induces Microglia-Mediated Clearance of Pyroglutamate-Modified and -Unmodified Aß in Alzheimer's Disease Brain Tissue presented at AAIC 2021; [6] Binding Characteristics of Surrogate PRX012 Demonstrate Potent Engagement of Toxic Abeta Protofibrils and Robust Clearance of Pyroglutamate-Modified Abeta presented at AD/PD 2023

Our Legacy Drives Our Vision to Transform the Care of Alzheimer's Disease

With unparalleled protein dysregulation expertise…

Published: 09 February 1995

Alzheimer-type neuropathology in transgenic mice overexpressing V717F β-amyloid precursor protein

Published: 08 July 1999

Immunization with amyloid-β attenuates Alzheimer-disease-like pathology in the PDAPP mouse

Epub 2010 Feb 26.

11C-PiB PET assessment of change in fibrillar amyloid-beta load in patients with Alzheimer's disease treated with bapineuzumab: a phase 2, double-blind, placebo-controlled, ascending-dose study

First published: 15 April 2013

Vascular alterations in PDAPP mice after anti-Aβ immunotherapy: Implications for amyloid-related imaging abnormalities

OUR LEGACY [1-4]

…We're uniquely positioned to address Alzheimer's Disease with a best-in-class portfolio



PRX012, anti-Aβ candidate with potential best-in-class, **highly potent binding**; designed for improved patient access via **subcutaneous** delivery[5]

Phase 1

BMS-986446 (PRX005), anti-tau candidate, with **potential to reduce pathogenic tau spread**[6]

Phase 2

PRX123, dual Aβ/tau vaccine candidate designed for **treatment and prevention**

IND cleared

TODAY

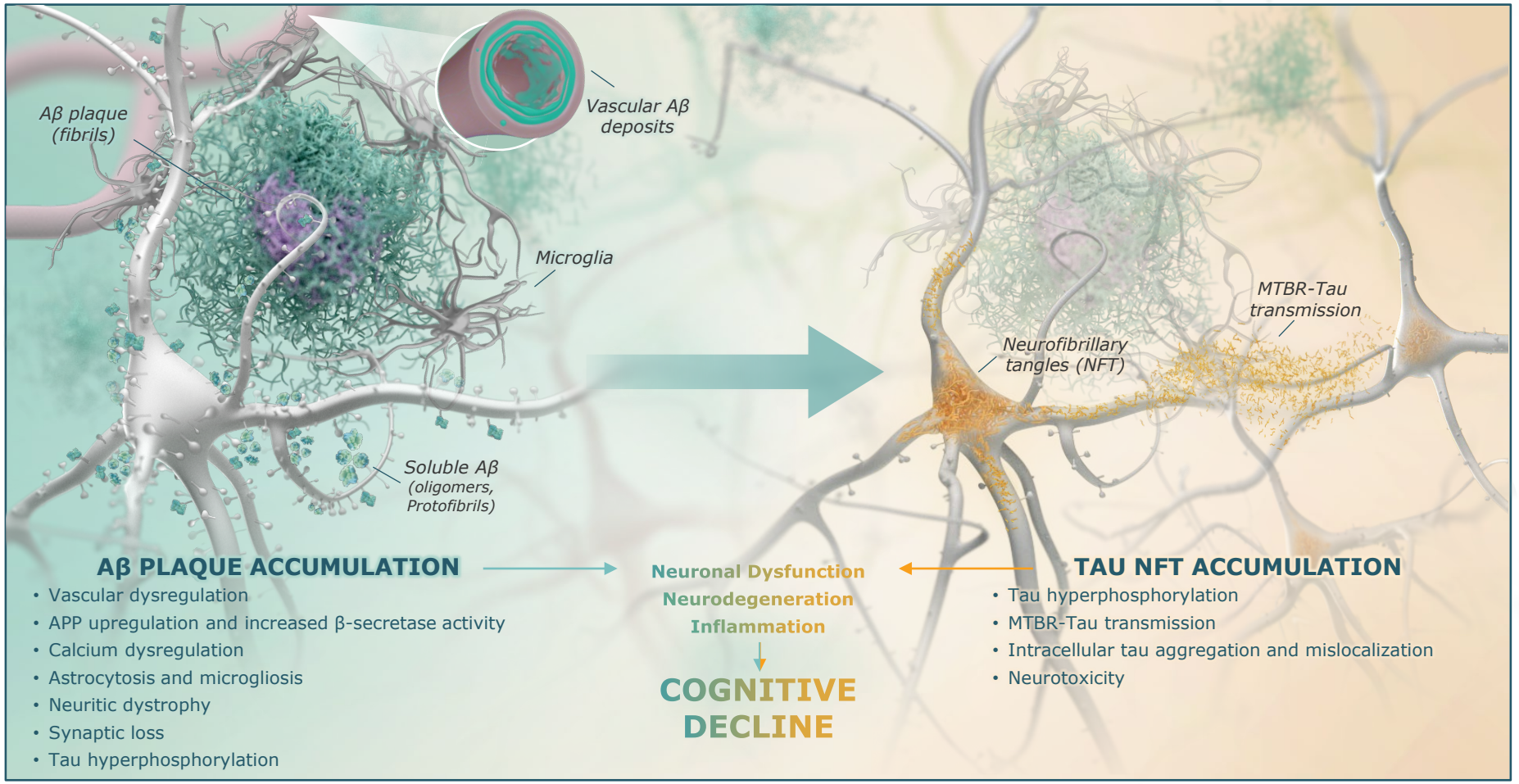
[1] Games D, et al.1995 *Nature*; [2] Zago W, et al. 2013 *Alzheimers Dement*; [3] Schenk D, et al. 1999 *Nature*; [4] Rinne, et al. 2010 *Lancet Neurol*; [5] Skov M, et al. Preclinical data available at: https://tinyurl.com/3zzpmbxh; [6] Dolan P. Preclinical data available at: https://tinyurl.com/3kf7pvnd.

Targeting Alzheimer's Where it Matters

Aβ has been established as a disease modifying target in Alzheimer's disease

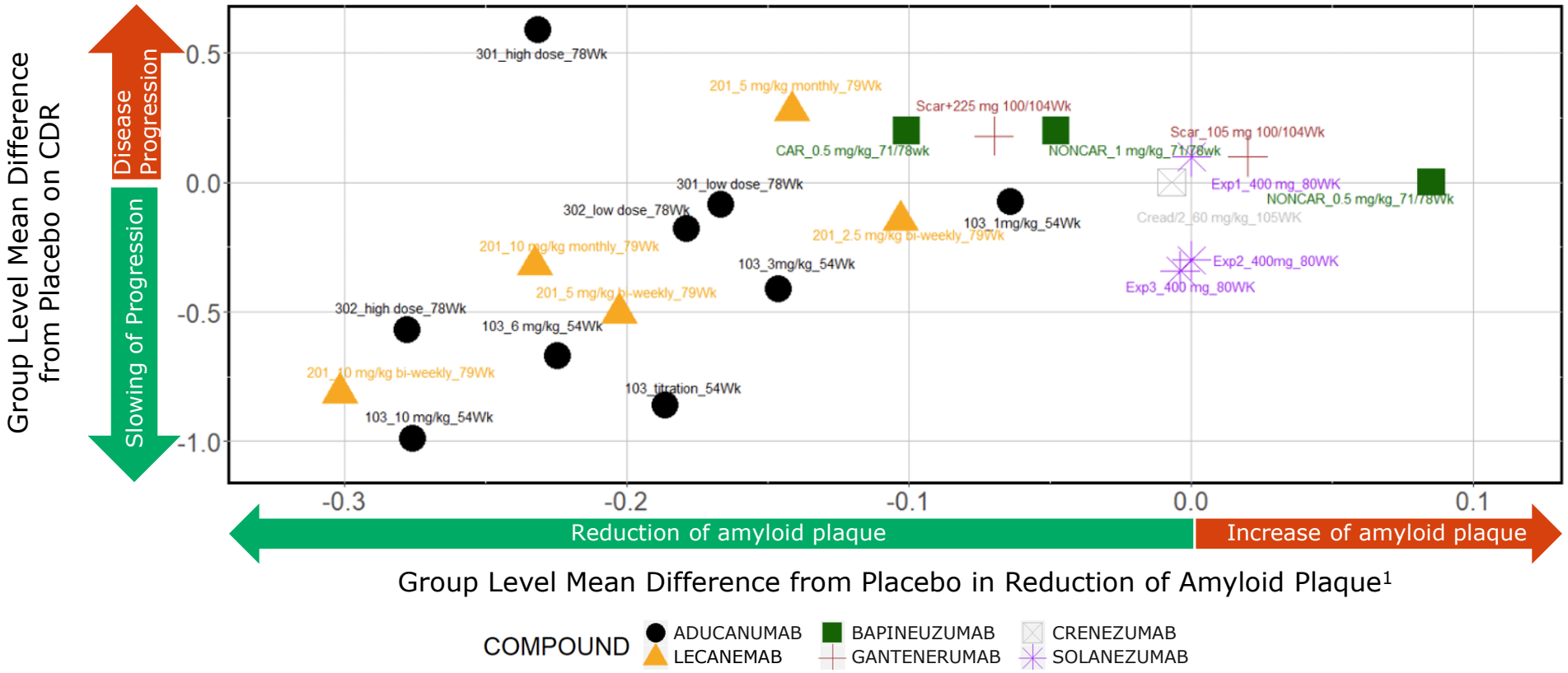
Reduction of Aβ plaque associated with clinically meaningful slowing of disease progression

Presence of tau pathology strongly correlates with neurodegeneration and cognitive impairment in Alzheimer's disease



Today's Clinical Science Validates the Mechanism Designed by Our Team

Mean Difference from Placebo in Reduction of Amyloid Plaque[1] and CDR-SB



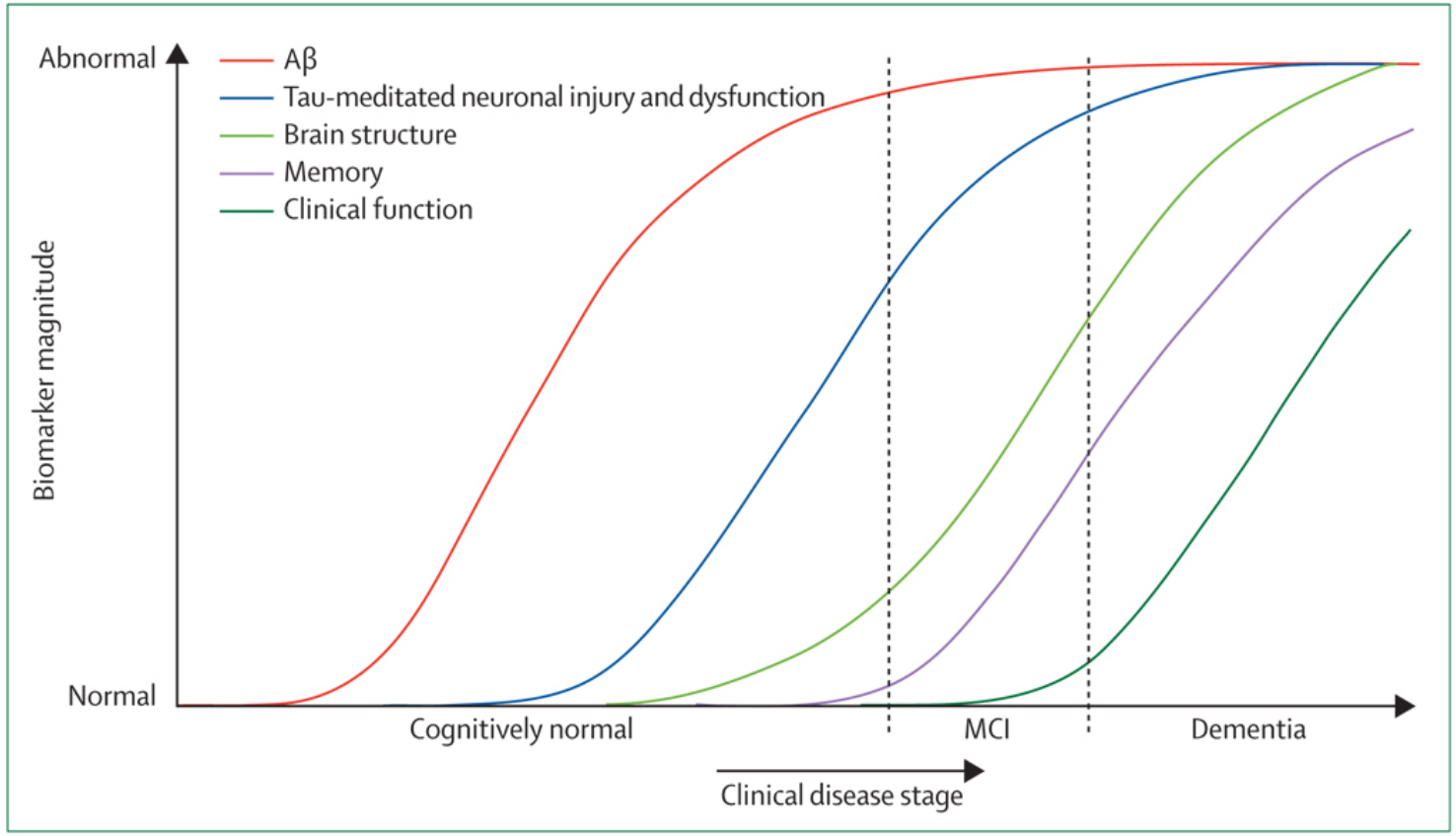
2020 US FDA ANALYSIS: Aβ has been established as a disease modifying target in AD[2,3]

[1] Reduction of Amyloid Plaque as measured by SUVr, Standardized Uptake Value Ratio; CDR, Clinical Dementia Rating Scale.
[2] ADUHELM [prescribing information]. Cambridge, Massachusetts: Biogen Inc; October 2022; [3] US FDA. Clinical Pharmacology and Pharmacokinetics Review(s). July 2020. Available at: https://www.accessdata.fda.gov/drugsatfda_docs/nda/2021/761178Orig1s000ClinPharm_Redacted.pdf.

Targeting Alzheimer's Where it Matters

CHANGING THE TREATMENT PARADIGM THROUGH OUR BIOLOGY-DIRECTED ENGINE

Dynamic biomarkers of the Alzheimer's pathological cascade[1]



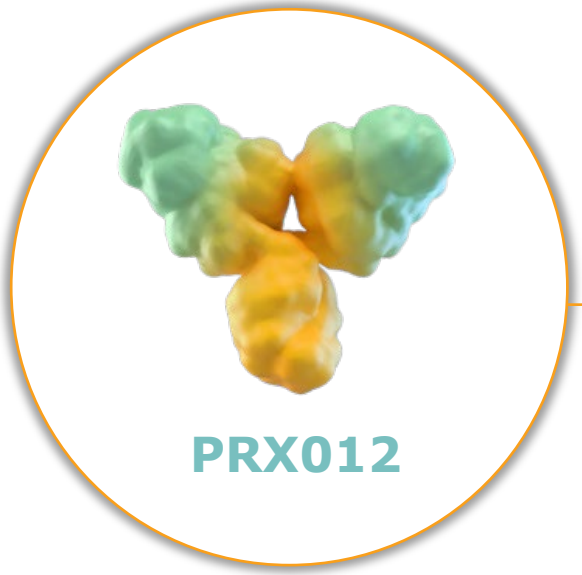
[1] Jack, Clifford et al. Hypothetical model of dynamic biomarkers of the Alzheimer's pathological cascade, 2010 NIH Public Access

PRX012

Alzheimer’s Disease

PRX012: Leading a Paradigm Shift in the Treatment of Alzheimer's Disease

300+ iterative antibody design and optimization campaigns led to…



…potential best-in-class, subcutaneous, once-monthly anti-Aβ product candidate

Key Antibody Design Attributes

HUMANIZED IgG1 monoclonal antibody with low immunogenicity

TARGETS a key epitope at the N-terminus of Aβ protein

HIGH AFFINITY AND AVIDITY to Aβ for extended binding time and opsonization efficiency

SLOW OFF RATE / slow & steady dissociation translates to consistent target exposure and potential safety advantages

HIGHLY POTENT BINDING, designed for subcutaneous administration

Translating Patient Needs Into Antibody Engineering

PATIENT-CENTRIC DESIGN STRATEGY FOR PRX012

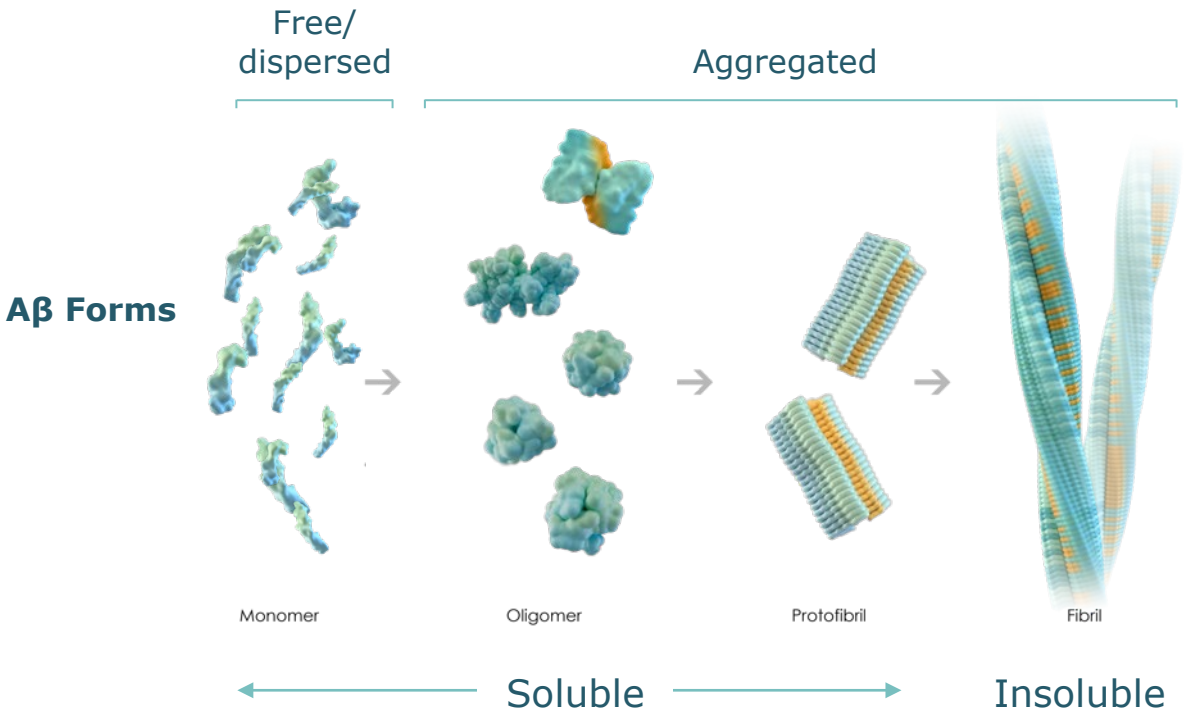
	TARGET PROFILE	ANTIBODY DESIGN ATTRIBUTES
Maintain From First Generation Antibodies	**Effectively clear soluble and insoluble aggregated amyloid**	• N-terminal directed • Full effector-function
Innovations to Minimize Disease and Treatment Burden	**Low-volume subcutaneous (SC) delivery**	• High binding potency • Stability in high concentrations for single syringe use
	Once-monthly dosing	• Optimize pharmacokinetic profile and immunogenicity • Optimal bioavailability
	At-home administration	• Optimal biophysical qualities

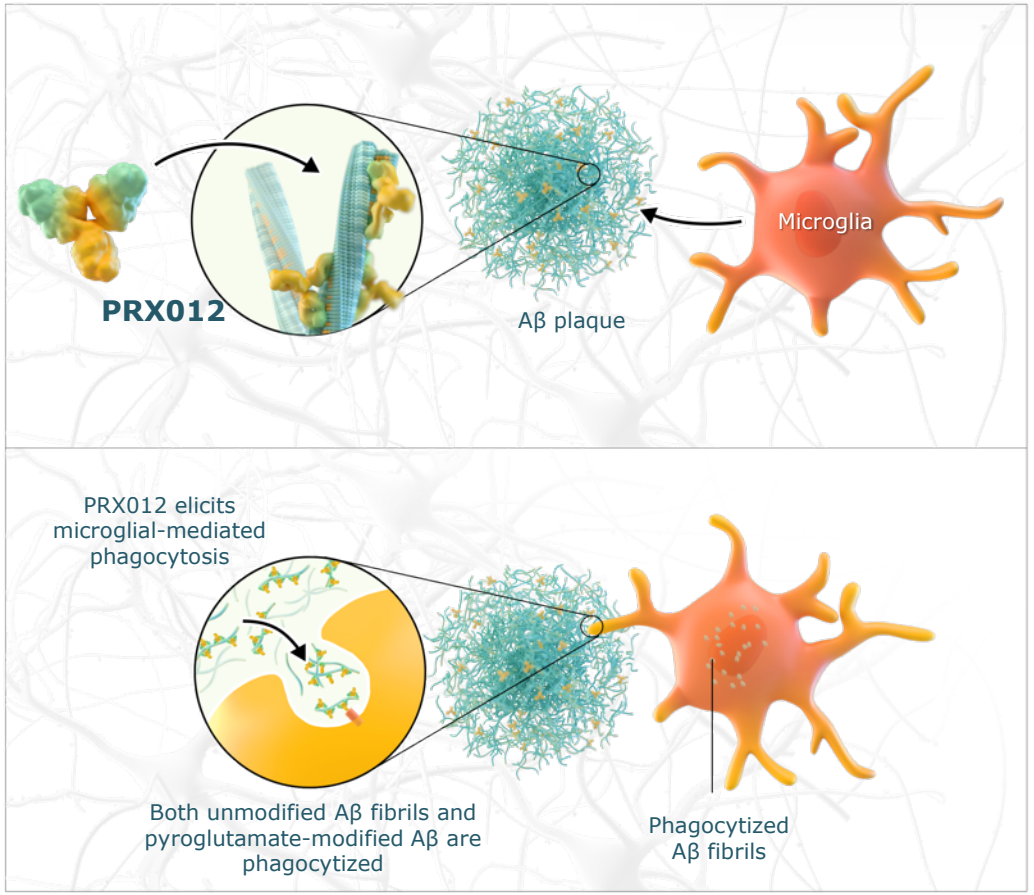
OUR MISSION

- Improve patient outcomes
- Increase accessibility
- Minimize treatment burden
- Enable patients and care partners to take anti-Aβ treatment into their own hands

PRX012: Promotes Comprehensive Clearance of Amyloid Plaques and Neutralization of Oligomers

Designed to target and clear toxic aggregated forms of Aβ



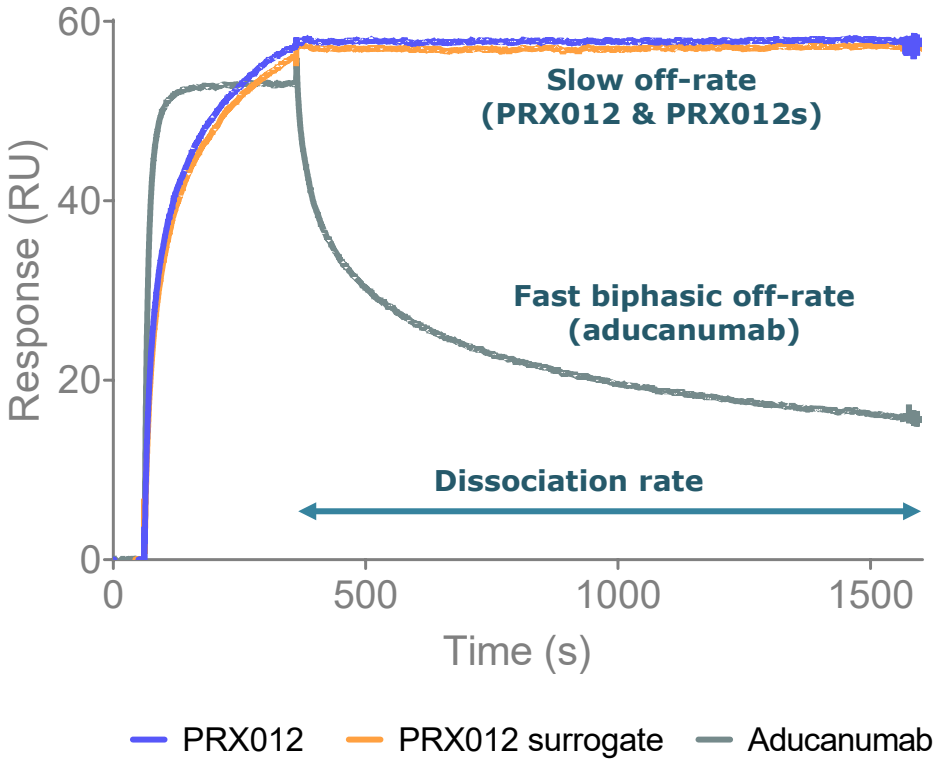


Microglia recognize and engulf PRX012-opsonized Aβ fibrils

Note: Based on preclinical data. Visuals not to scale.

PRX012 and Surrogate Demonstrate Equivalent Potent Binding Affinity for Aβ

Surface Plasmon Resonance (SPR) Aβ Fibrils



Affinity for Aβ Species

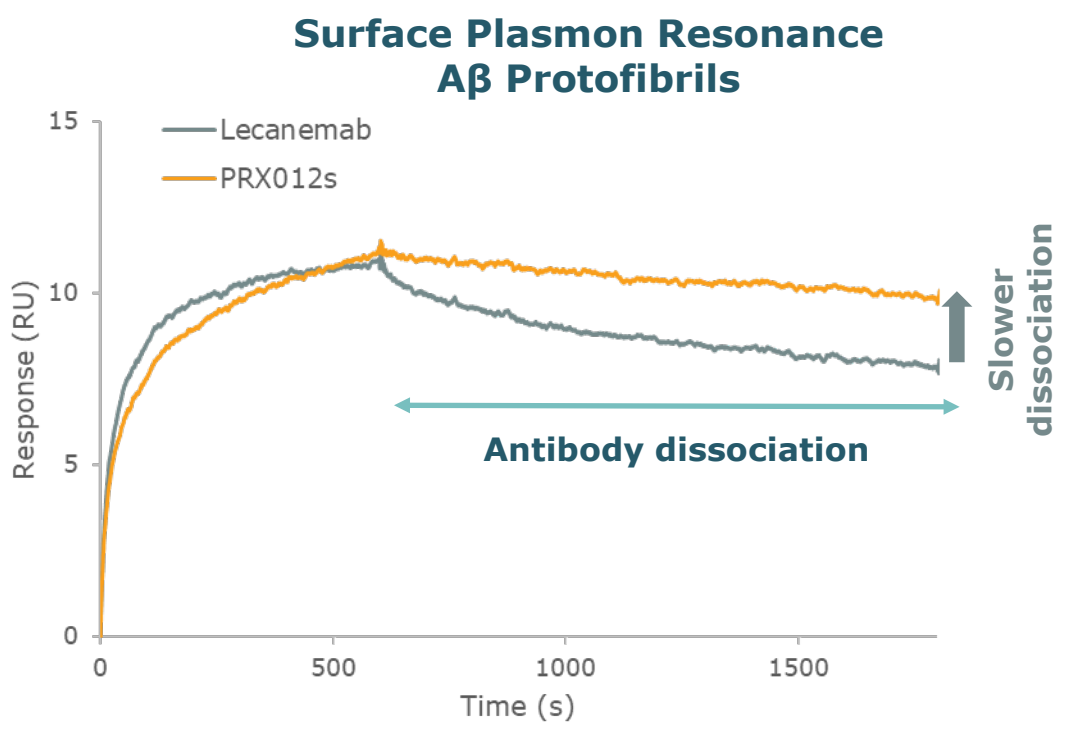
Compound	Fibril/Plaque	N3pE-Aβ
PRX012	0.070[a]	>67[b]
PRX012s	0.054[a]	>67[b]

Data represent K_D values from SPR[a] (nM) or IC50 from ELISA[b] (nM).

- **Potent binding strength of PRX012 and its surrogate (PRX012s) to fibrillar Aβ are equivalent, both demonstrating a very slow rate of dissociation**
  - PRX012 and PRX012s share >99.5% sequence homology
- **How does binding to protofibrils compare?**

N3pE-Aβ, pyroglutamate-modified Aβ; SPR, surface plasmon resonance.
PRX012s: "Surrogate" is defined as an antibody with >99.5% homology, the same binding epitope and equivalent binding profile to different forms of Aβ where directly compared.
Aducanumab was generated from a publicly available sequence.

PRX012s Binds Aβ Protofibrils With Very High Affinity



SPR protofibril binding was performed as described in Tucker et al., 2015[1]

Antibody	Relative Affinity (K_{D1})
Lecanemab[1] **(Tucker et al., 2015)**	1.97 nM
Lecanemab[2]	1.91 nM
PRX012s	0.0975 nM

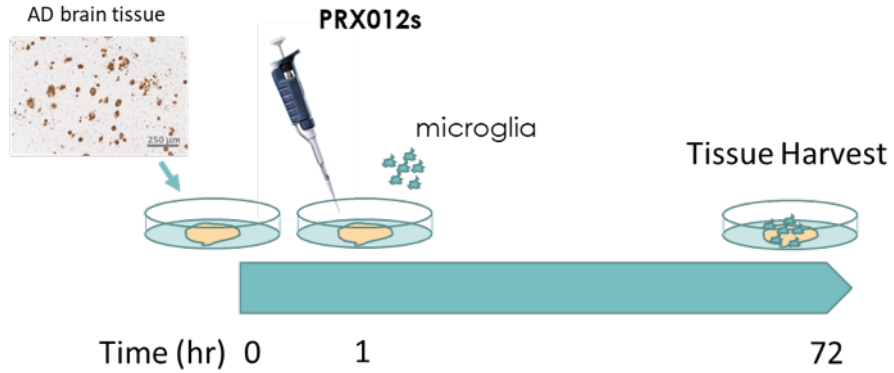
SPR Binding Kinetics

	ka1 (1/Ms)	kd1 (1/s)	K_{D1}
Lecanemab[1] **(Tucker et al., 2015)**	6.60E+05	1.30E-03	1.97E-09
Lecanemab[2]	1.80E+05	3.42E-04	1.91E-09
PRX012s	1.63E+05	1.59E-05	9.75E-11

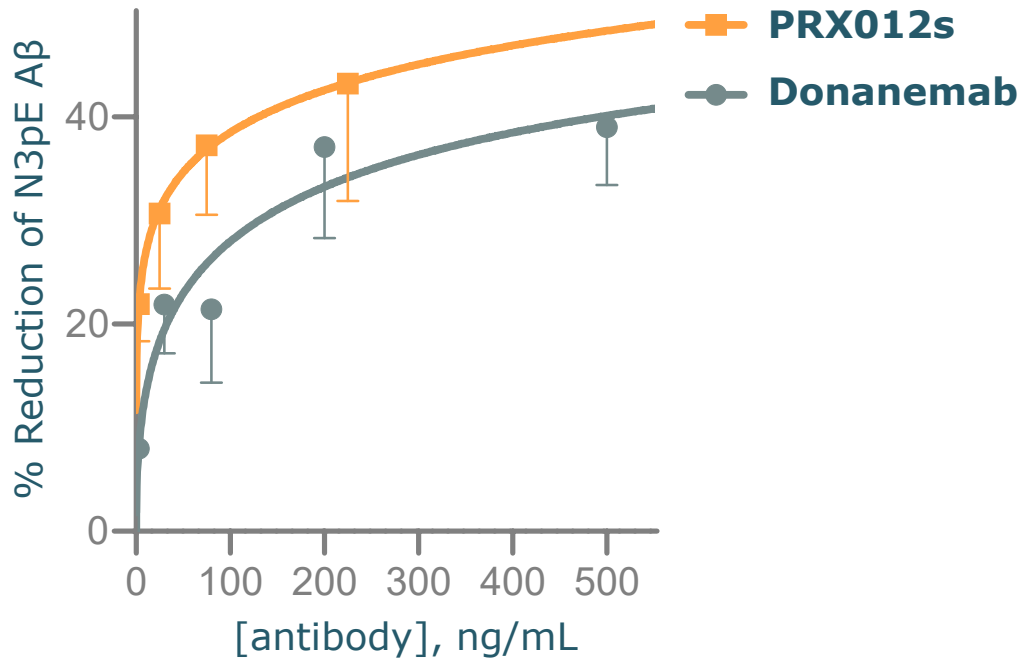
- **PRX012s binds to Aβ protofibrils with approximately 20-fold greater affinity than lecanemab when tested under the same conditions**
- **Greater affinity is driven largely by a slower binding dissociation**

ka, association constant; kd, dissociation constant; KD, equilibrium constant; SPR, surface plasmon resonance.
[1] Tucker S, et al. *J Alzheimers Dis.* 2015;43:575-588.
[2] Determined by Prothena.
Lecanemab was generated from a publicly available sequence.

PRX012s Induced Potent and Robust Clearance of Pyroglutamate-modified Aβ



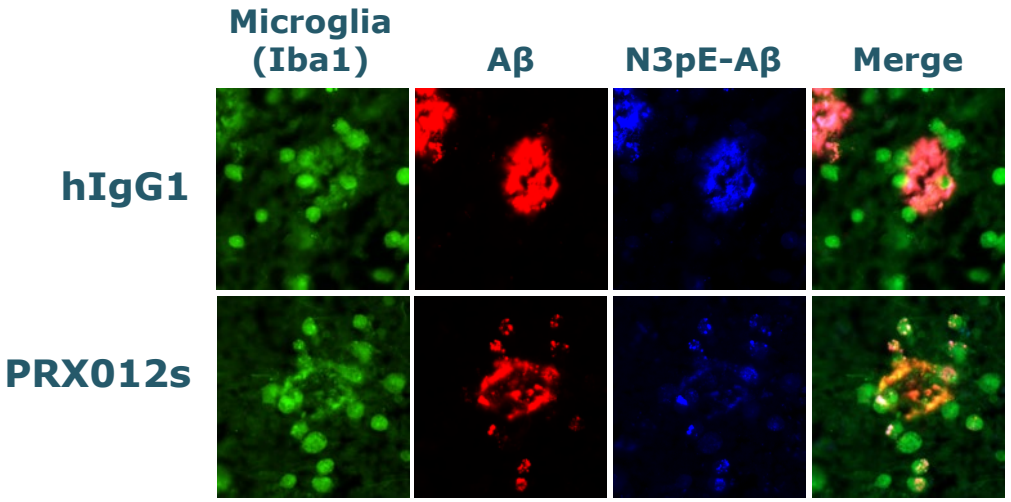
	Study Conditions
Tissue	Post-mortem AD brain tissue (same donor used for all conditions)
Treatment	PRX012s, donanemab, or IgG1 isotype control
Microglia	Primary mouse microglia (800,000 cells/mL)
Culture time	72 hours at 37°C



- **PRX012s facilitates concentration-dependent clearance of pyroglutamate-modified Aβ (N3pE-Aβ) at concentrations that may be relevant for PRX012 clinical exposure**
- **PRX012s clears equivalent or more N3pE-Aβ at ~3–8x lower concentrations than donanemab**

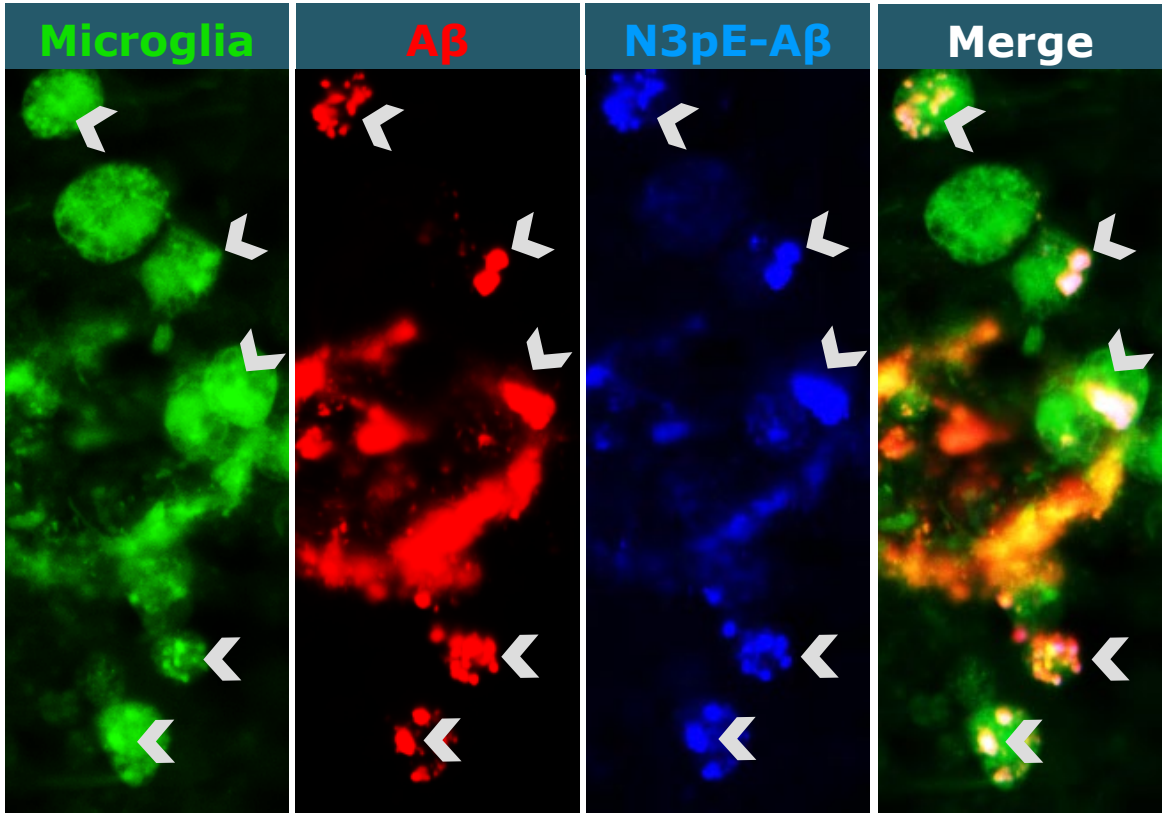
IgG, immunoglobulin; N3pE-Aβ, pyroglutamate-modified Aβ.
Donanemab was generated from a publicly available sequence.

PRX012s Promotes Simultaneous Microglia-Mediated Phagocytosis of Aβ and N3pE-Aβ in Post-mortem Brain Tissue From AD Subjects



Microglia (Iba1: green) simultaneously phagocytose Aβ (red) and pyroglutamate-modified Aβ ($Aβ_{pE3-42}$: blue) in the presence of PRX012 surrogate, indicating that opsonization of plaques is sufficient to clear both species.

PRX012s promoted microglia-mediated phagocytosis of Aβ and pyroglutamate-modified Aβ (N3pE-Aβ) simultaneously



Arrows indicate examples of phagocytosed Aβ and N3pE-Aβ that co-localize inside microglia cells (immunostained with anti-Iba1 antibody).

Aβ, amyloid beta; AD, Alzheimer's disease; IgG, immunoglobulin; N3pE-Aβ, pyroglutamate-modified Aβ.

PRX012 Phase 1 SAD Design

SINGLE ASCENDING DOSE (SAD) COHORTS

Healthy Volunteer Cohorts

- Age 20 – 45 years

70 mg	200 mg
n= ~8 (3:1)	n= ~8 (3:1)

Early Alzheimer's Disease Cohorts

- Ages 60 – 85 years
- Amyloid PET positive
- MMSE ≥ 18

70 mg	200 mg	400 mg
n= ~8 (3:1)	n= ~8 (3:1)	n= ~8 (3:1)

Trial Design | ascent-1

- Phase 1, randomized 3:1, double-blind, placebo-controlled, single ascending dose trial
- 1 subcutaneous dose of PRX012
- Evaluate the safety, tolerability, immunogenicity, and pharmacokinetics of PRX012 in healthy volunteers and patients with Alzheimer's disease

MMSE: Mini Mental State Examination.

PRX012 Phase 1 MAD Design

MULTIPLE ASCENDING DOSE (MAD) COHORTS

Early Alzheimer's Disease "A" Cohorts

- Ages 55 – 85 years
- Amyloid PET positive
- MMSE ≥ 18
- "A" cohorts: APOε4 non-carrier or heterozygous

45 mg	70 mg	200 mg	400 mg
n= ~32 (3:1)	n= ~32 (3:1)	n= ~32 (3:1)	n= ~32 (3:1)

Early Alzheimer's Disease "B" Cohorts

- Ages 55 – 85 years
- Amyloid PET positive
- MMSE ≥ 18
- "B" cohorts: APOε4 homozygous

45 mg	70 mg	200 mg
n= ~12 (3:1)	n= ~12 (3:1)	n= ~12 (3:1)

Trial Design | ascent-2

- Phase 1, randomized 3:1, double-blind, placebo-controlled, MAD trial
- Q4W (once monthly) subcutaneous dosing for 6 doses total (6 months)
- Evaluate the safety, tolerability, immunogenicity, pharmacokinetics, and pharmacodynamics of PRX012 in patients with Alzheimer's disease
- After first 6 doses, patients may continue in an **open-label extension** for 6 additional doses (Q4W) of PRX012

MMSE: Mini Mental State Examination.

BMS-986446
(formerly PRX005)
Alzheimer's Disease

Global Neuroscience Collaboration
with Bristol Myers Squibb

BMS-986446: Potential Best-in-Class anti-Tau antibody for Alzheimer's Disease

BMS-986446
Alzheimer's disease
Current Status: Phase 2

Anti-Tau Mechanism of Action

- Designed to specifically bind with high affinity to a key epitope within the microtubule binding region (MTBR) of tau, a protein implicated in the causal pathophysiology of Alzheimer's disease

Global Rights Deal for BMS-986446[1]

- $135 million paid-to-date for global rights
- BMS funds all development and commercialization
- Up to $563 million in regulatory/sales milestones
- Tiered royalties

Phase 2 Trial (NCT06268886): Ongoing

- Global, double-blind, placebo-controlled
- 475 participants with early AD
- Randomized, 3 arms (two doses and placebo)
- Primary Endpoint: Mean change from baseline in CDR-SB score at 18 months

Phase 1 Trial:

- Phase 1 SAD data in healthy volunteers demonstrated dose-proportional concentrations in plasma with robust CNS penetration
- Phase 1 MAD data supportive of Phase 2
- Generally safe and well-tolerated

[1] Global Neuroscience Research and Development Collaboration with BMS for three programs (BMS-986446, PRX019, TDP-43) also included $100 million upfront payment and a $50 million equity investment in Prothena.
CDR-SB, Clinical Dementia Rating Scale Sum of Boxes

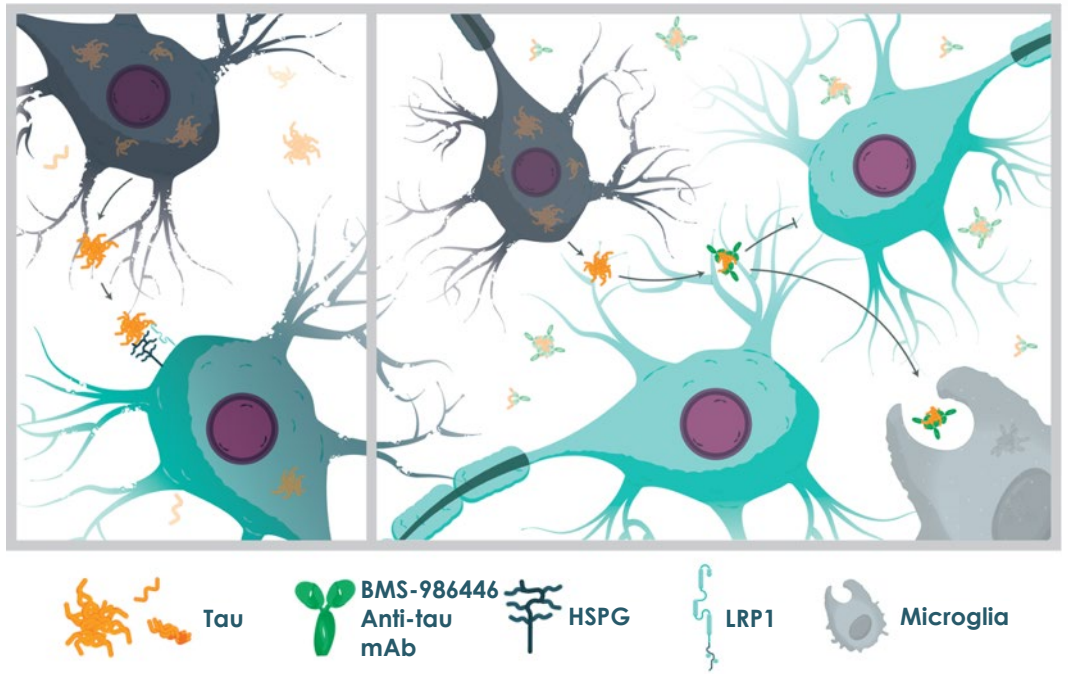
BMS-986446: MTBR-Specific Anti-Tau Antibody

BMS-986446, a differentiated tau antibody that targets an optimal tau region within the MTBR

- Recent publications strongly suggest that tau appears to spread throughout the brain via synaptically-connected pathways[1]
- This propagation of pathology is thought to be mediated by tau "seeds" containing the MTBR of tau[2]

Potential for best-in-class efficacy

- Preclinical evaluation of our antibodies in our AD models demonstrated that MTBR-specific antibodies are superior to non-MTBR tau antibodies in blocking tau uptake and neurotoxicity
- Demonstrated significant inhibition of cell-to-cell transmission and neuronal internalization in vitro and in vivo and slowed pathological progression in a tau transgenic mouse model

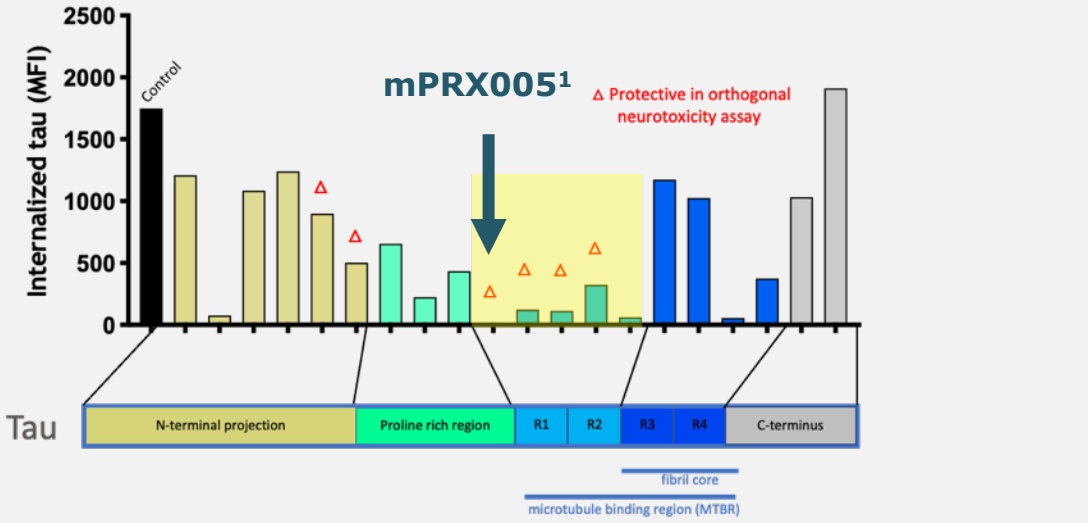


BMS-986446: Potential Best-in-Class MTBR-Specific Anti-Tau Antibody to Reduce Pathogenic Tau Spread

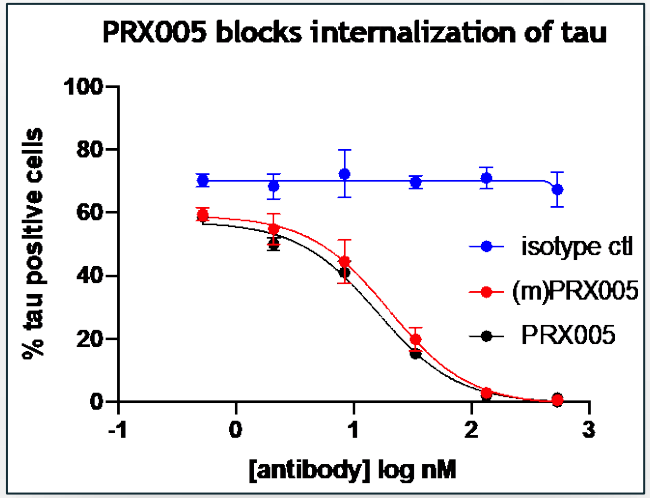
[1] Ahmed, Z., Cooper, J.. et al. A novel in vivo model of tau propagation with rapid and progressive neurofibrillary tangle pathology: the pattern of spread is determined by connectivity, not proximity. 2014 *Acta Neuropathol*; [2] Horie, k., Barthelemy, H., Bateman, R.J. CSF tau microtubule binding region identifies tau tangle and clinical stages of Alzheimer's disease. 2021 *Brain*

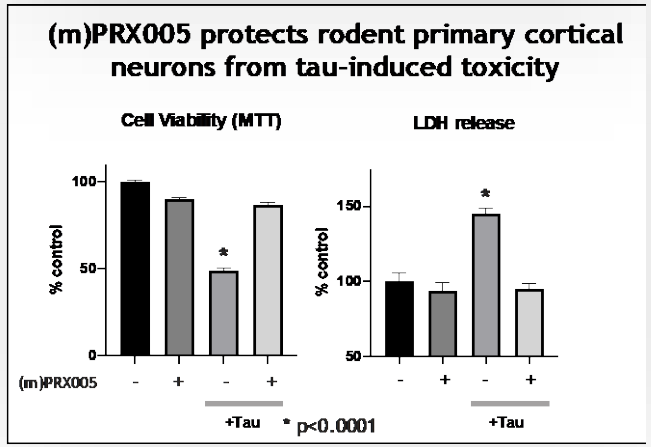
BMS-986446 (PRX005): Superior in Blocking Cellular Internalization of Tau and Downstream Neurotoxicity Compared to Other Anti-Tau Antibodies

Repeats 1 and 2 defined as the strongest inhibitory regions in screening with cellular internalization and neurotoxicity assays



- Panel of Prothena antibodies targeted throughout the tau molecule were screened for optimal affinity and epitope
- These were tested *in vitro* for their ability to block internalization and toxicity



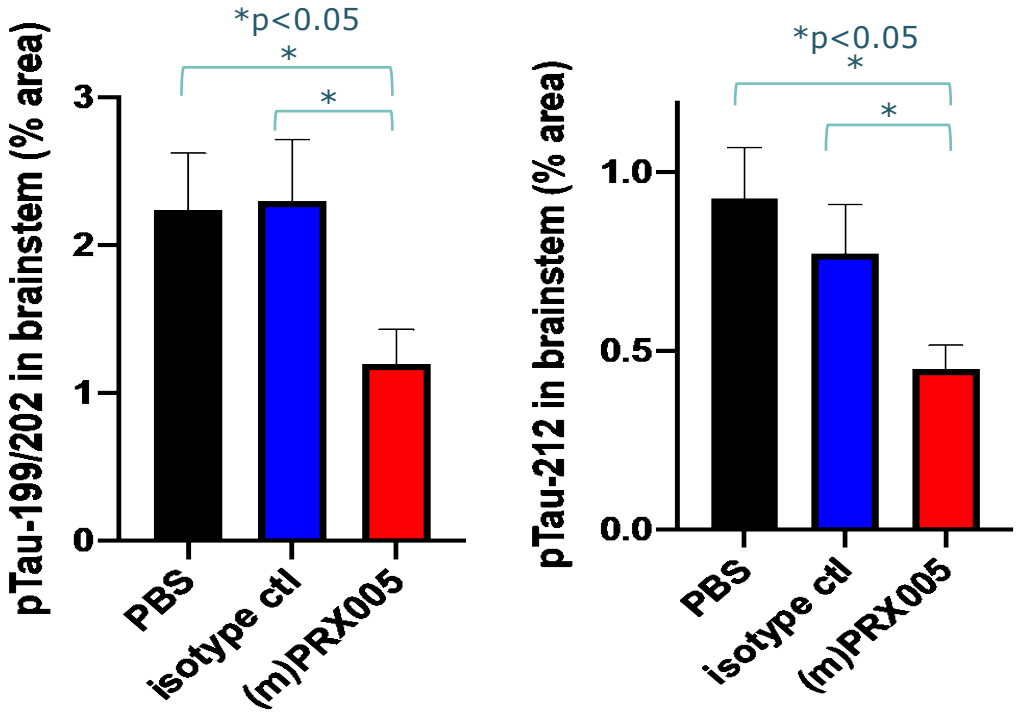


[1] (m)PRX005 = murine form of PRX005 (BMS-986446)

(m)PRX005 Treatment Reduces Pathological Tau and Ameliorates Behavioral Deficit in Transgenic Tau Mouse Model

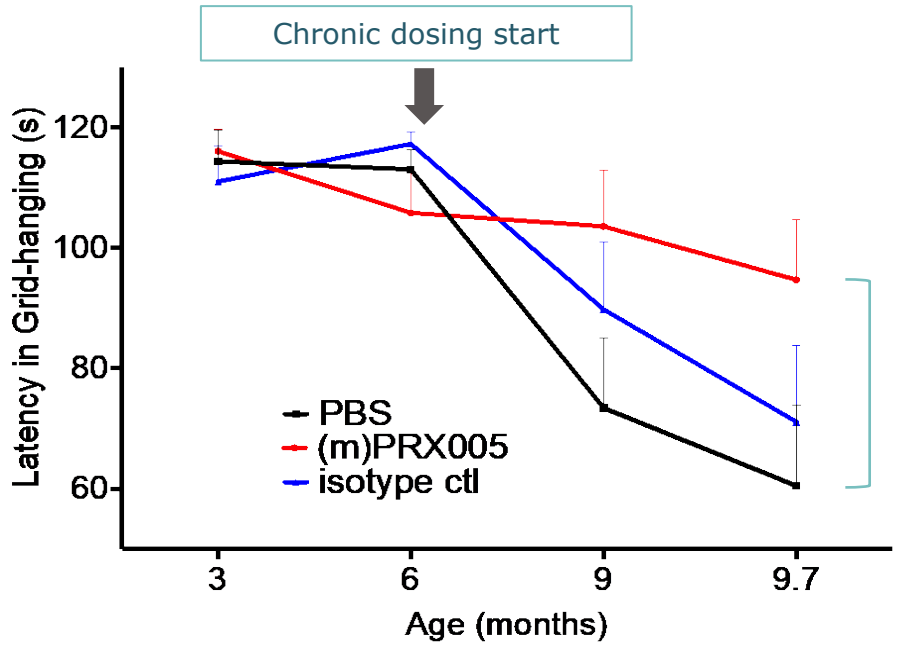
All values are mean ± SE (n=15-20)

Reduction of tau pathological markers



- PS19 transgenic mice overexpressing tau mutation (P301S) cause high levels of neuronal tau pathology and resultant behavioral deficits

Delay of behavioral deficit



- Initiation of treatment (weekly i.p.) at the onset of pathological development (treatment mode) with (m)PRX005 delays brainstem tau pathology and consequent behavioral deficits

(m)PRX005 = murine form of PRX005 (BMS-986446)

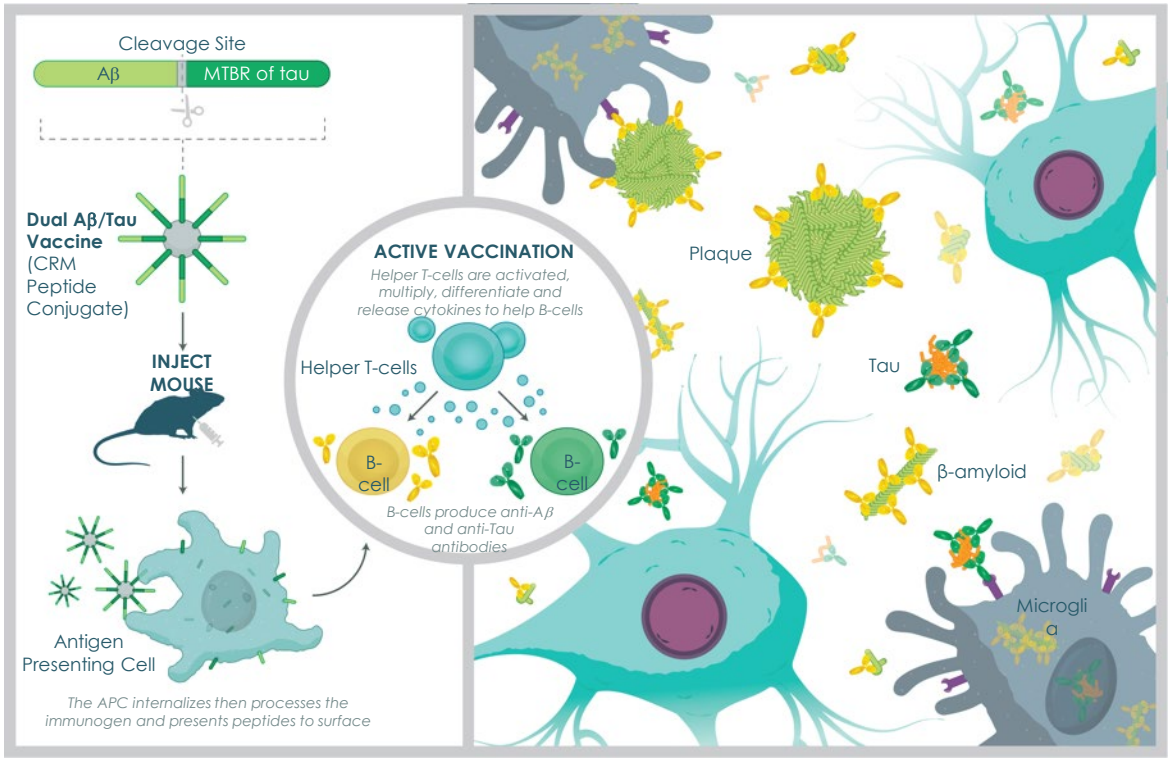
PRX123

Alzheimer’s Disease

Vaccine Constructs: Potential Best-in-class Dual Aβ/Tau Vaccine for the Treatment & Prevention of AD

PROTHENA IS PIONEERING THE DEVELOPMENT OF DUAL Aβ/TAU VACCINE CANDIDATE PRX123

- **Synergistic mechanism designed for increased efficacy over single-target vaccines**
  - Strong evidence from preclinical models suggests that Aβ and tau may act synergistically in the development of AD
  - Prothena's dual Aβ/tau vaccine program aims to induce optimal (quantity and quality) and balanced immune response to both targets, while avoiding cytotoxic t-cell response
- **Potential treatment & prevention**
  - Dual vaccine constructs were shown to generate balanced titers to Aβ and tau in non-human primates and Guinea pigs as measured by ELISA
  - The immune animal sera reacted to Aβ and tau, induced Aβ phagocytosis, and blocked tau interaction with a key mediator of cellular release and cell-to-cell transmission
- **IND cleared by FDA**
- **Fast Track designation granted by FDA**



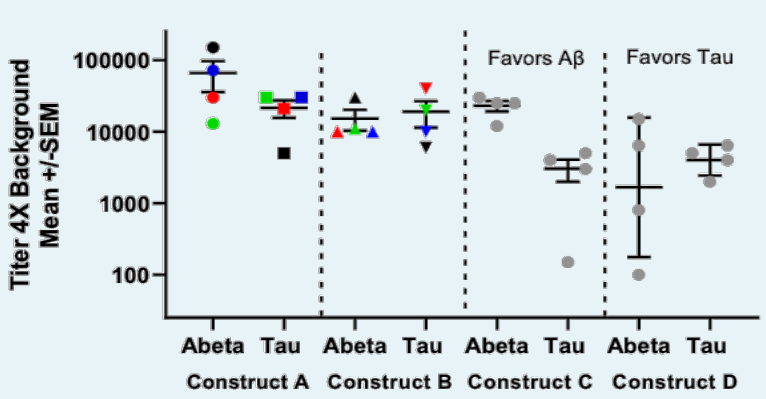
Desirable Attributes of Aβ/Tau Vaccines and Prothena's Design Strategies

		Design Strategy	Desirable Output
1 Quantity	**RESPONSE** Antibody levels, balanced Aβ/tau, persistency	• Linear peptides, proprietary cleavable linkers • Optimal carriers, immunization schedule, adjuvant	✓ Optimal antigen presentation with persistent immune response ✓ Overcomes immunodominance and immunosenescence
2 Quality	**EFFICACY** Isotypes, binding, Aβ clearance, tau neutralization	• Optimal Aβ and tau epitopes • Elements for induction of mature TH response	✓ Antibodies bind the right epitopes on pathogenic proteins ✓ IgG switch and affinity maturation
3 Safety	**SAFETY** Cytotoxic T-cell avoidance, target-specificity	• Short Aβ/tau epitopes not recognizable by cytotoxic T-cells • No off-target binding risk based on peptide sequences	✓ No cytotoxic T-cell responses ✓ Specific antibodies

Preclinical data presentation titles: Development of a Dual Aβ/Tau Vaccine for the Treatment and Prevention of Alzheimer's Disease presented at ADPD 2022

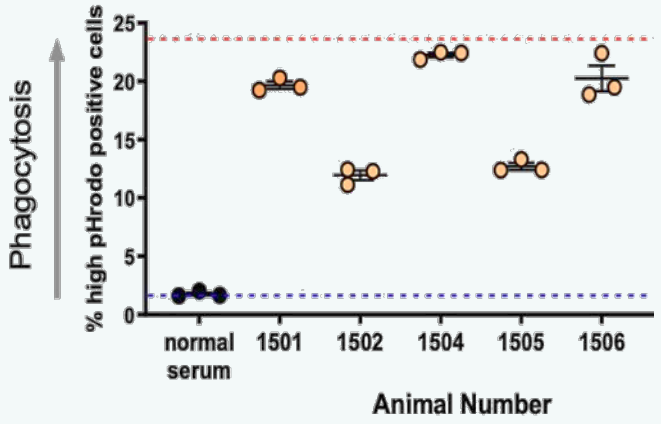
Prothena's Dual Aβ/Tau Vaccines Demonstrate Desirable Quantity, Quality and Safety

Quantity



✓ High, balanced, consistent

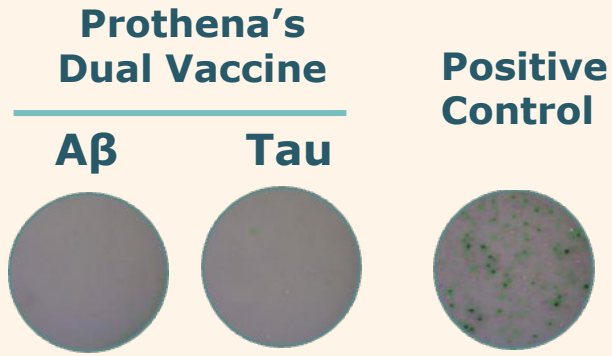
Quality



✓ Epitope, affinity, Aβ clearance, tau neutralization

Safety

Unable to induce measurable cytotoxic T-cell activity against Aβ and tau in Non-human primates (ELISpot)



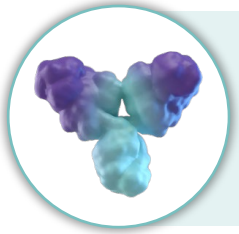
✓ Avoids T-cell response observed in other vaccines

Preclinical data presentation titles: Development of a Dual Aβ/Tau Vaccine for the Treatment and Prevention of Alzheimer's Disease presented at ADPD 2022

Birtamimab

AL Amyloidosis

Birtamimab: Differentiated Approach to AL Amyloidosis



Birtamimab
AL amyloidosis
Current Status: Phase 3

Anti-Amyloid Mechanism of Action

- Clears insoluble AL amyloid deposits that cause vital organ dysfunction and failure[1-2]
- Neutralizes toxic soluble amyloidogenic species[2-3]

Addresses Acute Unmet Need

- Patients with significant cardiac involvement are at high risk for early mortality[4,5]
- Currently approved treatments have not demonstrated any survival benefit in Mayo Stage IV[6,7]

Phase 3 AFFIRM-AL (NCT04973137): Ongoing

- Trial designed per FDA Special Protocol Assessment (SPA) with unprecedented $P \leq 0.10$
- Primary Endpoint: Time to all-cause mortality
- Topline results expected between 4Q 2024 and 2Q 2025

Phase 3 VITAL: Post hoc analysis[8]

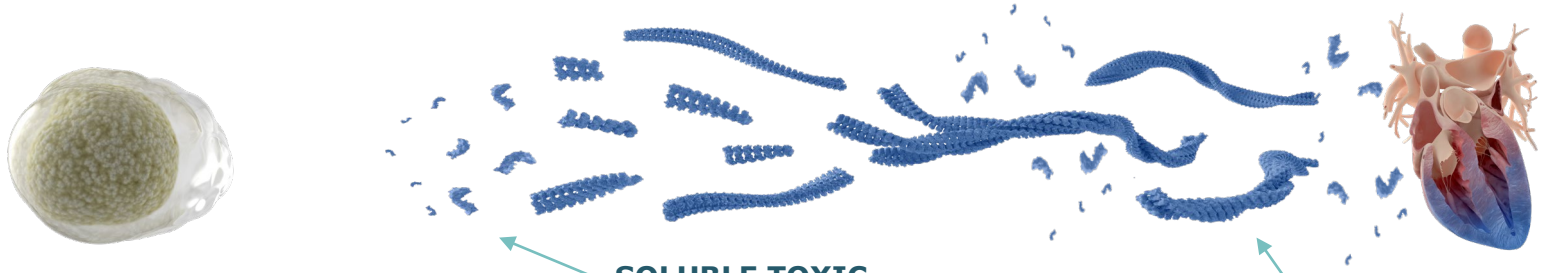
- Significant survival benefit in Mayo Stage IV
- Birtamimab + SoC reduced the risk of mortality by 59% compared to placebo + SoC (HR 0.413, $P = 0.021$)
- Rapid response with clear and sustained separation by month 2
- Meaningful improvement on measures of physical function and quality of life

SoC = Standard of care. HR = Hazard Ratio.
Mayo Stage IV patients have all 3 biomarkers elevated: NT-proBNP (1,800 ng/L); cTnT (0.025 ng/mL; dFLC (180 mg/L).

[1] Palladini G, et al. Leukemia & Lymphoma. 2024; 1–11. [2] Murine version of birtamimab, 2A4; Wall et al., PLOS ONE, 2012, data on file. [3] Renz M, et al. Amyloid. 2016;23:168-177. [4] Palladini G, et al. 2019 *Haematologica*; [5] Kumar S, et al. 2012 *J Clin Oncol.*; [6] Gertz M, et al. 2021 *Blood.* [Abstract and Poster]; [7] Kumar S, et al. 2012 *J Clin Oncol*; [8] Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218.

Abnormal Light Chains Deposit As Amyloid in Vital Organs, Most Commonly the Heart

AL Amyloidosis Pathogenic Pathway



PLASMA CELL DYSCRASIA

SOLUBLE TOXIC AMYLOIDOGENIC LIGHT CHAIN AGGREGATES

INSOLUBLE AMYLOID DEPOSITS

Amyloidogenic light chains misfold and aggregate ▶ **Continuous accumulation of toxic amyloid in heart, other organs, and surrounding tissues leads to organ dysfunction and failure**

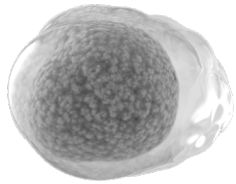
Early Disease → ***Advanced Disease with Significant Cardiac Involvement***

Of Patients with Significant Cardiac Involvement, the Most Severe Have Median Survival of <6 Months[1]

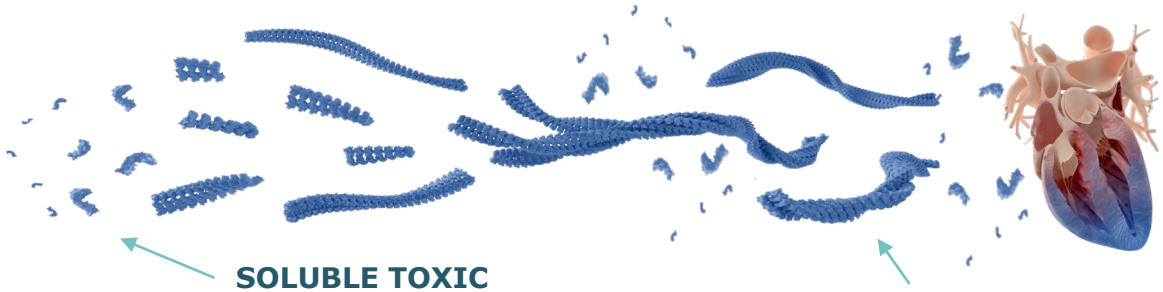
[1] Kumar S, et al. 2012 *J Clin Oncol*.
Merlini G. *Am Soc Hematol* Educ Program. 2017;2017:1-12; Maritan M, et al. *J Mol Biol*. 2020;432:845-860; Griffin JM, et al. *Circ Res*. 2021;128:1554-1575; Imperlini E, et al. *Sci Rep*. 2017;7:15661; Brenner DA, et al. *Circ Res*. 2004;94:1008-1010; Shi J, et al. *Proc Natl Acad Sci* USA. 2010;107:4188-4193; Lavatelli F. *Hemato*. 2022;3:47-62; Koike H, et al. *Molecules*. 2021;26:4611.

Birtamimab's Anti-Amyloid Mechanism Designed to Address the Unmet Need for Patients

AL Amyloidosis Pathogenic Pathway



PLASMA CELL DYSCRASIA



CARDIAC DYSFUNCTION & EARLY MORTALITY

Current plasma cell directed treatments[1-3] decrease light chain production

Most patients today take some combination of daratumumab + CyBorD[3]

Birtamimab's transformative anti-amyloid MoA[4-7]:

- ✓ Clears AL amyloid deposits from organs/tissues
- ✓ Neutralizes soluble amyloidogenic aggregates

Birtamimab demonstrated significant survival benefit in Phase 3 VITAL post hoc analysis in Mayo Stage IV patients[8]

[1] Merlini G. *Am Soc Hematol* Educ Program. 2017;2017:1-12. [2] Maritan M, et al. *J Mol Biol*. 2020;432:845-860.
[3] Current standard of care treatments include daratumumab and cyclophosphamide, bortezomib, and dexamethasone (CyBorD). [4] Palladini G, et al. *Leukemia & Lymphoma*. 2024; 1–11. [5] Shi J, et al. *Proc Natl Acad Sci* USA. 2010;107:4188-4193. [6] Lavatelli F. *Hematol*. 2022;3:47-62. [7] Koike H, et al. *Molecules*. 2021;26:4611. [8] Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218.

Birtamimab Designed to Address Unmet Need

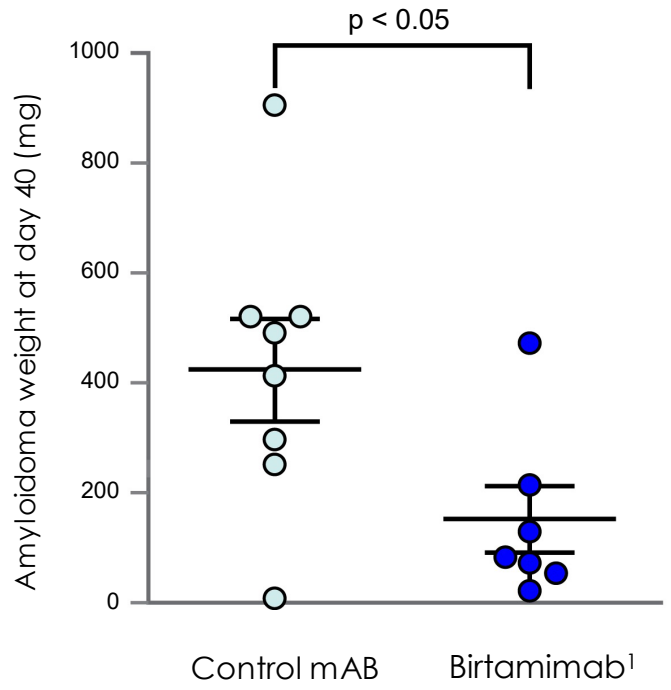
	Birtamimab (Prothena)	CAEL-101 (AZ/Alexion)	Daratumumab (Janssen)
Anti-Fibril mAb	✓	✓	✗
Demonstrated Survival Benefit in a Randomized Clinical Trial[1]	✓	✗	✗
MOA: Clears Insoluble Deposits	✓	✓	✗
MOA: Neutralizes Soluble Aggregates	✓	?	✗
Monthly Dosing	✓	✗	✗
Humanized	✓	✗	✓

Addition of Birtamimab could significantly improve survival in patients with cardiac involvement

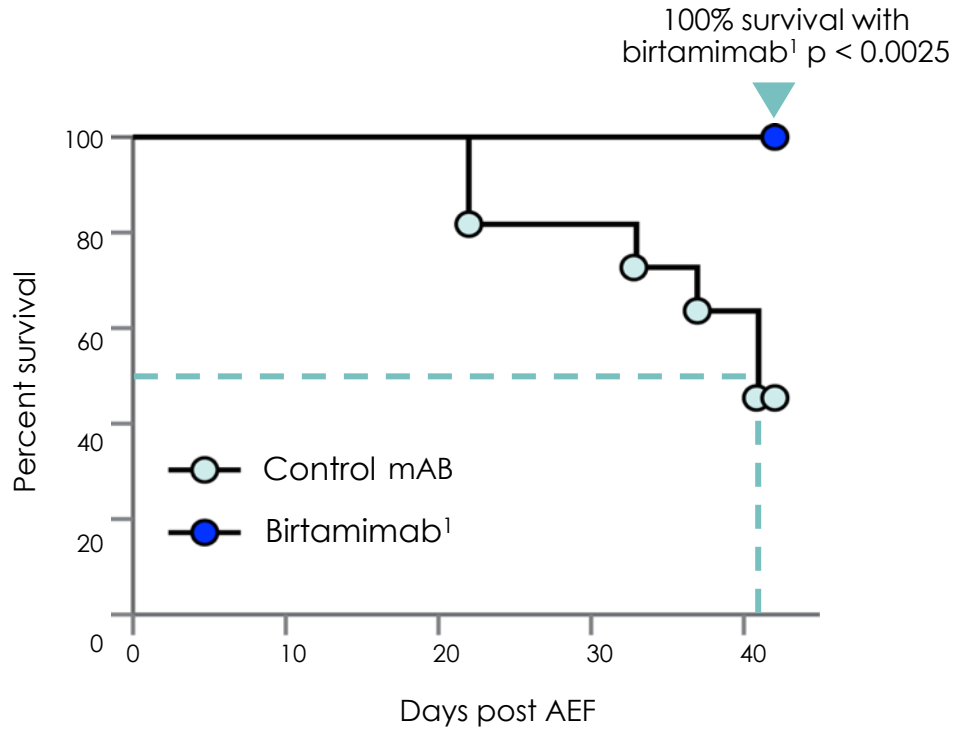
MOA = Mechanism of Action;
Source: Deallus Competitive Intelligence; Clinicaltrials.gov
[1] Post-hoc analyses demonstrated a significant survival benefit with birtamimab and meaningful improvements in QoL and functional capacity in patients at high risk for early mortality (Mayo Stage IV at baseline); Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218.

Birtamimab[1] Demonstrated Significant Amyloid Clearance and Prolonged Survival in Preclinical Model

Birtamimab[1] Removes Amyloid In Vivo



Birtamimab[1] Prolongs Survival in Transgenic Mouse Model



[1] murine version of birtamimab, 2A4
Wall et al., PLOS ONE, 2012, data on file

Phase 3 VITAL Trial Overview

Global, randomized, double-blinded, placebo-controlled clinical trial

- Sample size and randomization
  - N=260
  - 1:1
- Key eligibility criteria
  - Confirmed diagnosis of AL amyloidosis
  - Newly diagnosed and treatment naïve
  - Cardiac involvement
- Treatment regimen
  - Birtamimab 24 mg/kg vs. placebo, with concurrent standard of care (SoC) in both arms

- **Primary endpoint**
  - Composite endpoint of time to all-cause mortality or time to cardiac hospitalizations (≥90 days) as adjudicated by the Clinical Events Committee
- **Secondary endpoints**
  - Quality of life: SF-36v2 PCS
  - Functional capacity: 6MWT
- **Randomization stratification**
  - Mayo Stage I-II vs III-IV, renal stage I vs II-III and 6MWT distance < 300 m vs ≥ 300m

30% of patients enrolled in VITAL (N=77) were characterized as Mayo Stage IV at baseline

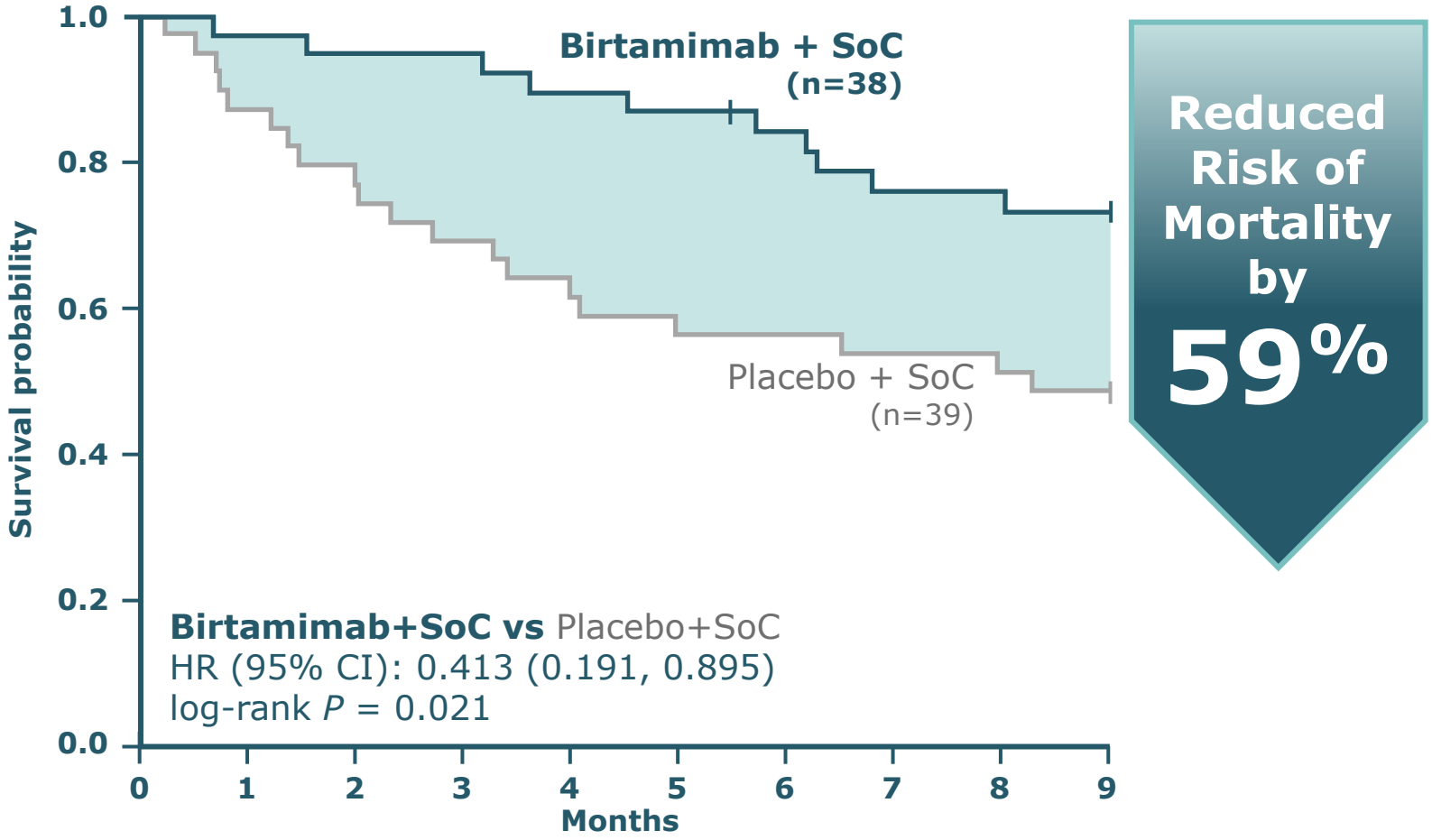
- 38 in birtamimab + SoC arm
- 39 in placebo + SoC arm

SF-36v2 PCS = Short Form-36 Physical Component Score; 6MWT = 6-Minute Walk Test

Publication: Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218..

Previous Phase 3 VITAL Trial Demonstrated Significant Survival Benefit in Mayo Stage IV[1]

Time to All Cause Mortality (ACM) in Mayo Stage IV Patients[2]



Post Hoc Analyses of Initial Phase 3 Randomized Trial (VITAL) in Mayo Stage IV Patients

Efficacy

- Unparalleled early and sustained survival benefit (HR = 0.413)
- Meaningful improvements in functional (6MWT) and quality of life (SF-36v2 PCS) endpoints, at 9 months ($P < 0.05$)

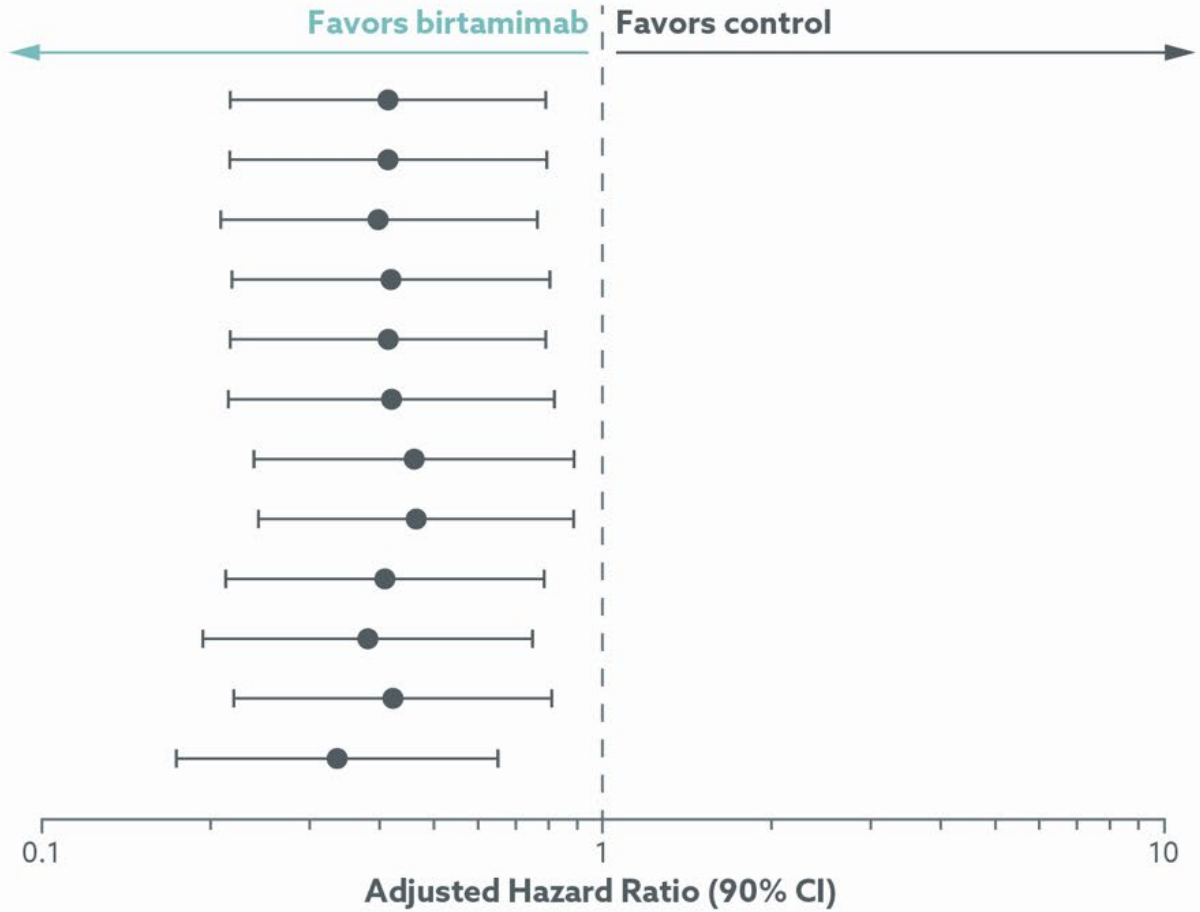
Safety

- Treatment related grade ≥3 TEAE: 3% (birtamimab+SoC) vs. 10% (placebo+SoC)
- Common treatment-emergent adverse event rate similar to placebo+SOC

[1] Post hoc analyses demonstrated a significant survival benefit with birtamimab and significant improvements in QoL and functional capacity in patients at high risk for early mortality (Mayo Stage IV)
[2] Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218.

Birtamimab Survival Benefit Persists when Adjusted for Key Baseline Variables (Mayo Stage IV)

Baseline variable	Adjusted HR
Age	0.414
Sex	0.415
Race	0.399
Ethnicity	0.419
Age at diagnosis	0.414
Duration since diagnosis (months)	0.420
NT-proBNP	0.460
dFLC	0.465
FLC	0.410
NYHA class	0.381
Troponin-T	0.422
6MWT distance	0.336



Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218.

Birtamimab: Confirmatory Phase 3 AFFIRM-AL Trial Design

AFFIRM-AL Trial Overview

Key Eligibility Criteria

- Confirmed diagnosis of AL amyloidosis
- Patients with significant cardiac involvement (Mayo Stage IV)

- ✓ **FDA Fast Track Designation**
- ✓ **Orphan Drug Designation (FDA and EMA)**

Randomized 2:1
(birtamimab:placebo)
N = up to 220

Birtamimab
(IV Q4W)
+ Standard of Care[1]

Placebo
(IV Q4W)
+ Standard Of Care[1]

Primary Endpoint

- Time to all-cause mortality

Secondary Endpoints

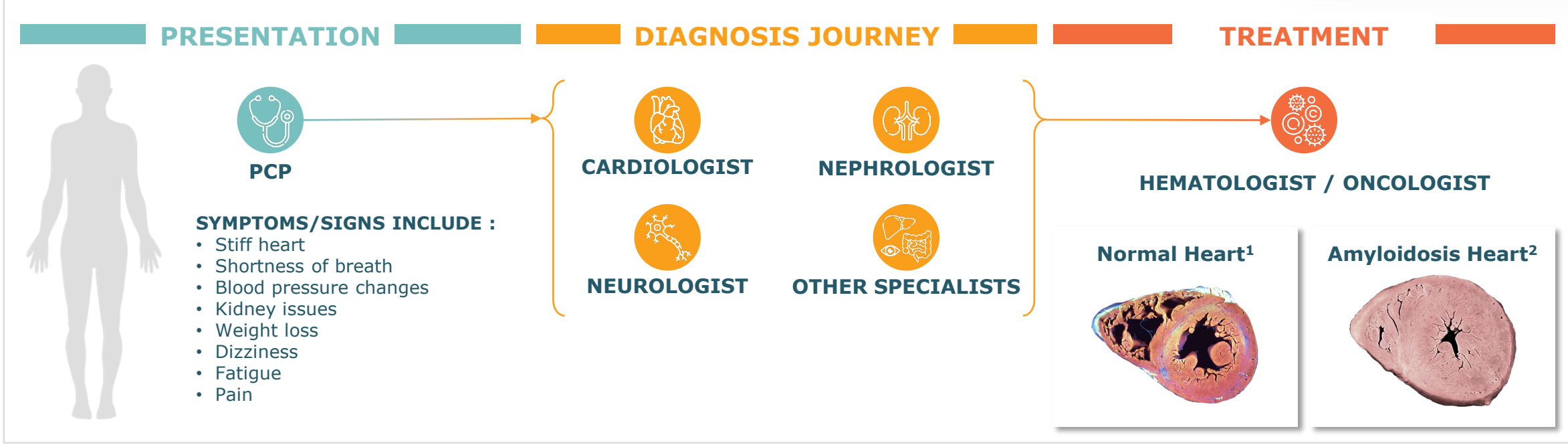
- 6MWT
- SF-36v2 PCS

SPA Agreement with FDA

- Based on VITAL results, SPA agreement with FDA at unprecedented $P \leq 0.10$
- Interim analysis when ~50% events have occurred

[1] Standard of care = Bortezomib containing chemotherapy (required) +/- daratumumab (investigator discretion).
A Study to Evaluate the efficacy and Safety of birtamimab in Mayo Stage IV Patients with AL Amyloidosis (AFFIRM-AL). ClinicalTrials.gov Identifier: NCT04973137.

AL Amyloidosis Patients Require Urgent Treatment Upon Diagnosis



- Symptoms and signs of AL amyloidosis are common to many other conditions
- Patients typically see a variety of specialists on their journey to diagnosis
- Definitive diagnosis usually not until they meet with a hematologist / oncologists
- By the time of diagnosis, patients have accumulated significant cardiac amyloid deposition
- Urgent treatment is required, and hematologists / oncologists are the primary treaters with support from cardiologists

[1] Milani P, et al. Mediterr *J Hematol Infect Dis*. 2018; [2] Muchtar E, et al. *Mayo Clin Proc*. 2021.
Lousada et al. 2015 *ARC Online Survey*; Komodo Claims Analysis.

Defined Patient Population and Consolidated Prescriber Base Enable Birtamimab Market Penetration with Focused Launch

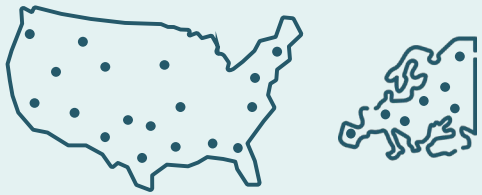
Significant Unmet Need



Mayo Stage IV AL amyloidosis:

- Urgent need for immediate intervention
- Median overall survival <6 months[1,2]

Defined Patient Population[2-6]



Mayo Stage IV AL amyloidosis diagnosed patients:

- >20K across major global markets
  - US (4K); EU (5K)

Consolidated Prescriber Base



- ~75% US and EU Mayo Stage IV patients primarily treated in ~500 amyloidosis specialty centers[7]
- Patients are primarily treated by hematologists and cardiologists

Focused Opportunity and Commercial Approach

[1] Levin M, et al. Available at: https://www.myamyloidosisteam.com/resources/stages-of-amyloidosis; [2] Kumar S, et al. 2012 *J Clin Oncol.*; [3] Kumar N, et al. 2022 *Orphanet J Rare Dis*; [4] Quock T, et al. 2018 *Blood Advances*; [5] Gertz MA, et al. *Blood* 2023; 142 (14): 1208–1218; [6] Shimazaki. 2018 *The Japanese Journal of Clinical Hematology*; [7] Estimates based on US/EU/UK Market Research, LEK Analysis.

Prasinezumab
Parkinson’s Disease

Worldwide Collaboration with Roche

Prasinezumab: Potential First-in-Class Treatment for Parkinson's Disease

Prasinezumab
Parkinson's Disease

Current Status: Phase 2b

Anti-α-synuclein Antibody

- Preferentially binds to aggregated α-synuclein to reduce pathogenic spread and decrease synuclein pathology[1-4]

Rapidly Growing Parkinson's Disease Patient Population

- 10 million patients globally[5]
- Fastest increasing neurodegenerative disease[6]

Worldwide Collaboration with Roche

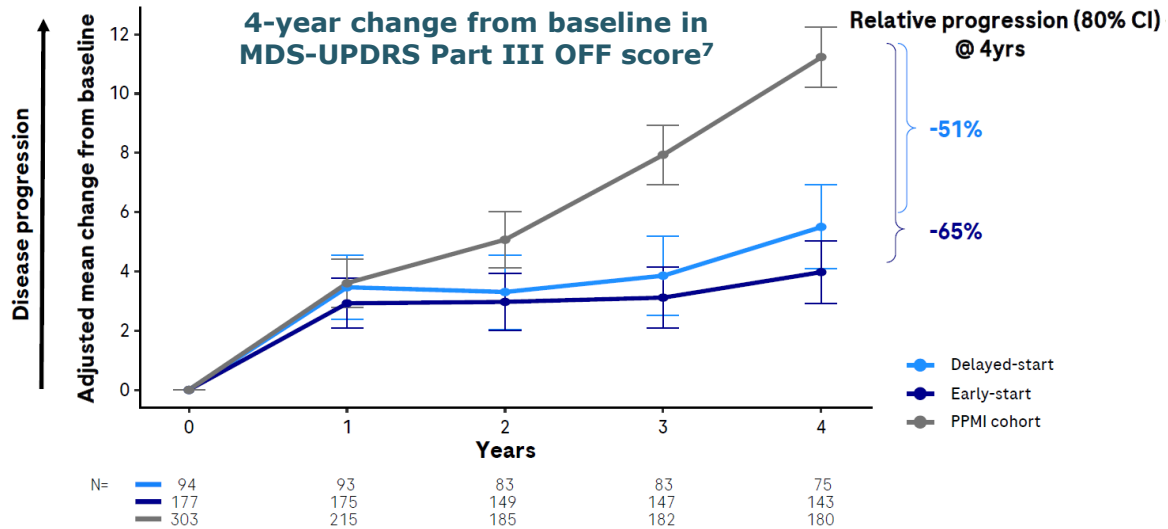
- Up to $620 million in additional milestones
- $135 million paid-to-date
- Up to double-digit teen royalties
- US co-promote option

Phase 2b PADOVA (NCT04777331): Ongoing

- N = 586 early Parkinson's disease patients
- Primary Endpoint: Time to confirmed motor progression event (≥5 point on MDS-UPDRS Part III)
- Topline results expected in 2H 2024

Phase 2 PASADENA (NCT03100149): OLE Ongoing

- OLE showed slowing of motor progression vs. matched RWD PPMI cohort



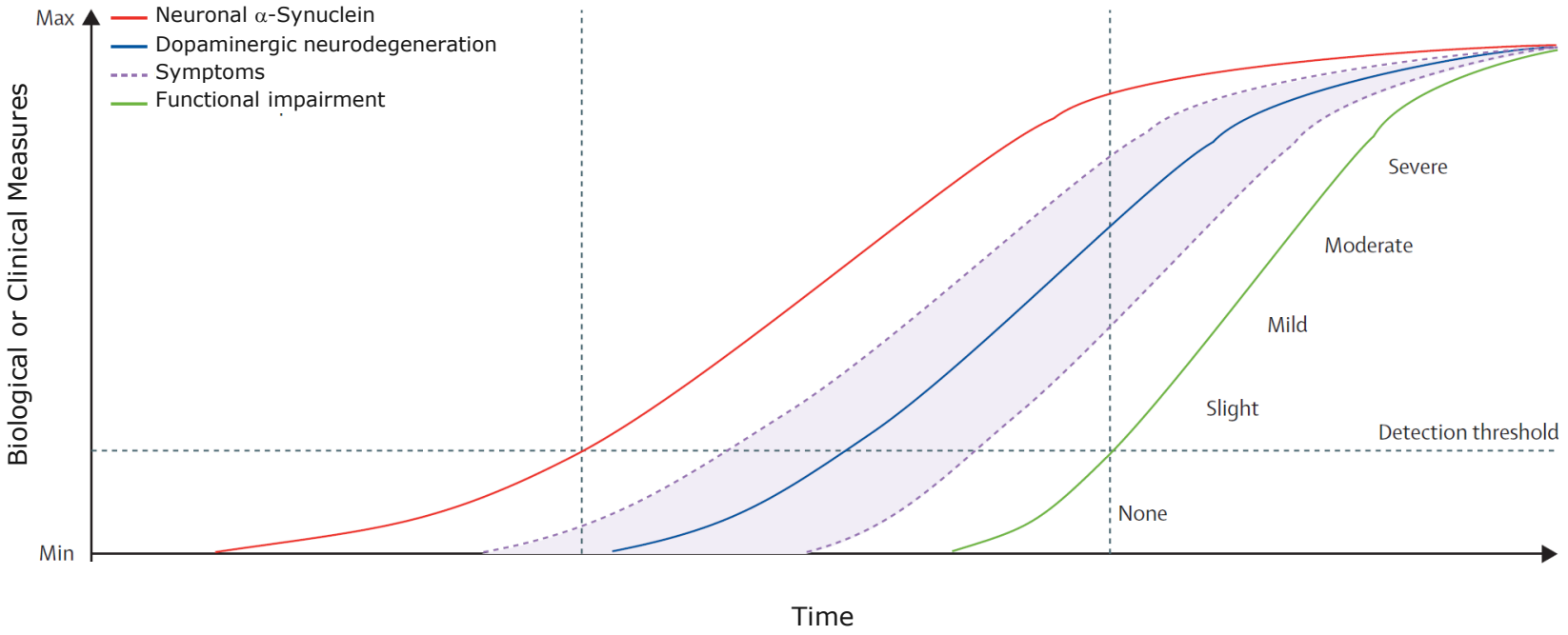
MDS-UPDRS: Movement Disorder Society-Sponsored Revision of the Unified Parkinson's Disease Rating Scale; RWD: Real World Data; PPMI: Parkinson's Progression Markers Initiative.

[1] Jankovic J et al. *JAMA Neurol*. 2018; 75:1206–1214. [2] Masliah E, et al. *Neuron*. 2005; 46:857–868; [3] Masliah E, et al. PLoS ONE. 2011; 6:e19338; [4] Games D, et al. *J Neurosci*. 2014; 34:9441–9454
[5] Parkinson's Foundation. Understanding Parkinson's. Statistics; [6] GBD 2015 Neurological Disorders Collaborator Group (2017) Global, regional, and national burden of neurological disorders during 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Neurol* 16, 877-897. [7] Pagano et al. *PASADENA long-term open-label extension continue to show reduced motor and functional progression in prasinezumab-treated individuals with early-stage Parkinson's disease compared to a real-world data arm*. Presented at the AD/PD™ 2024 International Conference on Alzheimer's and Parkinson's Diseases in Lisbon, Spain. March 5-9, 2024.

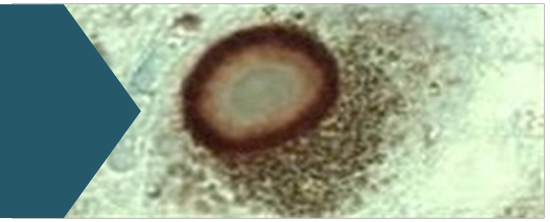
α-Synuclein Pathology is Strongly Implicated in Parkinson's Disease

Accumulation of α-Synuclein is a predominant neuropathological feature and follows the topological progression of disease

Genetically validated target with evidence favoring a prominent role for α-Synuclein in early PD: missense mutations and duplication/triplication



α-Synuclein is the predominant component of Lewy bodies found in Parkinson's disease and other synucleinopathies



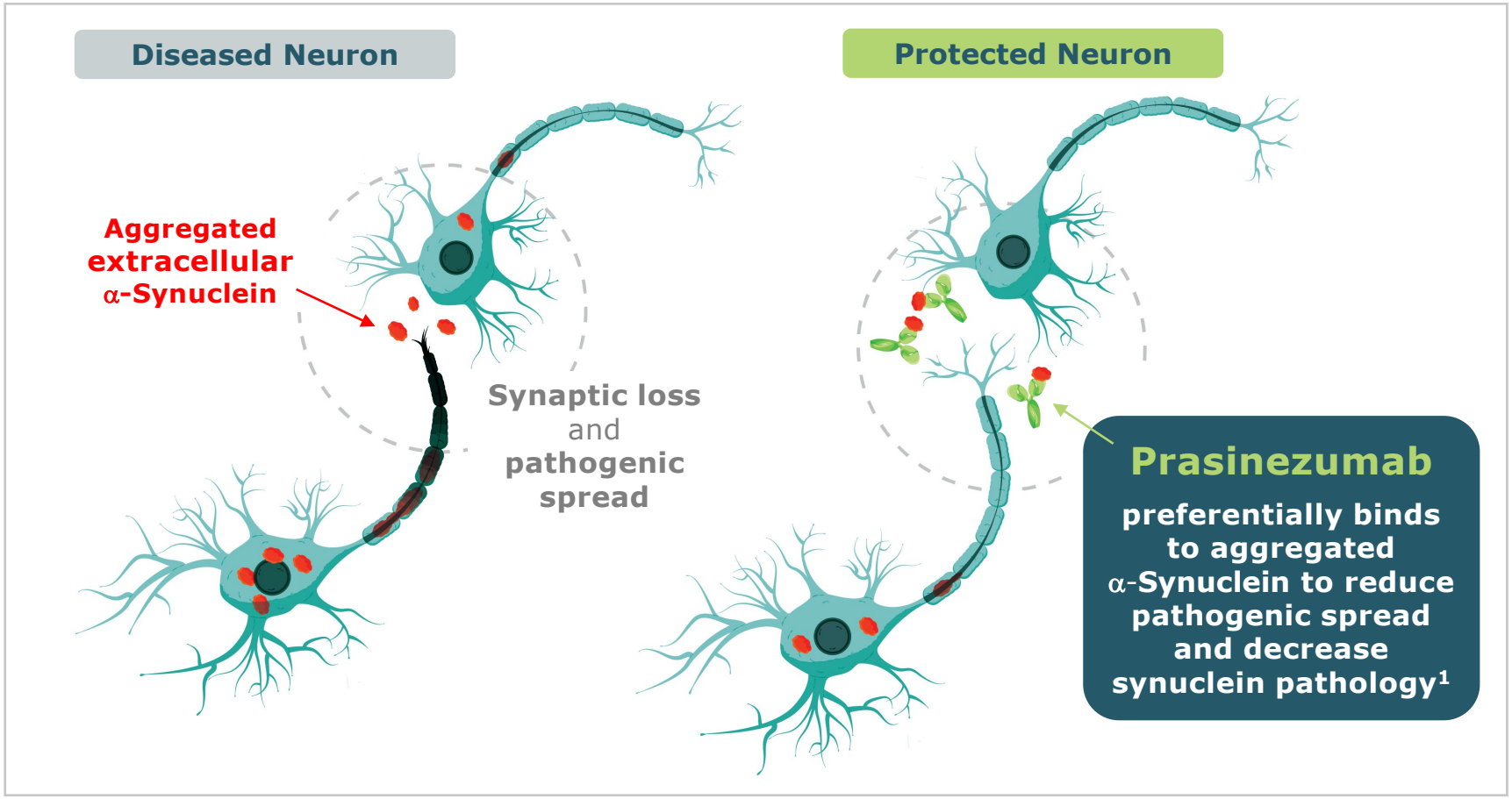
Symptoms: Clinical signs or symptoms attributable to neuronal α-Synuclein disease that can be motor or non-motor (e.g., hyposmia, RBD, cognitive impairment, constipation, dysautonomia, depression, and anxiety).
Functional Impairment: Degree of impact on activities of daily living.
Chart adapted from: Simuni, Tanya et al. A biological definition of neuronal α-synuclein disease: towards an integrated staging system for research. *Lancet Neurol* 2024.

Prasinezumab: α-Synuclein Immunotherapy

REDUCE NEURONAL TOXICITY AND PREVENT CELL-TO-CELL TRANSMISSION[1]

α-Synuclein as an extracellular target during pathogenesis

- Caudal-rostral staging, host-to-graft transfer, various propagation models



[1] Proposed mechanism of action.

Prasinezumab: Clinical Development Program for Early Parkinson's Disease

Completed Phase 2 PASADENA (NCT03100149)

- N=316, randomized 1:1:1 (1500 mg, 4500 mg, placebo), Q4W IV dosing for 52 weeks (Part 1), followed by a 52-week extension (Part 2)
- **Study Population:** Hoehn & Yahr Stage I or II
  - H&Y Stage I = 24.7%
  - H&Y Stage II = 75.3%
  - **Age:** 40 – 80 years; mean = 59.9 years
  - **Time from diagnosis:** ≤ 2 years; mean = 10.1 months
  - **Concomitant medication:** Treatment naïve or stable dose of MAO-B inhibitor and not expected to change within 52 wks

Primary Endpoint:

- Change from baseline at Week 52 in MDS-UPDRS sum of Parts I + II + III vs. placebo

Ongoing Phase 2b PADOVA (NCT04777331)

- N=586, randomized 1:1 (1500 mg, placebo), Q4W IV dosing for at least 76 weeks and confirmed number of events[1]
- **Study Population:** Hoehn & Yahr Stage I or II
  - H&Y Stage I = 13.8%
  - H&Y Stage II = 85%[2]
  - **Age:** Age 50 to 85 years; mean = 64.2 years of age
  - **Time from diagnosis:** ≤ 3 years; mean = 18.6 months
  - **Concomitant medication:** On a stable dose of levodopa or MAO-B inhibitor for ≥3 months prior to baseline

Primary Endpoint:

- Time to confirmed motor progression event (≥5 point increase in MDS-UPDRS Part III score from baseline)

PADOVA study population more advanced than the PASADENA population

PADOVA to focus on evaluation of motor progression as measured by MDS-UPDRS Part III

[1] At least 76 weeks and ≥248 events of confirmed motor progression (≥5 point on MDS-UPDRS Part III)
[2] 7 patients were randomized in PADOVA with H-Y Stage III.
Source: Pagano et al. *A study to evaluate the efficacy and safety of intravenous prasinezumab in participants with early Parkinson's disease (PADOVA): Rationale, design, and baseline data.* Presented at the AD/PD™ 2024 International Conference on Alzheimer's and Parkinson's Diseases in Lisbon, Spain. March 5-9, 2024.

Phase 2 PASADENA Trial Summary of Results

PRASINEZUMAB IN EARLY PARKINSON'S DISEASE

- **First anti-α-synuclein antibody to slow progression on measures of PD**
  - ✓ Part 1: **35% less progression** vs. placebo at **1 year** on MDS-UPDRS Part III[1]
    - ✓ Greater slowing of motor progression in subpopulations of individuals with rapidly progressing disease[2]
  - ✓ Part 2: **Less progression** on MDS-UPDRS Part III in early-start vs. delayed-start group at 2 years[3]
  - ✓ OLE: **65% less progression** vs. matched RWD PPMI cohort at **4 years** on MDS-UPDRS Part III (OFF state) with early-start treatment group[3]
  - ✓ OLE: **118% less progression** vs. matched RWD PPMI cohort at **4 years** on MDS-UPDRS Part III (ON state) with early-start treatment group[3]
- Generally safe and well tolerated, majority of AEs mild of moderate and similar across placebo and both treatment arms

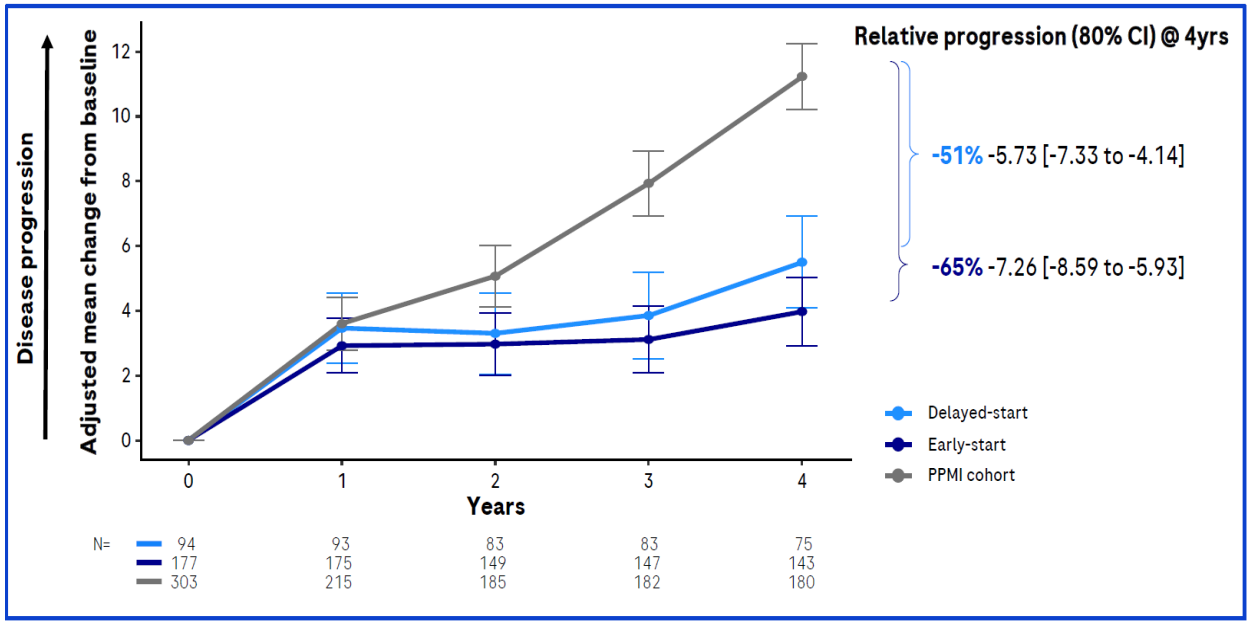
Results support the potential of prasinezumab to slow underlying disease pathophysiology and clinical decline in patients with PD

[1] Primary Endpoint: Change from baseline at Week 52 in MDS-UPDRS sum of Parts I + II + III vs. placebo; Pagano et al. *N Engl J Med* 2022;387:421-32. [2] Pagano, G., Taylor, K.I., Anzures Cabrera, J. et al. *Nat Med* 30, 1096–1103 (2024). [3] Pagano et al. *Delayed start analysis of PASADENA: A randomised Phase II study to evaluate the safety and efficacy of prasinezumab in early Parkinson's disease; Part 2 Week 104 results.* Presented at the AD/PD™ 2022 International Conference on Alzheimer's and Parkinson's Diseases in Barcelona, Spain. March 15-20, 2022. [4] Compared prasinezumab population with a propensity score-balanced cohort of real-world data (RWD) Parkinson's Progression Markers Initiative (PPMI); Source: Pagano et al. *PASADENA long-term open-label extension continue to show reduced motor and functional progression in prasinezumab-treated individuals with early-stage Parkinson's disease compared to a real-world data arm.* Presented at the AD/PD™ 2024 International Conference on Alzheimer's and Parkinson's Diseases in Lisbon, Spain. March 5-9, 2024.

PASADENA Open-Label Extension

PRASINEZUMAB CONTINUED TO SLOW PROGRESSION OF MOTOR DEFICITS IN EARLY-STAGE PD

4-year change from baseline on MDS UPDRS Part III OFF score[1]



PASADENA: Open-Label Extension

Compared prasinezumab population with a propensity score-balanced cohort of real-world data (RWD) Parkinson's Progression Markers Initiative (PPMI)

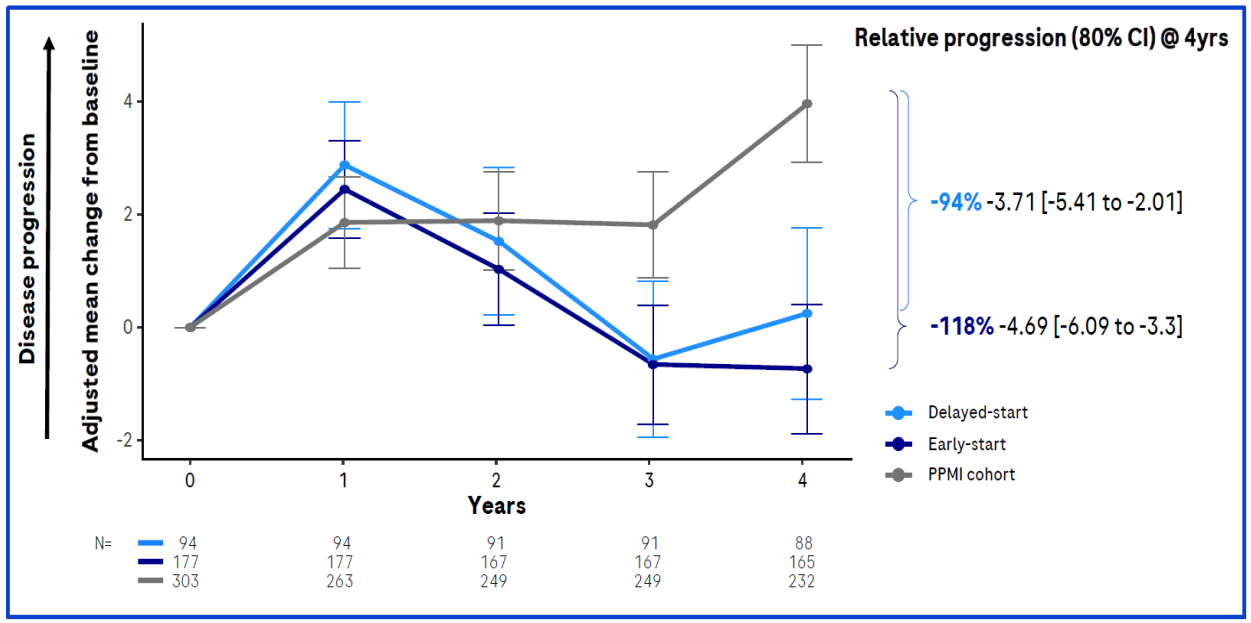
The data suggests that prasinezumab slowed the progression of motor deficits (MDS-UPDRS Part III OFF score) in early-stage Parkinson's disease

[1] CI, confidence interval; MDS-UPDRS, Movement Disorder Society-Sponsored Revision of the Unified Parkinson's Disease Rating Scale; PPMI, Parkinson's Progression Markers Initiative; RWD, real-world data.
Data from ongoing 5 year open-label extension trial with patients receiving 1500 mg dose of Prasinezumab Q4W IV dosing.
Source: Pagano et al. *PASADENA long-term open-label extension continue to show reduced motor and functional progression in prasinezumab-treated individuals with early-stage Parkinson's disease compared to a real-world data arm. Presented at the AD/PD™ 2024 International Conference on Alzheimer's and Parkinson's Diseases in Lisbon, Spain. March 5-9, 2024.*

PASADENA Open-Label Extension

PRASINEZUMAB CONTINUED TO SLOW PROGRESSION OF MOTOR DEFICITS IN EARLY-STAGE PD

4-year change from baseline on MDS UPDRS Part III ON score[1]



PASADENA: Open-Label Extension

The data suggests that prasinezumab slowed the progression of motor deficits (MDS-UPDRS Part III ON score) in early-stage PD patients when receiving benefit from symptomatic treatment

[1] CI, confidence interval; MDS-UPDRS, Movement Disorder Society-Sponsored Revision of the Unified Parkinson's Disease Rating Scale; PPMI, Parkinson's Progression Markers Initiative; RWD, real-world data.
Data from ongoing 5 year open-label extension trial with patients receiving 1500 mg dose of Prasinezumab Q4W IV dosing.
Source: Pagano et al. *PASADENA long-term open-label extension continue to show reduced motor and functional progression in prasinezumab-treated individuals with early-stage Parkinson's disease compared to a real-world data arm. Presented at the AD/PD™ 2024 International Conference on Alzheimer's and Parkinson's Diseases in Lisbon, Spain. March 5-9, 2024.*

NNC6019
(formerly PRX004)
ATTR Amyloidosis

ATTR Business Acquired by Novo Nordisk

NNC6019 (formerly PRX004): Potential First-in-Class Treatment for ATTR Amyloidosis

NNC6019
ATTR Amyloidosis

Current Status: Phase 2

Differentiated Depleter Mechanism of Action

- Inhibits fibril formation and specifically binds to pathogenic TTR[1]
- Uniquely designed for patients at high risk of early mortality due to amyloid deposition

Rare Transthyretin amyloidosis (ATTR) Patient Population

Worldwide Collaboration with Novo Nordisk

- $1.13 billion in additional milestones
- $100 million paid-to-date

Phase 2 Signal Detection Trial (NCT05442047): Ongoing

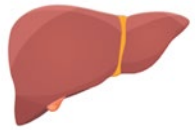
- N = 99 ATTR-CM patients, 3 arms
- Participants receive IV infusion Q4W of 10 mg/kg or 60 mg/kg of NNC6019 or placebo added to SOC until week 52
- Co-primary Endpoints: Change from baseline in 6MWT and in NT-proBNP levels
- Trial has completed enrollment; topline results expected in 1H 2025

Phase 1 Trial:

- All six dose levels of NNC6019 found to be generally safe and well-tolerated
- Positive results on neuropathy and cardiac function
- Data supportive of advancing to Phase 2

[1] Higaki JN et al. *Amyloid*, 2016; Preclinical studies of mPRX004, the murine form of PRX004.

Differentiated Mechanism for Treatment of ATTR Amyloidosis

NON-PATHOGENIC PATHWAY	PATHOGENIC PATHWAY
 LIVER ▶  FREE TETRAMER	Protein Misfolding ▶  MONOMER, SOLUBLE AGGREGATE AMYLOID FIBRILS ▶  **HEART** Restrictive cardiomyopathy Heart failure  **PERIPHERAL NERVES** Loss of sensation Loss of reflex Muscle weakness
Current Treatment Approach: Reduce new protein entering pathogenic pathway	**NNC6019:** Amyloid depletion Uniquely designed for patients at high risk of early mortality

NNC6019: Depleter MoA May Provide a New Treatment Paradigm for Patients at High-risk of Early Mortality Due to Amyloid Deposition

Higaki JN et al. Amyloid, 2016; Preclinical studies of mPRX004, the murine form of PRX004

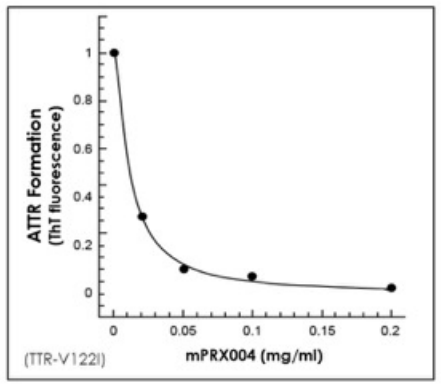
Designed to Deplete Amyloid

SUMMARY OF PRECLINICAL EFFECTS OF mPRX004

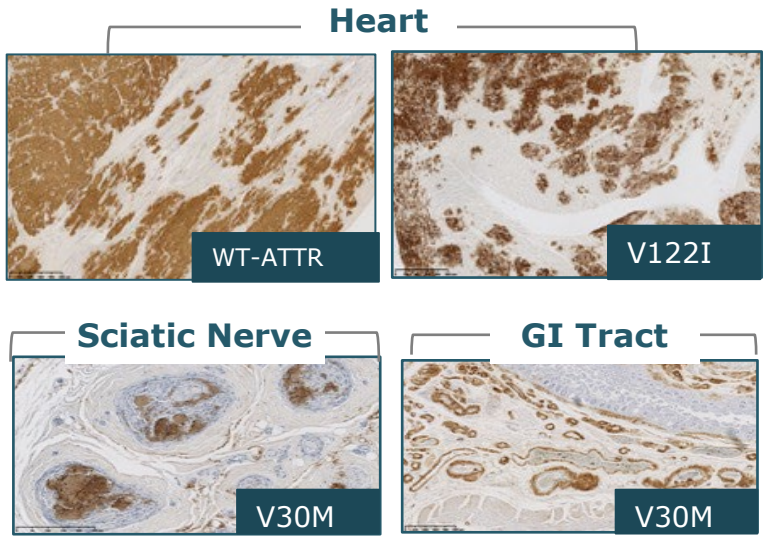
mPRX004 (murine form of PRX004) preclinical results:[1]

- ✓ Inhibits fibril formation
- ✓ Specifically binds to pathogenic TTR
- ✓ Reacts to amyloid deposits in multiple organs in both wtATTR and ATTRv patients
- ✓ Promotes in vivo ATTR amyloid clearance

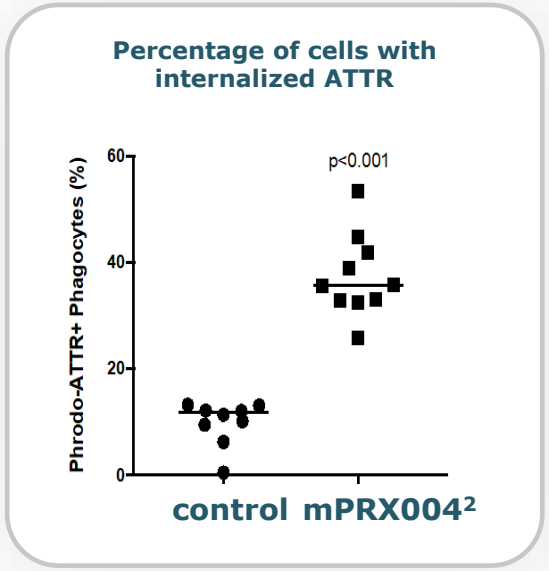
Inhibition of amyloid formation



Specific binding to amyloid



Clearance of amyloid



[1] Higaki JN et al. Amyloid, 2016; Preclinical studies of mPRX004, the murine form of PRX004
[2] mPRX004 = murine form of PRX004 (NNC6019)

Upcoming Milestones

Upcoming Potential Milestones

TRANSFORMATIONAL PERIOD AHEAD

Wholly-owned Programs	
Birtamimab for potential treatment of AL amyloidosis	
4Q24 – 2Q25	☐ Confirmatory Phase 3 AFFIRM-AL topline data (NCT04973137)
PRX012 for potential treatment of Alzheimer's disease	
2024	☐ Ongoing Phase 1 trial update
PRX123, dual Aβ/Tau vaccine for potential treatment and prevention of Alzheimer's disease	
2024	☐ Phase 1 timeline update
Partnered Programs	
Prasinezumab for potential treatment of Parkinson's disease (Roche)	
2H24	☐ Phase 2b PADOVA clinical trial topline data (NCT04777331)
NNC6019/PRX004 for potential treatment of ATTR-cardiomyopathy (Novo Nordisk)	
1H25	☐ Topline Phase 2 data (NCT05442047)
BMS-986446/PRX005 for potential treatment of Alzheimer's disease (Bristol Myers Squibb)	
1H24	☑ Bristol Myers Squibb initiated a Phase 2 clinical trial (NCT06268886)
PRX019 for potential treatment of neurodegenerative diseases (Bristol Myers Squibb)	
2024	☐ Prothena to initiate a Phase 1 clinical trial

APPENDIX: Partnership and Collaboration Details

Bristol Myers Squibb Collaboration: Advancing Two Clinical Stage Programs

BMS Collaboration[1]: Up to $1.55 Billion + Royalties

- ☑ $365 million earned to date (includes $100 million upfront and $50 million equity purchase)
- ☐ $1.18 billion in additional milestones available ($562.5 million for BMS-986446 and $617.5 million for PRX019)

BMS-986446 (PRX005)

Status: Phase 2 Ongoing

- ☑ $135 million in option payments received
- ☐ $562.5 million in potential regulatory and commercial milestones
- ☐ Tiered Royalties

BMS leading and funding further development and commercial

PRX019[2]

Status: Initiate Phase 1 by YE24

- ☑ $80 million option exercised
- ☐ $242.5 million in potential development and regulatory milestones
- ☐ $375 million in commercial milestones
- ☐ Tiered Royalties

Prothena to conduct Phase 1

[1] BMS = Bristol Myers Squibb collaboration following its acquisition of Celgene in November 2019; total of up to $1.55 billion, including upfront payment and equity investment, future potential development, regulatory and commercial milestones, plus potential additional U.S. and global product sales royalties

[2] Future milestone and royalty payments would be reduced in the case where BMS is successful in developing a modified version of PRX019 that achieves certain specified improved metrics

Worldwide Collaboration with Roche

Total Milestones	prothena®	Roche
	$755 million	**$--**
✓ Upfront, P1, P2 and P2b milestones	**$135 million**[1]	--
☐ Clinical, regulatory & first sale	$290 million	--
☐ U.S. sales milestones	$155 million	--
☐ Ex-U.S. sales milestones	$175 million	–
• U.S.	• Up to double digit teen royalties	• Leads clinical development
• U.S. co-promote	• Ability to opt-in	• Will lead commercialization
• Ex-U.S.	• Up to double digit teen royalties	• Sole responsibility to develop and commercialize

First Patient Dosed in Phase 2b PADOVA Clinical Trial in May 2021;
$60 Million Milestone Earned From Roche

[1] Includes $60 million milestone announced in May 2021 from Roche as earned (received in June 2021)