



XVIII Convegno

I Centri per i disturbi cognitivi e demenze e la gestione integrata della demenza

VII Sessione

**NUOVI FARMACI NELL'ALZHEIMER: DALL'ANALISI PER RESPONDER ALLE
STRATEGIE PER LA MINIMIZZAZIONE DEI RISCHI**



organizzato da
ISTITUTO SUPERIORE DI SANITÀ

*Centro Nazionale Prevenzione delle Malattie e Promozione della Salute (CNaPPS)
Reparto Promozione e Valutazione delle Politiche di Prevenzione delle Malattie Croniche*

Le evidenze sul farmaco Lecanemab **S. Sorbi**



Università degli Studi di Firenze

PREMESSA

Non ho mai avuto rapporti di consulenza con Eisai.

Non ho partecipato allo studio CLARITY nè allo EXTENSION STUDY open label.

Sono stato invitato da Eisai a presentare Lecanemab in questo convegno.

L'organizzazione della presentazione e la selezione del contenuto è mia; ho richiesto ed ottenuto del materiale ad Eisai.

Left panel shows **loss of dendritic arborization** in Alzheimer's disease. Right panel shows a normal neuron.

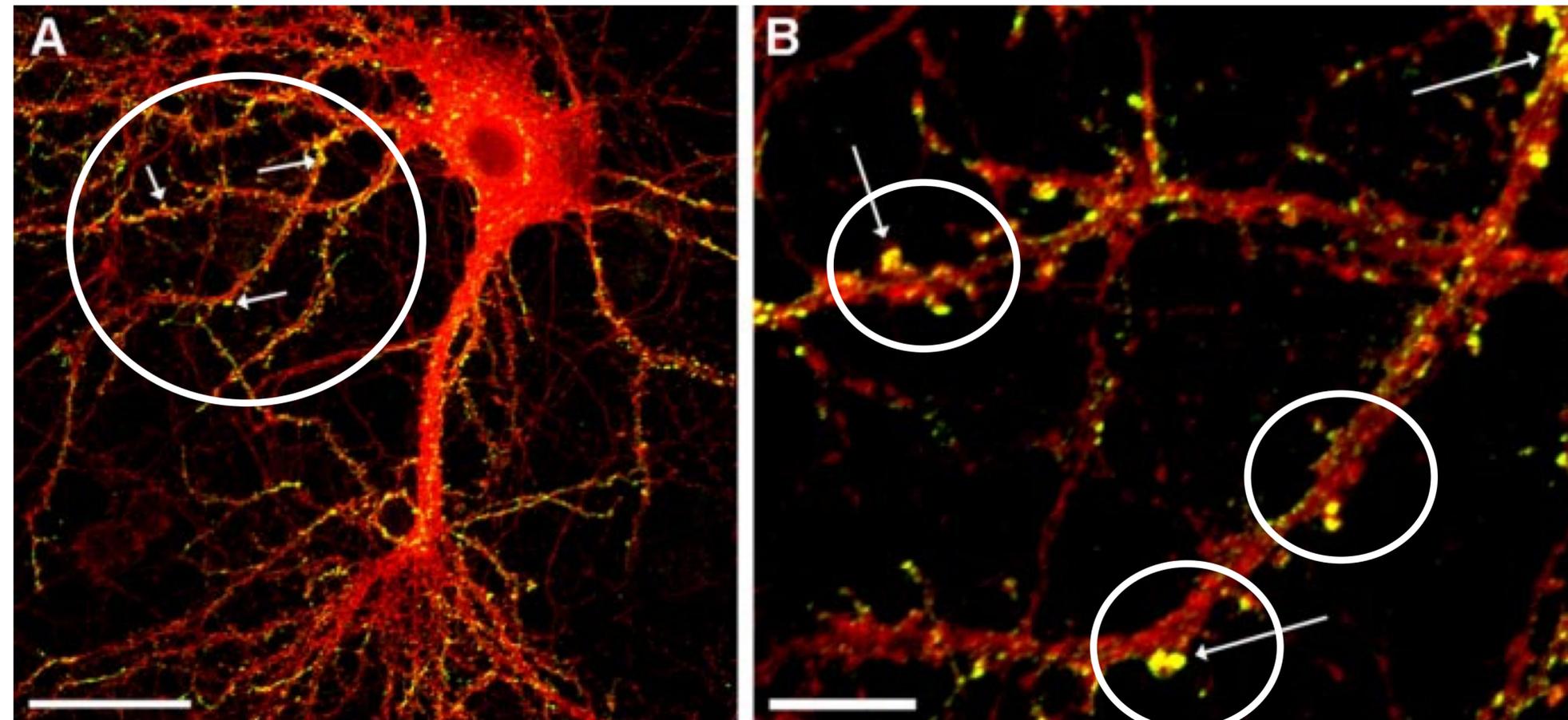


Extensive research supports the hypothesis that **soluble amyloid-beta (A β) oligomers in synapses are a primary cause of the initial memory loss and synaptic dysfunction** seen in Alzheimer's disease

The Journal of Neuroscience, November 10, 2004 Synaptic Targeting by Alzheimer's-Related Amyloid β Oligomers

Pascale N. Lacor,¹ Maria C. Buniel,¹ Lei Chang,¹ Sara J. Fernandez,¹ Yuesong Gong,¹ Kirsten L. Viola,¹ Mary P. Lambert,¹ Pauline T. Velasco,¹ Eileen H. Bigio,² Caleb E. Finch,³ Grant A. Krafft,⁴ and William L. Klein¹

¹Neurobiology and Physiology Department, Northwestern University, Evanston, Illinois 60208, ²Neuropathology Core, Northwestern Alzheimer's Disease Center, Northwestern Feinberg School of Medicine, Chicago, Illinois 60611, ³Andrus Gerontology Center, University of Southern California, Los Angeles, California 90089, and ⁴Acumen Pharmaceuticals, Glenview, Illinois 60025



Review

Int. J. Mol. Sci. **2021**,

Neurotoxic Soluble Amyloid Oligomers Drive Alzheimer's Pathogenesis and Represent a Clinically Validated Target for Slowing Disease Progression

Martin Tolar ^{*}, John Hey, Aidan Power and Susan Abushakra



International Journal of
Molecular Sciences

2020



Review

Protofibrils of Amyloid- β are Important Targets of a Disease-Modifying Approach for Alzheimer's Disease

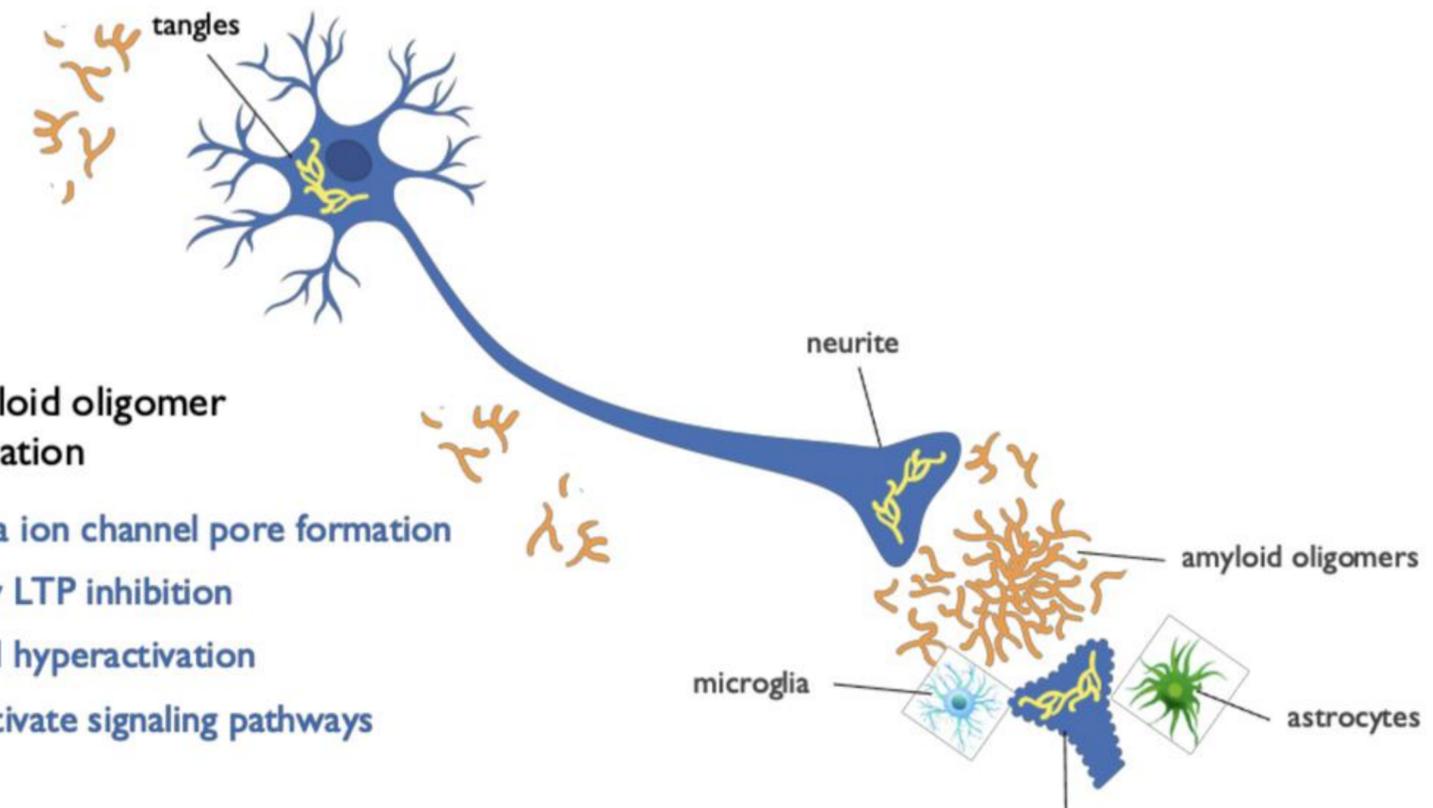
Kenjiro Ono ^{1,*} and Mayumi Tsuji ²

Arctic transgenic mice, and human samples of AD brain tissues have suggested that the pre-fibrillar forms of A β , particularly A β protofibrils, may be the most critical species, compared with extracellular fibrillar forms.

- (1) Only agents that target soluble A β oligomers show clinical efficacy in AD patients;
- (2) Clearance of amyloid plaque does not correlate with clinical improvements;
- (3) Agents that predominantly target amyloid monomers or plaque failed to show clinical effects; and
- (4) In positive trials, efficacy is greater in carriers of the $\epsilon 4$ allele of apolipoprotein E (APOE4), who are known to have higher brain concentrations of A β oligomers.

Key mechanisms of amyloid oligomer mediated neurodegeneration

1. Direct neurotoxicity via ion channel pore formation
2. Memory impairment by LTP inhibition
3. Glutamatergic neuronal hyperactivation
4. Receptor binding to activate signaling pathways



Lecanemab has a high affinity for A β protofibrils *in vitro*

- Lecanemab is a humanised monoclonal IgG1 antibody with a low affinity for A β monomers and **high affinity for aggregated A β forms** (>1000x)¹
- Among aggregated species, **lecanemab shows preferential activity for A β protofibrils** over fibrils (>10x)²
 - A β protofibrils are suggested to be the most critical species to target in AD due to increased toxicity compared with other A β species^{3–6}

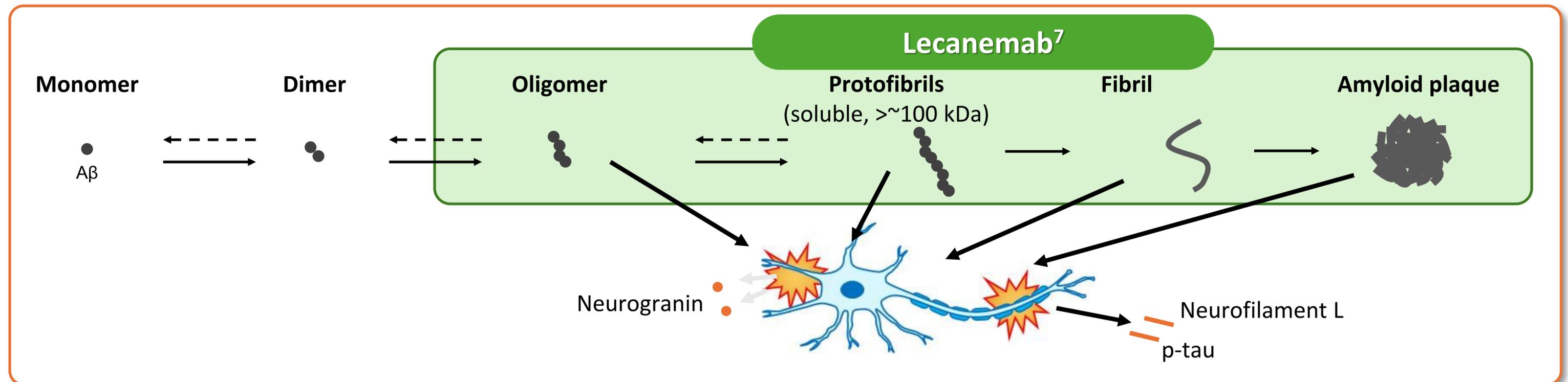


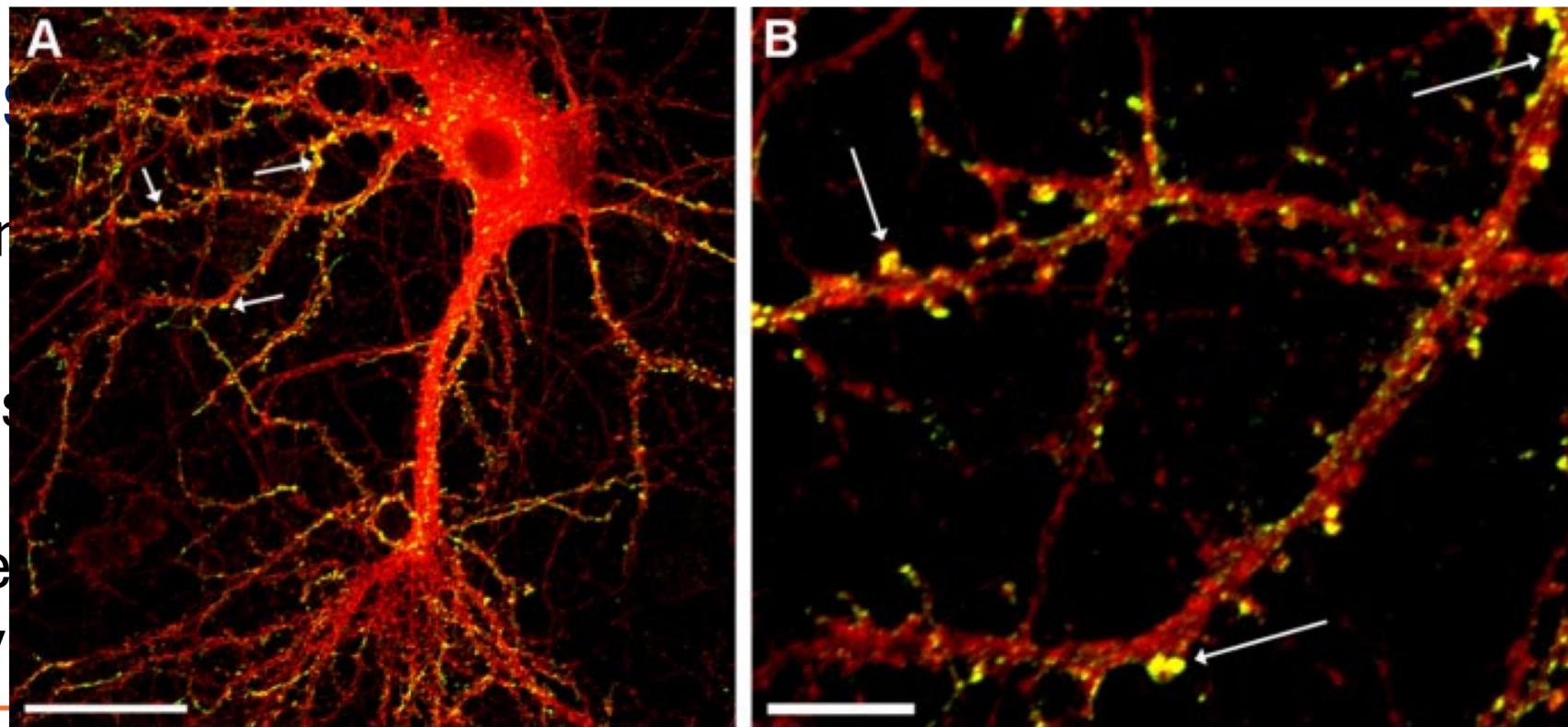
Figure adapted from Swanson CJ, et al. Presented at the Clinical Trials on Alzheimer's Disease Conference 2018; Barcelona, Spain. October 24–27, 2018.

A β , amyloid beta; **AD**, Alzheimer's disease; **IgG**, immunoglobulin G; **p-tau**, phosphorylated tau 181.

1. Tucker S, et al. *J Alzheimers Dis*. 2015;43:575–588; **2.** Magnusson K. *J Alzheimers Dis* 2013;37:29-40; **3.** Ono K & Tsuji M. *Int J Mol Sci*. 2020;21:952; **4.** Tolar M, et al. *Int J Mol Sci*. 2021;22:6455; **5.** Tolar M, et al. *Alz Dement*. 2019;1–8; **6.** Kaye R & Lasagna-Reeves CA. *JAD*. 2013;33:S67–S78; **7.** Swanson CJ, et al. Presented at the Clinical Trials on Alzheimer's Disease Conference 2018; Barcelona, Spain. October 24–27, 2018.

Lecanemab has

- Lecanemab is a humanized IgG1 antibody with high affinity for Aβ
- Among aggregated species, it binds to Aβ protofibrils over oligomers and fibrils (>10x)²
 - Aβ protofibrils are considered to be the most toxic species in AD due to their ability to bind to and damage neuronal cytoskeleton



in vitro

- High affinity for Aβ monomers
- High affinity for Aβ protofibrils over oligomers and fibrils (>10x)³
- High affinity for Aβ protofibrils over oligomers and fibrils (>10x)⁴
- High affinity for Aβ protofibrils over oligomers and fibrils (>10x)⁵
- High affinity for Aβ protofibrils over oligomers and fibrils (>10x)⁶
- High affinity for Aβ protofibrils over oligomers and fibrils (>10x)⁷

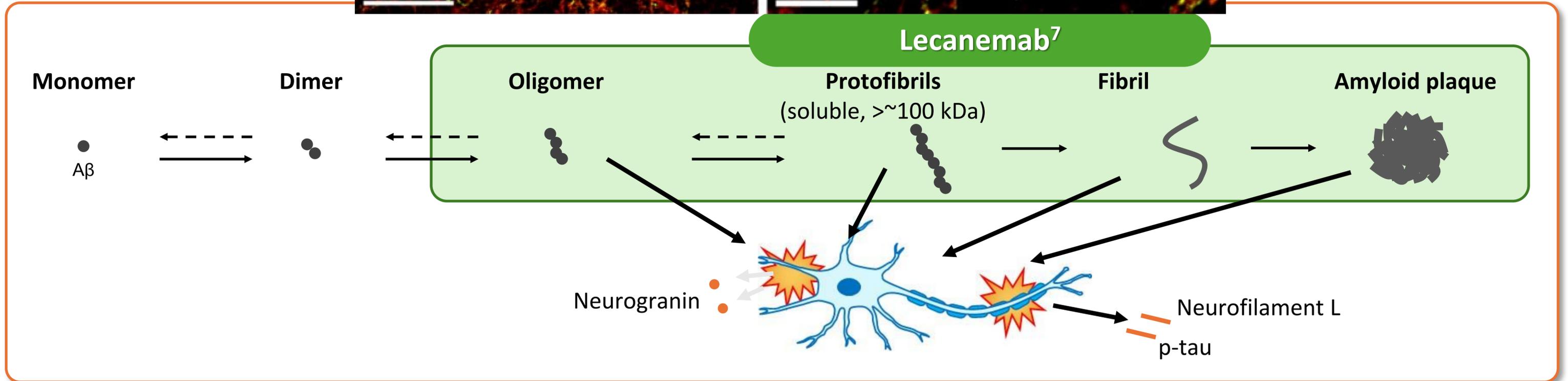


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LECANEMAB NEL MONDO

CANADA

Lecanemab è stato autorizzato da Health il 27 ottobre 2025

U.S.A

FDA ha concesso l'approvazione accelerata il 6 Gennaio 2023 e l'approvazione standard in data 6 Luglio 2023

In data 26 gennaio 2025, FDA ha approvato la **dose di mantenimento** di lecanemab (1 volta ogni 4 settimane)

In data 30 agosto 2025, FDA ha approvato BLA di lecanemab (1 volta ogni settimana)

Mexico

Lecanemab è stato approvato dal COFEPRIS il 4 dicembre 2024

United Kingdom

Lecanemab è stato autorizzato dal MHRA il 22 agosto 2024

Israel

Eisai ha ricevuto l'approvazione il 12 luglio 2024

Europe

Eisai ha ricevuto approvazione EMA il 15 aprile

LECANEMAB	
Austria	25 agosto 2025
Germania	1 settembre 2025

UAE

Eisai ha ricevuto l'approvazione il 14 Agosto 2024

China

Eisai ha ricevuto l'approvazione il 9 Gennaio 2024

South Korea

Eisai ha ricevuto l'approvazione dal MFDS il 27 Maggio 2024

Japan

Eisai ha ricevuto l'approvazione dal MHLW il 25 Settembre 2023

Hong Kong

Eisai ha ricevuto l'approvazione dal Dipartimento della Salute l'11 luglio 2024

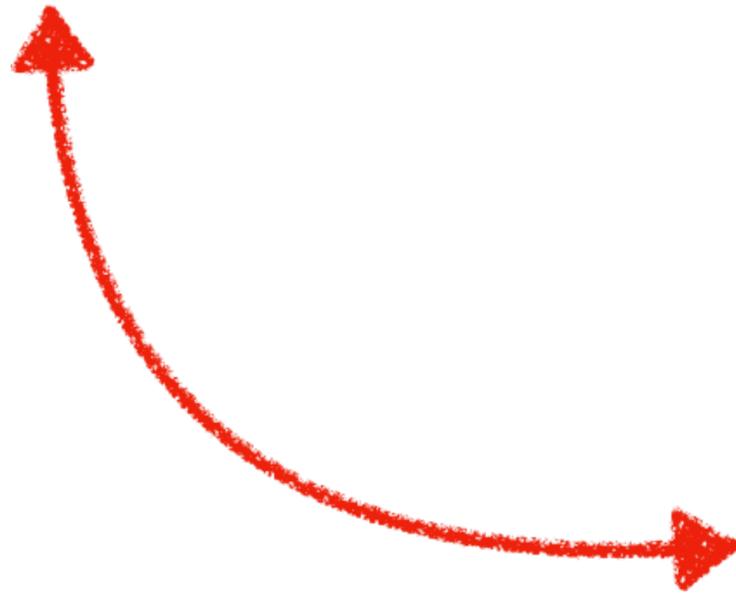
Australia

Eisai ha ricevuto l'approvazione il 23 settembre 2025

- Macau
- Oman
- Taiwan
- Qatar
- Singapore

Eisai ha inoltre presentato domande di approvazione per lecanemab in altre nazioni e regioni

- Clarity randomised
- Clarity extension open-label
- Real life data



- Efficacia
- Effetti collaterali
- Effetto sospensione

Clarity AD Study Design

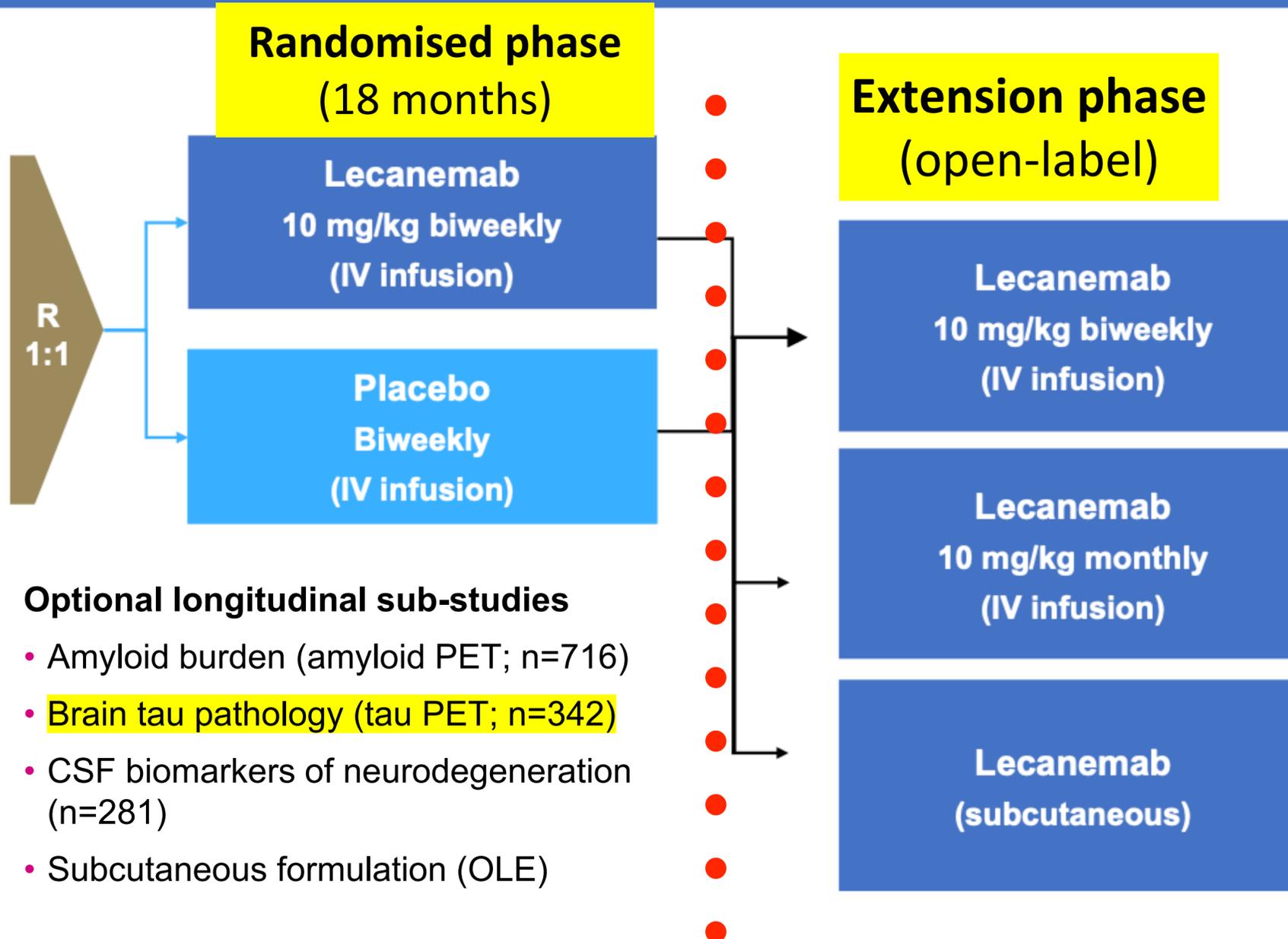
Clarity AD Core and Open-Label Extension Includes 4 Years of Lecanemab Treatment

Clarity AD = 1795 patients with early AD

Clarity AD is a global, placebo-controlled, double-blind, parallel-group, randomized study

Study Population

- 1,795 participants with Early AD
- MCI due to AD or mild Alzheimer's dementia
- Amyloid pathology confirmed
- MMSE score between 22 and 30 at screening and baseline
- WMS-IV LMSII ≥ 1 SD below age-adjusted mean at screening



Optional longitudinal sub-studies

- Amyloid burden (amyloid PET; n=716)
- Brain tau pathology (tau PET; n=342)
- CSF biomarkers of neurodegeneration (n=281)
- Subcutaneous formulation (OLE)

Randomization Phase Primary Outcome Measure:

CDR: Change from Baseline at 18 months

Key Secondary Outcome Measures:

Change from Baseline at 18 months:
 Amyloid PET
 ADAS-Cog14
 ADCOMS
 ADCS MCI-ADL

Extension Phase Primary Outcome Measures

Number of Participants with TEAEs
 Change from Core Study Baseline in CDR-SB

Additional Outcome Measures:

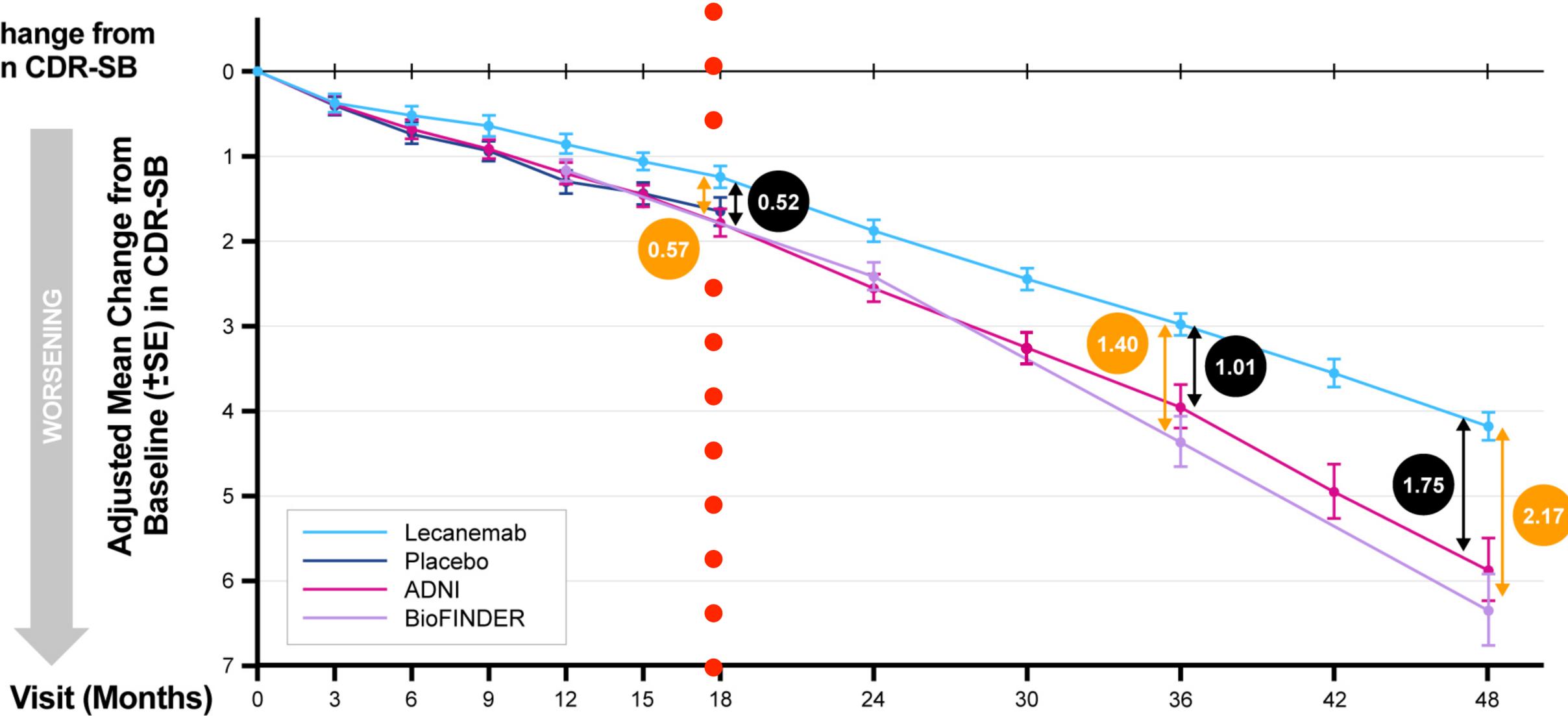
Change from Baseline for:
 ADAS-Cog14
 ADCS MCI-ADL

Biomarkers

Clarity AD OLE: CDR-SB Efficacy Through 48 Months

Lecanemab-Treated Patients Continue to Accrue Benefit Over Time CDR-SB

Adjusted Mean Change from Baseline (\pm SE) in CDR-SB



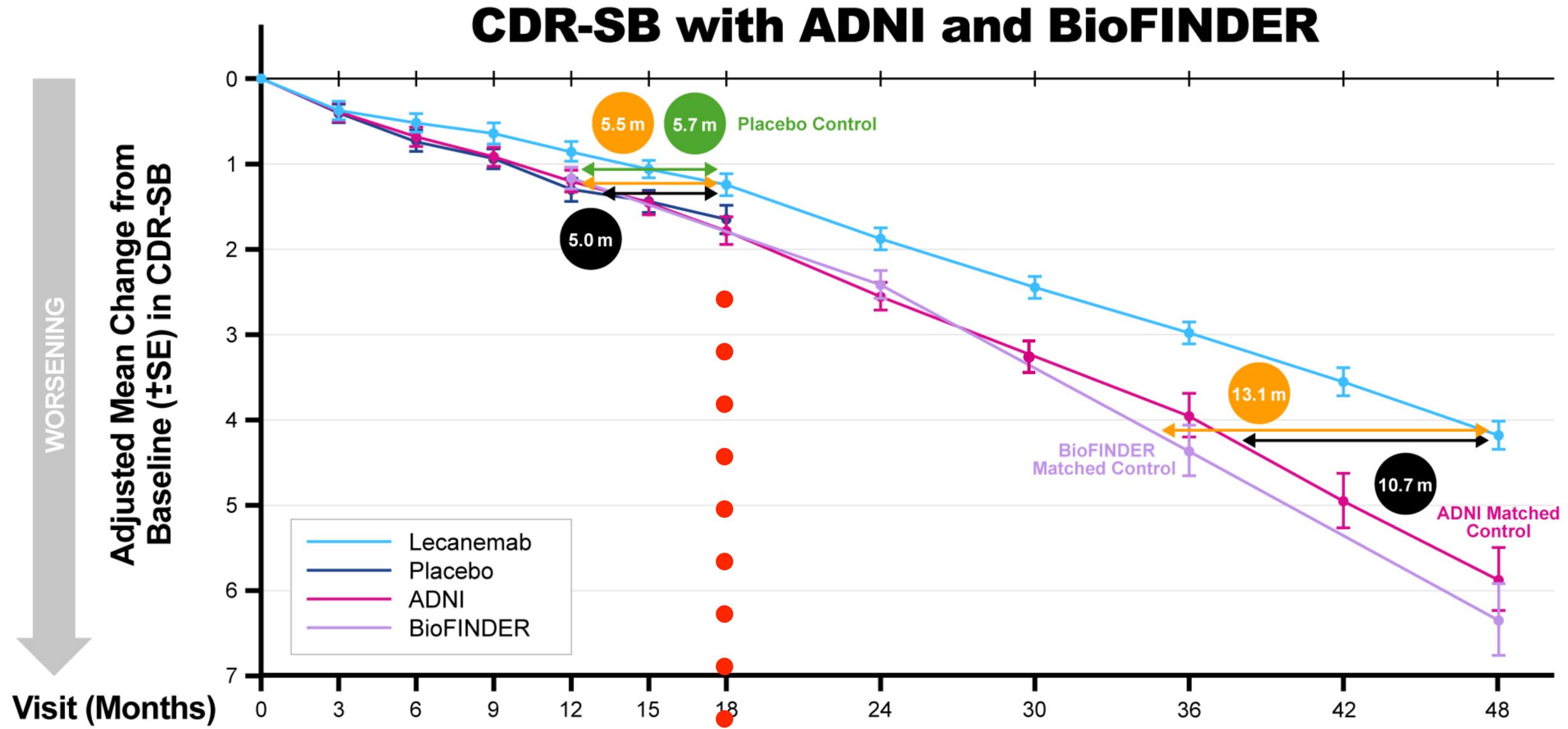
N (Placebo)	875	849	828	813	779	767	757					
N (Lecanemab)	859	824	798	779	765	738	714	659	613	573	527	478
N (ADNI)	436		410		401		121	301	173	173	98	98
N (BioFINDER)	147				139			137		117		112

Note: OLE includes those participants on subcutaneous and intravenous formulations. BioFINDER data are from BioFINDER 1.

Based on modified intention-to-treat analysis population. Adjusted mean change from baseline, SE and p-value are derived using mixed model repeat measures (MMRM) with treatment group, visit, treatment group by visit interaction, clinical subgroup, use of Alzheimer's disease symptomatic medication at baseline, ApoE4 carrier status, region, baseline value by visit interaction as fixed effects, and baseline value as covariate.

ADNI, Alzheimer's Disease Neuroimaging Initiative. CDR-SB, Clinical Dementia Rating-sum of boxes. OLE, open-label extension. SE, standard error.

Lecanemab Extends Time Spent in Early Disease With Increasing Magnitude of Treatment Effect Over Time



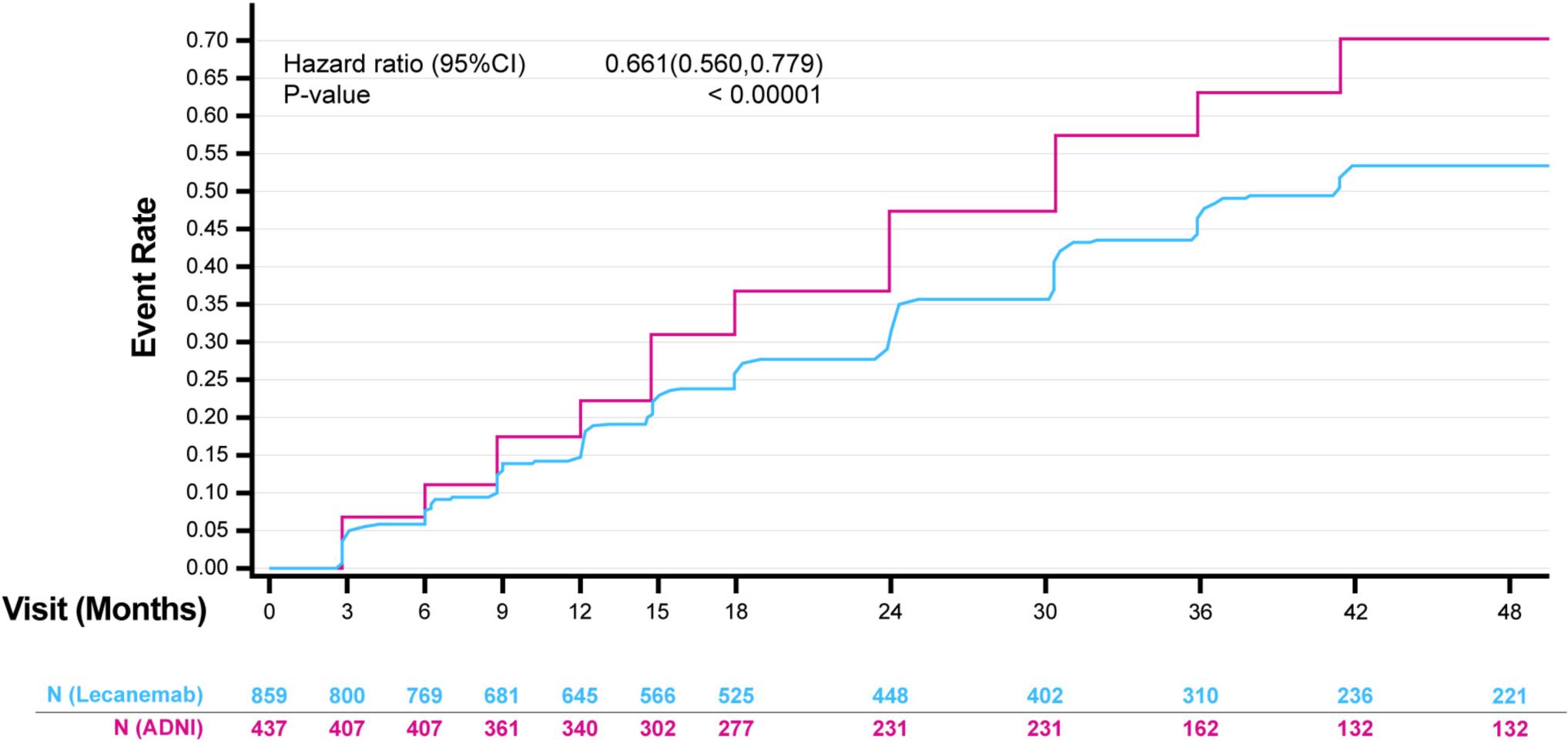
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Lecanemab Meaningfully Delayed Progression to Next Disease Stage Through 48 Months

- Lecanemab reduces relative risk of progression to next stage of disease by 34% (vs ADNI)

Time to Worsening on CDR-SB



- Proportion of patients that progress to next disease stage:

— ADNI: 70.1%

— Lecanemab: 53.3%

CDR-SB Range	Staging Category
0	Normal
0.5 – 4.0	Questionable Cognitive Impairment
0.5 – 2.5	Questionable Impairment
3.0 – 4.0	Very Mild Dementia
4.5 – 9.0	Mild Dementia
9.5 – 15.5	Moderate Dementia
16.0 – 18.0	Severe Dementia

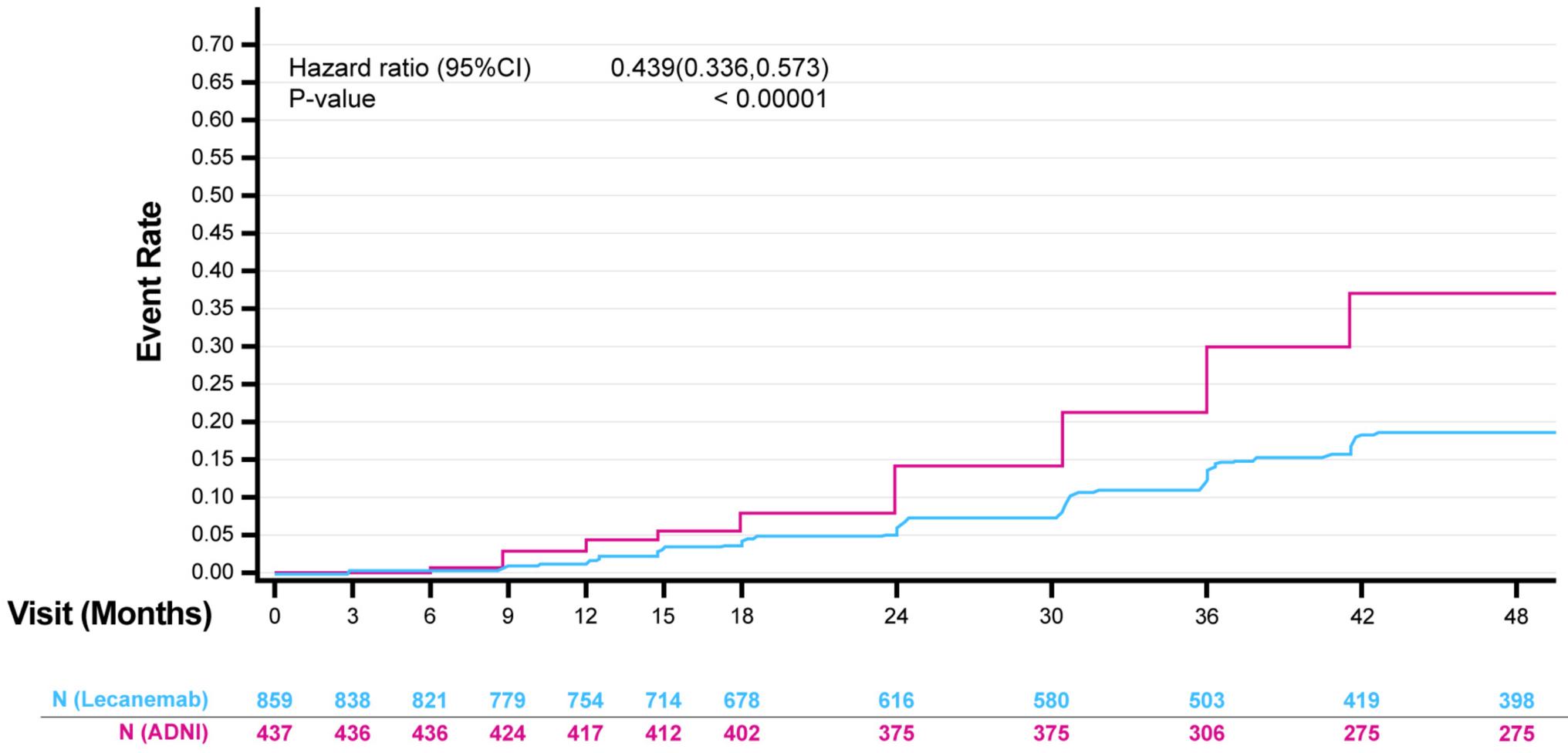
- Progression was defined as CDR-SB Score progressing from MCI (0.5-4) to mild AD dementia (4.5-9) or mild dementia (9.5-15.5) based on dementia staging on CDR-SB (O’Bryant et al., Arch Neurol 2008)
- Given less frequent assessment, since controlled-based imputation was used for missing data in this analysis, CDR-SB (which has greater range) was used rather than global CDR for disease staging

Note: OLE includes those participants on subcutaneous and intravenous formulations.
 ADNI, Alzheimer’s Disease Neuroimaging Initiative. CDR-SB, Clinical Dementia Rating-sum of boxes.

Lecanemab Meaningfully Delayed Progression to Dementia Stage (moderate or severe) Through 48 Months

- Lecanemab reduces relative risk of progression to dementia stage of disease by 56% (vs ADNI)

Time to Worsening on CDR-SB



- Proportion of patients that progress to dementia stage:

— ADNI: 37.4%

— Lecanemab: 18.6%

CDR-SB Range	Staging Category
0	Normal
0.5 – 4.0	Questionable Cognitive Impairment
0.5 – 2.5	Questionable Impairment
3.0 – 4.0	Very Mild Dementia
4.5 – 9.0	Mild Dementia
9.5 – 15.5	Moderate Dementia
16.0 – 18.0	Severe Dementia

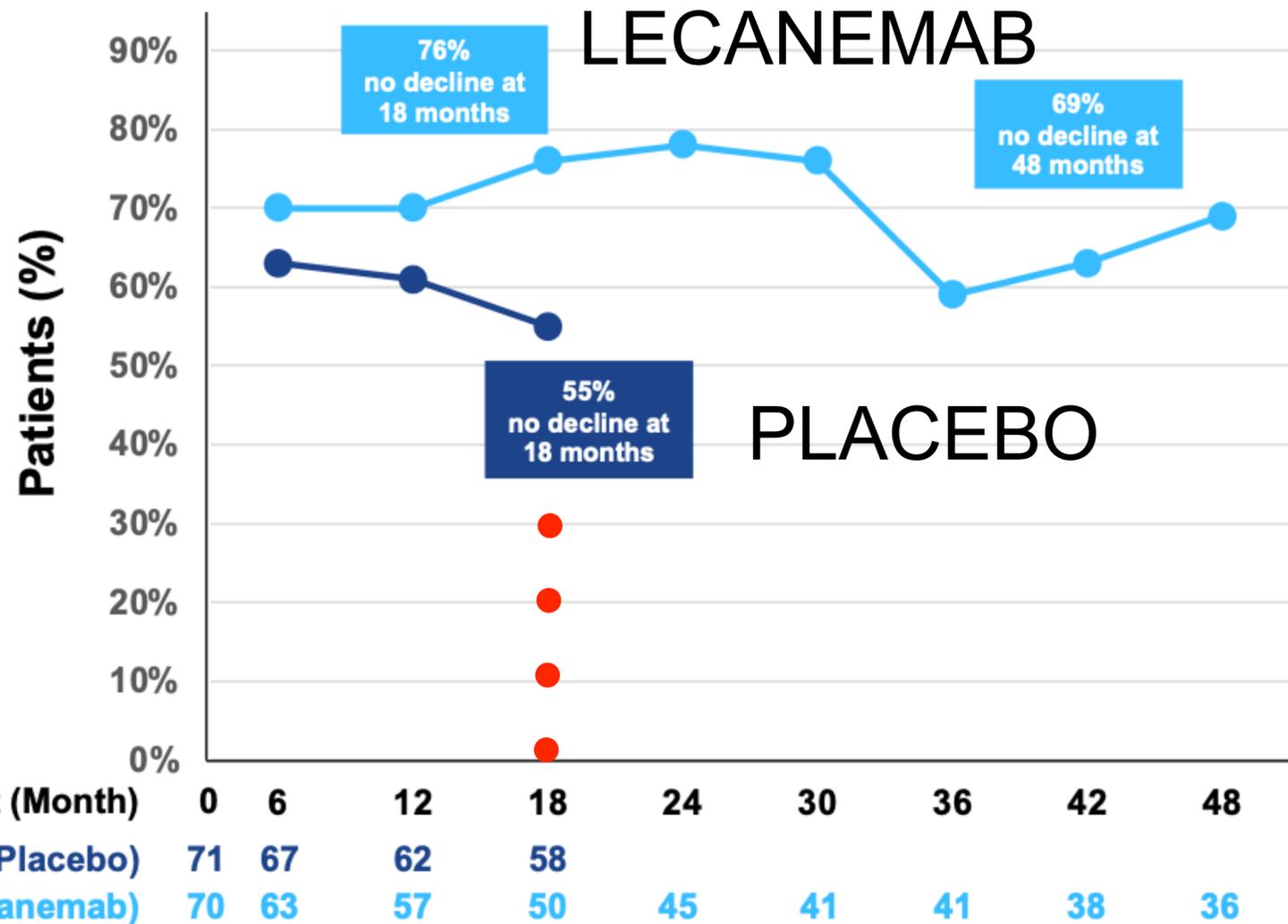
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- Given less frequent assessment, since controlled-based imputation was used for missing data in this analysis, CDR-SB (which has greater range) was used rather than global CDR for disease staging

Note: OLE includes those participants on subcutaneous and intravenous formulations.
 ADNI, Alzheimer’s Disease Neuroimaging Initiative. CDR-SB, Clinical Dementia Rating-sum of boxes.

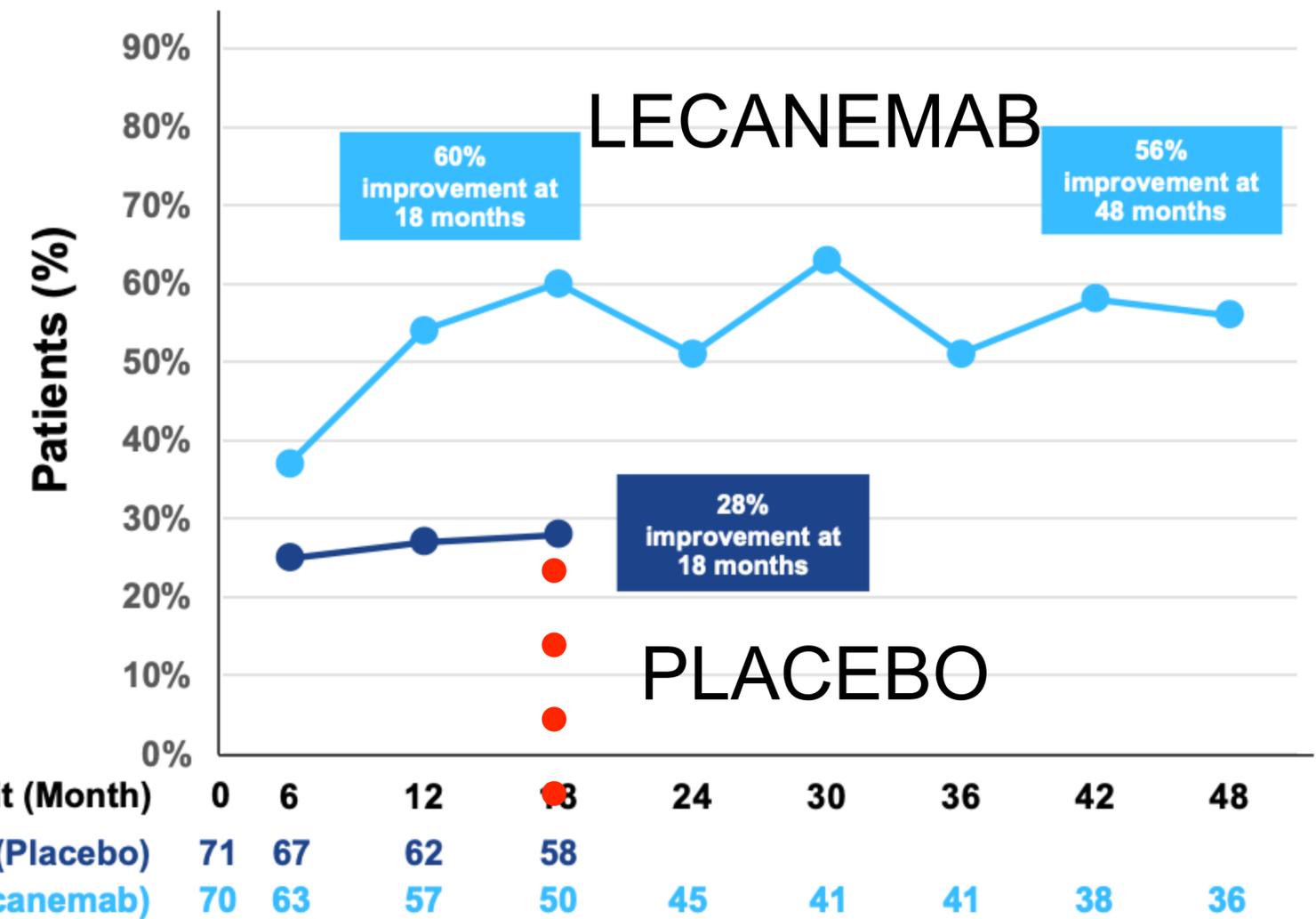
Observed 'No Decline' and 'Improvement' Rates in Low Tau

Early-Stage Participants Continue to Benefit from Lecanemab Through 48 Months

CDR-SB No Decline - Low Tau Population



CDR-SB Improvement - Low Tau Population



PET TAU IN 342 PAZIENTI

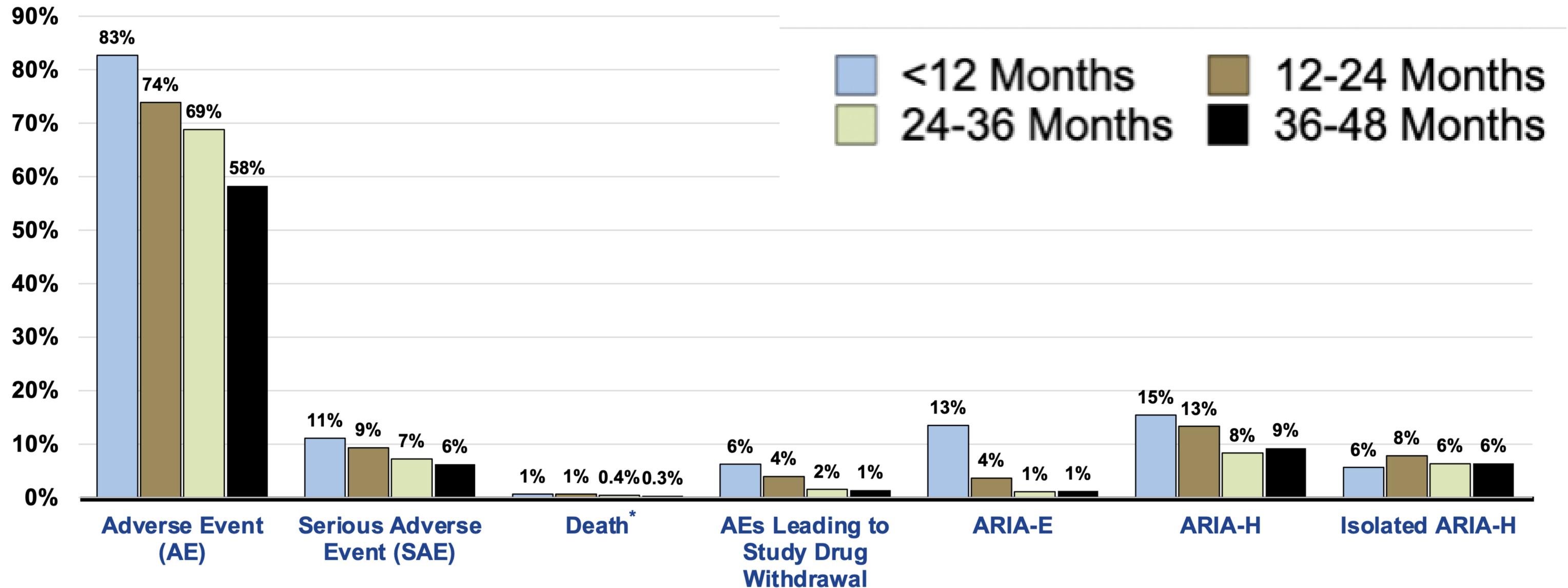
Observed rates for 'No Decline' and 'Improvement' at 48 months

- ADAS-Cog14: 51% and 51% for lecanemab
- ADCS MCI-ADL: 64% and 58% for lecanemab

Note: OLE includes those participants on subcutaneous and intravenous formulations.

ADAS-Cog14, Alzheimer's Disease Assessment Scale-Cognitive Subscale. ADCS MCI-ADL, Alzheimer's Disease Cooperative Study-Activities of Daily Living Scale for Mild Cognitive Impairment. CDR-SB, Clinical Dementia Rating-sum of boxes.

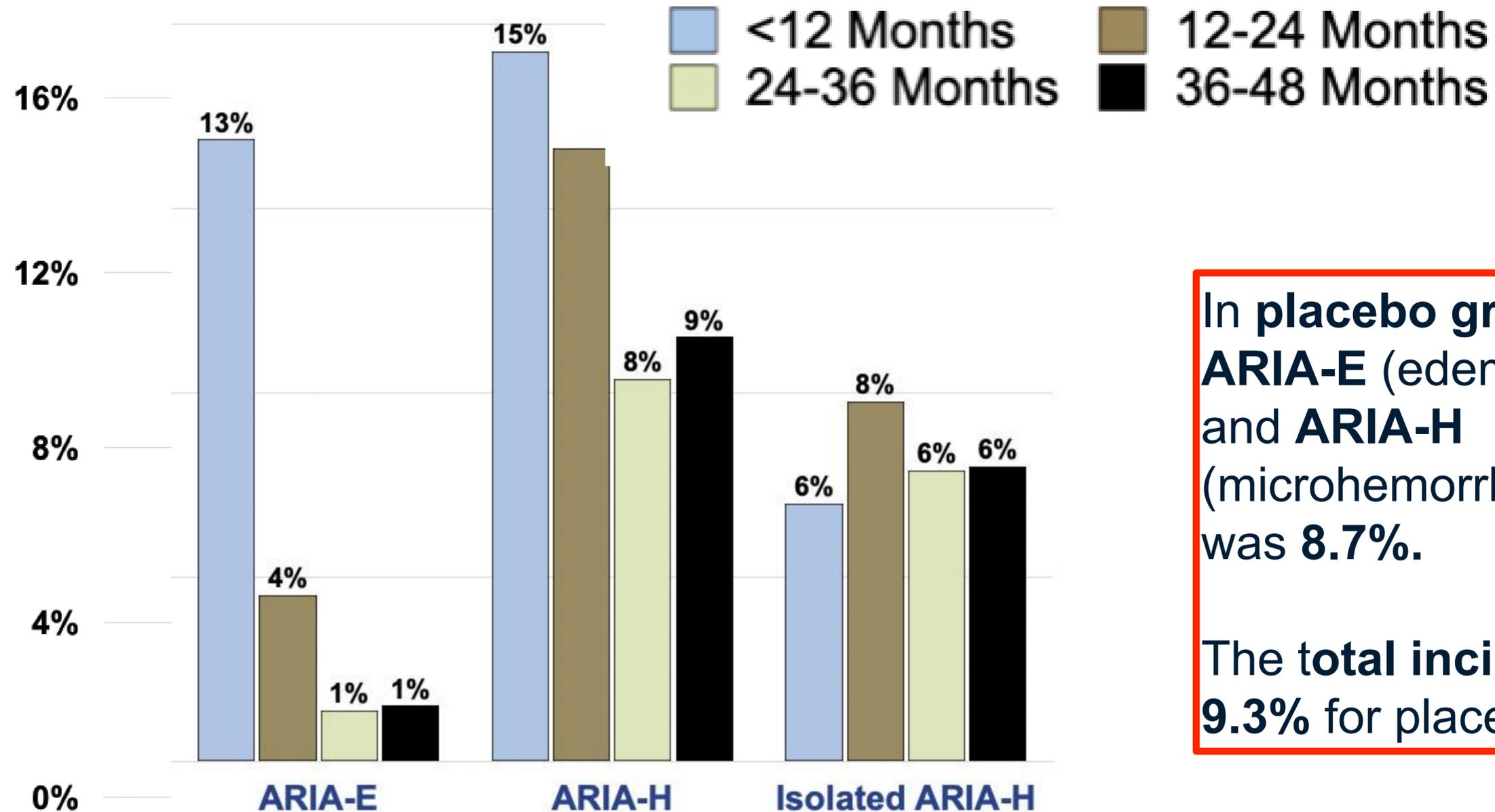
Summary of Adverse Events and ARIA by 12 Months Interval



OLE is based on IV datasets (as of 31 Mar 2025)

*Includes all post-treatment events.

Summary of ARIA by 12 Months Interval



In placebo group the incidence of **ARIA-E** (edema/effusion) was **1.7%** and **ARIA-H** (microhemorrhages/hemorrhages) was **8.7%**.

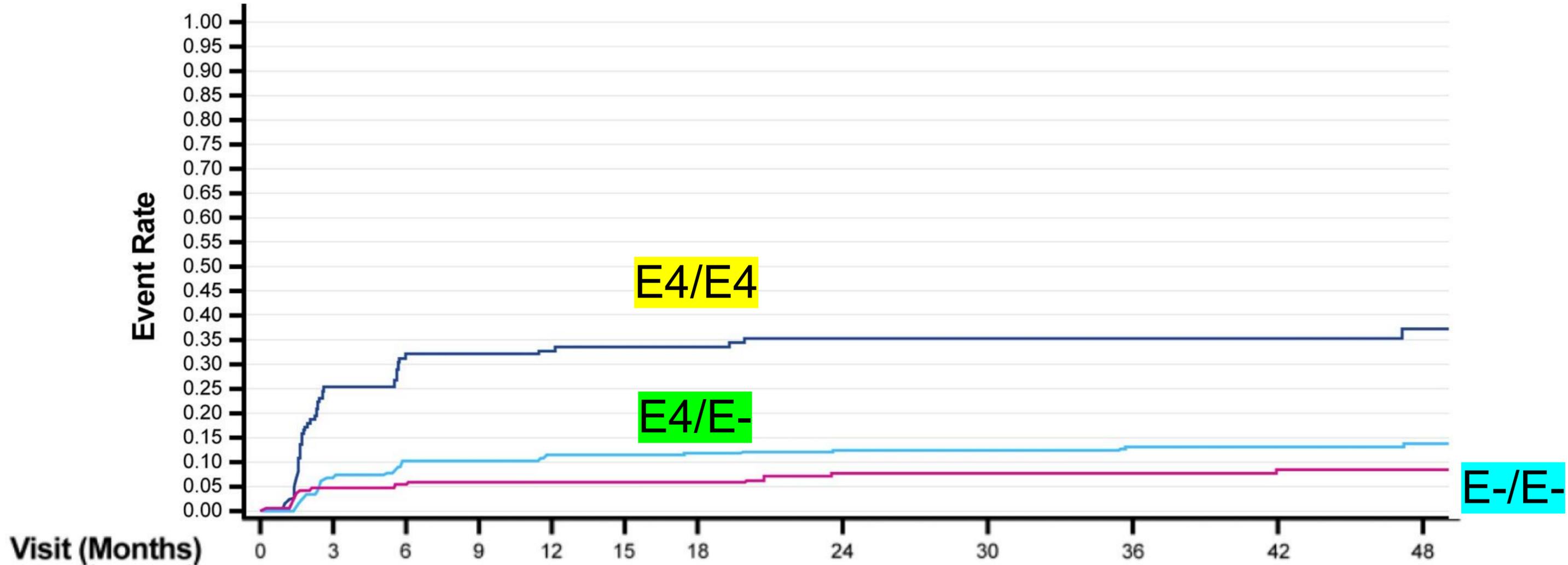
The **total incidence** of ARIA was **9.3%** for placebo.

OLE is based on IV datasets (as of 31 Mar 2025)

*Includes all post-treatment events.

Clarity AD OLE: Time to ARIA-E Events and Long-Term Treatment

- Risk of ARIA-E is greatest in first 3 months and generally occurs before 6 months
- Risk period for ARIA-E is first 6 months based on vascular amyloid clearance and increased permeability



N (Homozygous)	141	116	101	100	89	89	89	86	86	85	81	74	73	73	67	66	65	61	58	57	52	48	41	38	37	35	34
N (Heterozygous)	479	446	415	404	390	386	381	369	365	360	348	332	329	320	298	282	270	253	240	228	206	197	181	173	167	163	158
N (Noncarrier)	278	259	250	245	235	225	220	214	208	205	203	192	188	184	170	168	160	155	151	147	135	131	118	110	106	101	93

OLE is based on IV datasets (as of 31 Mar 2025)

AD, Alzheimer's disease. ARIA-E, amyloid related imaging abnormalities with edema. IV, intravenous. OLE, open-label extension.

REAL WORLD

Received: 14 May 2025 | Revised: 2 July 2025 | Accepted: 23 July 2025

DOI: 10.1002/alz.70652

Alzheimer's & Dementia®
THE JOURNAL OF THE ALZHEIMER'S ASSOCIATION

SHORT REPORT

Real-world lecanemab adoption in Japan 1 year after launch: Insights from 311 specialists on infrastructure and reimbursement barriers

Giappone

> [Chin Med J \(Engl\)](#). 2025 Nov 20;138(22):2907-2916. doi: 10.1097/CM9.0000000000003888. Epub 2025 Oct 27.

Safety and effectiveness of lecanemab in Chinese patients with early Alzheimer's disease: Evidence from a multidimensional real-world study

> [Brain](#). 2025 Nov 11:awaf427. doi: 10.1093/brain/awaf427. Online ahead of print.

Safety and short-term outcomes of lecanemab for Alzheimer's disease in China: a multicentre study

CINA

J Prev Alz Dis 2024;6(11):1549-1562
Published online September 3, 2024, <http://dx.doi.org/10.14283/jpad.2024.159>

Original Research

Initial Experience with Lecanemab and Lessons Learned in 71 Patients in a Regional Medical Center

L.B.E. Shields¹, H. Hust¹, S.D. Cooley¹, G.E. Cooper¹, R.N. Hart¹, B.C. Dennis^{1,2}, S.W. Freeman¹, J.F. Cain¹, W.Y. Shang¹, K.M. Wasz¹, A.T. Orr¹, C.B. Shields¹, S.S. Barve^{1,3}, K.G. Pugh¹

Drugs & Aging
<https://doi.org/10.1007/s40266-025-01261-x>

ORIGINAL RESEARCH ARTICLE



Initial Real-World Evidence for Lecanemab in the United States

Diana I. Brixner¹ · Chenyue Zhao² · Hideki Toyosaki² · Feride H. Frech² · Michael H. Rosenbloom³

Received: 27 September 2025 / Accepted: 6 October 2025
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Stati Uniti

Real-World Use of Lecanemab in Patients With Early Alzheimer's Disease in the United States: A Case Series Review

ORAL PRESENTATION – AAIC 2025 TORONTO

By David Weisman, MD

Abington Neurological Associates, Abington, PA, US

Study Summary

Real-World Use of Lecanemab in Patients With Early Alzheimer's Disease in the United States: A Case Series Review

SLIDE ADAPTED FROM THE ORAL PRESENTATION – AAIC 2025 TORONTO

By David Weisman, MD

Abington Neurological Associates, Abington, PA, US



Retrospective, multicenter, real-world study in the US



Primary endpoint

To describe real-world utilization patterns of lecanemab in the US



15 HCPs

Secondary endpoint

To describe lecanemab real-world implementation learnings

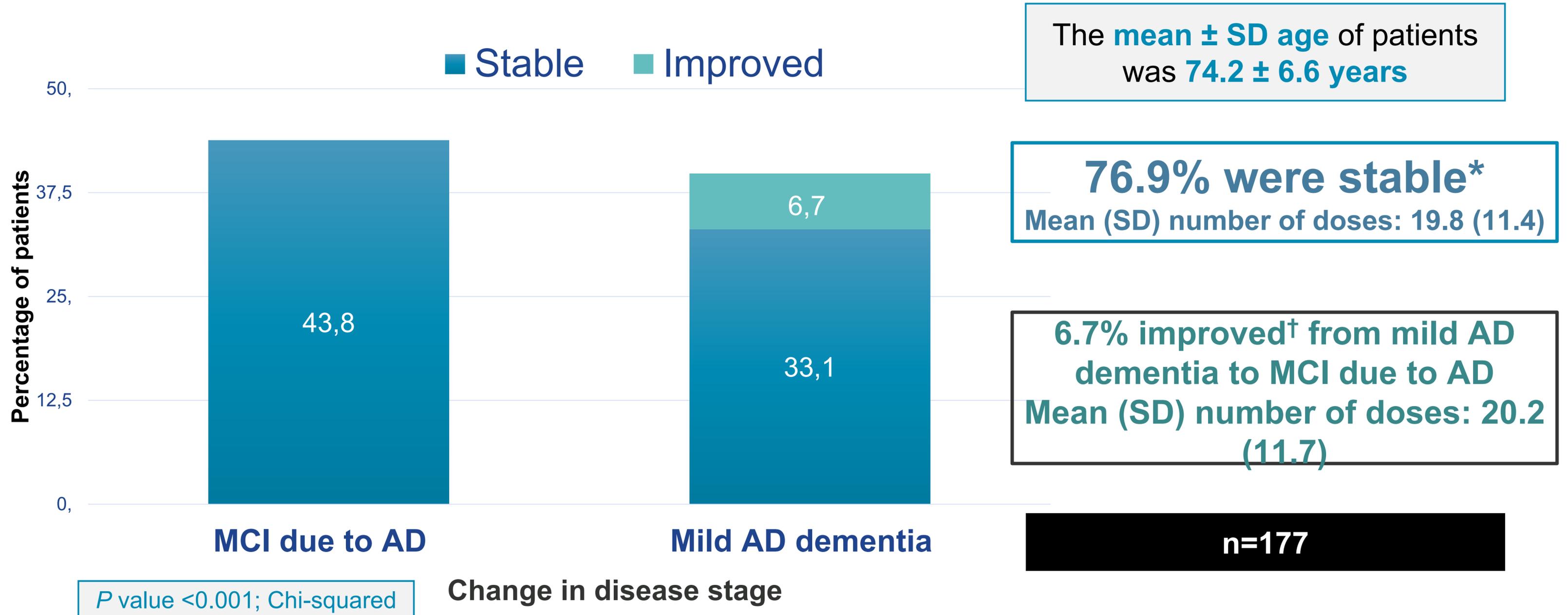
Exploratory endpoint

To describe clinical outcomes of patients treated with 7 or more lecanemab infusions



March to August 2025

~84% of Patients on Lecanemab Either Remained Stable* or Clinically Improved† Based on Disease Stage at the time of Chart Extraction

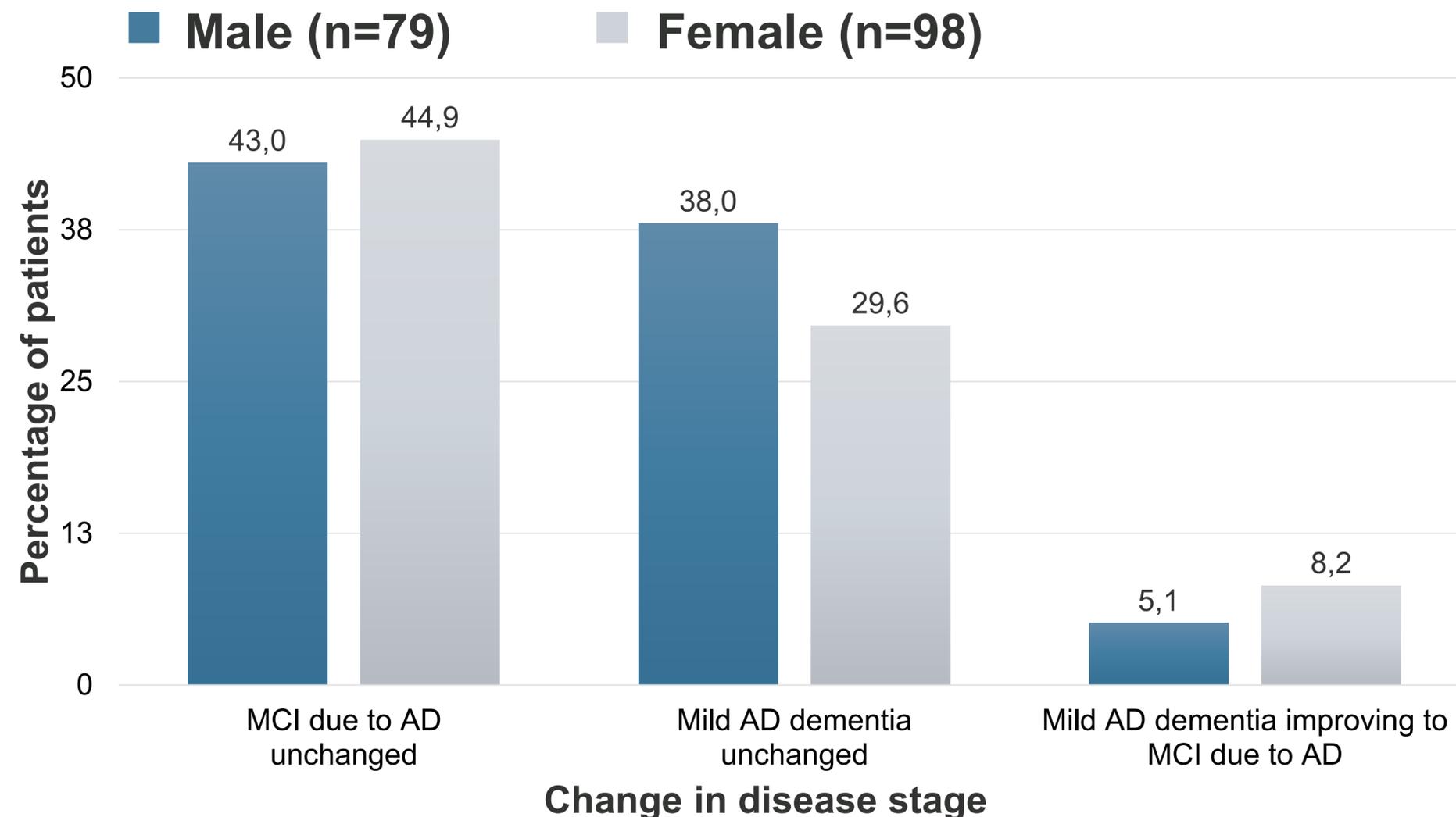


* Stable is defined as a patient staying in the same disease stage (MCI due to AD or mild AD dementia) from baseline throughout the course of lecanemab treatment. Disease stage is based on clinical judgment; † Improvement is defined as a patient going from mild AD dementia at baseline to MCI due to AD over the course of lecanemab treatment. Disease stage is based on clinical judgment. AD, Alzheimer's disease; MCI, mild cognitive impairment; SD, standard deviation.

Majority of Patients Did Not Progress to the Next Disease Stage Regardless of Sex

Mean (SD) time on lecanemab
 Male: 296.4 (177.9) days
 Female: 328.9 (174.2) days

Sex	% Stable* (Mean [SD] number of doses)	% Improved† (Mean [SD] number of doses)
Male	81.0%	5.1%
	17.7 (10.6)	16.2 (6.7)
Female	74.5%	8.2%
	21.7 (11.9)	22.8 (14.1)



$P=0.801$; Chi-squared test

* Stable is defined as a patient staying in the same disease stage (MCI due to AD or mild AD dementia) from baseline throughout the course of lecanemab treatment. Disease stage is based on clinical judgment; † Improvement is defined as a patient going from mild AD dementia at baseline to MCI due to AD over the course of lecanemab treatment. Disease stage is based on clinical judgment. AD, Alzheimer's disease; MCI, mild cognitive impairment; SD, standard deviation.

Safety Data: Incidence of ARIA and Adverse Events Leading to Discontinuation.



87% of Patients Remained on Lecanemab

	RWE study N=178	Clarity AD ^{1,2} Lecanemab treatment N=898
	n (%)	n (%)
ARIA (all)*	23 (12.9)	191 (21.3)
ARIA-E*	14 (7.9)	113 (12.6)
ARIA-H*	11 (6.2)	152 (17.3)
Infusion-related reactions	5 (2.8)	237 (26.4)
Patients discontinuing due to ARIA	5 (2.8)	-

	RWE study N=178	Clarity AD ^{1,2} Lecanemab treatment N=898
	n (%)	n (%)
ARIA (all)*	23 (12.9)	191 (21.3)
ARIA-E*	14 (7.9)	113 (12.6)
Mild	11 (6.2)	37 (4.1)
Moderate	3 (1.7)	66 (7.3)
Severe	0 (0)	9 (1.0)
ARIA-H*	11 (6.2)	152 (17.3)
Mild	10 (5.6)	117 (13.0)
Moderate	1 (0.6)	27 (3.0)
Severe	0 (0)	32 (3.6)

- **No macrohemorrhages/ intracerebral hemorrhages were reported**
- **No deaths were reported**

* Concurrent ARIA-E and ARIA-H: n=2; † All infusion-related reactions occurred during the first lecanemab dose; ‡ One patient discontinued due to concurrent ARIA-E and ARIA-H; this patient is included in the counts for both ARIA-E and ARIA-H; § Other adverse events include lacunar infarct (n=1), acute confusion event (n=1), PMR (n=1).

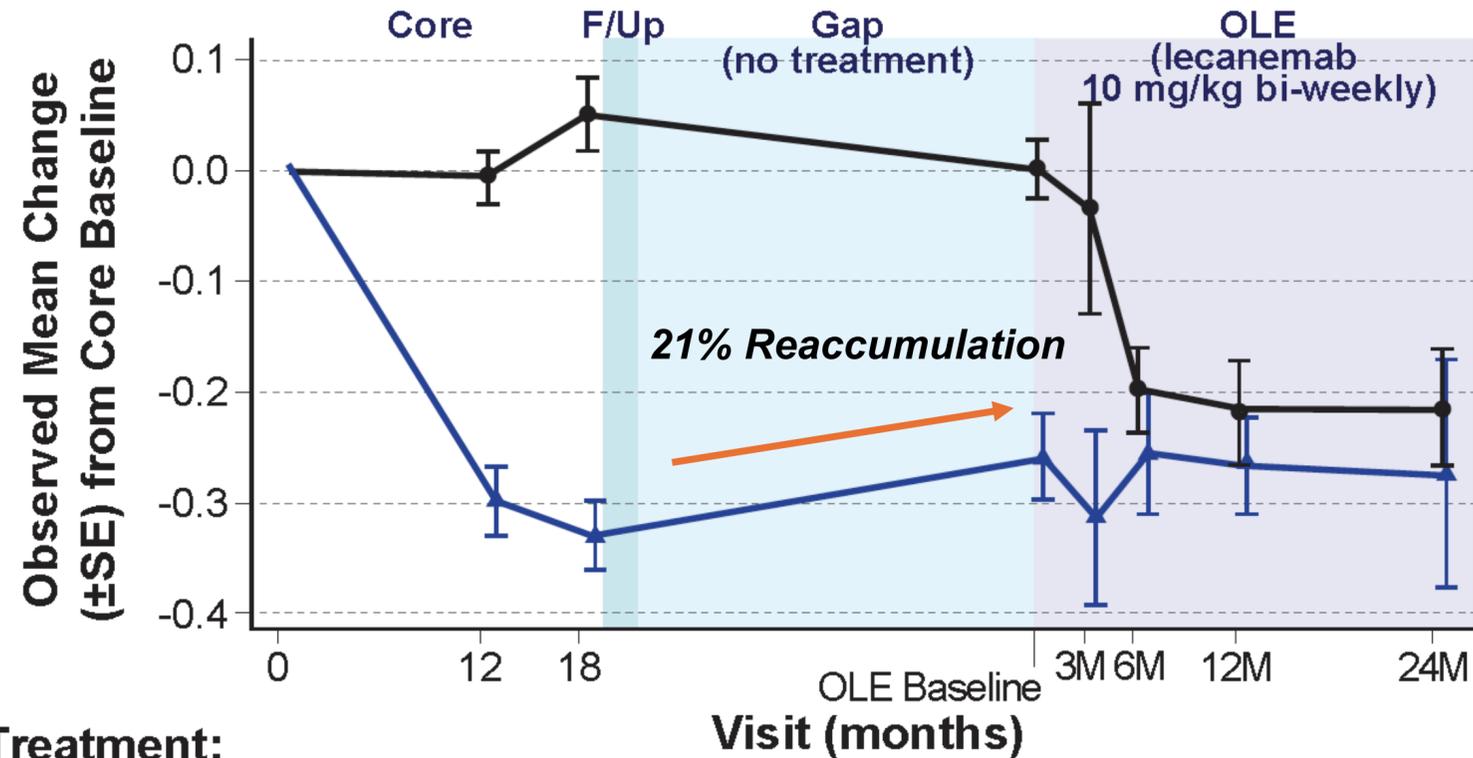
AD, Alzheimer's disease; ARIA, amyloid-related imaging abnormalities; ARIA-E, amyloid-related imaging abnormalities—edema/effusion; ARIA-H, amyloid-related imaging abnormalities—hemosiderin/microhemorrhage; FDA, Food and Drug Administration; PMR, polymyalgia rheumatica; RWE, real-world evidence.

1. van Dyck CH, et al. N Engl J Med. 2023;388(1):9–21; 2. LEQEMBI (lecanemab-irmb). US Prescribing Information. Eisai Inc. <https://www.leqembi.com/en/-/media/Files/Leqembi/Prescribing-Information.pdf> (Accessed July 2025).

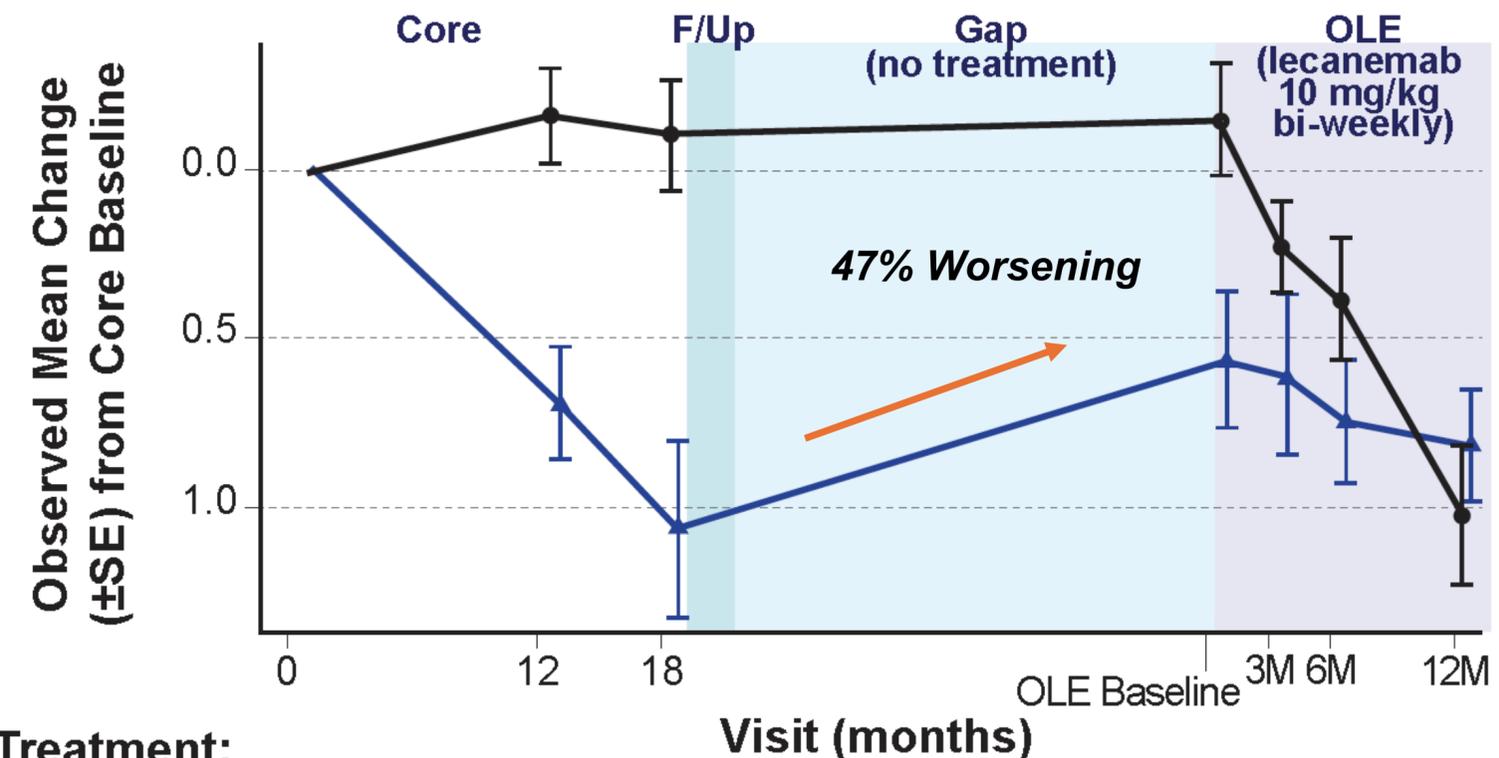
Interrompere il trattamento ?

Interrupting Treatment is Associated with Variable Rates of Reaccumulation of AD Biomarkers: Amyloid PET & Ab42/40 Ratio

Amyloid PET



Aβ42/40 Ratio



Long-term therapy continues to improve biomarkers further, and avoid the reaccumulation of biomarkers when anti-amyloid treatment is stopped

Conclusioni

- La Malattia di Alzheimer è una malattia cronico/subacuta letale e la sua fisiopatologia persiste anche dopo la rimozione delle placche amiloidi.
- Lecanemab riduce sia le protofibrille A β solubili che le placche A β insolubili con un doppio meccanismo d'azione.
- I pazienti trattati con lecanemab hanno continuato a mostrare benefici clinici fino a 48 mesi.
- Non sono emersi nuovi eventi avversi clinicamente significativi con il trattamento a lungo termine.
- I risultati nella fase iniziale (ad es. tau bassa) supportano la stabilità clinica o il miglioramento con l'inizio precoce del trattamento con lecanemab.
- Durante la sospensione di lecanemab, è stato osservato un riaccumulo dei biomarcatori.
- Lecanemab prolunga il tempo trascorso nella fase iniziale della malattia con un aumento dell'efficacia del trattamento nel tempo.