UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): October 11, 2023

Longboard Pharmaceuticals, Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware	**1-40192**	**84-5009619**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**
4275 Executive Square, Suite 950 La Jolla, CA		**92037**
(Address of Principal Executive Offices)		**(Zip Code)**

Registrant's Telephone Number, Including Area Code: (858) 789-9283

N/A
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value $0.0001 per share	LBPH	The Nasdaq Global Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

In this report, “we” and “our” refer to Longboard Pharmaceuticals, Inc.

Item 7.01 Regulation FD Disclosure.

Included as Exhibit 99.1 to this Form 8-K are slides that are part of a corporate presentation dated October 11, 2023, which are incorporated herein by reference. We intend to utilize these slides and their contents during our Investor and Analyst Event on October 11, 2023, and in various other meetings with securities analysts, investors and others.

The information in this Item 7.01 of this Current Report on Form 8-K, including Exhibit 99.1, shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section or Sections 11 and 12(a)(2) of the Securities Act of 1933, as amended. The information contained in this Item 7.01, including Exhibit 99.1, shall not be incorporated by reference into any filing we make with the U.S. Securities and Exchange Commission (“SEC”), whether before or after the date hereof, regardless of any general incorporation language in such filing.

Forward Looking Statements

This Current Report on Form 8-K contains forward-looking statements within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to, our expectations regarding our Investor and Analyst Event. These forward-looking statements involve risks and uncertainties, as well as assumptions, which, if they prove incorrect or do not fully materialize, could cause our results to differ materially from those expressed or implied by such forward-looking statements, including, but not limited to, risks and uncertainties related to: the timing and results of clinical trials and preclinical studies; preliminary interim data from ongoing trials may show results that change when such trials are completed, and topline data may not reflect the complete or final results of a particular study or trial, and are subject to change; our ability to advance, obtain regulatory approval of and ultimately commercialize our product candidates; positive results in a clinical trial may not be replicated in subsequent trials or successes in early stage clinical trials may not be predictive of results in later stage trials; our ability to fund development activities and achieve development goals; our ability to protect our intellectual property; the direct and indirect impacts geopolitical and macroeconomic events on our business; and other risks and uncertainties described under the heading “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2022, our subsequently filed Quarterly Reports on Form 10-Q, and the other documents we file from time to time with the SEC. These forward-looking statements speak only as of the date of this Current Report on Form 8-K, and we undertake no obligation to revise or update any forward-looking statements to reflect events or circumstances after the date hereof, except as required by law.

Item 9.01 Financial Statements and Exhibits. (d) Exhibits.

Exhibit No.	Description
99.1	Slides from a presentation titled "Investor & Analyst Event" dated October 11, 2023
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Longboard Pharmaceuticals, Inc.

Date: October 11, 2023

By: */s/ Kevin R. Lind*
Kevin R. Lind
President and Chief Executive Officer

Exhibit 99.1

Slides from a presentation titled "Investor & Analyst Event

OCTOBER 11, 2023

Forward-Looking Statements

This presentation contains forward-looking statements about Longboard Pharmaceuticals, Inc. ("we," "Longboard" or the "Company"), including statements regarding: our vision; commercial opportunities and analogs; our development approach and position to have best-in-class drug candidates; anticipated milestones; the prevalence of, and unmet need associated with, DEEs; the potential of a broad-spectrum ASM; the potential of LP352 (including to be best-in-class, to satisfy unmet need, to be a safer, efficacious, and less burdensome therapy, to be a potential >$Billion molecule, to have differentiated selectivity and specificity, to expand the market to a broader population, to limit adverse events, including those associated with currently available non-selective ASMs, to be indicated across a range of DEEs, to avoid drug-drug interactions, including through optimized dosing, to be desired or preferred by physicians, patients and caregivers, to expand, broaden or capture market share, and to set a new standard in the treatment of DEEs); key messages for LP352; the LP352 sampled product profile; expectations regarding our PACIFIC Study for LP352 (including regarding the timing of topline data, safety and tolerability, seizure reduction, dosing, OLE participation, and the potential for PACIFIC data to create value in the near term); plans regarding a global Phase 3 program for LP352; the potential of LP659 and plans regarding Phase 1 initiation; our intellectual property; our ability to obtain regulatory approval and commercialize our drug candidates (in the manner we may propose or at all); and other statements that are not historical facts, including statements that may include words such as "will", "may", "can", "would", "intend", "plan", "expect", "believe", "potential", "goal", "opportunity" and similar words.

For such statements, we claim the protection of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including, but not limited to: our limited operating history; our history of incurring net losses and expectation that we will continue to incur net losses for the foreseeable future, and that we may never be profitable; our need for additional funding and related risks for our business, product development programs and future commercialization activities; the timing and success of clinical trials and preclinical studies we conduct; preliminary, interim and topline data may not reflect the complete or final results of a particular study or trial, and are subject to change; the ability to obtain and maintain regulatory approval to conduct our clinical trials (in the manner we propose or at all) and, ultimately, to market our product candidates; the ability to commercialize our product candidates; our ability to compete in the marketplace; risks regarding our license and dependencies on others; our ability to obtain and maintain intellectual property protection and freedom to operate for our product candidates; our ability to manage our growth; and other risks and factors disclosed in our filings with the U.S. Securities and Exchange Commission (the "SEC"). We operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. The forward-looking events and circumstances discussed in this presentation may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Except as required by law, we assume no responsibility for the accuracy and completeness of the forward-looking statements, and we undertake no obligation to update any forward-looking statements after the date of this presentation to conform these statements to actual results or to changes in our expectations.

Certain information contained in this presentation and statements made orally during this presentation relate to or are based on studies, research, publications, surveys and other data obtained from third-party sources and Longboard's own internal estimates and research. While Longboard believes these third-party studies, research, publications, surveys and other data to be reliable as of the date of this presentation, they have not been independently verified, and Longboard makes no representations as to the adequacy, fairness, accuracy or completeness of any information obtained from third-party sources.

This presentation discusses product candidates that have not yet been approved for marketing by the U.S. Food and Drug Administration (the "FDA").

Longboard Participants

Kevin Lind

President and CEO / Director

Randall Kaye
MD

EVP, Chief Medical Officer

Featured Guest Speakers

Dennis Dlugos
MD, MSCE

Professor of Neurology & Pediatrics at Children's Hospital of Philadelphia (CHOP) and University of Pennsylvania School of Medicine; Director of the Section of Clinical Neurophysiology and the Epilepsy/Clinical Neurophysiology Fellowship; Epilepsy Study Consortium; Principal Investigator on PACIFIC Study

Gabrielle Conecker

Executive Director of DEE-P

Chair of the Epilepsy Leadership Council

Longboard Introduction

KEVIN LIND, PRESIDENT & CEO


Differentiated & innovative clinical approaches
CNS programs with significant commercial opportunities
Bold & experienced leadership with expertise in CNS and rare disorders
LONGBOARD THESIS
Our Vision is Backed by 20+ Years of World Class GPCR Research
VISION
A world where devastating neurological conditions are no longer devastating
Pipeline with differentiated PK / PD and target engagement
Relevant M&A analogs
JAZZ - GW $7.2B
PFE - ARNA $6.7B
UCB - ZGNX $1.9B
Well understood mechanisms of action

Longboard's Best-in-Class Product Candidates

Program	MOA	Therapeutic Area	Preclinical	Ph I	Ph II	Ph III	Anticipated Milestones
LP352	5-HT2C Superagonist	DEEs and other refractory epilepsies					✓ Ph 1b/2a PACIFIC Study Enrollment Completed – Summer 2023 • PACIFIC Study Topline Data – Around YE 2023 (currently expected January 2024)
LP659	S1P Receptor Modulator	Multiple neurological diseases					• Phase 1 Initiation – H2 2023

- We hold rights to other product candidates, including LP143 and nelotanserin, through the Arena License Agreement
- We are eligible to receive royalties of 9.5% - 18.5% on sales of lorcaserin if approved for commercialization*

* Through the Royalty Purchase Agreement
Definitions: DEEs=developmental and epileptic encephalopathies; S1P = sphingosine 1-phosphate; PK=pharmacokinetics; PD=pharmacodynamics; EEG = electroencephalogram

Key Messages for LP352

1

Tremendous unmet need exists in the treatment of DEEs - both for the 4 DEEs with recently approved novel therapeutics and the broader DEE population

2

Polytherapy continues to be SOC for DEE patients and a safer, efficacious, less burdensome (no echocardiograms) 5HT2C will be highly desired by patients, HCPs and caregivers

3

Potential >$Billion, best-in-class molecule with differentiated selectivity & specificity – significant benefits over currently available therapies and expand the market to a broader population

Near-term value creation opportunity – PACIFIC Data

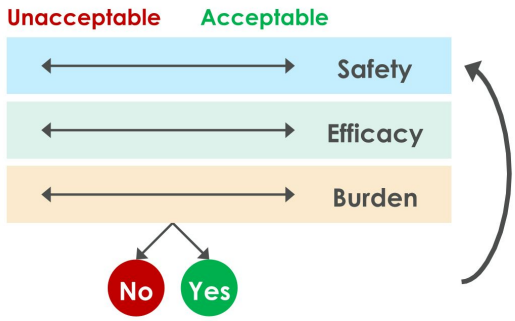
Impact of Developmental and Epileptic Encephalopathies (DEEs)

DEEs commonly begin in infancy or childhood and are associated with frequent seizures of multiple different types, intellectual disability, and significant delay or regression.

Reach Extends Far Beyond Seizure Burden

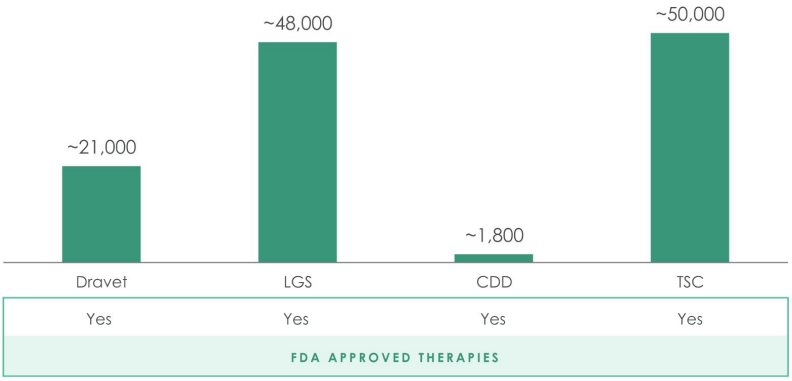
- Intellectual disability
- Sleep issues
- Risk of mortality including SUDEP
- Behavioral problems
- Motor and movement disorders
- Psychiatric problems

Decision-Making Tree for Therapeutics



4 DEE Syndromes Have Approved Therapies; 20+ Have None

"Approved 4" DEE Prevalence (US)



Other DEEs

- DUP15q
- SCN2A related epilepsies
- SCN8A related epilepsies
- KCNQ2 related epilepsies
- KCNQ3 related epilepsies
- Angelman syndrome
- Landau-Kleffner Syndrome
- Early Myoclonic Encephalopathy
- KCNT1 related epilepsies
- SynGAP1 related epilepsies
- Rhett Syndrome
- Ohtahara Syndrome
- PCDH19
- EE w/ Continuous Spike-Wave
- West Syndrome
- Myoclonic Atonic Epilepsy
- Ring14
- Ring20
- Others

NO SPECIFICALLY APPROVED THERAPIES

The prevalence of all "Other DEEs" could exceed the total of the "Approved 4" combined

Sources: Dravet Syndrome Foundation, LGS Foundation
Definitions: LGS = Lennox-Gastaut Syndrome, CDD = CDKL5 Deficiency Disorder, TSC = Tuberous Sclerosis Complex; DEE = Developmental and Epileptic Encephalopathy

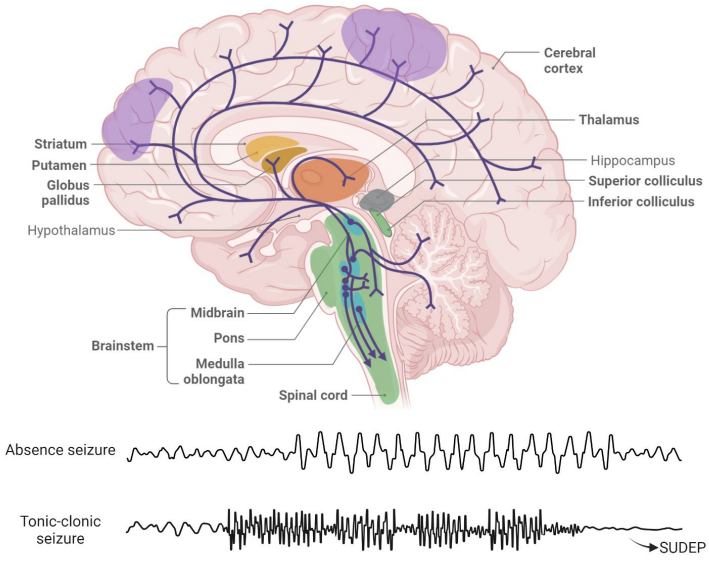
LP352

First-in-Class 5-HT2C Superagonist with Next-Generation Selectivity, Being Dose-Optimized to Treat a Broad Range of DEEs Effectively and Safely

RANDALL E. KAYE, MD
CHIEF MEDICAL OFFICER

Brain Regions Involved in Multiple Types of Seizures

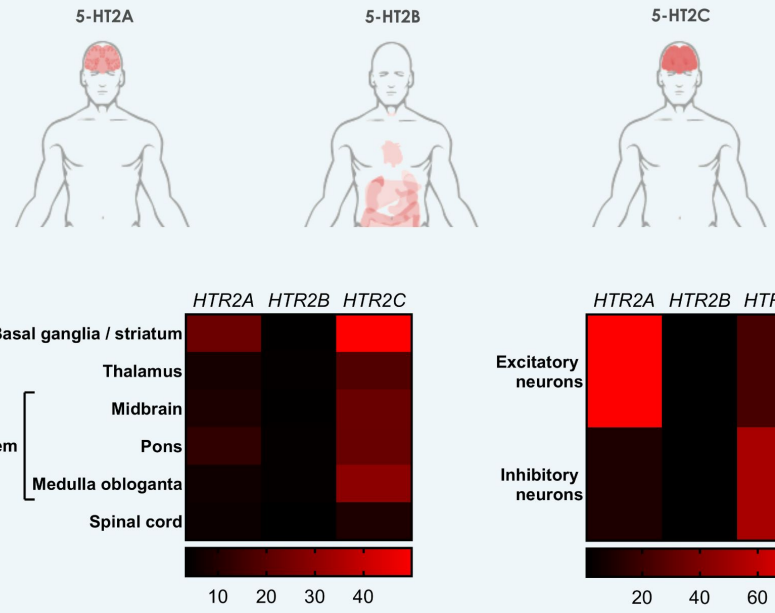
- Dysfunction of the circuits involving the cortex **(in purple)**, striatum **(in yellow)** and/or thalamus **(in orange)** underly absence and/or tonic-clonic seizures
- The brainstem, among others, **(in green)** are involved in SUDEP and induced seizures
  - Cardiorespiratory function is regulated by the brainstem and its failure leads to SUDEP



LGS = Lennox Gastaut syndrome; DS = Dravet syndrome; SUDEP = sudden unexpected death in epilepsy
Source: Lindquist et. al. 2023; Burke et. al. 2014; Bosco et. al. 2023; Created with BioRender.com

5-HT2C Receptors are Expressed in Seizure-Related Brain Regions

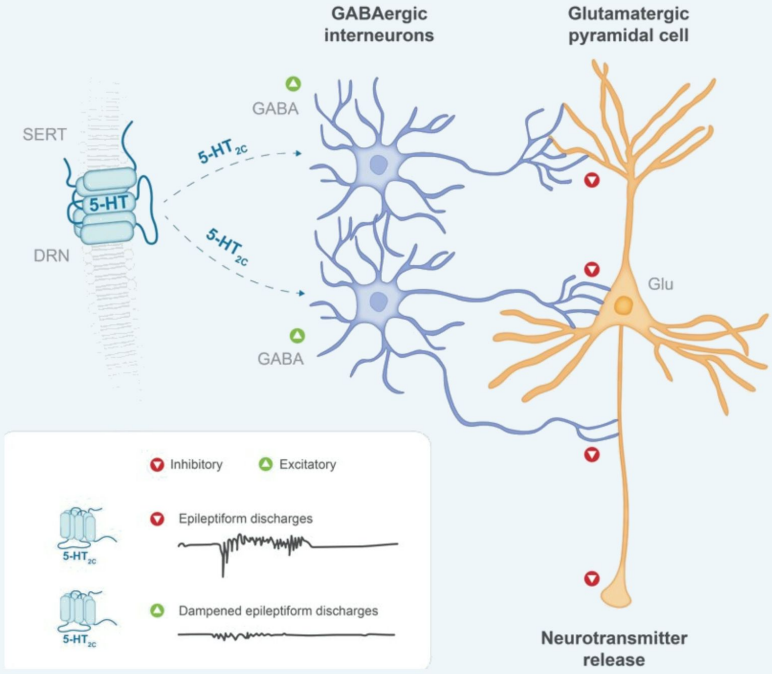
- 5-HT2C receptor expression is restricted to the brain
- 5-HT2C receptors are highly expressed in the brainstem, and in inhibitory neurons in the striatum and thalamus
  - Expression is consistent in human and mouse



Source: (1) The Human Protein Atlas; (2) NeuroSeq; (3) Massey et. al. 2021; (4) Simonsson et. al. 2022; (5) Blond et. al. 2023

Role of 5-HT2C Receptors in Epilepsy

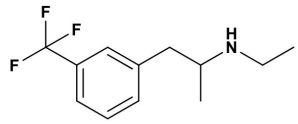
- 5-HT2C modulation of hippocampal pyramidal GABAergic neurons suppresses hyperexcitability
- 5-HT2C KO mice display spontaneous seizures and decreased threshold for proconvulsant stimuli
- m-CPP (5-HT2C) increases threshold for PTZ- and electroshock induced myoclonic and tonic seizures; effect blocked by 5-HT2C antagonist
- In a genetic model of DS, 5-HT2C agonist decreased seizure-like behavior and epileptiform electrical activity in scn1Lab-/- mutant zebrafish

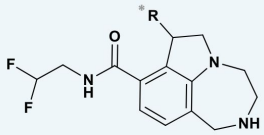


Sources: Gharedaghi MH et al., Exp Brain Res. 2014; Bagdy G et al., J Neurochemistry. 2007; Strac DS et al., Front Neurosci. 2016; Sourbron J et al., ACS Chem Neuroscience. 2016; Tecott LH et al, Nature. 1995; Upton N et al, Eur J Pharmacol. 1998; Orban G et al., CNS Neurosci Ther. 2014; Schoonjans A et al., Eur J Neurol. 2017; GABA=gamma aminobutyric acid; mCPP=m-chlorophenyl-piperazine; PTZ=pentylenetetrazole; TLE=temporal lobe epilepsy

5-HT2 Evolution in Rare Epilepsies

	Weight Loss Drug Repurposed for Dravet	Designed & Being Dose-Optimized for DEEs
Compound	**FINTEPLA®** (fenfluramine, ZX008)	**LP352**
History	• Approved for weight loss in 1973, became popular in 1990s in Fen-Phen (never approved in combo) • Withdrawn due to significant cardiac toxicity (1997) • Repurposed for certain DEEs at lower dose	• Designed to be a next-generation selective 5-HT2C superagonist • Dose optimization for DEEs • BID formulation work ongoing, expected for Ph 3
Current Status	• Approved for the treatment of seizures with Dravet & LGS • **REMS required with frequent echocardiograms**	• Ph 1b/2a clinical trial in multiple DEEs • **No echocardiograms in PACIFIC study** • 20+ years of GPCR research and optimization of the 5-HT2 pathway





*R=undisclosed

LP352 Designed to be a Next-Generation 5-HT2C with Greater Selectivity and Specificity

	Serotonin Receptor Subtype	EC_{50}, nM	Ki, nM	Selectivity 5-HT2C vs 5-HT2B	Selectivity 5-HT2C vs 5-HT2A	Potential Adverse Events Per Receptor Subtype
LP352 5-HT2C Superagonist	**5-HT2C**	**~120**	**~50**	**>200x**	**>200x**	CNS, GI
	5-HT2B	Not detectable	Not detectable			n/a
	5-HT2A	Not detectable	Not detectable			n/a
Nordexfenfluramine (an active metabolite of fenfluramine) [1]	5-HT2C	72.4	10.4	0.94x	11.5x	CNS, GI
	5-HT2B	25.7	9.8			Cardiac, Pulmonary
	5-HT2A	1778	120.2			Psychiatric
Lorcaserin[2]	5-HT2C	39	13	11.3x	7.1x	CNS, GI
	5-HT2B	2380	147			n/a
	5-HT2A	553	92			Psychiatric

LP352 selectivity may limit off-target effects associated with currently available non-selective ASMs

1 Third party study previously commissioned by Arena, 2 BELVIQ FDA approved prescribing information 06/2012; Note: The above table is for illustrative purposes only and is not a head-to-head comparison. Differences exist between in vitro study designs and methodologies, and caution should be exercised when comparing data across studies
Definitions: CNS= Central nervous system ; GI = Gastrointestinal; ASM = anti-seizure medication

LP352 Has Low Potential for Drug-Drug Interactions (DDI)

DDI's are 4th most important criteria (12%)* in HCP's selection of an ASM

- Given the common nature of complex polypharmacy in patients with DEEs, avoiding DDIs is of particular importance
- Many ASMs are affected by CYP enzyme inhibitors, notably CYP2D6 (fenfluramine, carbamazepine), CYP3A4 (clobazam, cannabidiol, felbamate, carbamazepine), and CYP2C19 (fenfluramine, cannabidiol, phenobarbital, phenytoin)
- LP352 was structurally designed to minimize the dependency on CYP metabolism, but rather promote it as a substrate for metabolism via UDP-glucuronosyltransferase (UGTs)
- Confirmatory victim evaluation potential for LP352 included both in vitro and in vivo work:
  - **In vitro work**: Standard in vitro metabolism screen to determine the intrinsic clearance of LP352 for various CYP enzymes
  - **In vivo work**: A unique clinical study was designed & conducted in two parts in healthy volunteers

Cerny (2016) Drug Metabolism and Disposition 44:1246
*From Longboard HCP Survey 2023

The Potential of LP352

Preclinical Validation	Clinical Validation SAD/MAD	Clinical Validation CSF/EEG *
• Reduced seizure activity in model of neuronal hyperexcitability in zebrafish • Reduced epileptiform activity in fish and rodent models of disinhibition • Reduced duration and number of epileptiform events in zebrafish model of Dravet Syndrome	• In general, favorable safety & tolerability observed, AEs generally consistent with expected effects of serotonergic meds • No observed food effect • Potential prolactin biomarker which increased in a dose dependent and transient manner	• Favorable safety & tolerability results observed, AEs generally consistent with previous studies • Plasma & CSF PK concentration increased in a dose dependent & consistent manner • Effects on qEEG activity within first few dose(s) • Sustained dose-dependent effects on qEEG activity after continuous dosing, thus indicating receptor engagement

* Based on first two cohorts
Definitions: AEs = adverse events

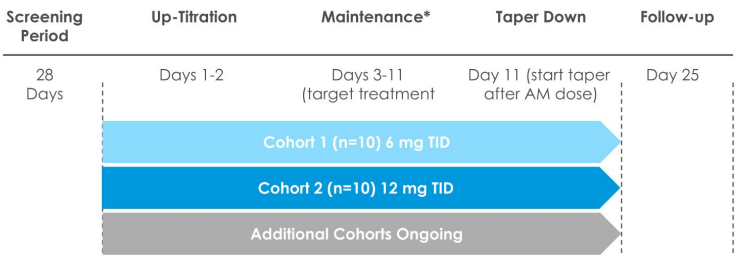
LP352 Inhibited Seizure Activity in Multiple Preclinical Models

	Corneal Kindling	**Pentylenetetrazol (PTZ) (i.v.)**	**Scn1a$^{A1783V/WT}$ Transgene**	***scn1lab* Transgene**	**Ethyl ketopentenoate (EKP)**	**Kainic acid (KA)**
Model	Partial (focal) limbic seizures	Acute seizure	Genetic model of Dravet Syndrome	Genetic model of Dravet Syndrome	Generalized seizure	Acute and chronic seizure
Species	mouse	mouse	mouse	zebrafish	zebrafish	zebrafish
Activity	-	+	-	+	+	+
Results	n/a	**Statistically** elevates seizure threshold	n/a	**~85%** reduction in epileptiform events & duration	**~69%** reduction in seizure activity	**~82%** reduction of seizure activity

Potential ASMs are assayed in multiple relevant preclinical models based on the compound's MOA. Models are conducted utilizing wide range panels that typically produce a mix of positive and negative results. The above are a subset of preclinical assays conducted with LP352. Preclinical models are not necessarily predictive of clinical efficacy or regulatory approval.

Definitions: ASM = anti-seizure medication; MOA = mechanism of action

LP352 102: Ph 1 PK/PD CNS Study in Adult Healthy Volunteers



Plasma:

- Samples Days 1-11 (and taper)
- PK parameters: Cmax, Tmax and AUCtau

CSF:

- Samples Day 11
- PK parameters: Cmax, Tmax and AUCtau

EEG:

- Serial EEGs Days -1, 1, 3 & 10 (trough Day 16)
- EEG parameters: Five-minute resting EEG with eyes closed and five-minute resting EEG with eyes open performed with the participant seated comfortably in a sound-attenuated room
- Resting EEG evaluated by spectral and coherence analysis, including spectral amplitudes and coherences in clinical frequency bands

Topline data

Open-label Study to Assess Central Nervous System Pharmacokinetics (PK) and Pharmacodynamics (PD) of Orally Administered LP352

Key Study Objectives:

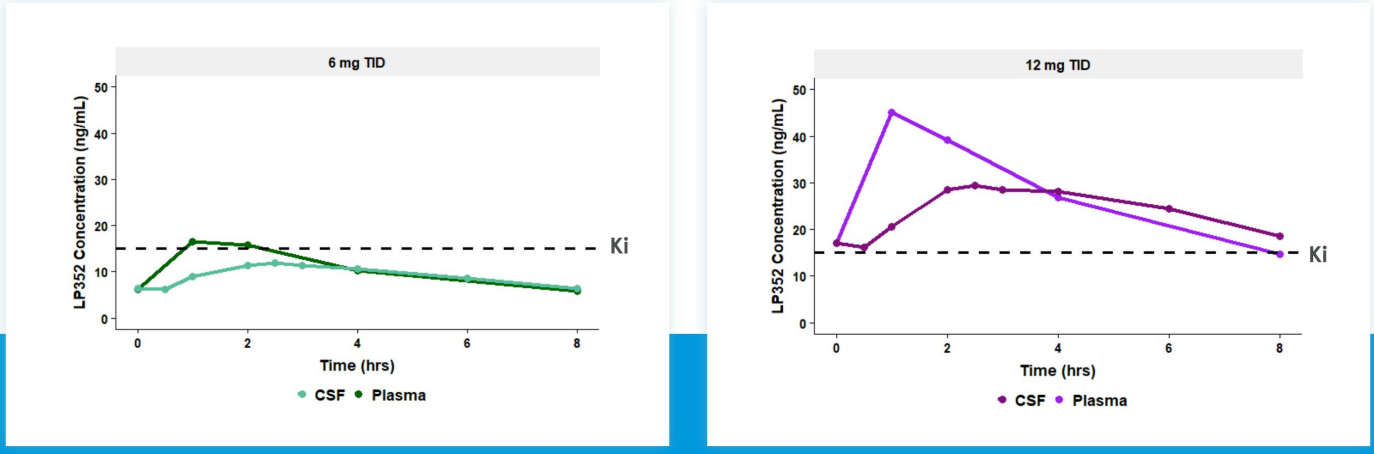
Characterize the plasma and CSF PK

Characterize the safety and tolerability of the doses with titration and taper

Assess the PK-PD relationships between plasma and CSF exposure and PD endpoints of safety and efficacy, including qEEG endpoints as indicators of CNS target engagement

Steady State Plasma & CSF Concentrations for LP352 (6mg & 12mg)

12 mg TID Exceeded Ki Value for 5-HT2C Activity throughout Dosing Interval*



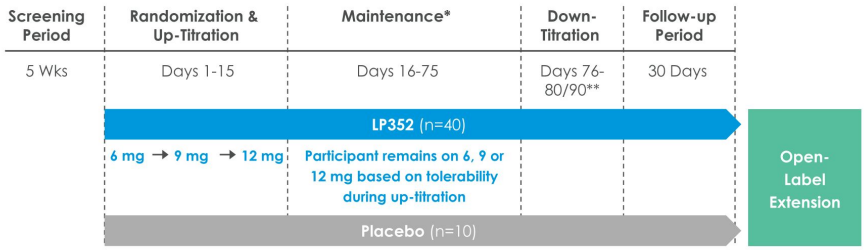
LP352 selectivity may limit off-target effects associated with currently available non-selective ASMs

*Topline data

PACIFIC
Study Update

LP352 Ph 1b/2a PACIFIC study in patients with DEEs

Enrollment completed – August 2023



Key Inclusion Criteria:

- DEEs with ≥ 4 motor seizures per month in 3 mos. prior to screening and ≥ 4 motor seizures in the month of screening
- DEEs (multiple syndromes) including LGS, Dravet syndrome, SCN2A-related epilepsies, CDD, among others

Key Exclusion Criteria:

- Use of fenfluramine & lorcaserin

Basic Information:

- **Sites:** ~30 sites
- **Ages:** > 12 to <65 yrs old

No Echocardiograms Required in PACIFIC

PACIFIC
Developmental and Epileptic Encephalopathies Study

Double-blind, placebo-controlled study to assess the safety, tolerability and pharmacokinetics of LP352

Key Efficacy Signals:

Evaluate reduction in seizures across a broad group of epilepsies

Identify potential indications for pivotal studies

Analyze concentration response to understand dosing in different seizure types and disorders

* Maintenance Dose of LP352 (TID): 6 mg, 9 mg, 12 mg or placebo TID
** Up to a 15-day down-titration/taper period (reducing dose every 5 days) depending on the last maintenance dose

Study Objectives

Primary:

- To investigate the safety, tolerability, and efficacy of multiple doses of **LP352** in adolescent and adult participants with DEE

Secondary

- To characterize the pharmacokinetics (PK) of **LP352** in adolescent and adult participants with DEE
- To characterize the pharmacodynamic (PD) effects of **LP352** on prolactin
- To evaluate and characterize PK-PD relationships of **LP352** for endpoints related to safety and seizures
- To identify the optimal dose(s) of **LP352** for Phase 3 clinical studies

Diagnostic Eligibility Criteria: Dravet Syndrome, Lennox-Gastaut Syndrome and Other DEEs

PACIFIC
Developmental and Epileptic Encephalopathies Study

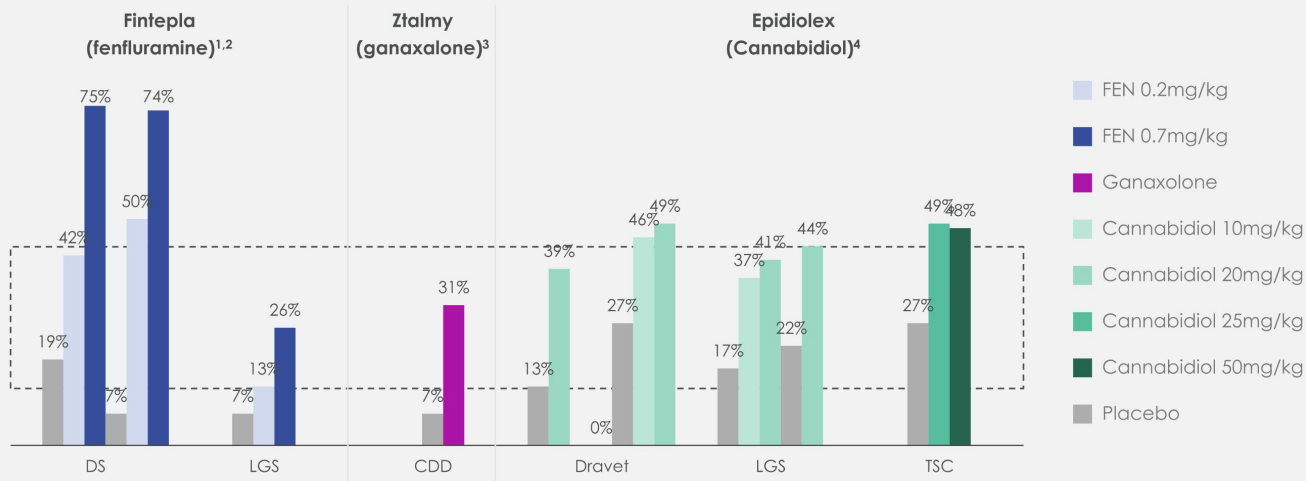
All patients: Treatment-resistant countable motor seizures with average of ≥ 4 observed/countable motor seizures per 4-week period during 12 weeks before screening while on stable ASM treatment

	Dravet	LGS	Other DEEs
Onset	Between 3–19 months	Before 8 years of age	Unprovoked seizures before 5 years
Seizure Type	Generalized tonic-clonic, unilateral clonic or bilateral clonic seizures	Tonic or tonic/atonic seizures & More than 1 type of generalized seizure (tonic-clonic, tonic-atonic, atonic, tonic, myoclonic or drop)	Combined focal and generalized seizure types, or multiple generalized seizure types
Developmental History	Initially normal, then delayed	Delayed	Delayed
EEG		Consistent with LGS diagnosis*	Slow or disorganized
Additional Criteria	One of the following: • Emergence of another seizure type after the first • Induced by warm temperatures, fevers, or visual stimuli • Genetic test consistent with Dravet	More than 1 type of generalized seizure for ≥6 months before screening	No history of idiopathic generalized seizures

*Abnormal inter-ictal EEG background activity with inter-ictal slow spike-and-wave pattern ≤2.5 Hz or inter-ictal generalized paroxysmal fast activity.

Seizure Reduction for Approved Drugs in DEEs

PACIFIC
Developmental and Epileptic Encephalopathies Study



1. Lagae, et al The Lancet 2019; 2. Knupp, et al JAMA Neurology 2022; 3. Knight,et al, The Lancet Neurology 2022; 4. Epidiolex HCP websiteDravet & LGS & TSC

PACIFIC Study Enrollment Summary

PACIFIC
Developmental and Epileptic Encephalopathies Study

52
Participants randomized

42 US

10 AUS

Adult/Pediatric participants
Range: 12-55
Mean: 24.2 / Median: 23.0

40 Adult (18+)

12 Peds (12-17)

Diagnosis*

Dravet: 4

LGS: 29

Other DEE: 19

Vast majority of eligible participants who complete PACIFIC expected to enter Open-Label Extension

100%
have entered to date**

*The diagnosis was at time of screening for PACIFIC and is subject to further refinement
** OLE data as of 10/11/2023

Key Areas of Focus in PACIFIC Topline Readout

PACIFIC
Developmental and Epileptic Encephalopathies Study

1

Safety

Favorable safety & tolerability in line with previous Longboard studies to date

2

Seizure Reduction

Clinically meaningful seizure reductions across the DEE landscape and consistent with approved treatments

3

Dosing

Titration data across three doses that allows optimized dosing in the Phase 3 program

4

OLE Participation

Vast majority of eligible participants enter OLE thus enabling long-term data

Global Phase 3 Readiness In Process

Commercial Opportunity for LP352

KEVIN LIND

Validating Continued Unmet Need In DEEs And Potential Of LP352

Background & Methodology

Quantitative HCP Research
100 Physicians

Objective: Validating Unmet Needs And LP352 Potential

Criteria:

- Board Certified HCPs specializing in **Neurology** or **Epileptology**
- Treat at least **20 patients with DEEs** in the past 12 months
- Familiar with **Fintepla** and **Epidiolex**
- **Note:** Most participants have some clinical experience with **Epidiolex** (92%) & **Fintepla** (68%)

Qualitative HCP Research
20 Physicians

Objective: Deeper Understanding Of Quantitative Findings (How & Why)

Criteria:

- Board Certified HCPs specializing in **Neurology** or **Epileptology**
- Treat at least **25 patients with DE**Es in the past 12 months
- Familiar with **Fintepla** and **Epidiolex**

Epileptologists = 5 (4 peds, 1 adult)

Neurologists = 15 (13 peds, 3 adult)

Quantitative Caregiver Research
30 Caregivers

Objective: Understanding Unmet Needs Of DEE Patients (Not "Approved 4")

Criteria:

- Primary or joint caregiver (non-paid)* to a loved one with a DEE (**not** LGS, Dravet Syndrome, TSC, or CDKL5 Disorder)
- Provide assistance with physician visits or administer medications and have input into medical care
- Loved one has experience with prescription ASMs
- Attended at least 2 medical appointments in the past 12 months

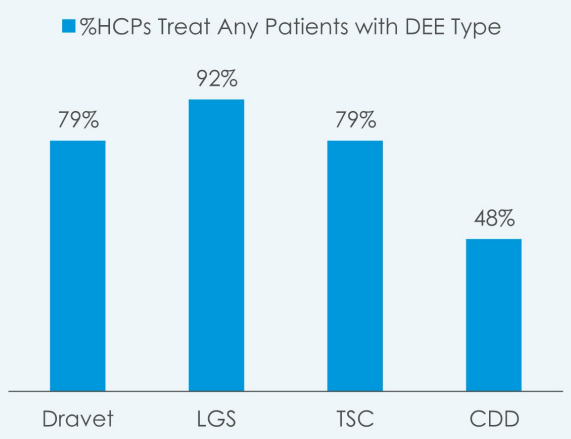
Participation was open to all non-paid caregivers with any relationship to their loved one with a DEE. All respondents in the survey are mothers caring for their child.
HCP = Health care providers
Longboard and third-party market research analysis
Survey sampled product profile for LP352 case reviewed in this presentation: efficacy of 37-44% reduction in countable motor seizure frequency and generally well tolerated with BID dosing

Commercial Opportunity for "Approved 4" DEE Indications

KEVIN LIND

Nearly All HCPs Treat Patients with the "Approved 4"

DEE Types Treated in the Past 12 Months
Total Respondents



DEE Type Treated in Past 12 Months
Total Respondents

Longboard and third-party market research analysis

DEE Indications Represent a **$6B** Total US + EU Market Opportunity[1]

A vast majority of the treatment options currently used are generic.

Fintepla
Peak Sales Estimate[4]
(2027)

€800M

Fintepla
2022 Sales[2]
(Mar-Dec)

$122M

Epidiolex
Sales Estimate[5]
(2025)

>$1B

Epidiolex
2022 Sales[3]

$736M

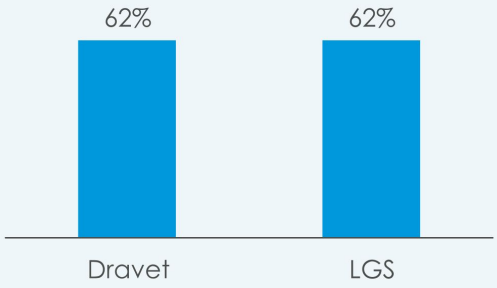
1) Longboard and third-party research 2022 – projections for 2040 for US + EU4/UK, 2) UCB Annual Report 2022, 3) Jazz Pharmaceuticals Annual Report 2022, 4) UCB press release dated January 9, 2023, 5) Jazz Corporate Overview August 2023

HCPs Report a Need for More Effective and Safer Anti-Seizure Medications

	Mean # of Seizures Per Week	Mean # of ASMs Per Patient
Dravet	12	3.4
LGS	19	3.5
TSC	6	3.0
CDD	13	2.9

% Frustrated with Lack of Available New Treatment Options for DEE Type

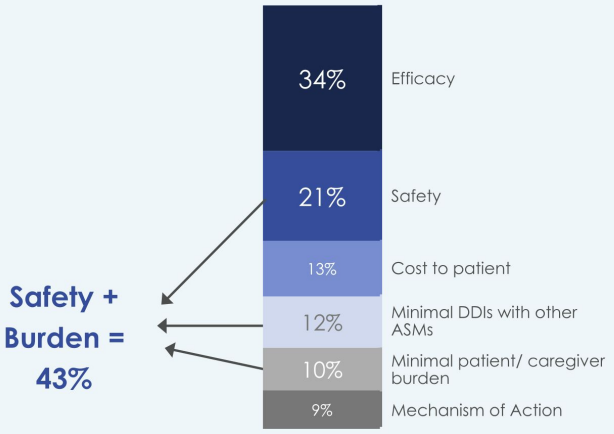
Among those who treat any patients with DEE type



% Rated 7-Extremely Frustrated, 6, 5

HCPs Evaluate ASMs by Balancing Efficacy, Safety & Burden

Influence on ASM Decisions
When allocating 100 points across factors

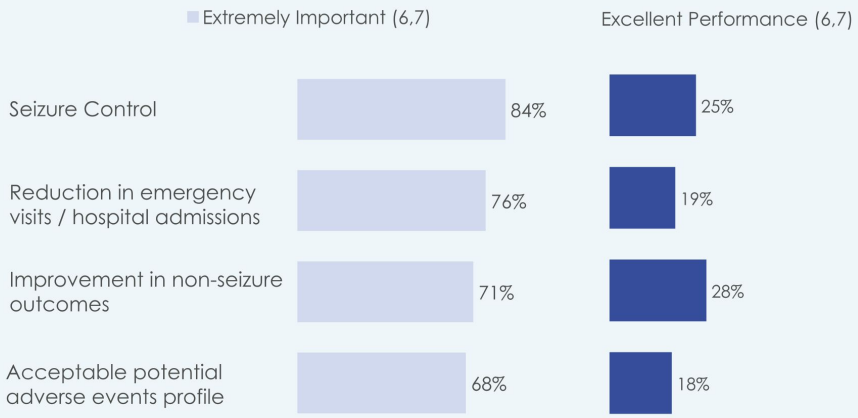


"If I see a patient with epilepsy and give them enough valium, **they'll be seizure free, but then they'll be sleeping all day. That's not quality of life.** So, we must find the cocktail that gives them the **best seizure control with the least amount of side effects."**

– Epileptologist, Primarily Pediatric

Fintepla Profile Does Not Satisfy Most Important Treatment Criteria

Fintepla Performance on Most Important Criteria

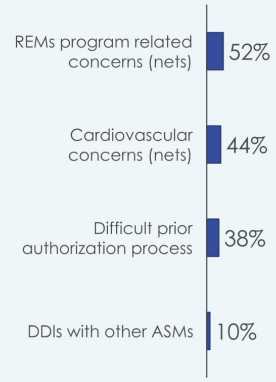


"The clinical trial in Dravet was amazing, really impressive efficacy. I would say **Fintepla is comparable to other medications in reality**. Now these are very difficult patients so it makes sense, but most people would say Fintepla is not as robust in its efficacy."

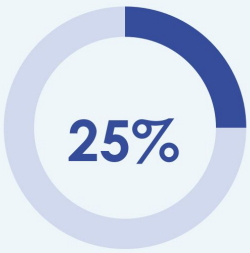
– Epileptologist, Primarily Pediatric

Fintepla Safety & Burden are Hard to Overcome; Caregivers Also Decline Somewhat Regularly

Top Reasons Why Unlikely to Prescribe Fintepla*



Mean % Caregivers Decline Fintepla Despite HCP Recommendation



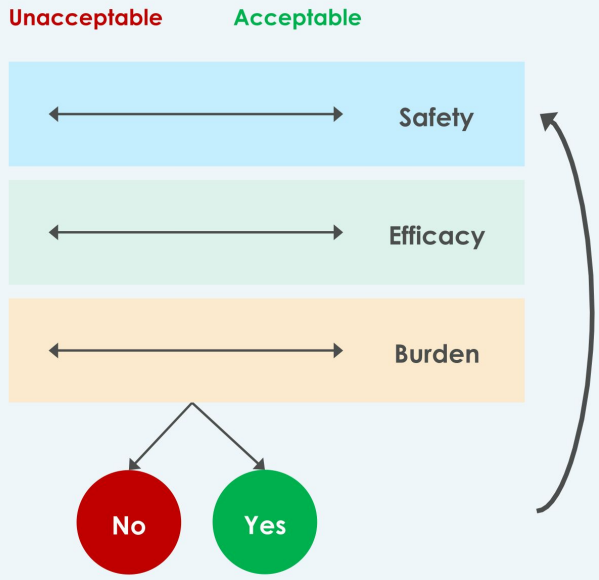
"I think of Fintepla as a fourth-line agent and lots of patients do not go that far. **It freaks caregivers out that we have to check the patient's heart every six months.** They say, 'My kid has seizures, now you want to give them a heart problem?' No one likes to endanger the heart, so **it makes Fintepla a hard sell**."

– Epileptologist, Primarily Adult

*Among those who don't currently or are unlikely to prescribe Fintepla

Reality of the Treatment Paradigm: Balancing of Safety, Efficacy and Burden

Polytherapy Approach: DEE patients are highly refractory and on an average of 3.5 medications simultaneously



The combination of these criteria impact utilization

AND

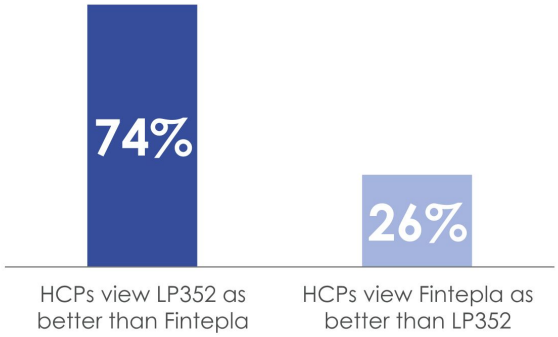
FINTEPLA is re-assessed every six months

No echocardiograms required in the PACIFIC Study

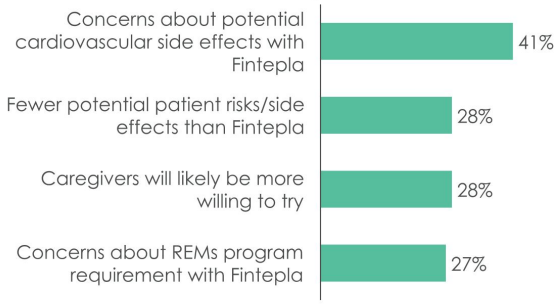
Multiple Potential "Ways to Win"

- **Capture market share in "Approved 4" with best-in-class profile (safety, efficacy, burden)**

HCPs Prefer LP352* Over Fintepla and Are More Likely to Prescribe it Because of the Superior Safety Profile



Top Reasons for Prescribing LP352 Sampled Product Profile Over Fintepla*



HCPs prefer LP352* mainly because of the superior safety profile

*Those who would prescribe LP352 sampled product profile over Fintepla

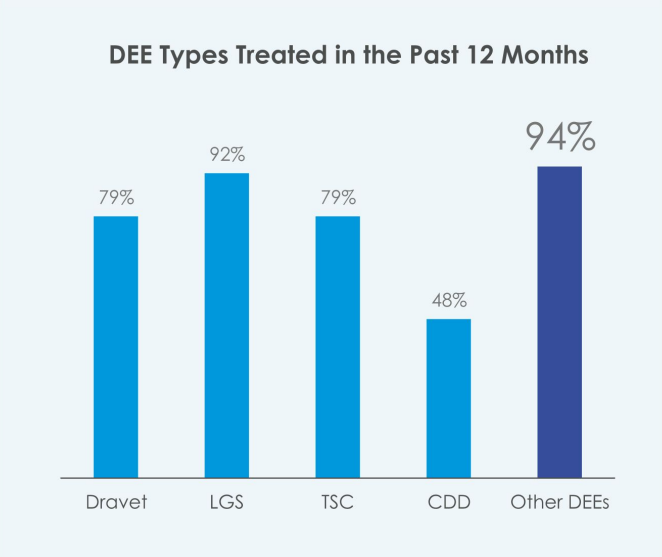
Multiple Potential "Ways to Win"

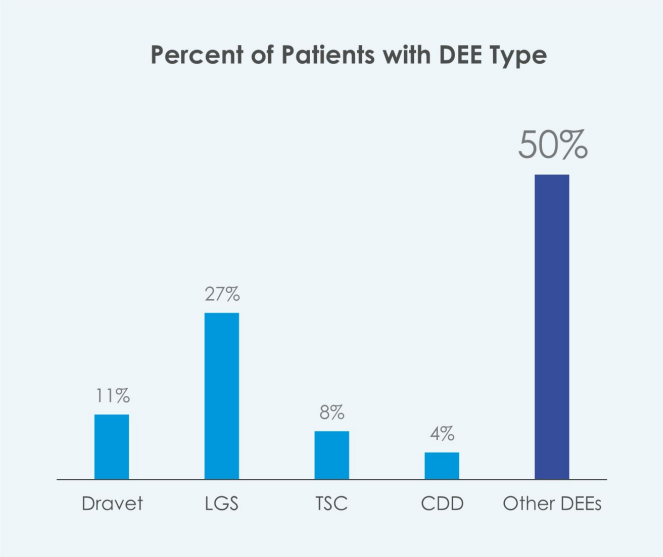
- **Broaden market in "Approved 4" DEE's with preferred safety and burden profile**
- **Capture market share in "Approved 4" with best-in-class profile (safety, efficacy, burden)**

Commercial Opportunity for Broad DEE Indication

KEVIN LIND

Nearly All HCPs Treat Patients with All DEE Diagnoses; Collectively, the Number of "Other DEEs" is Significant



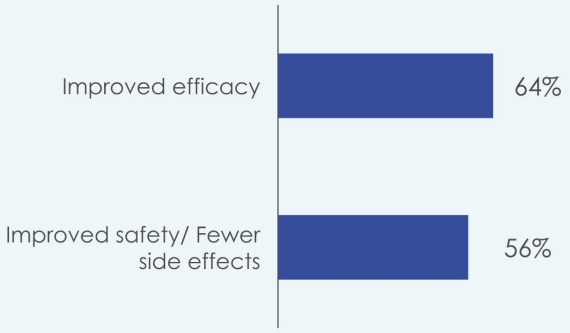


HCPs Report a Need for More Effective and Safer Anti-Seizure Medications for Other DEEs

	Mean # of Seizures Per Week	Mean # of ASMs Per Patient
Dravet	12	3.4
LGS	19	3.5
TSC	6	3.0
CDD	13	2.9
Other DEEs	**13**	**3.2**

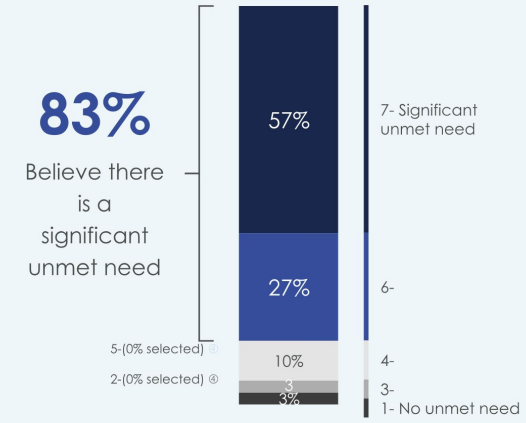
Unmet Needs for Patients with Other DEEs

Among those who treat patients with other DEEs (not "Approved 4")



Caregivers Report Challenges Accessing Newer ASMs – A Tremendous Unmet Need for Broad Indication Remains

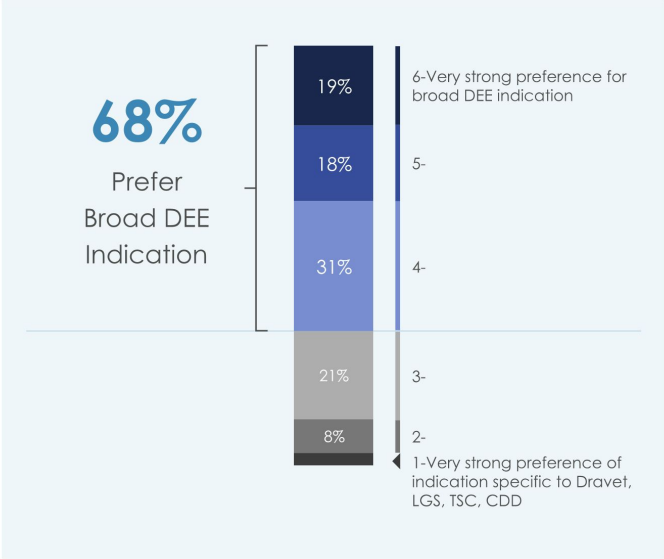
Unmet Need for New ASM Approved to Treat a Broad Range of DEE Types

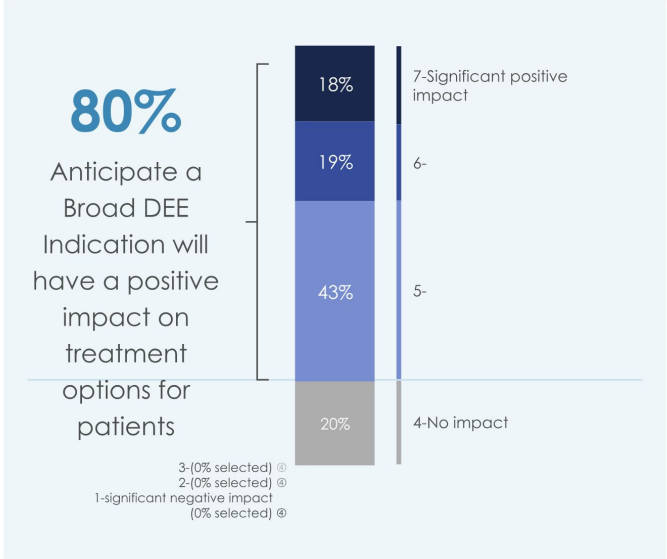


Finally, some **hope for equity of access** to a range of treatments – feels like our kids matter."

– Mother to 10-year-old with SCN2A/SCN8A related epilepsies who has 4 seizures per week

HCPs Prefer LP352 with a Broad DEE Indication, and Anticipate This Will Positively Impact DEE Patients' Treatment Options

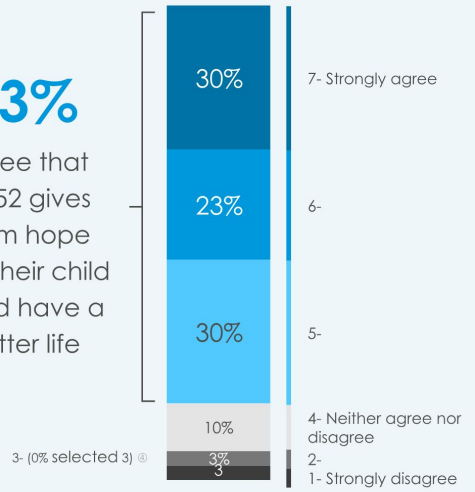




Nearly All Caregivers React Positively to Broad LP352 Profile and Would Ask Their HCP About It; LP352 Gives Hope of a Better Life

83%

Agree that LP352 gives them hope that their child could have a better life



"It would **get my hopes up** that maybe this would be the medication that would work for her."

– Mother to 11-year-old with KCNT1-related epilepsies who has multiple seizures per day

Multiple Potential "Ways to Win"

- Expand market to address significant unmet need across "Other DEE" patients
- Broaden market in "Approved 4" DEE's with preferred safety and burden profile
- Capture market share in "Approved 4" with best-in-class profile (safety, efficacy, burden)

Key Messages for LP352

1

Tremendous unmet need exists in the treatment of DEEs - both for the 4 DEEs with recently approved novel therapeutics and the broader DEE population

2

Polytherapy continues to be SOC for DEE patients and a safer, efficacious, less burdensome (no echocardiograms) 5HT2C will be highly desired by patients, HCPs and caregivers

3

Potential >$Billion, best-in-class molecule with differentiated selectivity & specificity – significant benefits over currently available therapies and expand the market to a broader population

Near-term value creation opportunity – PACIFIC Data

Robust patent protection on LP352 COM through 2041*

*Composition of matter through 2036 with potential for PTE / PTA (2041)

Q&A

LBPH Investor & Analyst Event 2023
Thank you to our attendees!

IR@LONGBOARDPHARMA.COM