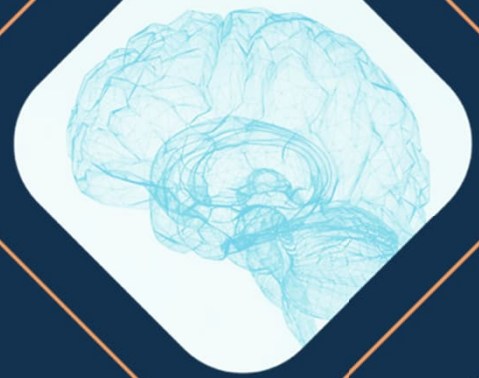
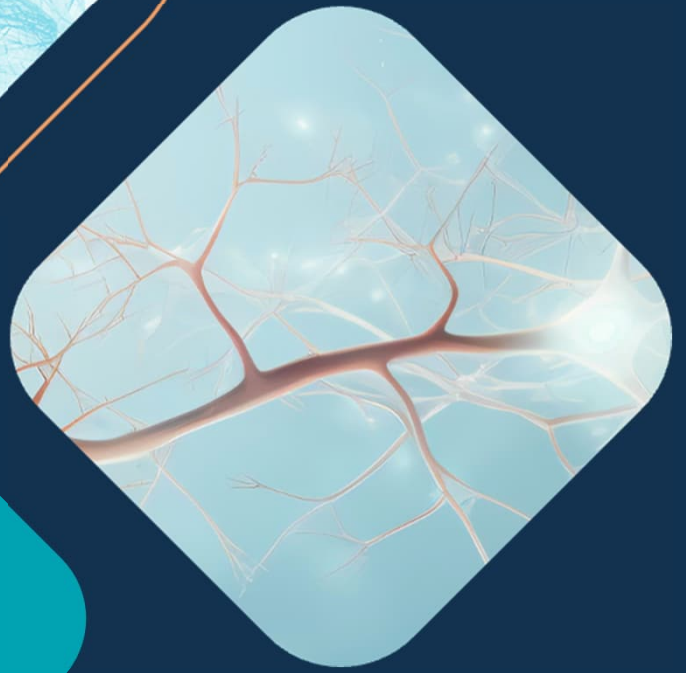




Phase 3 X-TOLE2 Study: Topline Results

MARCH 09, 2026

NASDAQ: XENE
xenon-pharma.com

Xenon™

On Today's Call

Ian Mortimer
President &
Chief Executive Officer

Chris Kenney, MD
Chief Medical Officer

Darren Cline
Chief Commercial Officer

Tucker Kelly
Chief Financial Officer

Forward Looking Statement/Safe Harbor

This slide presentation and the accompanying oral commentary contain forward-looking statements (within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995 and Canadian Securities laws) that involve risks, uncertainties and assumptions. If the risks or uncertainties ever materialize or the assumptions prove incorrect, our results may differ materially from those expressed or implied by such forward-looking statements. All statements other than statements of historical fact could be deemed forward-looking and include statements regarding the timing of and potential results from clinical studies; the potential efficacy, safety profile, future development plans in current and anticipated indications, addressable market, regulatory success and commercial potential of our and our partners' product candidates; the efficacy of our clinical study designs; our ability to successfully develop and achieve milestones in our azetukalner and other pipeline and development programs, including the anticipated filing of INDs and NDAs; the timing and results of our interactions with regulators, including the timing of any NDA submission; our ability to successfully develop and obtain regulatory approval of azetukalner and our other product candidates; anticipated timing of topline data readout from our clinical studies of azetukalner; and our expectation that we will have sufficient cash to fund operations into the second half of 2027.

These forward-looking statements are based on current assumptions that involve risks, uncertainties and other factors that may cause the actual results, events, or developments to be materially different from those expressed or implied by such forward-looking statements. These risks and uncertainties, many of which are beyond our control, include, but are not limited to: clinical studies may not demonstrate safety and efficacy of any of our or our collaborators' product candidates; promising results from pre-clinical development activities or early clinical study results may not be replicated in later clinical studies; our assumptions regarding our planned expenditures and sufficiency of our cash to fund operations may be incorrect; our ongoing discovery and pre-clinical efforts may not yield additional product candidates; any of our or our collaborators' product candidates, including azetukalner, may fail in development, may not receive required regulatory approvals, or may be delayed to a point where they are not commercially viable; we may not achieve additional milestones in our proprietary or partnered programs; regulatory agencies may impose additional requirements or delay the initiation or completion of clinical studies; the impact of market, industry, and regulatory conditions on clinical study enrollment; the impact of competition; the impact of expanded product development and clinical activities on operating expenses; the impact of new or changing laws and regulations; the impact of unstable economic conditions in the general domestic and global economic markets; adverse conditions from geopolitical events; as well as the other risks identified in our filings with the U.S. Securities and Exchange Commission and the securities commissions in British Columbia, Alberta, and Ontario. These forward-looking statements speak only as of the date hereof and we assume no obligation to update these forward-looking statements, and readers are cautioned not to place undue reliance on such forward-looking statements.

Opening Remarks

Ian Mortimer
President & Chief Executive Officer

Hadley, living with epilepsy

Thank you to our partners in the epilepsy community, including patient advocates, clinicians and study participants.

Xenon™

λ-TOLE 2™

POSITIVE TOPLINE DATA

Azetukalner in Focal Onset Seizures

Azetukalner's Differentiated Profile in FOS

Robust Clinical Data

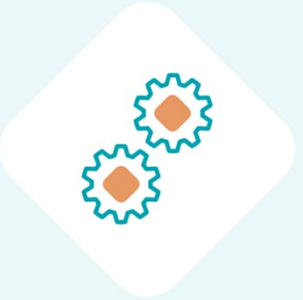
- Compelling double-blind efficacy data in FOS patients from two placebo-controlled studies
- Durable long-term seizure reduction and seizure freedom data in ongoing X-TOLE OLE

Well-Documented Safety Profile

- 800+ patient years of data in FOS patients, with some dosed for more than 5 years
- Consistent safety profile between X-TOLE and X-TOLE2 studies

Ease-of-Use

- Once-daily dosing
- No titration needed
- No meaningful DDIs with other ASMs or anticipated monitoring requirements



Novel Mechanism

- Highly potent $K_V7.2/7.3$ potassium channel opener
- Differentiated mechanism may allow for rational polytherapy

FOS, focal onset seizures; DDIs, drug-drug interactions; ASMs, anti-seizure medications

Source: 1. "Long-Term Safety and Efficacy of Azetukalner, a Novel, Potent KV7 Potassium Channel Opener, in Adults With Focal Epilepsy: ≥48-Month Interim Analysis of the Ongoing 7-Year X-TOLE Open-Label Extension." 2025 Annual Meeting of the American Epilepsy Society (AES). 2. French JA et al. JAMA Neurol.2023;80(11):1145-1154.

X-TOLE2 Results Summary

Positive Phase 3 study results support an anticipated NDA submission in Q3 2026

PRIMARY ENDPOINT WAS MET: Highly statistically significant, dose-dependent reduction from baseline in median monthly FOS frequency (MPC) over the 12-week treatment period vs. placebo

Responder rate 50:
Statistically significant, dose-dependent (15 and 25 mg) increase in number of responders with >50% reduction in monthly FOS frequency

Onset of efficacy:
Rapid onset of response as assessed by statistically significant MPC achieved within one week for AZK 25 mg vs. placebo

Overall health status:
Significant improvements in PGI-C/CGI-C for both 15 and 25 mg treatment groups vs. placebo

Safety and tolerability:
AZK profile consistent with Phase 2b X-TOLE study

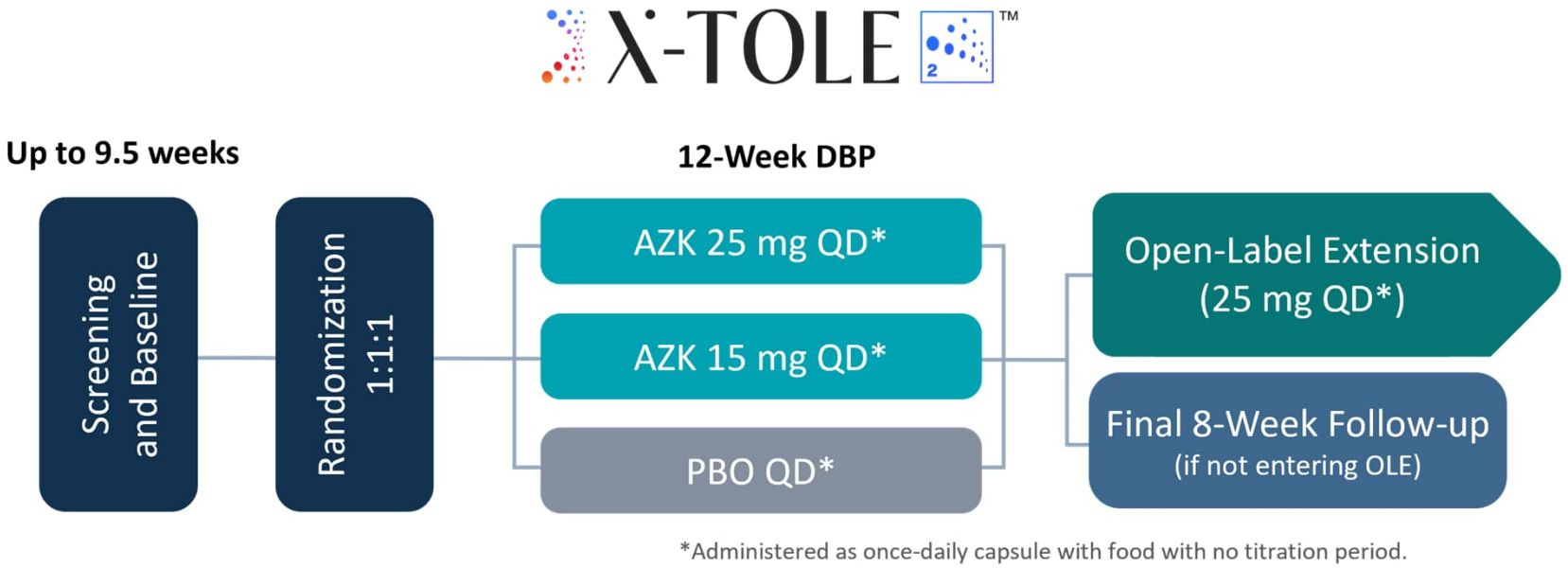
AZK, azetukalner; PGI-C, Patient Global Impression of Change; CGI-C, Clinical Global Impression of Change; MPC, median percent change; FOS, focal onset seizure

Topline Results from Phase 3 X-TOLE2 Study

Chris Kenney, MD
Chief Medical Officer

X-TOLE2 Study Design

Phase 3, multicenter, randomized, double-blind, placebo-controlled clinical study to evaluate the clinical efficacy, safety, and tolerability of azetukalner as adjunctive treatment in adults diagnosed with FOS



*Administered as once-daily capsule with food with no titration period.

Primary objective:

- Evaluate effect of AZK vs. PBO on MPC from baseline in monthly FOS frequency during the DBP

Secondary objectives include:

- Assess the effect of AZK vs. PBO on RR50, treatment effect as measured at Week 1, and PGI-C score

Safety and tolerability of AZK

AZK, azetukalner; DBP, double-blind period; FOS, focal onset seizure; MPC, median percent change; OLE, open-label extension; PBO, placebo; PGI-C, Patient Global Impression of Change; QD, once daily; RR50, 50% responder rate.
X-TOLE2: NCT05614063; Open-Label Extension: NCT05718817

Baseline Demographic Characteristics: Safety Population

	PBO (n=125)	AZK 15 mg (n=125)	AZK 25 mg (n=124)	Overall (n=374)
Age, mean (SD), years	39.9 (12.4)	38.3 (11.9)	41.8 (14.3)	40.0 (12.9)
Sex, n (%)				
Female	69 (55.2)	62 (49.6)	59 (47.6)	190 (50.8)
Male	56 (44.8)	63 (50.4)	65 (52.4)	184 (49.2)
Region, n (%)				
North America	54 (43.2)	52 (41.6)	52 (41.9)	158 (42.2)
Ex-North America	71 (56.8)	73 (58.4)	72 (58.1)	216 (57.8)
BMI, mean (SD)	26.1 (5.5)	27.0 (6.0)	27.3 (5.5)	26.8 (5.7)
Age at disease onset, mean (SD), y	14.9 (13.1)	16.2 (12.4)	16.6 (14.0)	15.9 (13.2)

All doses administered once daily with food and no titration. AZK, azetukalner; BMI, body mass index; PBO, placebo; SD, standard deviation.

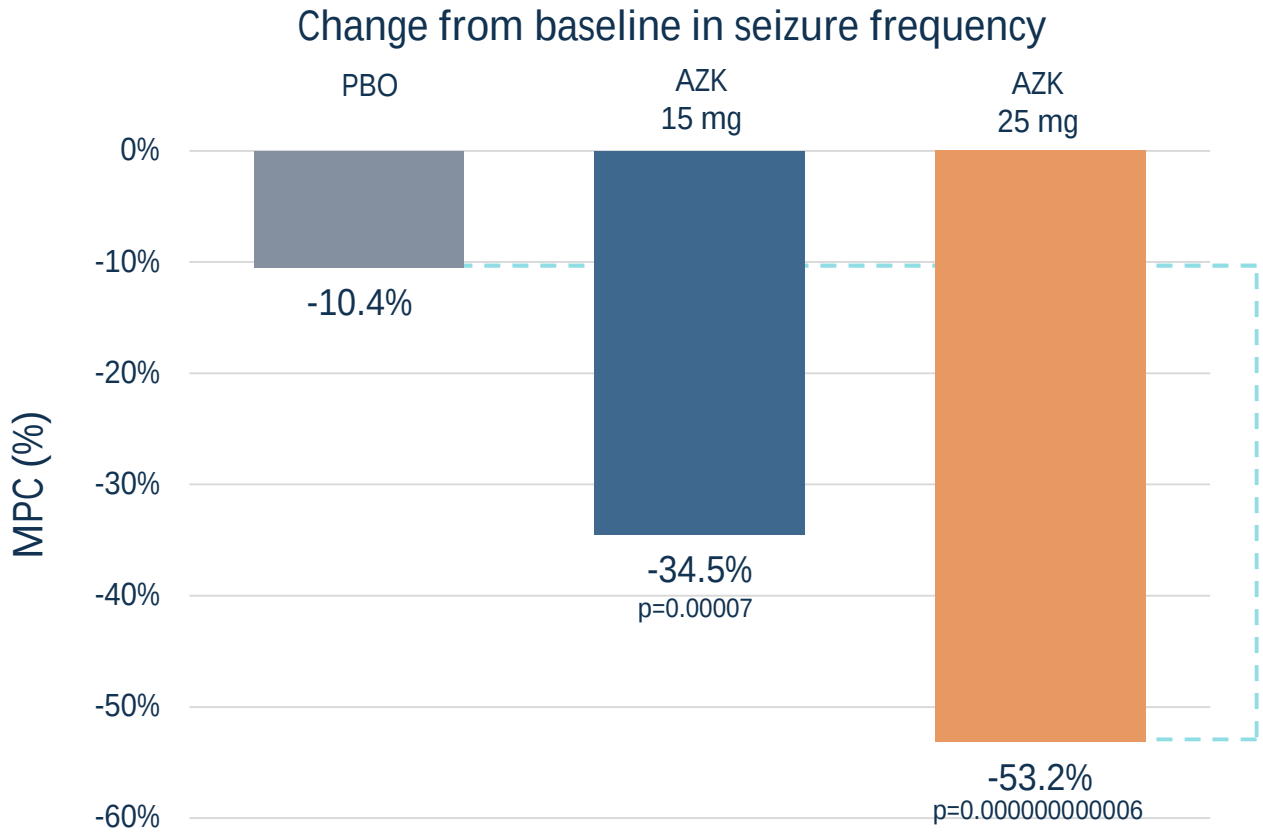
Baseline Characteristics: Disease History in Safety Population

	PBO (n=125)	AZK 15 mg (n=125)	AZK 25 mg (n=124)	Overall (n=374)
Duration of epilepsy (years)				
Mean (SD)	25.96 (13.66)	23.12 (13.19)	26.18 (14.30)	25.09 (13.75)
Baseline seizure frequency (28-day FOS)				
Median [IQR]	12.50 (7.21, 39.50)	12.50 (7.11, 28.47)	14.34 (8.13, 36.44)	12.75 (7.56, 32.97)
Participants taking concomitant ASM, n (%)				
1	13 (10.4)	15 (12.0)	10 (8.1)	38 (10.2)
2	43 (34.4)	49 (39.2)	52 (41.9)	144 (38.5)
3	69 (55.2)	61 (48.8)	62 (50.0)	192 (51.3)
Number of ASMs tried and discontinued before study entry				
Median [IQR]	5.0 (3.0, 9.0)	5.0 (3.0, 8.0)	6.0 (3.0, 8.0)	5.0 (3.0, 8.0)

Participants had highly treatment-resistant epilepsy, with a median of 5 prior ASMs, a baseline seizure frequency of 12.75 per month, and 51.3% using 3 concomitant ASMs

All doses administered once daily with food and no titration. ASM, antiseizure medication; AZK, azetukalner; IQR, interquartile range; PBO, placebo

Primary Endpoint: Median Percent Change (MPC) in Monthly FOS

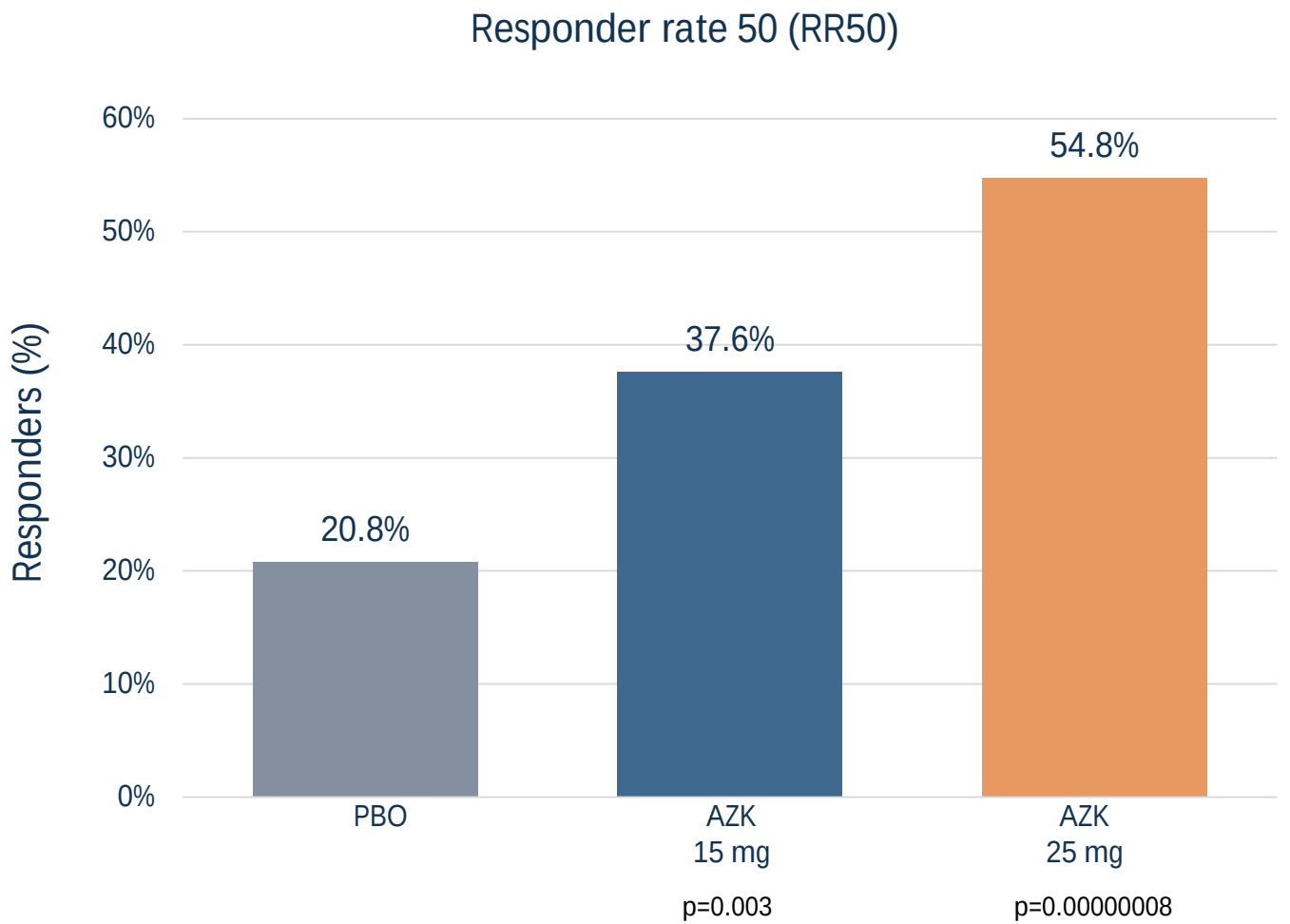


42.7% placebo-adjusted MPC in monthly FOS

Highly statistically significant reduction in monthly FOS frequency with placebo-adjusted MPC for 25 mg cohort outperforming Phase 2b X-TOLE study

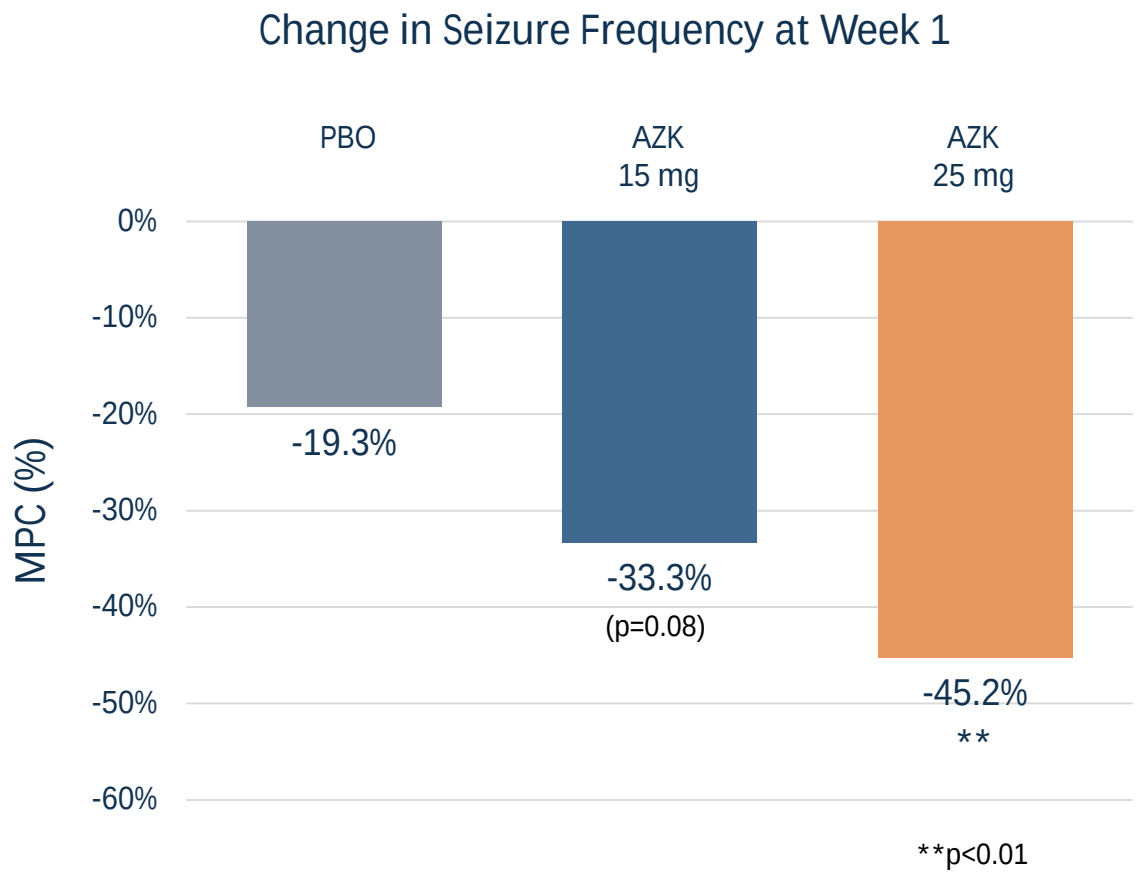
Ranked ANCOVA for MPC in monthly (28-day) focal seizure frequency during the DBP in the modified intent-to-treat population.
ANCOVA, analysis of covariance; AZK, azetukalner; FOS, focal onset seizure; MPC, median percent change; PBO, placebo; DBP, double-blind period
Phase 2b X-TOLE results: -34.6% placebo-adjusted MPC over 8 weeks in the 25 mg group (-52.8% from baseline in 25 mg group and -18.2% from baseline in placebo group)

Key Secondary Endpoint: Responder Rate 50 (RR50) in DBP



Logistic regression for RR50 (28-day) in the DBP in the modified intent-to-treat population.
AZK, azetukalner; DBP, double-blind period; PBO, placebo; RR50, 50% responder rate.

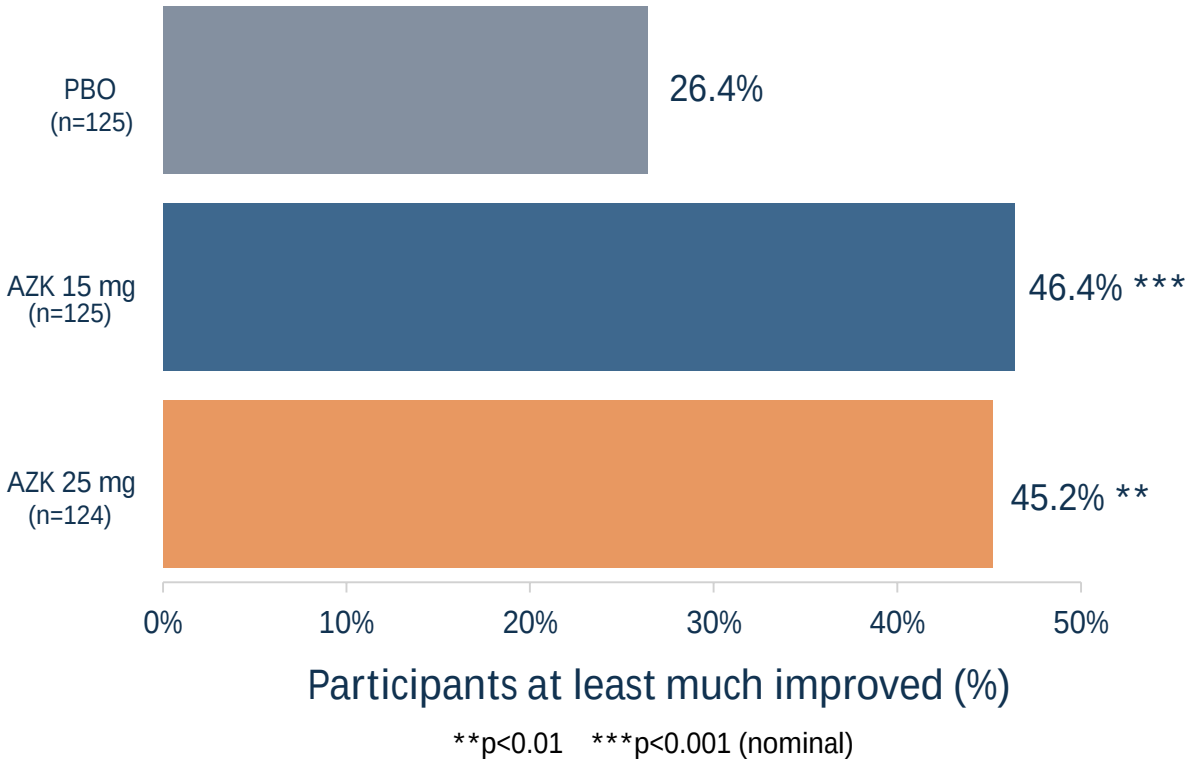
MPC from Baseline in Weekly FOS Frequency During Week 1



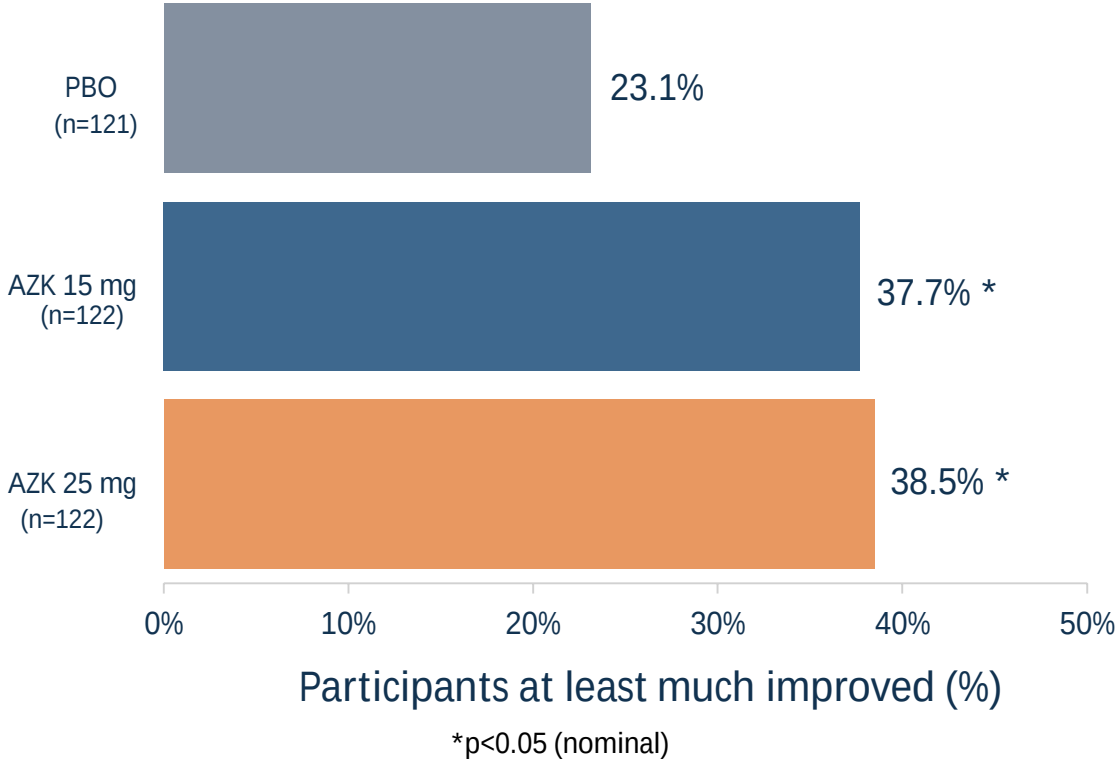
Dose-dependent reductions in weekly seizure frequency observed as early as week 1 and sustained through DBP

MPC from baseline in weekly (7 days) focal seizure frequency for each week during the DBP in the modified intent-to-treat population.
AZK, azetukalner; DBP, double-blind period; MPC, median percent change; PBO, placebo.

Patient and Clinical Global Impression of Change



**p<0.01 ***p<0.001 (nominal)



*p<0.05 (nominal)

Significant improvements in PGI-C/CGI-C for both AZK 15 mg and AZK 25 mg treatment groups vs. placebo

PGI-C is a key secondary endpoint. PGI-C change is defined as participants experiencing at least much improved (i.e., 'much improved' or 'very much improved') at Week 12.
CGI-C is an exploratory endpoint. CGI-C change is defined as at least much improved (i.e., 'much improved' or 'very much improved') reported by clinicians at Week 12.
Logistic regression for PGI-C and CGI-C responders at week 12 in the modified intent-to-treat population.
AZK, azetukalner; PGI-C, Patient Global Impression of Change; CGI-C, Clinical Global Impression of Change

Most Common TEAEs (≥5%) in Any Treatment Group

System Organ Class/Preferred Term, n (%)	PBO (n=125)	AZK 15 mg (n=125)	AZK 25 mg (n=124)	AZK Any Dose (n=249)
Any TEAE	78 (62.4)	84 (67.2)	102 (82.3)	186 (74.7)
Any Serious TEAE	3 (2.4)	4 (3.2)	7 (5.6)	11 (4.4)
Any TEAE Leading to Treatment Discontinuation	4 (3.2)	6 (4.8)	18 (14.5)	24 (9.6)
Nervous system disorders	32 (25.6)	37 (29.6)	73 (58.9)	110 (44.2)
Dizziness	4 (3.2)	12 (9.6)	39 (31.5)	51 (20.5)
Headache	8 (6.4)	8 (6.4)	14 (11.3)	22 (8.8)
Somnolence	9 (7.2)	10 (8.0)	12 (9.7)	22 (8.8)
Tremor	2 (1.6)	2 (1.6)	15 (12.1)	17 (6.8)
Aphasia	0	3 (2.4)	12 (9.7)	15 (6.0)
Balance disorder	2 (1.6)	1 (0.8)	8 (6.5)	9 (3.6)
Dysarthria	0	0	8 (6.5)	8 (3.2)
Psychiatric disorders	15 (12.0)	16 (12.8)	31 (25.0)	47 (18.9)
Confusional state	1 (0.8)	0	13 (10.5)	13 (5.2)
General disorders and administration site conditions	13 (10.4)	11 (8.8)	27 (21.8)	38 (15.3)
Fatigue	8 (6.4)	5 (4.0)	14 (11.3)	19 (7.6)
Gait disturbance	0	2 (1.6)	12 (9.7)	14 (5.6)
Gastrointestinal disorders	19 (15.2)	14 (11.2)	22 (17.7)	36 (14.5)
Constipation	1 (0.8)	4 (3.2)	8 (6.5)	12 (4.8)
Eye disorders	9 (7.2)	6 (4.8)	24 (19.4)	30 (12.0)
Vision blurred	4 (3.2)	2 (1.6)	10 (8.1)	12 (4.8)
Diplopia	1 (0.8)	0	8 (6.5)	8 (3.2)
Injury, poisoning and procedural complications	18 (14.4)	13 (10.4)	11 (8.9)	24 (9.6)
Fall	5 (4.0)	6 (4.8)	9 (7.3)	15 (6.0)
Renal and urinary disorders	4 (3.2)	6 (4.8)	18 (14.5)	24 (9.6)
Pollakiuria	1 (0.8)	0	7 (5.6)	7 (2.8)

Most common TEAEs across all AZK groups included dizziness, somnolence, headache, and fatigue; consistent with those reported for X-TOLE

AZK, azetukalner; PBO, placebo; TEAE, treatment-emergent adverse event.

Serious Adverse Events and Additional Safety Findings

Serious Adverse Events

Incidence of SAEs was low and similar across AZK groups:

- PBO (2.4%)
- AZK 15 mg (3.2%)
- AZK 25 mg (5.6%)

SAEs reported in >1 participant:

- Dysarthria (2)
- Tremor (2)
- Confusional state (2)
- Fall (2)

All reported from the AZK 25 mg group

Additional Safety Findings:

- No severe allergic rashes (SJS, DRESS) occurred
- No signals of retinal pigment epithelium or macular abnormalities
- No signals of cardiovascular events
- No meaningful weight gain occurred
- No deaths occurred
- Four non-serious TEAEs of urinary retention were reported
  - One participant in PBO and two in 25 mg with no dose reduction
  - One participant in 15 mg was hospitalized for a psychiatric event, which included catheterization and discontinuation

AZK, azetukalner; PBO, placebo; TEAE, treatment-emergent adverse event; SJS, Stevens-Johnson Syndrome; DRESS, Drug Reaction with Eosinophilia and Systemic Symptoms.

X-TOLE2 Summary of Safety and Tolerability

Treatment-Emergent Adverse Events

Most common TEAEs across all AZK groups included:

- Dizziness (20.5%)
- Somnolence (8.8%)
- Headache (8.8%)
- Fatigue (7.6%)

TEAEs resulted in discontinuation in:

- 3.2% in PBO
- 4.8% in AZK 15 mg
- 14.5% in AZK 25 mg

Most common TEAEs leading to discontinuation across all AZK groups:

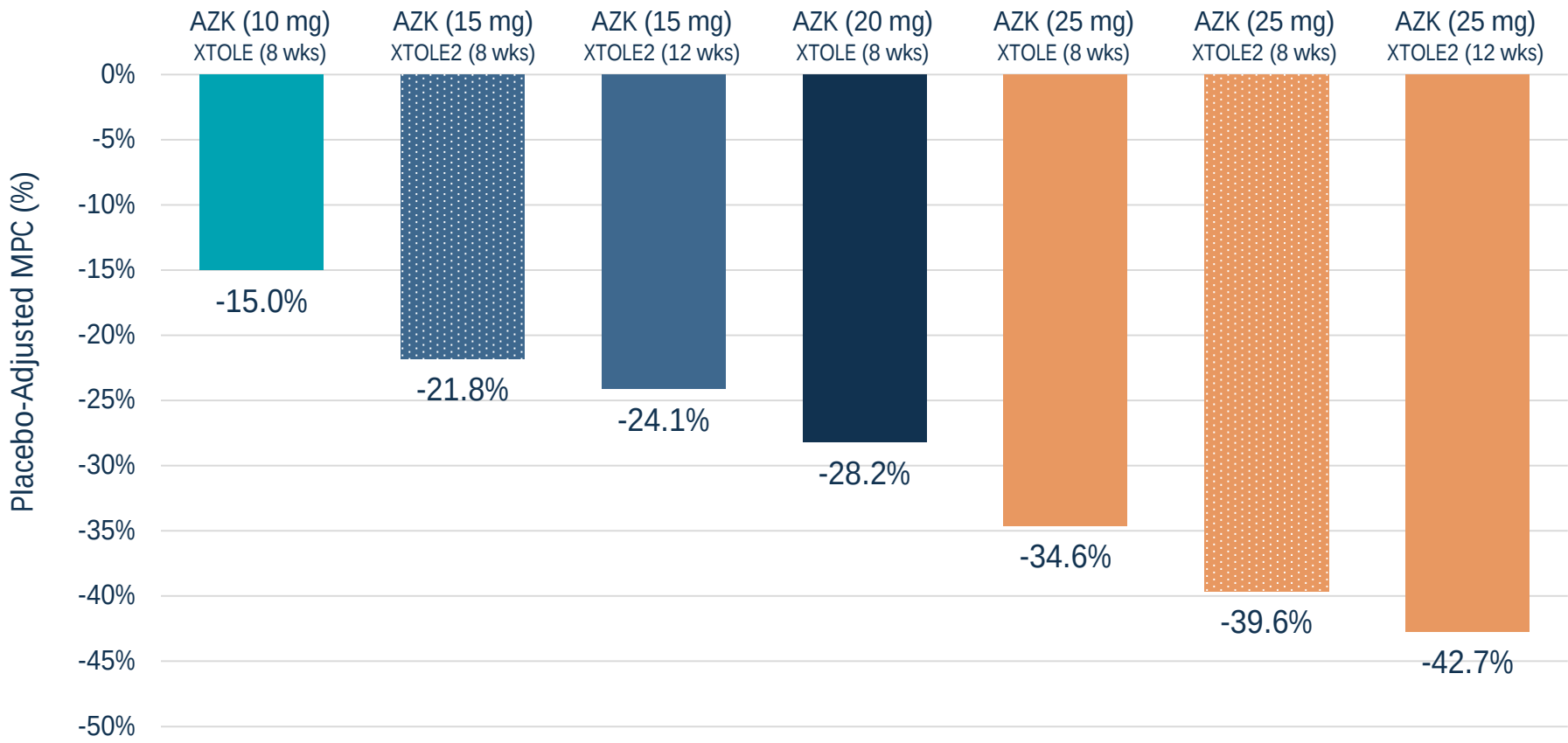
- Dizziness (3.2%)
- Headache (1.6%)
- Fatigue (1.6%)
- Gait disturbance (1.2%)
- Coordination abnormal (1.2%)
- Speech disorder (1.2%)

Summary of Safety and Tolerability

- AZK was generally well tolerated with a dose-dependent incidence of TEAEs consistent with X-TOLE
- Incidence of TEAEs for AZK 15 mg was similar to PBO
- Most common TEAEs across all AZK groups were consistent with those reported for X-TOLE
- No individual TEAE led to discontinuation in >5% of participants
- Incidence of SAEs was low and similar across AZK groups

AZK, azetukalner; PBO, placebo; TEAE, treatment-emergent adverse event; SAE, serious adverse event.

Placebo-Adjusted MPCs for All AZK Doses in X-TOLE and X-TOLE2



Placebo-adjusted MPC in monthly FOS frequency shows consistent dose-dependent efficacy for AZK at all doses tested

AZK, azetukalner; MPC: median percent change.
All doses administered once daily with food and no titration. Post-hoc week 8 values for X-TOLE2 AZK 25 mg: Focal Seizure Frequency During the first 8 weeks in the Modified Intent-to-Treat Population. Phase 2b X-TOLE Source: French et al., JAMA Neurol. 2023;80(11):1145-1154; Phase 2b X-TOLE results: -34.6% placebo-adjusted MPC over 8 weeks in the 25 mg group (-52.8% from baseline in 25 mg group and -18.2% from baseline in placebo group)

Summary of X-TOLE2 Topline Results

- Study met primary endpoint in both dose groups, including -53.2% MPC from baseline in monthly FOS frequency with 25 mg dose vs. 10.4% for placebo (p=0.000000000006)
- X-TOLE2 outperformed X-TOLE study with a placebo-adjusted MPC of -42.7% in the 25 mg group in X-TOLE2 compared to -34.6% in X-TOLE
- Azetukalner was generally well-tolerated with a safety profile consistent with X-TOLE

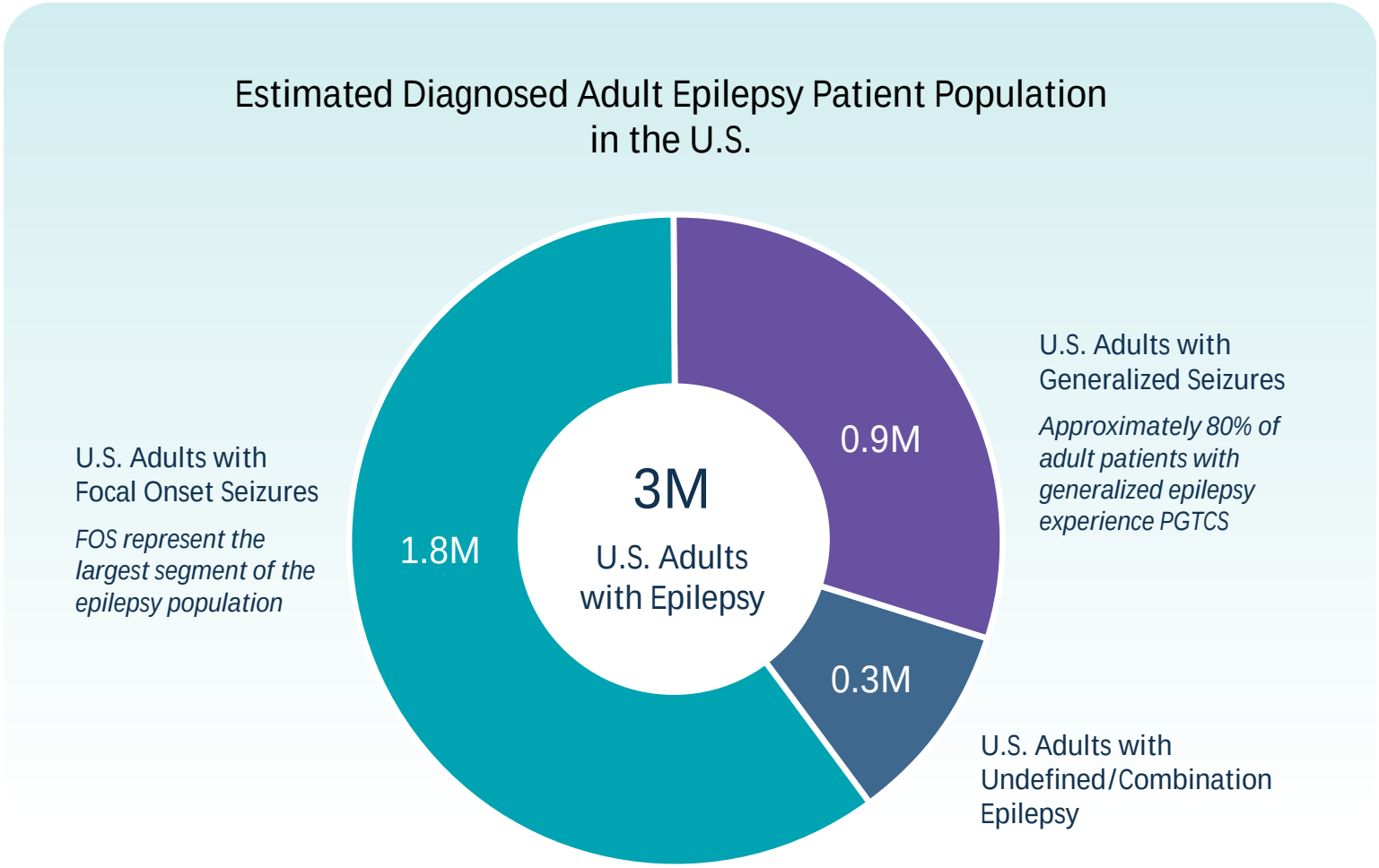
X-TOLE results: -34.6% placebo-adjusted MPC at Week 8 in the 25 mg group (-52.8% from baseline in 25 mg group and -18.2% from baseline in placebo group)

Moving Toward Commercialization

Darren Cline
Chief Commercial Officer

Significant Epilepsy Burden in the U.S.

- Epilepsy is the fourth most common neurological condition
- Despite the availability of multiple anti-seizure medications (ASMs), most share a limited and overlapping set of mechanisms of action
- Up to 50% of patients are in need of additional treatment options to improve seizure control



FOS, focal onset seizures; PGTCS: Primary generalized tonic clonic seizures

Sources: Milligan, TA. Epilepsy: A clinical overview. Am J Med. 2021; Barnard S, et al. Treatment outcomes in newly diagnosed focal epilepsy. AES. 2024.; Chen Z, et al. Long-term outcomes with ASMs. JAMA Neurol. 2018.; Ioannou P, et al. Burden and unmet need in focal seizures. Brain Behav. 2022; Keränen T, Sillanpää M, Riekkinen PJ. Distribution of seizure types in an epileptic population. Epilepsia. 1988.; Kobau R, et al. Active epilepsy prevalence in U.S. adults. Epilepsy Behav. 2023.; Kwan P, et al. Definition of drug-resistant epilepsy. Epilepsia. 2010.; Landmark CJ, et al. Pharmacology of antiseizure medications. Epileptic Disord. 2023. ScienceDirect. Genetic generalized epilepsy. ScienceDirect Topics. Accessed March 6, 2026.

Market Research Suggests Both Epilepsy Specialists and General Neurologists May Find Value in Potential Azetukalner Attributes

	Epilepsy Specialists[1]	General Neurologists[1]
Perceptions of "Product X"	*Unfavorable* — *Favorable*	*Unfavorable* — *Favorable*
"Product X" Value Drivers	✓ Novel Mechanism of Action ✓ Dosing Flexibility to Balance Efficacy and Safety ✓ Branded ASM-like Efficacy	✓ Ease of Use[2] ✓ Manageable Safety Profile ✓ Fast Onset of Action

> The MoA is interesting to me. I like to choose something that is different than what my patients have received. This product gives me more flexibility.
>
> *–Epilepsy Specialist*

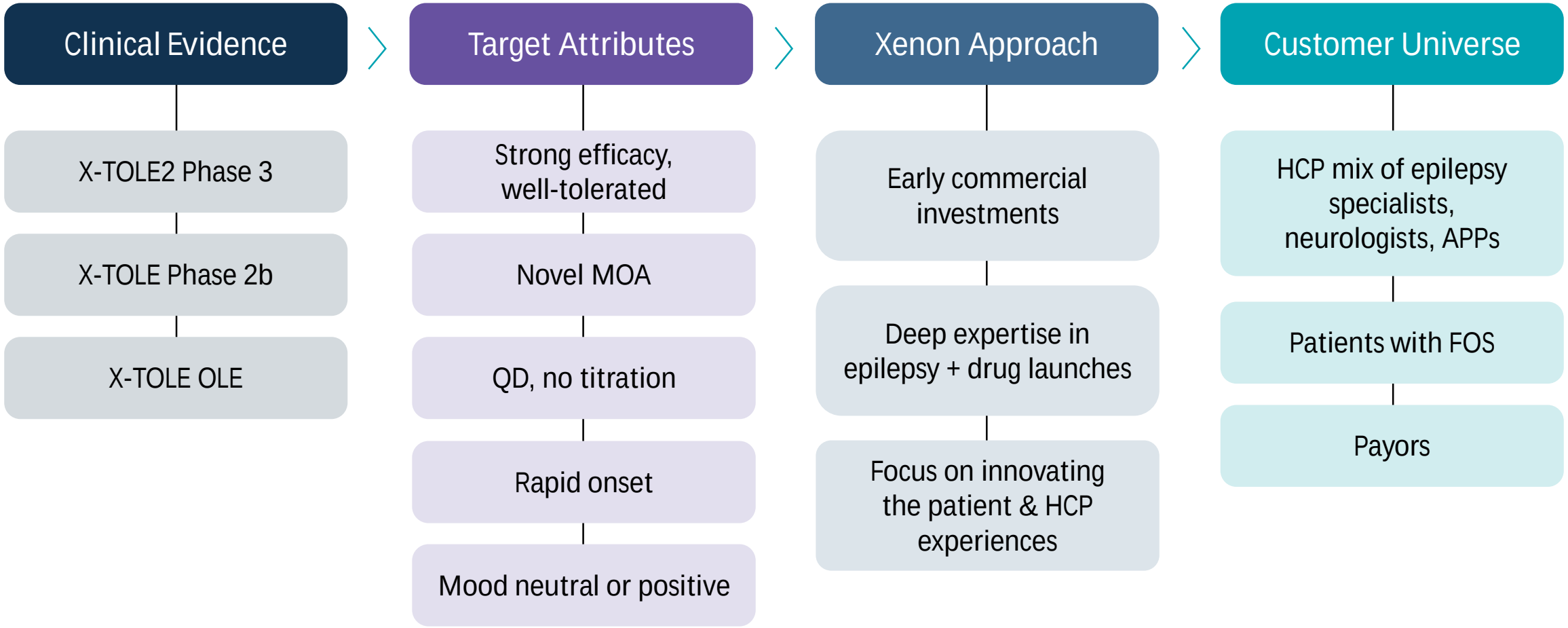
> The side effect profile of Product X is tolerable. I also don't have to wait to get my patients to an effective dose, but have some flexibility in the dose I choose.
>
> *–Epilepsy Specialist*

> Product X is distinguished from other brands from a safety perspective, along with the lack of titration and rapid onset.
>
> *– General Neurologist*

> Product X has strong efficacy, great onset and [manageable] side effects, it would be a 2/3L agent.
>
> *– General Neurologist*

1. Research sample includes 14 general neurologists and 4 epileptologists. 2. Lack of titration schedule and limited DDIs drove physician perceptions of Product X as an "easy to use" treatment option with simple onboarding. Source: Physician Interviews; ClearView Analysis. Market research referenced herein is preliminary and qualitative in nature.

Path to Commercialization of Azetukalner



OLE, open-label extension; MOA, mechanism of action; QD, once-daily dosing; HCP, healthcare professionals; APPs, advanced practice providers; FOS, focal onset seizures

Looking Toward the Future

Ian Mortimer

President & Chief Executive Officer

X-TOLE2 Results Summary

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Hadley, living with epilepsy

Thank you to our partners in the epilepsy community, including patient advocates, clinicians and study participants.

Xenon™

POSITIVE TOPLINE DATA

Azetukalner in Focal Onset Seizures

For more information

INVESTORS@XENON-PHARMA.COM