



ASX ANNOUNCEMENT

Actinogen CEO presents latest clinical data at Sachs Annual Neuroscience Innovation Forum and other meetings during the JP Morgan Healthcare Conference week

Sydney, 08 January 2023. Actinogen Medical Ltd ASX: ACW (“ACW” or “the Company”) announces that CEO Dr Steven Gourlay will present at the Sachs Associates 6th Annual Neuroscience Innovation Forum in San Francisco on 8 January 2023. While in San Francisco, Dr Gourlay will also participate in meetings at BIO Partnering @JPM associated with the 41st Annual J.P. Morgan Healthcare Conference from 9 to 12 January as well as at the annual H.C. Wainwright Bioconnect Virtual Conference that runs concurrently with the J.P. Morgan conference.

Dr Gourlay will also conduct multiple business development and other stakeholder meetings during the conference week. The information used for all presentations and meetings is attached to this announcement.

The presentation summarizes the recent Phase 2a clinical biomarker study findings of a large clinical effect size on the Clinical Dementia Rating Scale – Sum of Boxes (CDR-SB) and new exploratory analyses showing clinically significant benefits on two composite endpoints (slides 14 & 15). These exploratory analyses supplement and extend the CDR-SB finding (patient function) by showing similar trends toward benefit in several cognitive measures (ability to think and remember things).

In the patient subgroup with high pTau 181 (a blood measure indicating Alzheimer’s pathology in the brain that predicts progression) Xanmem® showed a protective effect against decline in the CDR-SB and two cognitive composites. In the group that did not have elevated pTau Xanmem showed a trend towards improved cognition, consistent with prior findings in healthy, older volunteers.

Dr Steven Gourlay, Actinogen’s CEO and MD, said:

“We are delighted to brief pharmaceutical industry stakeholders on our recent clinical developments and key product development milestones. The focus on neuroscience for a whole day in San Francisco points to the resurgent interest in this area from investors and biopharmaceutical companies.

“Actinogen now has a substantial safety database of more than 300 people treated and positive clinical efficacy results from three separate trials for our lead small molecule drug Xanmem.®

“We look forward to commencing enrolment in the XanaMIA Phase 2b Alzheimer’s Disease trial in the first half of 2023 and continuing with the XanaCIDD Phase 2 Depression trial which commenced last month. Regional and global partnering deals continue to be the focus for our business development activities.”

® Xanmem is a registered trademark of Actinogen Medical Limited

ENDS

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Announcement authorised by the Board of Directors of Actinogen Medical

About Actinogen Medical

Actinogen Medical (ACW) is an ASX-listed, biotechnology company developing a novel therapy for neurological and neuropsychiatric diseases associated with dysregulated brain cortisol. There is a strong association between cortisol and detrimental changes in the brain, affecting cognitive function, harm to brain cells and long-term cognitive health.

Cognitive function means how a person understands, remembers and thinks clearly. Cognitive functions include memory, attention, reasoning, awareness and decision-making.

Actinogen is currently developing its lead compound, Xanamem,[®] as a promising new therapy for Alzheimer's Disease and Depression and hopes to study Fragile X Syndrome and other neurological and psychiatric diseases in the future. Reducing cortisol inside brain cells could have a positive impact in these and many other diseases. The cognitive dysfunction, behavioural abnormalities, and neuropsychological burden associated with these conditions is debilitating for patients, and there is a substantial unmet medical need for new and improved treatments.

About Xanamem

Xanamem's novel mechanism of action is to block the production of cortisol inside cells through the inhibition of the 11 β -HSD1 enzyme in the brain. Xanamem is designed to get into the brain after it is absorbed in the intestines upon swallowing its capsule.

Chronically elevated cortisol is associated with cognitive decline in Alzheimer's Disease, and Xanamem has shown the ability to enhance cognition in healthy, older volunteers. Cognitive impairment is also a feature in Depression and many other diseases. Cortisol itself is also associated with depressive symptoms and when targeted via other mechanisms has shown some promise in prior clinical trials.

The Company has studied 11 β -HSD1 inhibition by Xanamem in more than 300 volunteers and patients, so far finding a statistically significant improvement in working memory and attention, compared with placebo, in healthy, older volunteers in two consecutive trials and clinically significant improvements in patients with biomarker-positive mild AD. Previously, high levels of target engagement in the brain with doses as low as 5 mg daily have been demonstrated in a human PET imaging study. A series of Phase 2 studies in multiple diseases is being conducted to further confirm and characterize Xanamem's therapeutic potential.

Xanamem is an investigational product and is not approved for use outside of a clinical trial by the FDA or by any global regulatory authority. Xanamem[®] is a trademark of Actinogen Medical.

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ACTINOGEN MEDICAL ENCOURAGES ALL CURRENT INVESTORS TO GO PAPERLESS BY REGISTERING THEIR DETAILS WITH THE DESIGNATED REGISTRY SERVICE PROVIDER, AUTOMIC GROUP.



Third trial validates Xanamem[®] cognitive activity & Alzheimer's Disease program

Positive Phase 2a data with large CDR-SB effect size

Dr. Steven Gourlay MBBS PhD MBA, CEO & MD

Sachs 6th Annual Neuroscience Forum and JP Morgan Healthcare Conference week, 8-12 January 2023

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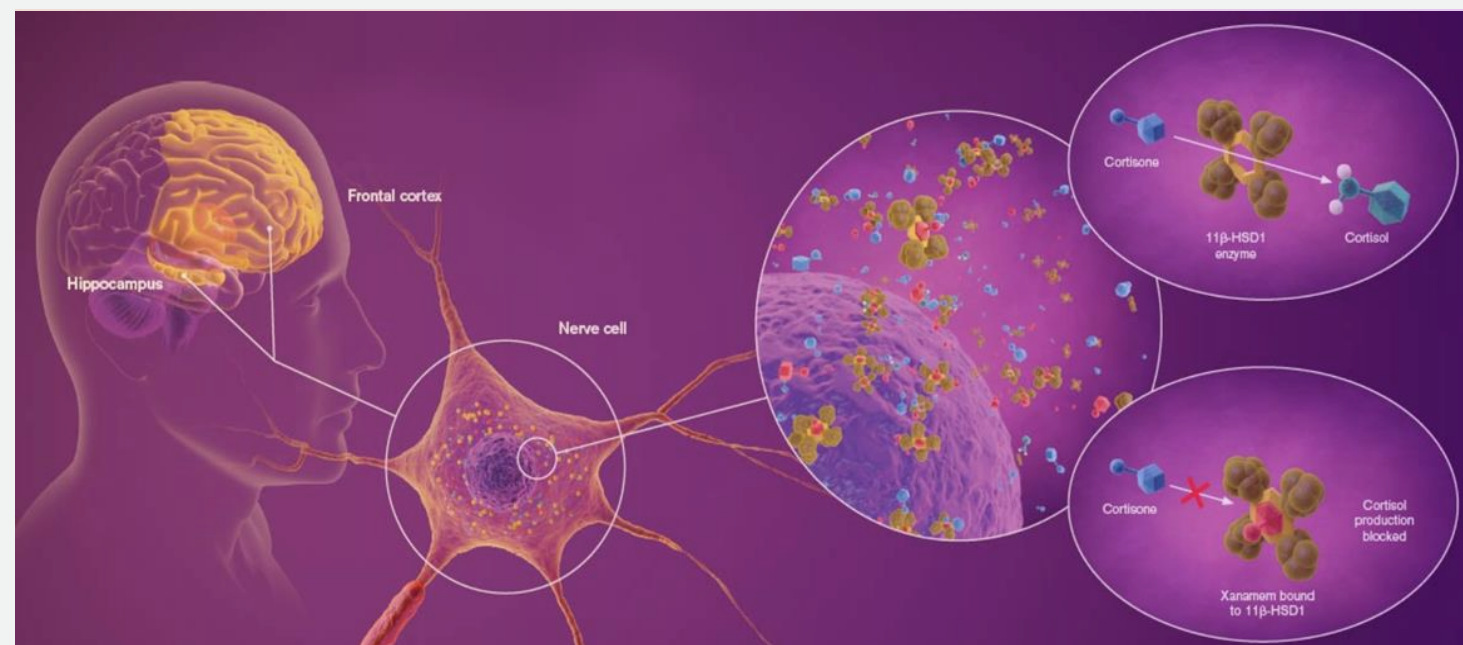
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Xanamem: Oral, low dose, once-a-day treatment with a unique non-amyloid/tau mechanism

Brain penetrant 11β -HSD1 small molecule enzyme inhibitor reduces cortisol inside brain cells - modulating signaling pathways and underlying disease processes^{1,2}

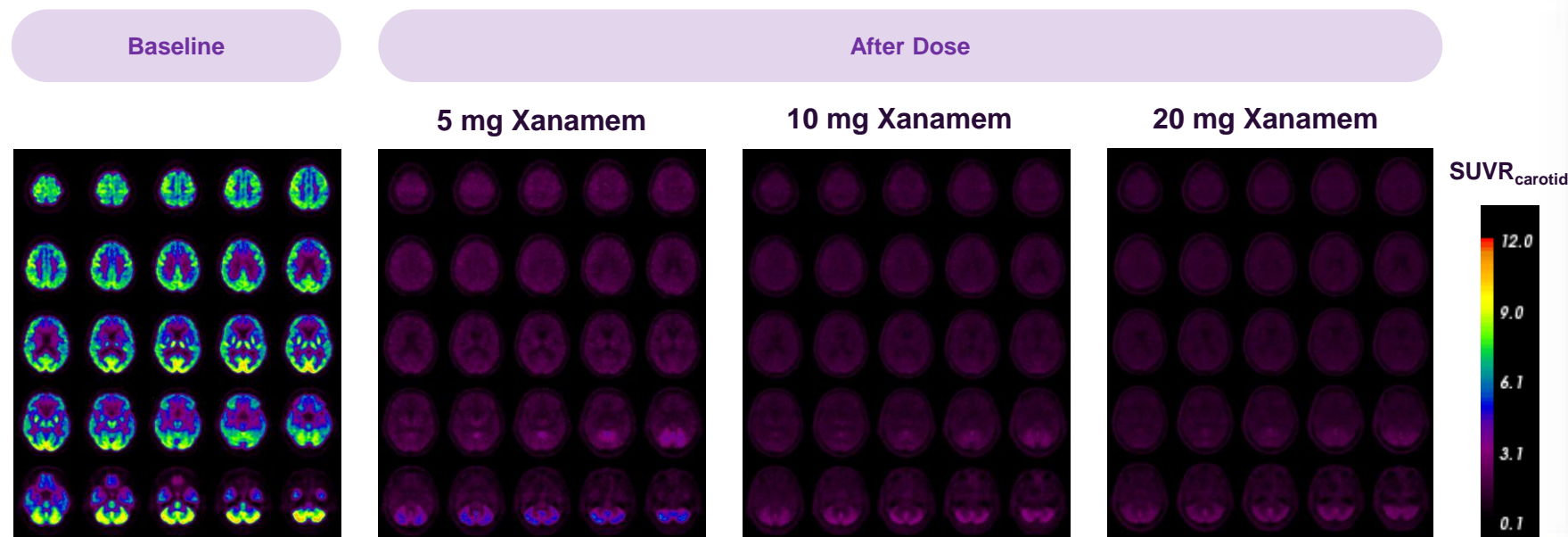
Potential to be:

- Rapidly cognitive enhancing
- Disease-modifying (slow or halt progression) in AD
- Anti-depressant



PET data shows full target engagement in the brain at well tolerated doses of 5-10 mg

Previous molecules to this target have not achieved adequate brain concentrations

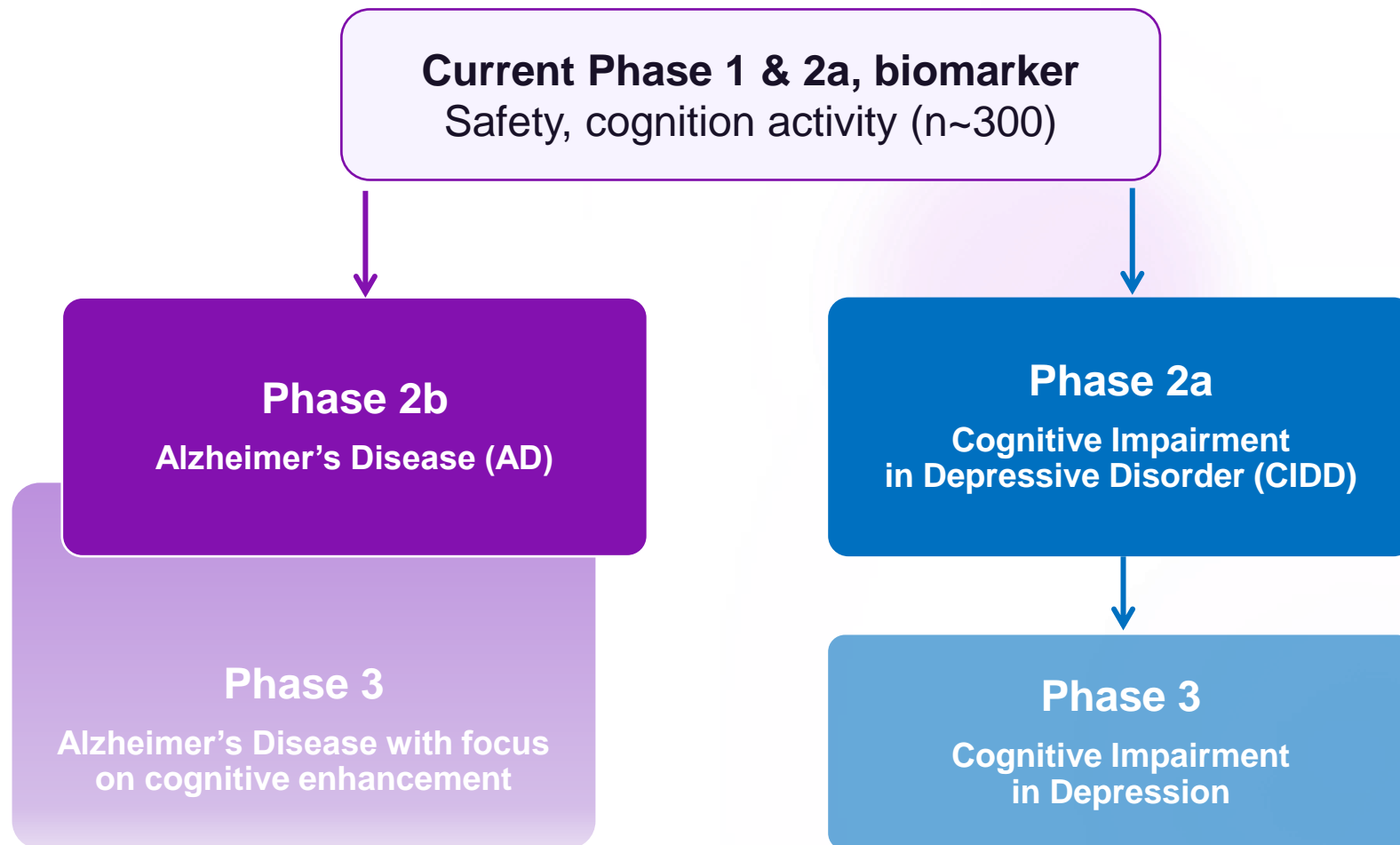


PET data demonstrates that Xanamem extensively binds to the 11 β -HSD1 enzyme throughout the brain, with high post-treatment effects (absence of colour) after 7 days at all doses, slightly less at a 5 mg dose.

This is consistent with full hormonal pharmacodynamic activity seen with 10 mg in clinical trials. 5 and 10 mg show excellent clinical tolerability and safety.

Xanamem Phase 2 & 3 program

Building on four independent Phase 1 and 2 studies showing activity



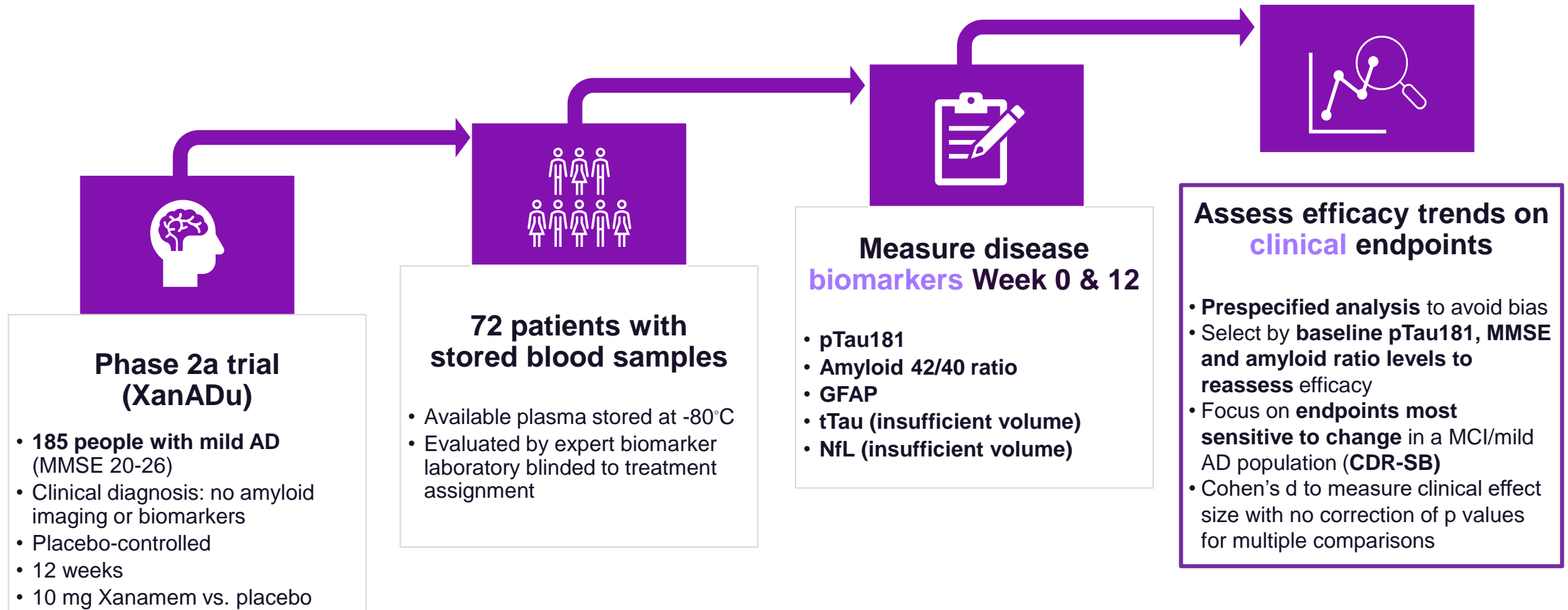
Previously: evidence of Xanamem activity on cognition from multiple sources

- ✓ **In animals**
 - ✓ **Protection against cognitive decline in animal model of AD using a Xanamem analogue independent of amyloid plaque¹**
- ✓ **In humans**
 - ✓ **Consistent target engagement measured by PET & ACTH response**
 - ✓ **XanaHES trial in cognitively normal older volunteers – Positive effects on Cogstate attention & working memory**
 - ✓ **XanaMIA trial in cognitively normal older volunteers – Positive effects on Cogstate attention & working memory**
 - ✓ **New data shows activity in patients with mild AD**

Human and animal data support Xanamem activity at doses of 5 to 10 mg daily

Phase 2 blood biomarker study design & methods

Uses a pre-specified protocol and analysis plan to avoid bias



Clinical Dementia Rating – Sum of Boxes (CDR-SB)

functional endpoint to assess dementia in early-stage AD

Test domain	Impairment				
	None	Questionable	Mild	Moderate	Severe
	0	0.5	1	2	3
Memory					
Orientation					
Judgment & Problem Solving					
Community Affairs					
Home & Hobbies					
Personal Care					

Score is sum of each line i.e. score between 0 and 18 (0 = normal)

Xanamem doubled rate of disease stabilization on FDA-approved CDR-SB endpoint



Response analysis in pTau-positive¹ AD patients (most likely to progress)

Twice as many patients in the Xanamem group had stable or improved disease compared with placebo²

... meaning 56% of patients treated with Xanamem were stable or improved vs. 28% in placebo

Large effect size vs. placebo of 0.6 – 0.8 units over 12 weeks

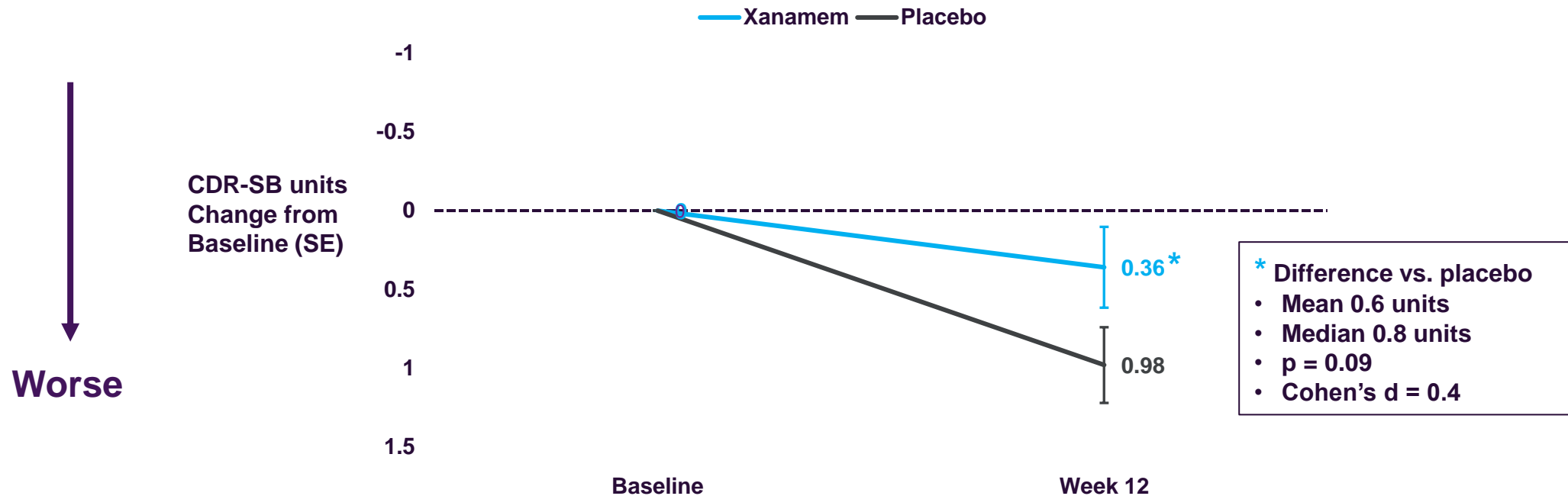
Xanamem 10 mg protected the majority of patients from progression

1. Pre-specified level of pTau181 above the median in plasma at baseline
2. Where CDR-SB decreased or was unchanged - Xanamem 9 of 16 (56%) vs. Placebo 5 of 18 (28%)

Topline result from pre-specified analysis in AD patients with plasma pTau181 > median of 6.74 pg/mL



Using pre-specified protocol, statistical analysis plan and blinded biomarker analysis



Oral Xanamem 10 mg largely prevented progression over 12 weeks

Effect on CDR-SB in other three pre-specified groups

Groups defined by biomarker median value, MMSE by 20-23 vs. 24-26

	N	CDR-SB				
Group		Desired change	Xanamem	Placebo	Cohen's d	p value
pTau >10.2 pg/mL ¹ (mean)	9	Down	0.1	0.8	0.6	0.33
Aβ42/40 ratio < 0.19 (mean)	29	Down	0.5	0.4	0.1	0.91
MMSE 20-23	46	Down	0.5	0.5	0.0	0.82

Clinically significant effect size of CDR-SB 0.7 units in very high pTau group, with no apparent utility of low amyloid ratio or lower MMSE

Exploring the high pTau group: baseline characteristics



	Xanamem (n=16)	Placebo (n=18)
Age (mean, SD)	71 (8)	71 (8)
% female	50%	56%
% donepezil therapy ¹	44%	61%
ADASCog14 (mean, SD)	34 (5)	32 (8)
ADCOMS (mean, SD)	0.56 (0.13)	0.52 (0.19)
MMSE (mean, SD)	22 (3)	23 (2)
CDR-SB (mean, SD)	4.1 (1.2)	3.6 (1.6)
pTau pg/mL (mean, SD)	9.3 (2.6)	11.9 (11.6)
pTau pg/ml (median)	8.6	8.8
A β 42/40 ratio (mean, SD)	0.19 (0.03)	0.19 (0.03)
GFAP pg/mL (mean, SD)	132 (77)	136 (95)

Groups were generally balanced in key characteristics

High pTau group: NTB and other endpoints

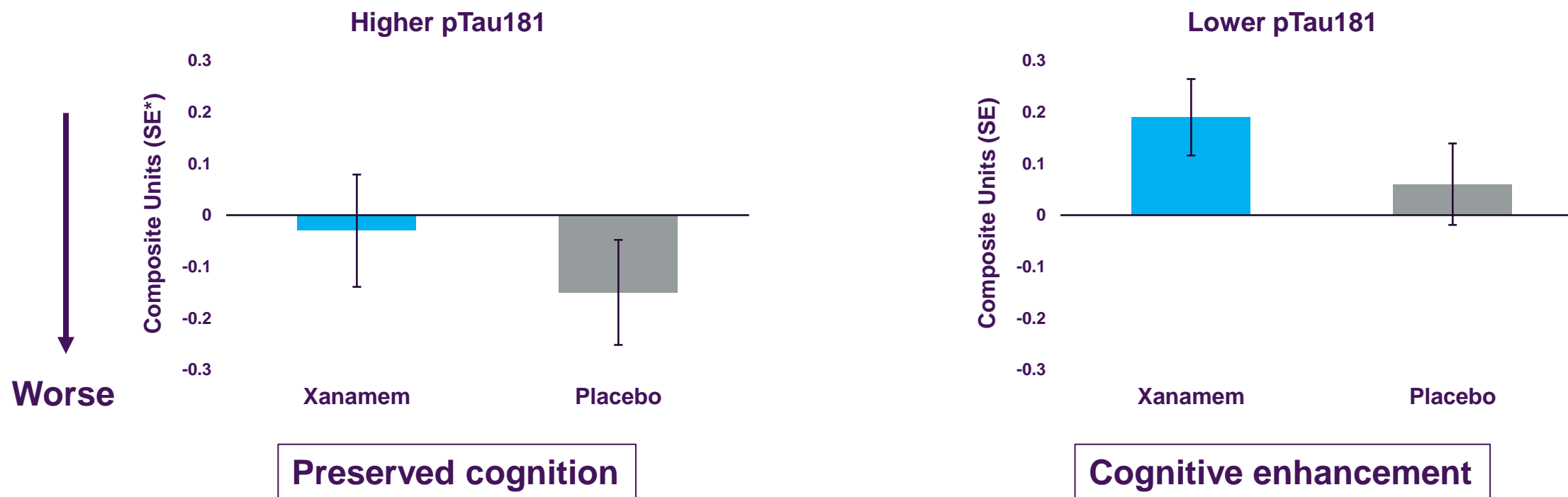
NTB: a composite for executive function consisting of Controlled Oral Word Association (COWAT) and Category Fluency Test (CFT)

- **Improved NTB: Xanamem +0.5 vs. Placebo -2.3, Cohen's d = 0.3**
- **No effects on ADAS-Cog14, ADCOMS, MMSE, RAVLT, NPI (Cohen's d < 0.2)**

Clinically significant effect size on NTB further explored in analysis of composite characteristics

Exploratory: Change from baseline in cognitive composite

Trends in change of composite of word recall & recognition, CFT & COWAT (p=NS)

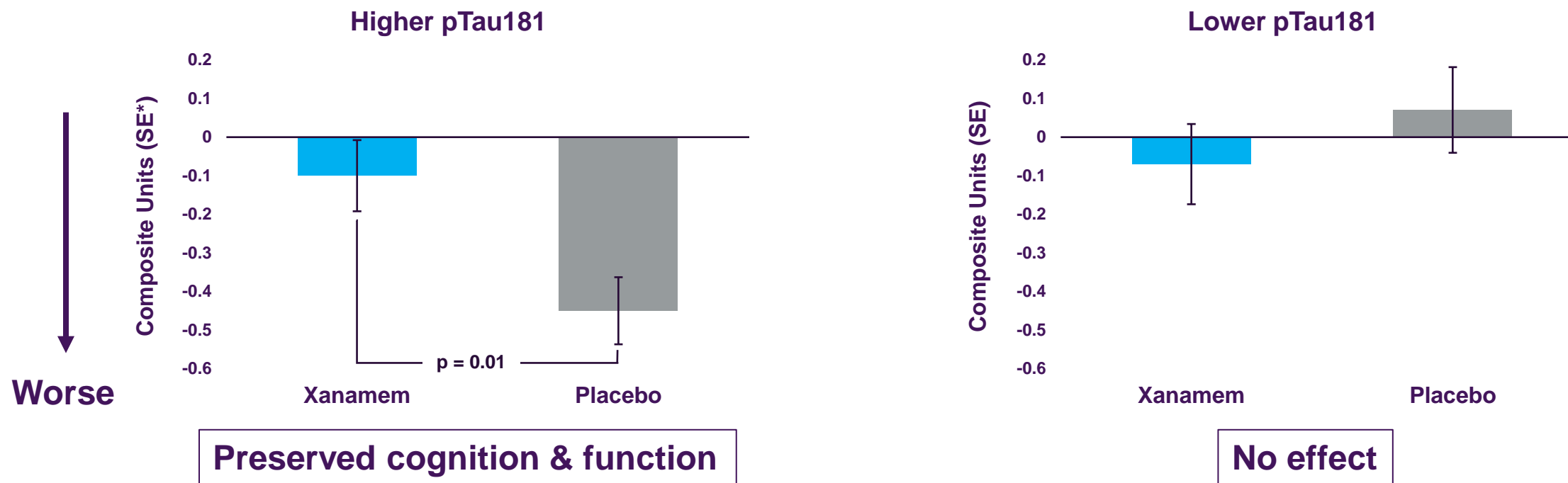


Consistent with Xanamem activity as a cognitive enhancer & disease-modifier

Exploratory: Change from baseline in cognitive-functional composite (with CDR-SB)



Trends in change of composite of CDR-SB, word recall & recognition, CFT, COWAT



Consistent with Xanamem activity as a cognitive & functional preserver

The new analysis validates and de-risks the AD program

- ✓ **Confirming clinical activity of Xanamem in mild AD patients**
- ✓ **Large clinical effect size**
- ✓ **Utility of blood pTau levels to select suitable patients for next Phase 2b trial**
- ✓ **Utility of CDR-SB to measure the benefit of Xanamem in future trials**
- ✓ **Potential utility of other tests of cognition including executive function**

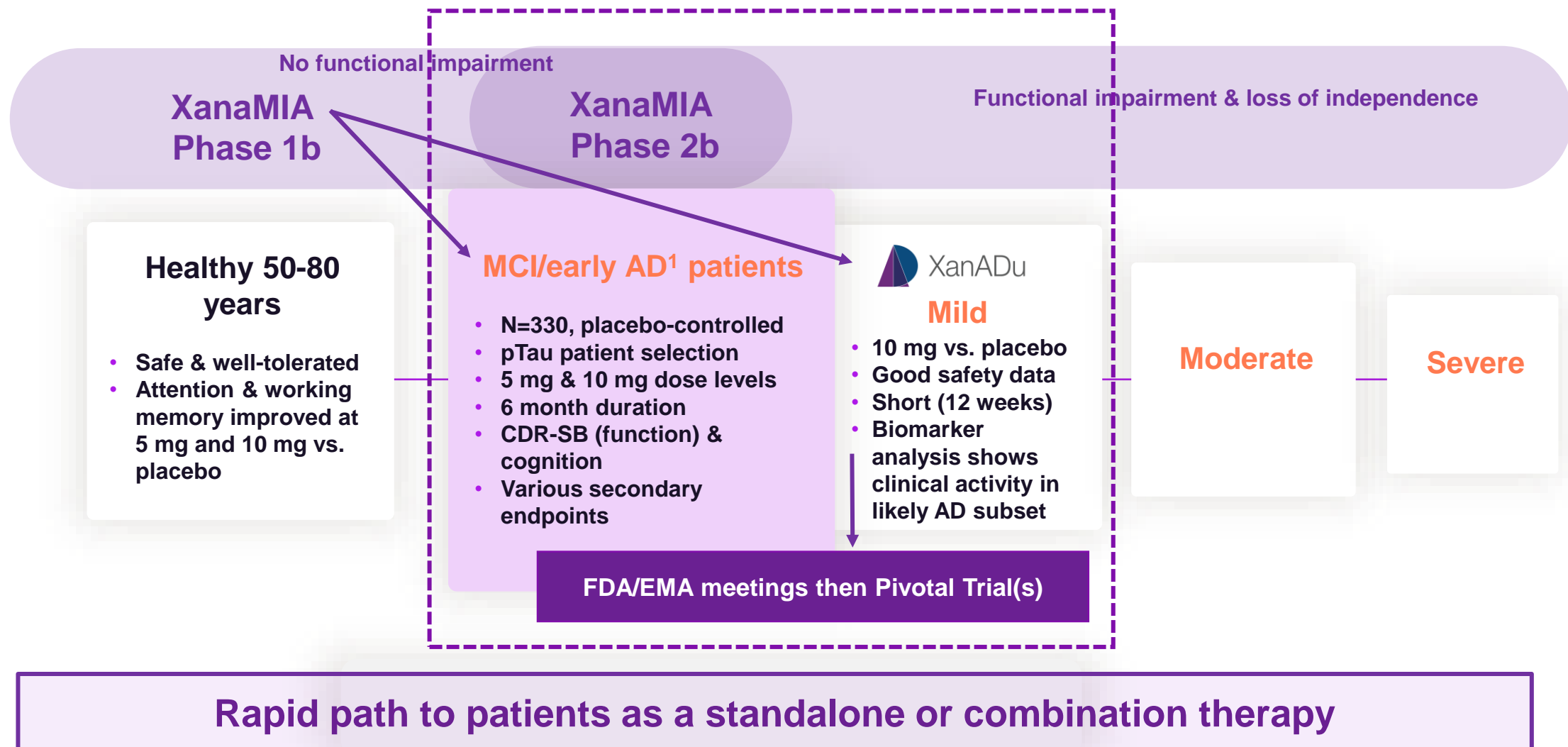
Confirms the pro-cognitive & positive clinical effects of Xanamem at 10 mg daily

Moving forward rapidly in Cognitive Impairment in AD and Depression

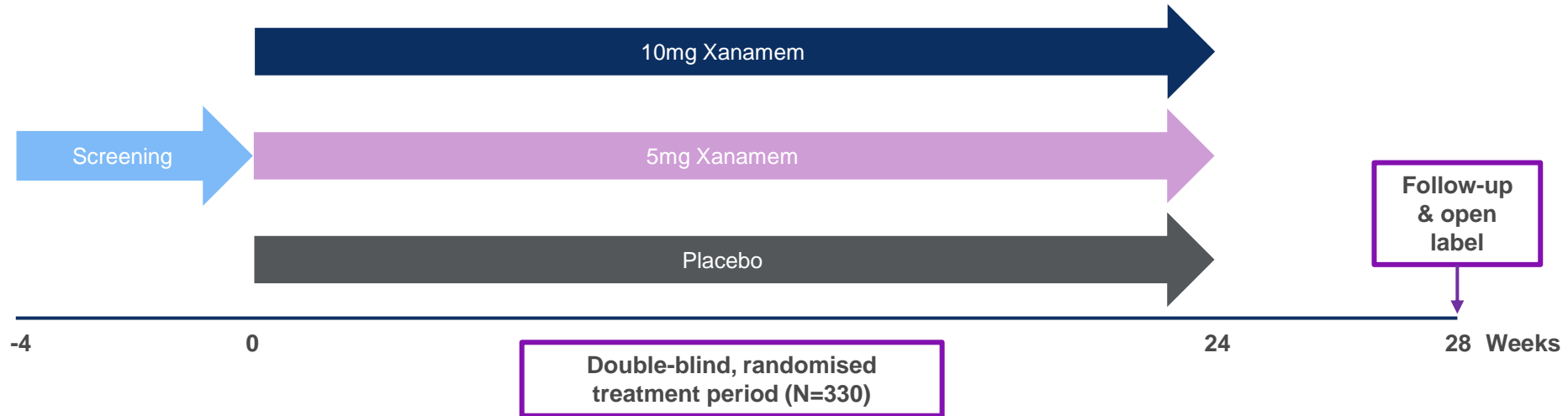
Biomarker data validate planned Phase 2b protocol in Mild Cognitive Impairment / mild AD with positive blood pTau



Focus on speed to approval with 6 and 9-month trials



XanaMIA Phase 2b trial design & implementation model: selecting AD patients by blood pTau level



Key inclusion/exclusion criteria	Primary Endpoints	Key Secondary Endpoints	Key Implementation Features
<ul style="list-style-type: none"> Clinical diagnosis of MCI or mild dementia due to AD (NIA-AA) Elevated blood p-tau181 Cognitive impairment relative to demographic norms Excluded vascular cause of dementia 	<ul style="list-style-type: none"> CDR-SB Cogstate CTB attentional composite (attention and working memory) 	<ul style="list-style-type: none"> Amsterdam Activity of Daily Living scale Cogstate Executive Function & Episodic Memory Function Composites Individual tests Carer questionnaire / Patient Global Improvement 	<ul style="list-style-type: none"> Australian trial sites plus selected international locations Actinogen “hands-on” operational model Optimized for scalable addition of international sites as required

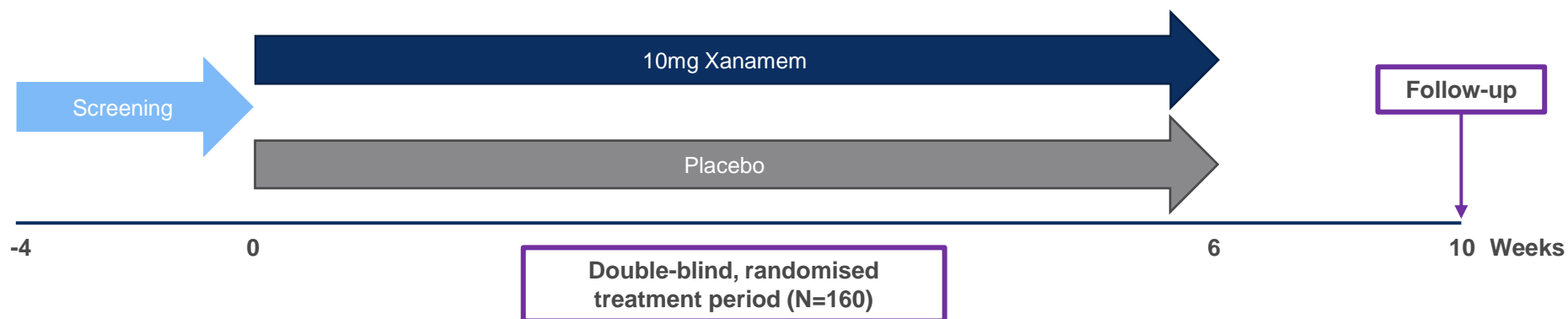
Science Behind the Xanamem Depression Program

- ✓ 80-90% report neurocognitive symptoms¹
- ✓ Cognitive symptoms often persist during remission¹
- ✓ Elevated cortisol associated with severe, melancholic depression²
- ✓ Cortisol levels associated with treatment outcomes, relapse, & cognition³
- ✓ Positive effects with GR receptor antagonism with mifepristone⁴
- ✓ Meta-analysis of clinical cortisol approaches⁵
- ✓ Xanamem has improved human cognition in a number of studies⁶

1. 3-year prospective study and review, Conradi et al. 2011
2. Quantitative summary of four decades of research, Stetler & Miller 2011
3. Depression literature review, Malhi & Mann 2018; HPA axis in major depression, Keller et al. 2016
4. GR, **glucocorticoid receptor**; Combined analysis of mifepristone for psychotic depression, Block et al. 2018; mifepristone effects on depression in bipolar disorder, Young et al. 2004; Evidence from clinical studies with CRH₁ receptor antagonists, Holsboer & Ising 2008
5. Meta-analysis of prior trials aimed at reducing cortisol, Ding et. al 2021
6. Xanamem placebo-controlled trial working memory & attention (Actinogen data on file)



XanaCIDD trial design & implementation model



Key inclusion/exclusion criteria	Primary Endpoints	Key Secondary Endpoints	Key Implementation Features
<ul style="list-style-type: none"> Primary diagnosis of MDD Persistent depressive symptoms despite existing therapy Cognitive impairment relative to demographic norms 	<ul style="list-style-type: none"> Cogstate CTB attentional composite (attention and working memory) 	<ul style="list-style-type: none"> Montgomery-Åsberg Depression Rating Scale (MADRS) Executive Function Cognitive Composite Memory Function Cognitive Composite 	<ul style="list-style-type: none"> Australian trial sites Actinogen “hands-on” operational model First patient enrollment planned for 2022

Xanamem Development: Strategy & Timelines

Actinogen strategy validated by new trial results



Backed by strong balance sheet and intellectual property

Accelerate clinical development

- **Focus on cognitive enhancement:**
 - Patients with early Alzheimer's Disease
 - Use pTau for patient selection
 - Phase 2b will use commercial tablets
 - Cognitive enhancement Depression Phase 2
 - Trial operations based in Australia and selected other countries

Forward planning

- Scale up and optimise **manufacturing** to prepare for commercially viable, large scale production
- **Ancillary clinical and nonclinical** studies
- **Commercial** planning

Create value from partnerships



Pharma/biotech engagement

- **Actively engage large and mid-size potential partners with new results**
 - Seek value-add partnerships
 - Evaluate regional opportunities



Regulatory engagement

- **Seek early US FDA and EMA** interactions to agree endpoints for pivotal, approvable trials in AD



Two major phase 2 trials of Xanamem in 2023-24



2022

- Two positive, independent clinical trials
- Commercial tablet manufacturing
- XanaCIDD trial started enrolling in Depression
- FDA “clear to proceed” with Phase 2b in AD

2023

- XanaMIA Phase 2b enrollment starts H1
- XanaCIDD enrollment ± depression results
- Presentations & publications

2024

- XanaMIA Phase 2b AD results
- Expand Cognitive/Depression program

Appendix



Selected glossary 1



11 β -HSD1 11 beta HydroxySteroid Dehydrogenase-1 enzyme

A β Amyloid beta – a type of amyloid protein associated with Alzheimer’s Disease, 42 and 40 are different forms

ACTH Adrenocorticotrophic hormone that regulates blood levels of cortisol

ADAS-Cog Alzheimer’s Disease Assessment Score - Cognition

ApoE4 Apoprotein genotype associated with genetic risk of Alzheimer’s Disease

ATN Amyloid, Tau, Neurodegeneration

Clinical scales Measure how a patient feels, performs and functions

CDR-SB Clinical Dementia Rating “Sum of Boxes” scale measuring cognition and function on an 18-point scale (high worse)

CNS Central nervous system

CSF Cerebrospinal fluid

CTAD Clinical Trials on Alzheimer’s Disease (conference)

CTB Cognitive Test Battery of computerized tests

Double-blind Investigators, participants and company do not know who has active vs placebo treatment during a trial

EMA European Medicines Agency

FDA US Food & Drug Administration

Filamen A a protein believed to relate to amyloid toxicity

GFAP Glial Fibrillary Acidic Protein – a marker of microglial cell activation in the brain

IDSST International Digit Symbol Substitution Test of cognition

Selected glossary 2



IQCODE Informant Questionnaire on Cognitive Decline in the Elderly

MCI Mild Cognitive Impairment – memory, executive function deterioration with retained functional abilities

MDD Major Depressive Disorder

MMSE Mini Mental State Examination – a 30-point scale of simple questions to assess mental abilities

NfL Neurofilament Light – a nerve protein in the brain and rest of the body too

NIA-AA National Institutes of Aging and Alzheimer's Association

NMDA a type of receptor for glutamate in the brain

NPI Neuropsychiatric Inventory to assess psychiatric symptoms

NTB a Neurologic Test Battery, in this presentation one designed to measure executive function aspects of cognition

PET Positron Emission Tomography – a type of body scan

Placebo controlled Non-active treatment for double-blind design

p-Tau181 or 217 AD biomarker of phosphorylated Tau protein

QPCT Glutaminy-peptide cyclotransferase is an enzyme proposed to create toxic amyloid species

RAVLT Rey Auditory Visual Learning Test

RBANS Repeatable Battery for the Assessment of Neuropsychological Status (a test of mental abilities)

ROC AUC Receiver Operating Curve Area Under the Curve (1.0 ideal) – a type of statistical test to compared two methods of measurement

Tau – a brain protein

Ttau – total tau levels including both phosphorylated and non-phosphorylated tau