LONGBOARD PHARMACEUTICALS

Corporate Presentation

APRIL 15, 2024

Forward-Looking Statements and Other Legal Notices

This presentation contains forward-looking statements about Longboard Pharmaceuticals, Inc. ("we," "Longboard" or the "Company"), including statements regarding: our vision; commercial opportunities and analogs; anticipated milestones and timing; the prevalence of, unmet need associated with, and market opportunity for, DEEs; the potential of a broad DEE indication and a broad-spectrum ASM; the potential of bexicaserin (LP352) (including to be best-in-class, to satisfy unmet need, to be a safer, efficacious, and less burdensome therapy, to have differentiated selectivity and specificity, to expand the market to a broader population, to limit adverse events, including those associated with activity at certain receptors, 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 change the DEE landscape, to provide the cornerstone to build a world-class epilepsy franchise, and to expand, broaden or capture market share); plans regarding a global Phase 3 program for bexicaserin (including the approach, characteristics and timing for such a program); the product profile sampled with HCPs and caregivers; the potential of LP659 (including to be best-in-class or a market leader, to address multiple neurological disorders, to have strong scientific rationale, to be commercially attractive, to have greater selectivity and internalization-based signaling, and to limit off-target effects); expectations and objectives regarding the Phase 1 SAD study for LP659 (including regarding the timing of topline data, the number of participants, and key study objectives); LP659 indication assessment; 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", "plan", "anticipate", "expect", "believe", "potential", "goal", "opportunity" and similar words.

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Certain information contained in or that may orally accompany this presentation relate to or are based on studies, research, publications, surveys and other data obtained from third-party sources and our own internal estimates and research. While we believe 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 we make no representations as to the adequacy, fairness, accuracy or completeness of any information obtained from third-party sources.

This presentation discusses product candidates (bexicaserin and LP659) that have not yet been approved for marketing by the U.S. Food and Drug Administration (the "FDA") or any other regulatory authority.

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 targets

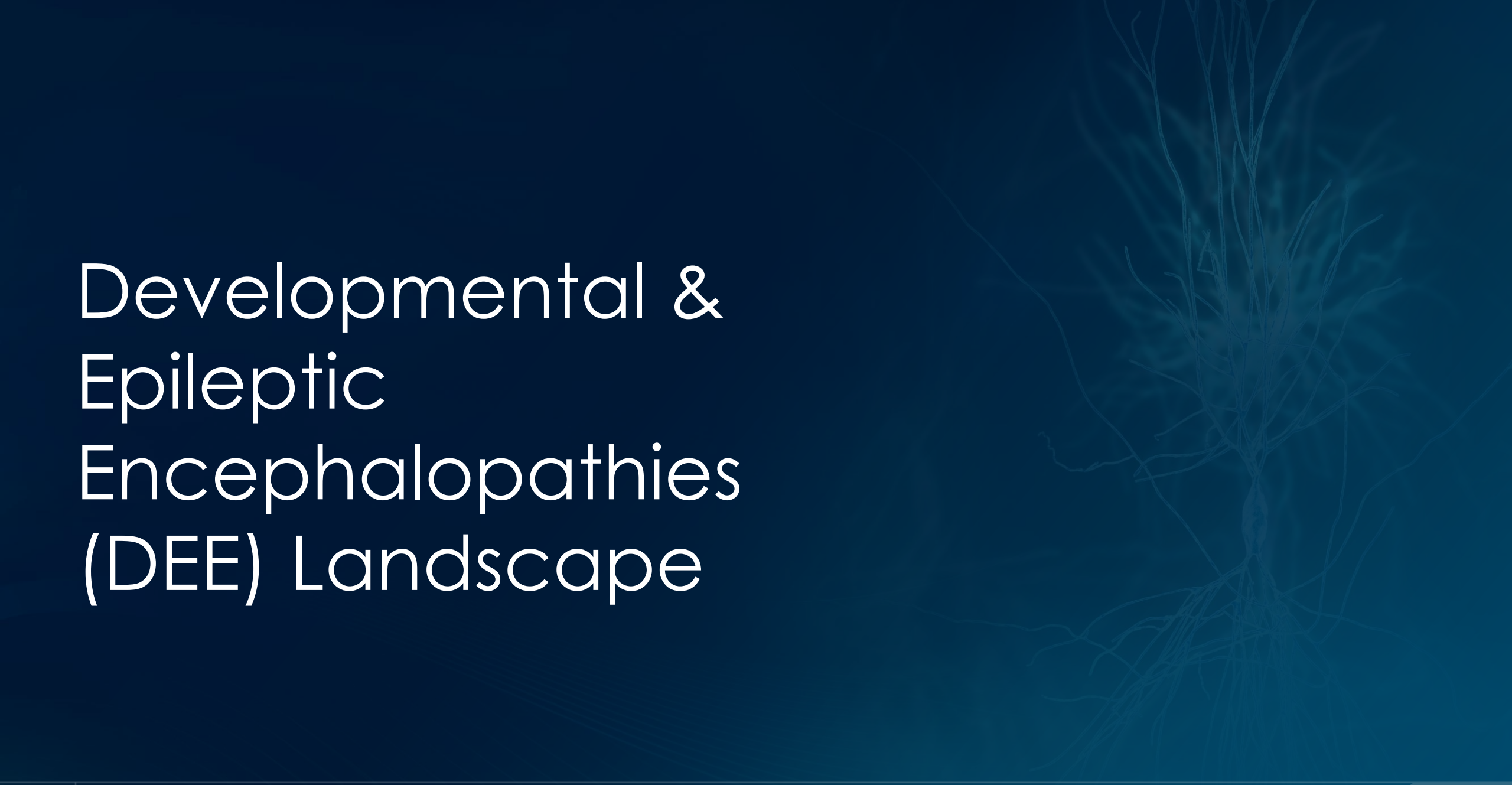
Longboard's Potentially Best-in-Class Product Candidates*

Program	MOA	Therapeutic Area	Preclinical	Ph I	Ph II	Ph III	Anticipated Milestones
Bexicaserin (LP352)	5-HT2C Superagonist	DEEs and other refractory epilepsies					✓ PACIFIC Study Topline Data – Q1 2024 ✓ PACIFIC Data at medical meetings – Q2 2024 • PACIFIC OLE Data – H2 2024 • Global Ph 3 Program Initiation – by YE 2024
LP659	S1P Receptor Modulator	Multiple neurological diseases					✓ Ph 1 Initiation – Q4 2023 • Ph 1 Single-Ascending Dose Data – Q2 2024

- We hold rights to other product candidates*
- We are eligible to receive royalties of 9.5% - 18.5% on sales of lorcaserin if approved for commercialization**

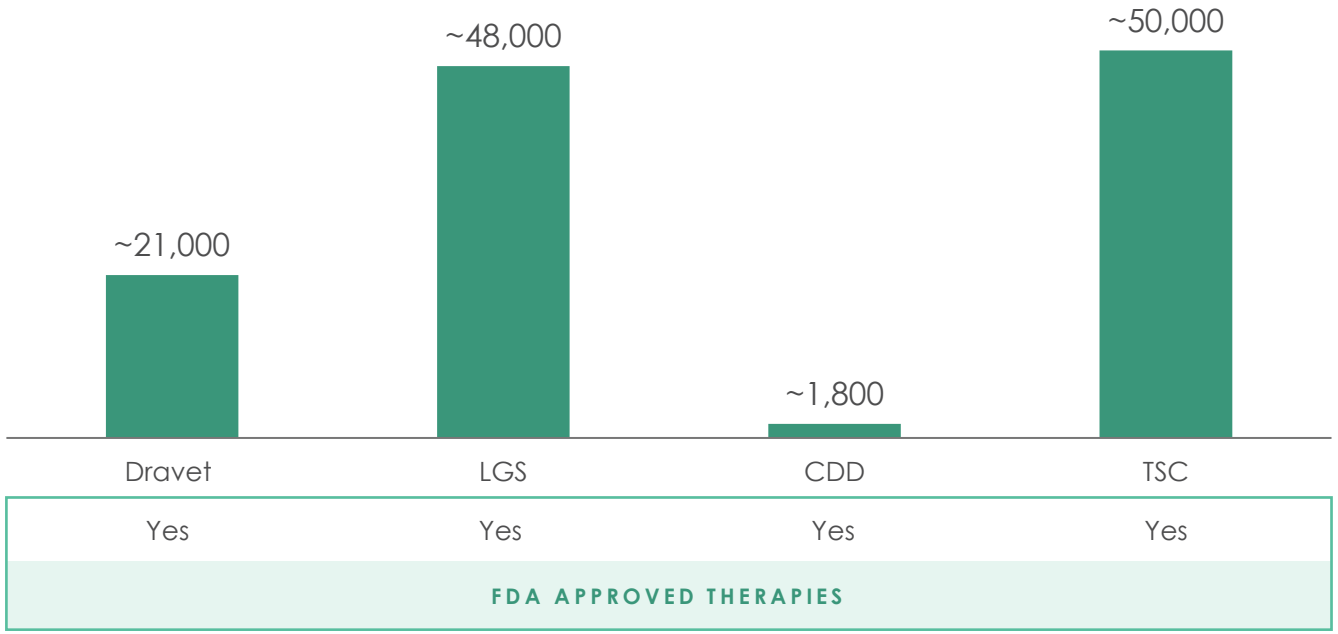
* Through a License Agreement with Arena
** Through a Royalty Purchase Agreement with Arena
Definitions: DEEs=developmental and epileptic encephalopathies; S1P=sphingosine 1-phosphate; PK=pharmacokinetics; PD=pharmacodynamics; EEG=electroencephalogram; OLE=Open-Label Extension

Developmental & Epileptic Encephalopathies (DEE) Landscape



4 DEE Syndromes Have Approved Therapies; 20+ Have None

"Approved 4" DEE Prevalence (US)



Other DEEs

- DUP15q Syndrome
- SCN2A-DEE
- SCN8A-DEE
- KCNQ2-DEE
- KCNQ3-DEE
- Angelman Syndrome
- Landau-Kleffner Syndrome
- Early Myoclonic Encephalopathy
- KCNT1-DEE
- SynGAP1-DEE
- Rett Syndrome
- Ohtahara Syndrome
- PCDH19
- EE w/ Continuous Spike-Wave
- 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

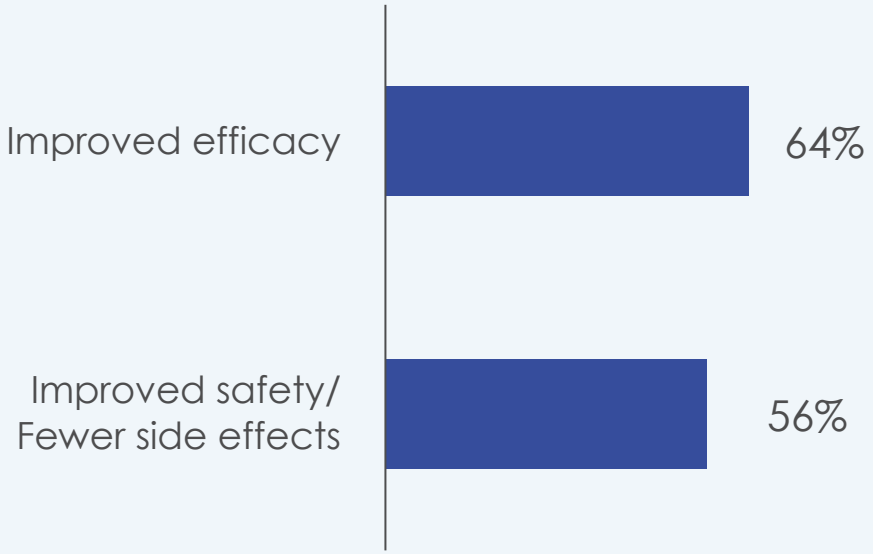
Sources: Dravet Syndrome Foundation, LGS Foundation
Definitions: LGS = Lennox-Gastaut Syndrome, CDD = CDKL5 Deficiency Disorder, TSC = Tuberous Sclerosis Complex; DEE = Developmental and Epileptic Encephalopathy

Surveyed 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

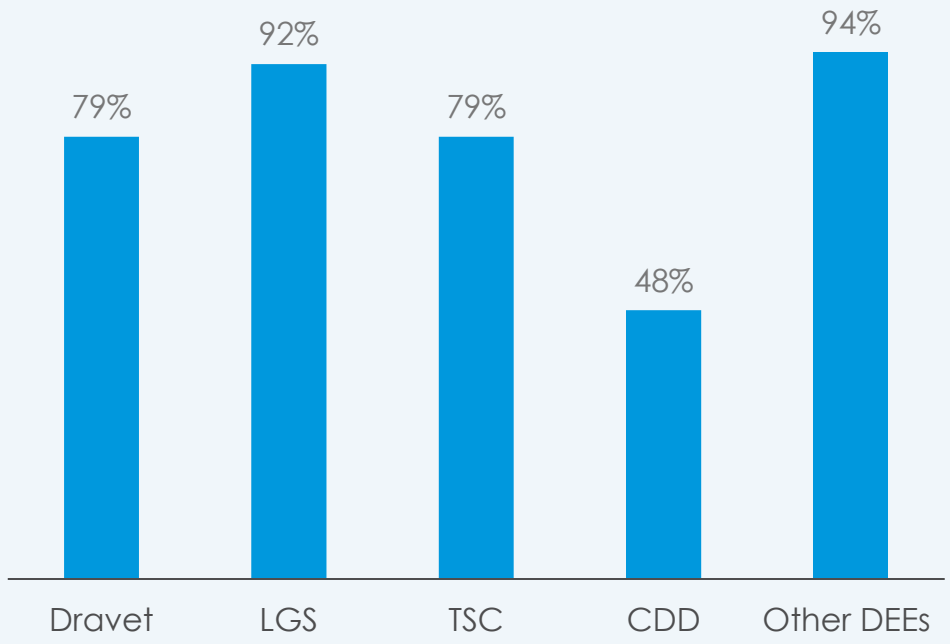
Among those who treat patients with other DEEs (not "Approved 4")



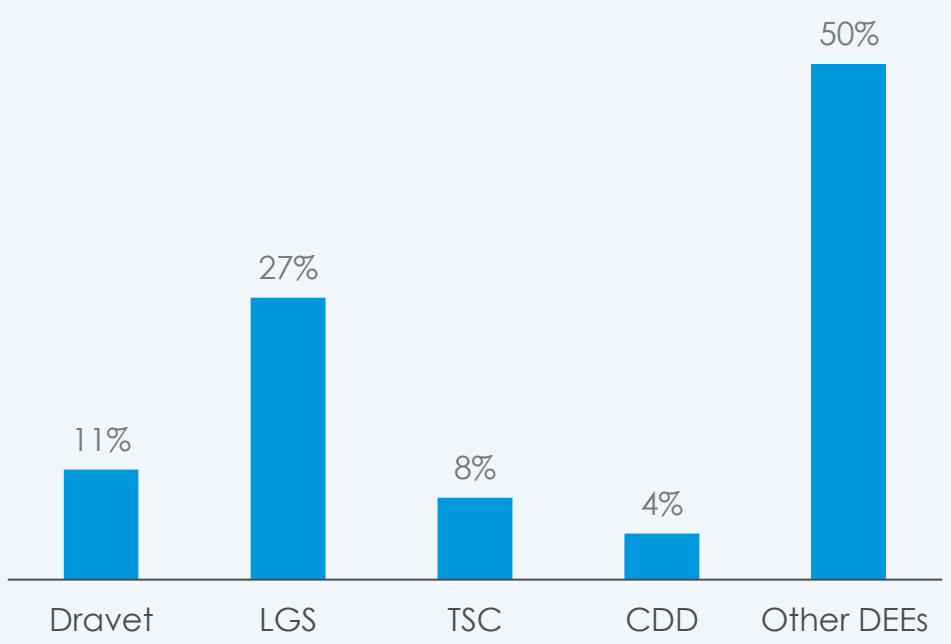
Based on Longboard sponsored third-party qualitative and qualitative market research studies involving physicians specializing in neurology or epileptology.
See slide 30 for more information about the studies.

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

DEE Types Treated in the Past 12 Months



Percent of Patients with DEE Type



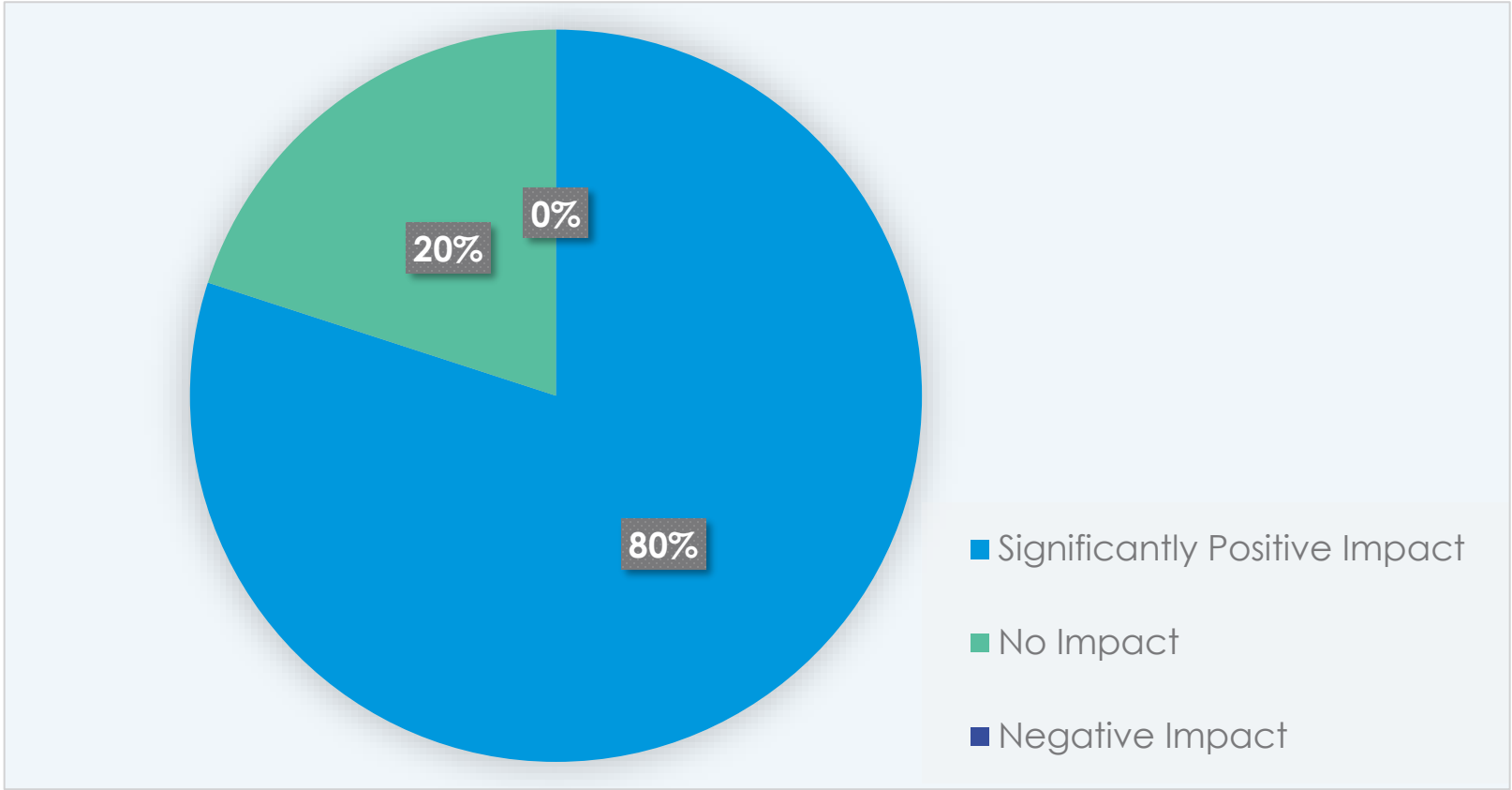
Based on Longboard sponsored third-party qualitative and qualitative market research studies involving physicians specializing in neurology or epileptology.
See slide 30 for more information about the studies.

Surveyed HCPs Prefer a Highly Selective 5-HT2C Agonist* with a Broad DEE Indication, and Anticipate This Will Positively Impact DEE Patients' Treatment Options

80%

Anticipate a Broad DEE Indication will have a positive impact on treatment options for patients

0% Believe it would have a negative impact



Based on Longboard sponsored third-party qualitative and qualitative market research studies involving physicians specializing in neurology or epileptology. See slide 30 for more information about the studies.
*Survey sampled product profile for the 5-HT2C agonist that included an efficacy of 37-44% reduction in countable motor seizure frequency and generally well tolerated with BID dosing

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

(2027)

≥€800M

Epidiolex

Sales Estimate[4]

(2025)

>$1B

Fintepla

2023 Sales[2]

$226M

Epidiolex

2023 Sales[3]

$846M

1) Longboard and third-party research 2022 – projections for 2040 for US + EU4/UK, 2) UCB FY 2023 Earnings Release and presentation dated February 28, 2024, 3) Jazz Pharmaceuticals FY 2023 Earnings Release dated February 28, 2024, 4) Jazz Corporate Overview August 2023

Bexicaserin (LP352)

Potential Best-in-Class 5-HT2C Superagonist - Entering a Ph 3 Program with the Goal of Treating a Broad Range of DEEs

The Potential of Bexicaserin (LP352)

Greater Selectivity and Specificity

- 5-HT2 agonist designed to only bind to the 5-HT2C receptor*
- 5-HT2 agonist - no detected activity at receptors associated with significant adverse side effects: 5-HT2B (valvular heart disease and PAH) & 5-HT2A (psychiatric: insomnia, hallucinations, euphoria)

Preclinical Validation

- 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

Clinical Validation SAD/MAD in Healthy Volunteers

- 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

Clinical Validation CSF/EEG ** in Healthy Volunteers

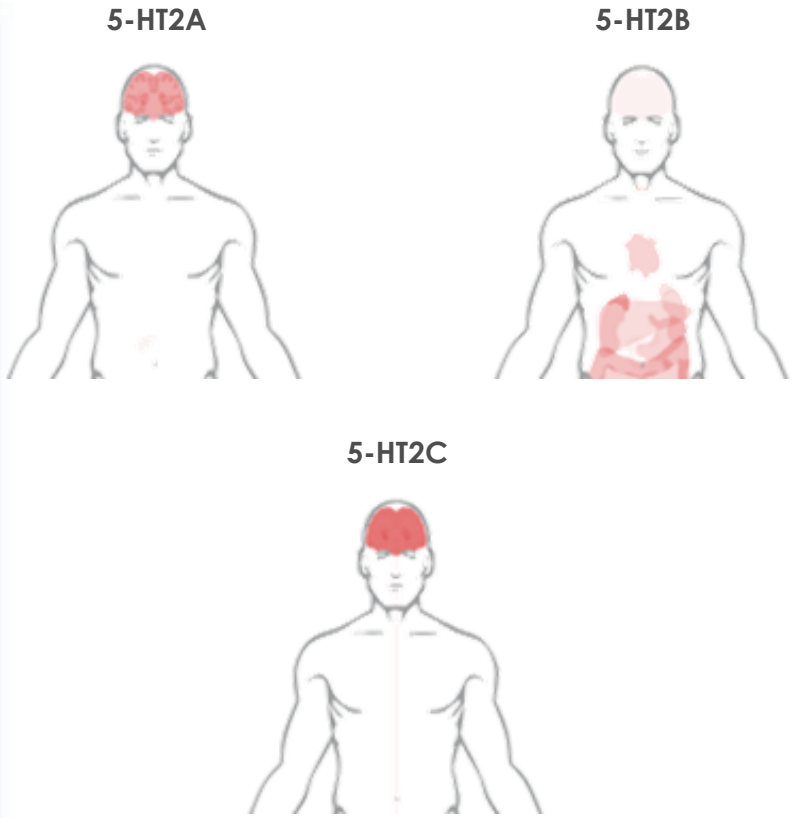
- Favorable safety & tolerability results observed, AEs generally consistent with previous studies
- Plasma & CSF PK concentration increased in a dose dependent & consistent manner
- Effects on qEEG activity within first few dose(s)
- Sustained dose-dependent effects on qEEG activity after continuous dosing, thus indicating receptor engagement

IP protection on Composition of Matter up to 2041* provides the opportunity to maximize the full potential of bexicaserin**

*Radioligand binding assays assessing >150 targets showed significant affinity only to 5-HT2C receptors
** Based on first two cohorts from the 102 study
***Composition of matter through 2036 with potential for PTE / PTA (2041)
Definitions: PAH = pulmonary arterial hypertension; AEs = adverse events; CSF = cerebrospinal fluid

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

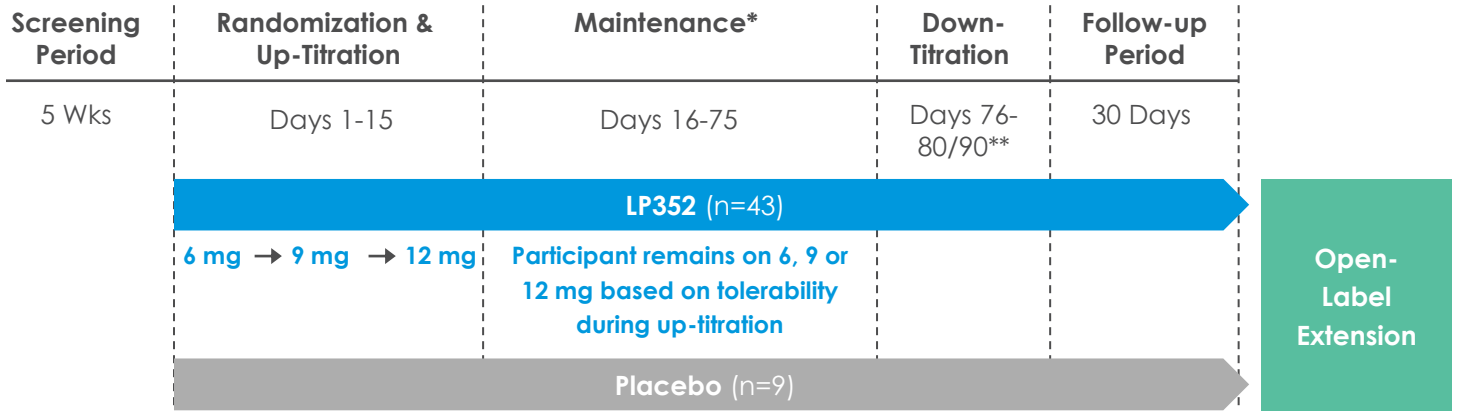
	Serotonin Receptor Subtype	EC_{50}, nM	Ki, nM	Potential Adverse Events Per Receptor Subtype
Bexicaserin (LP352) 5-HT2C Superagonist	**5-HT2C**	**~120**	**~50**	CNS, GI
	5-HT2B	Not detectable	Not detectable	n/a
	5-HT2A	Not detectable	Not detectable	n/a
Nordexfenfluramine (an active metabolite of fenfluramine)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



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
Graphic source: Human Protein Atlas

PACIFIC Study Topline Data

Bexicaserin (LP352) Ph 1b/2a PACIFIC Study in Participants with DEEs



Key Inclusion Criteria:

- DEEs with average of ≥ 4 motor seizures per 4-week period during the 12 weeks prior to screening and ≥ 4 motor seizures in the 4-week period 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:** 34 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, pharmacokinetics and efficacy of bexicaserin

Study Objectives:

Evaluate reduction in countable motor 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 bexicaserin (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
Definitions: LGS = Lennox-Gastaut Syndrome, CDD = CDKL5 Deficiency Disorder

PACIFIC Study Enrollment Summary

PACIFIC
Developmental and Epileptic Encephalopathies Study

52

Participants randomized

42
US

10
AUS

Adult/Pediatric participants

Range: 12-55

Mean: 24.3 / Median: 23.0

40
Adult
(18+)

12
Peds
(12-17)

Diagnosis

Dravet: 4

LGS: 29

Other DEE*: 19

*The diagnosis was at time of screening for PACIFIC and is subject to further refinement

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

PACIFIC Developmental and Epileptic Encephalopathies Study

All participants: 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 Syndrome	LGS	DEE Other
Onset	Between 3–19 months of age	Before 8 years of age	Unprovoked seizures before 5 years of age
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

Bexicaserin Has the Potential to Change the DEE Landscape

In the Phase 1b/2a PACIFIC Study

↓ 59.8%

Median Reduction in Seizures*

- **74.6% ↓ Dravet**
- **50.8% ↓ LGS**
- **65.5% ↓ DEE Other**

- **Bexicaserin provides the cornerstone to potentially build a world-class epilepsy franchise**
- Studies to date highlight bexicaserin as potentially **best-in-class**
- **Composition of matter IP protection up to 2041**** provides the opportunity to maximize the full potential of LP352
- Moving forward into a **global Phase 3 program by YE 2024**

*Not statistically significant
**Composition of matter through 2036 with potential for PTE / PTA (2041)

Topline Participant Disposition & Safety Results Summary

Demographics, Baseline Characteristics & Concomitant Medications

Parameter n(%)	Statistics	Bexicaserin (n=43)	Placebo (n=9)	Overall (N=52)
Age (Years)	Mean	23.8	26.7	24.3
	Standard Deviation	9.62	7.73	9.31
	Median	23.0	23.0	23.0
	Min, Max	12, 55	19, 41	12, 55
Sex	Male	21 (48.8)	7 (77.8)	28 (53.8)
	Female	22 (51.2)	2 (22.2)	24 (46.2)
Weight (kg)	Median	55.20	72.76	59.36
	Min, Max	29.2, 96.0	45.8, 110.7	29.2, 110.7
BMI (kg/m^2)	Median	22.4	28.1	23.0
	Min, Max	17, 35	19, 34	17, 35
Baseline Countable Motor Seizures (Median)*	per 28-day period	40.0	24.1	38.2
Concomitant Medications**	Clobazam	21 (48.8)	2 (22.2)	23 (44.2)
	Cannabidiol	14 (32.6)	3 (33.3)	17 (32.7)
	Lamotrigine	13 (30.2)	4 (44.4)	17 (32.7)
	Levetiracetam	16 (37.2)	1 (11.1)	17 (32.7)

*Baseline seizure variability was expected and within a normal range compared to other clinical trials in the DEE space
**Represents some of the most common concomitant medications

Participant Disposition

n(%)	Overall		Dravet Syndrome		Lennox-Gastaut Syndrome (LGS)		DEE Other	
	Bexicaserin	Placebo	Bexicaserin	Placebo	Bexicaserin	Placebo	Bexicaserin	Placebo
Safety Set	43 (100)	9 (100)	4 (9.3)	0	24 (55.8)	5 (55.6)	15 (34.9)	4 (44.4)
Full Analysis Set	35 (81.4)	9 (100)	3 (7.0)	0	17 (39.5)	5 (55.6)	15 (34.9)	4 (44.4)
Participants Completed	32 (74.4)	9 (100)	3 (7.0)	0	15 (34.9)	5 (55.6)	14 (32.6)	4 (44.4)
Participants Discontinued	11 (25.6)	0	1 (2.3)	0	9 (20.9)	0	1 (2.3)	0
Adverse Event	9 (20.9)	0	1 (2.3)	0	7 (16.3)	0	1 (2.3)	0
Consent withdrawn	1 (2.3)	0	N/A	N/A	1 (2.3)	0	N/A	N/A
Lost to follow-up	1 (2.3)	0	N/A	N/A	1 (2.3)	0	N/A	N/A

Note: Percentages are based on the number of participants in the Enrolled (Safety) Set
Safety Set includes all participants who signed informed consent or those who had their legally authorized representative sign for them
Full Analysis Set includes all participants in the Safety Set who complete Part 1 (titration) and have at least 1 post-baseline seizure measurement during Part 2 (maintenance)
Efficacy analysis was on the Full Analysis Set includes all participants in the Safety Set who complete Part 1 (titration) and have at least 1 post-baseline seizure measurement during Part 2 (maintenance)

Safety Results Summary

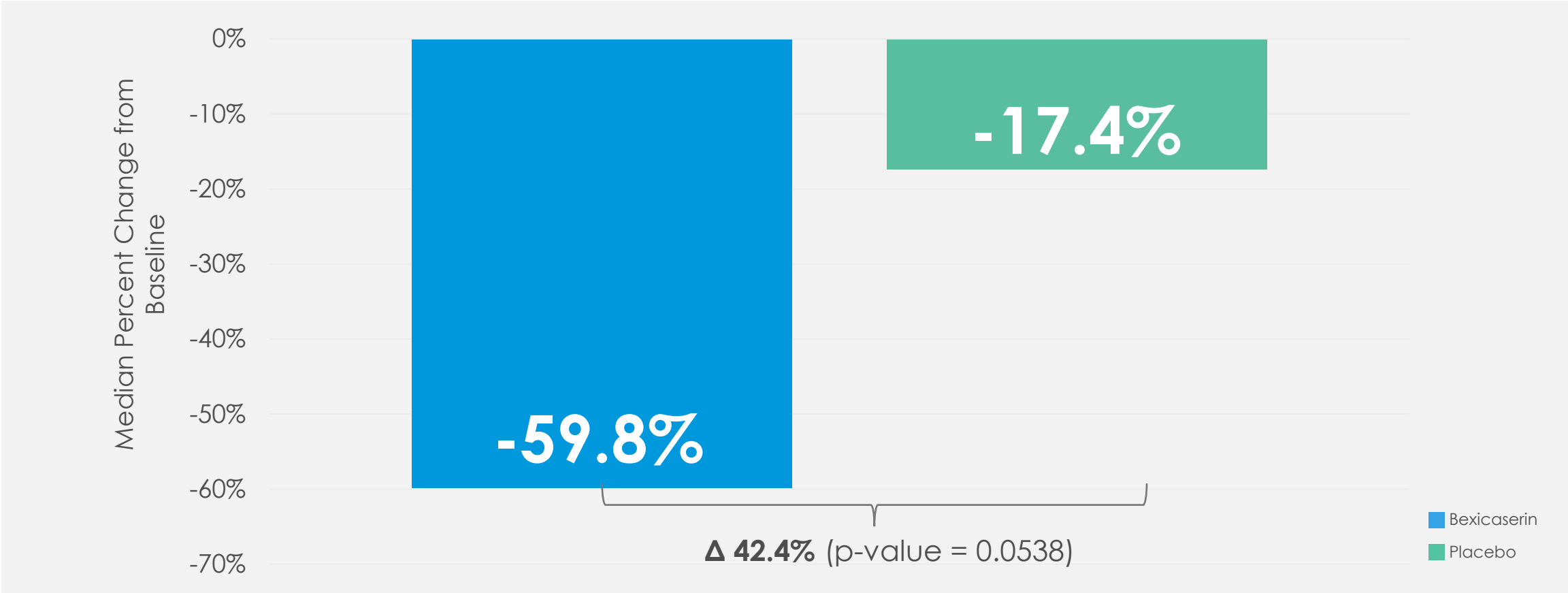
n(%)	Bexicaserin (LP352) (n=43)	Placebo (n=9)	Overall (N=52)
Participants with any TEAEs	35 (81.4)	8 (88.9)	43 (82.7)
Drug-Related TEAEs	28 (65.1)	3 (33.3)	31 (59.6)
TEAEs Leading to Discontinuation	9 (20.9)	0	9 (17.3)
TEAEs Leading to Discontinuation (Titration)	7 (16.3)	0	7 (13.5)
TEAEs Leading to Discontinuation (Maintenance)	2 (4.7)	0	2 (3.8)
Participants with any SAEs	3 (7.0)	0	3 (5.8)
Number of Deaths	0	0	0

- The most common AEs observed were somnolence, decreased appetite, constipation, diarrhea and lethargy
- SAEs were ankle fracture, constipation and increased seizures
- Vast majority of participants stayed on bexicaserin once they achieved the maintenance phase
- **Favorable safety and tolerability results**

Definitions: TEAE = Treatment Emergent Adverse Event; SAE = Serious Adverse Event, AE = Adverse Event

Topline Efficacy Results

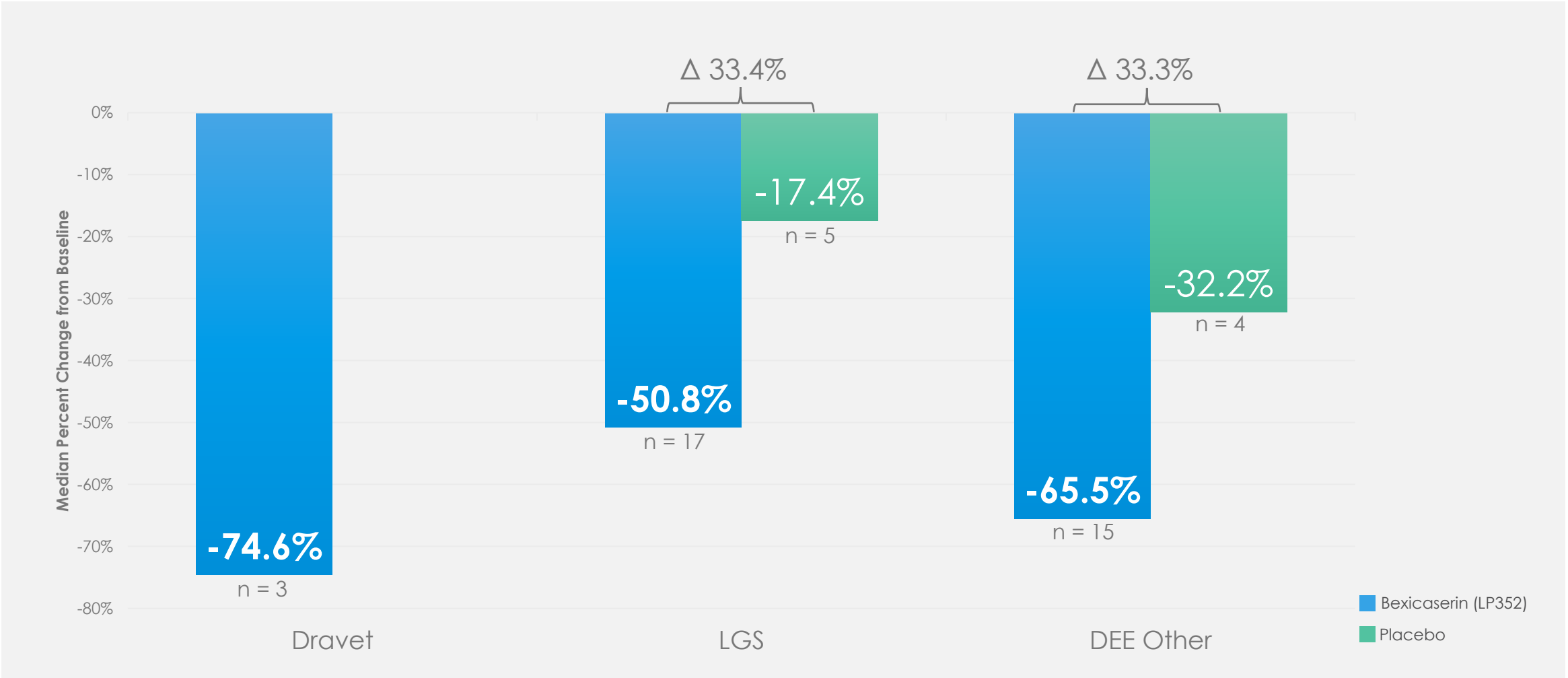
Bexicaserin Achieved Median Observed Countable Motor Seizure Reduction of 59.8% vs. 17.4% Placebo Across the DEE Study Population



Bexicaserin Achieved Placebo Adjusted Mean Seizure Reduction of 51.9% (p-value = 0.0206, post-hoc exploratory analysis)

DEE, Developmental and Epileptic Encephalopathies.
Reference: Data on file.

Bexicaserin Achieved Median Seizure* Reduction Across Dravet, LGS, DEE Other Cohorts



*Countable Motor Seizures

PACIFIC Results Pave the Way for Global Phase 3 Program

Bexicaserin (LP352) achieved a median percent reduction from baseline in seizure frequency during the treatment period of:

- **59.8%** in broad DEE population (42.4% placebo-adjusted)
- **74.6%** in Dravet cohort
- **50.8%** in LGS cohort (33.4% placebo-adjusted)
- **65.5%** in DEE Other cohort (33.3% placebo-adjusted)

Results were shown on top of a contemporary polytherapy background with multiple ASMs including cannabidiol (**32.7% of participants were receiving cannabidiol**)

Favorable safety and tolerability results

- **No echocardiograms required** in PACIFIC study
- Metabolized via UGT pathway – potentially reduces risk of Drug-Drug Interactions
- 86% of participants achieved the highest dose of 12 mg of bexicaserin in the maintenance period

100% of PACIFIC participants who completed the study **entered the Open Label Extension Study**

*Definitions: ASMs = Anti-Seizure Medications; UGT = Uridine Diphosphate Glucuronosyltransferase

Bexicaserin Phase 3 Global Program - Potential Paths Forward

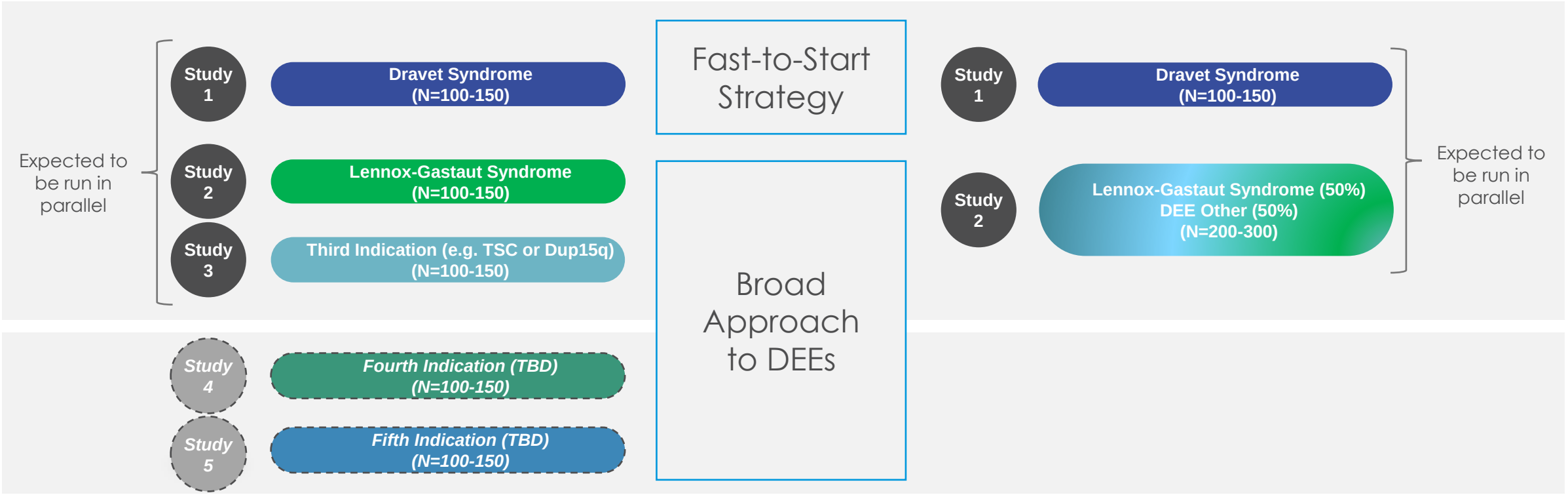
Subject to Discussion with Regulatory Agencies

Option 1: Individual DEEs

(Standard Approach)

Option 2: Pursue Broad DEE

(Accelerated Approach to Study DEEs Broadly)



Planned Study Parameters:

Primary Endpoint: Reduction in Countable Motor Seizures

Ages: ≥ 2 to ≤ 65 yrs old (weight-based dosing for pts of lower weight/age)

Sites: ~80 sites across the US, AUS, EU, other potential regions

Open-Label Extension (OLE): Participants who complete any of Ph 3 studies are eligible to enter a 52-week OLE

Indicates to be determined at a later date

Commercial Opportunity for Bexicaserin (LP352)

Potential Best-in-Class Profile Provides Multiple "Ways to Win"

Expand market to address significant unmet need across "Other DEE" patients

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

Broaden market in "Approved 4" DEEs with preferred safety and burden profile

Validating Continued Unmet Need in DEEs and Potential Of Bexicaserin (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 DEEs** in the past 12 months
- Familiar with **Fintepla** and **Epidiolex**

Epileptologists = 5 (4 peds, 1 adult)

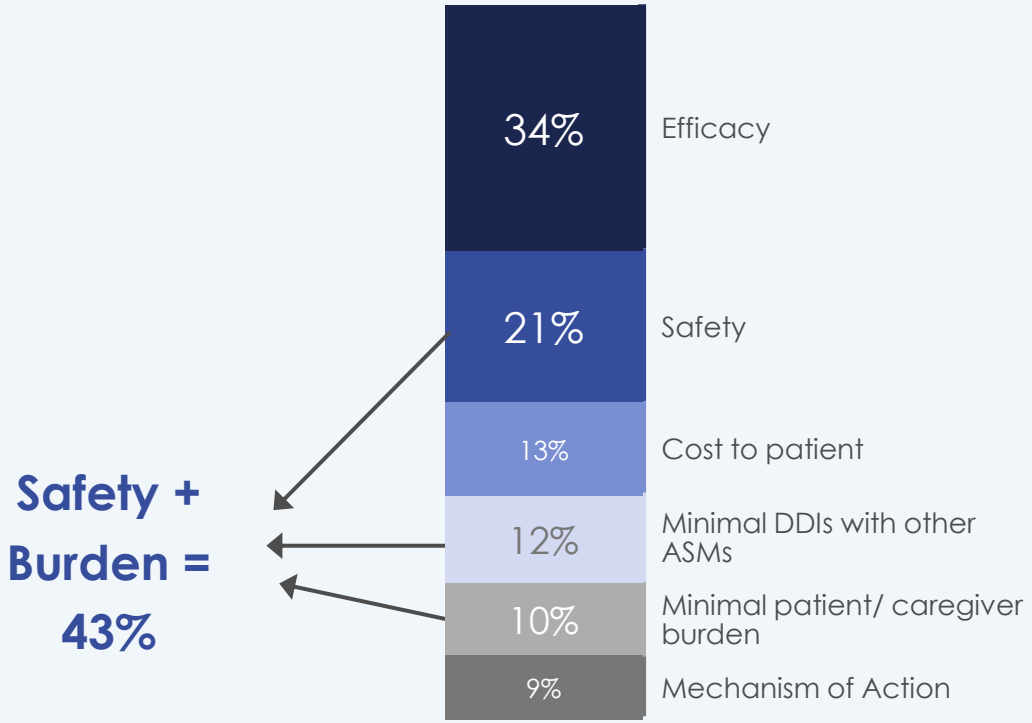
Neurologists = 15 (13 peds, 3 adult)

HCP = Health care providers
Based on Longboard sponsored third-party qualitative and qualitative market research studies involving physicians specializing in neurology or epileptology. 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

Surveyed 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*

Based on Longboard sponsored third-party qualitative and qualitative market research studies involving physicians specializing in neurology or epileptology. See slide 30 for more information about the studies.
*Survey sampled product profile for the 5-HT2C agonist that included an efficacy of 37-44% reduction in countable motor seizure frequency and generally well tolerated with BID dosing

LP659

Centrally Acting, Highly Selective Sphingosine-1-Phosphate (S1P) Receptor Modulator Targeting Multiple Neurological Diseases

LP659 Potential Best-in-Class S1P Receptor Modulator with Broad Applicability

STRONG SCIENTIFIC RATIONALE

- ✓ Centrally acting S1P receptor modulator
- ✓ Rapid onset & offset of action
- ✓ Highly selective to S1PR1,5
- ✓ No impact on S1PR2,3 in preclinical models
- ✓ High oral bioavailability with direct impact on CNS glial cell S1P receptors

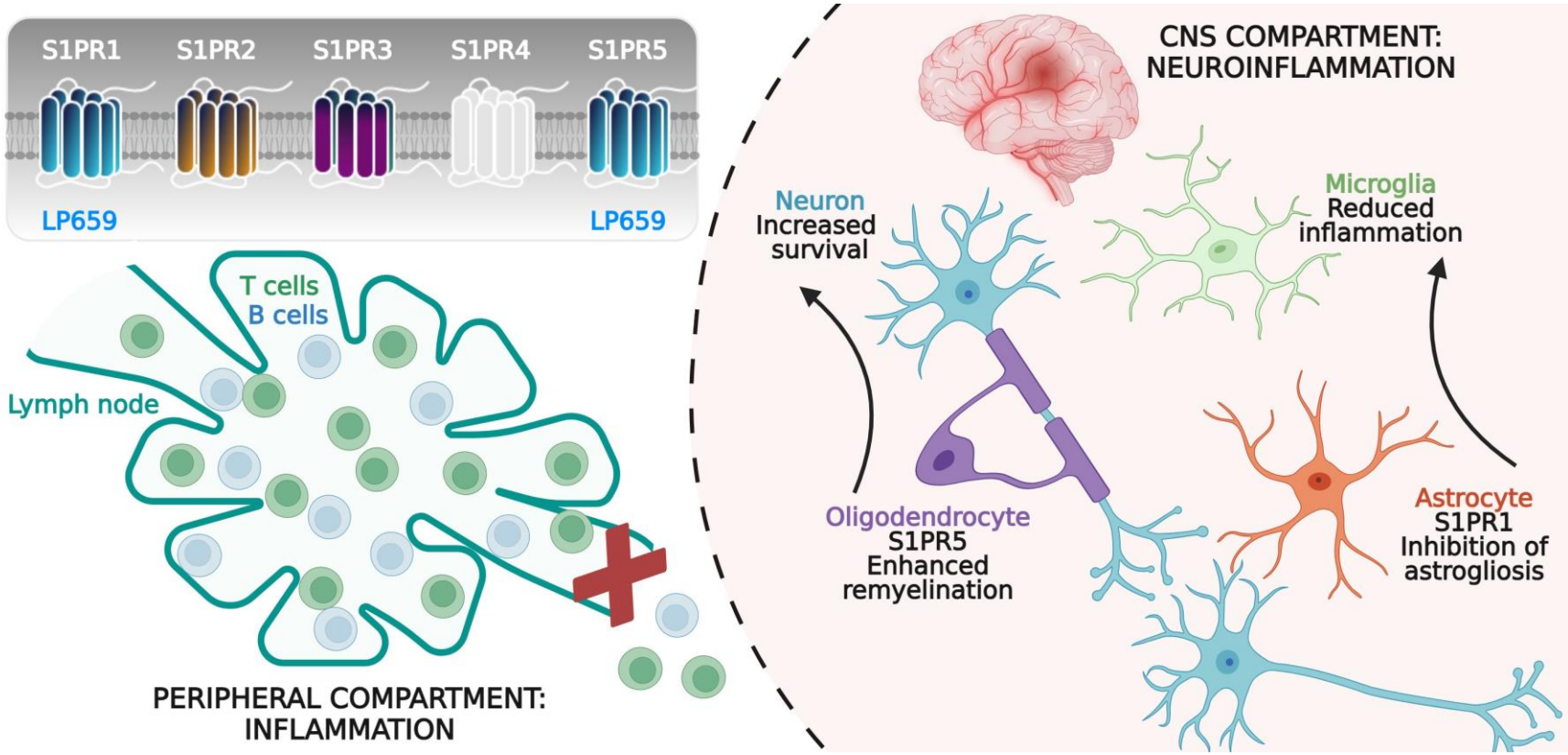
COMMERCIALLY ATTRACTIVE

- ✓ S1P receptor modulators have generated billions of dollars of revenues in CNS indications
- ✓ Designed to potentially address multiple neurological disorders
- ✓ Opportunity for market leadership in S1P receptor modulation in CNS

S1PR1 Modulation Selectively Reduces Migration of Lymphocytes From Lymph Nodes

Treatment with S1P Receptor Modulator

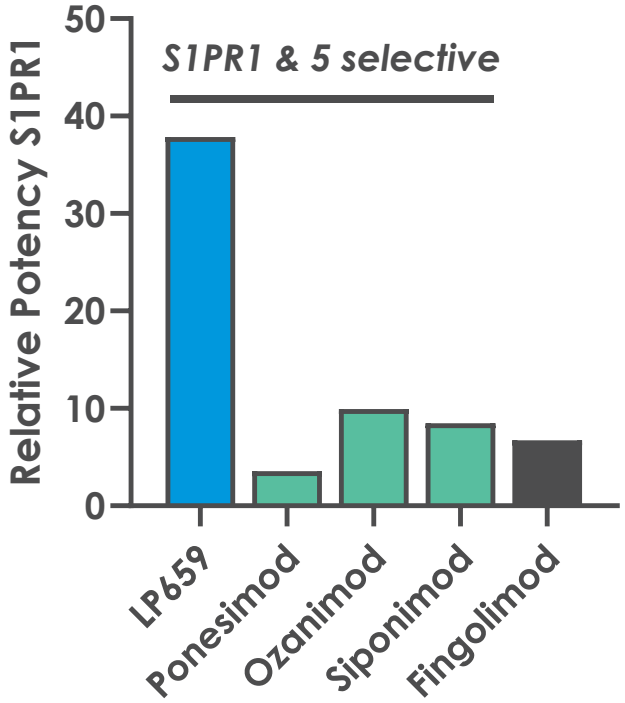
- Functionally antagonizes S1PR1 by inducing receptor internalization and degradation, disrupting normal lymphocyte subset egress
- Decreases release of inflammatory cytokines and reduce organ/tissue damage
- Maintains immune surveillance
- Functional antagonism of S1PR1 receptor in astrocytes expected to attenuate neuroinflammation



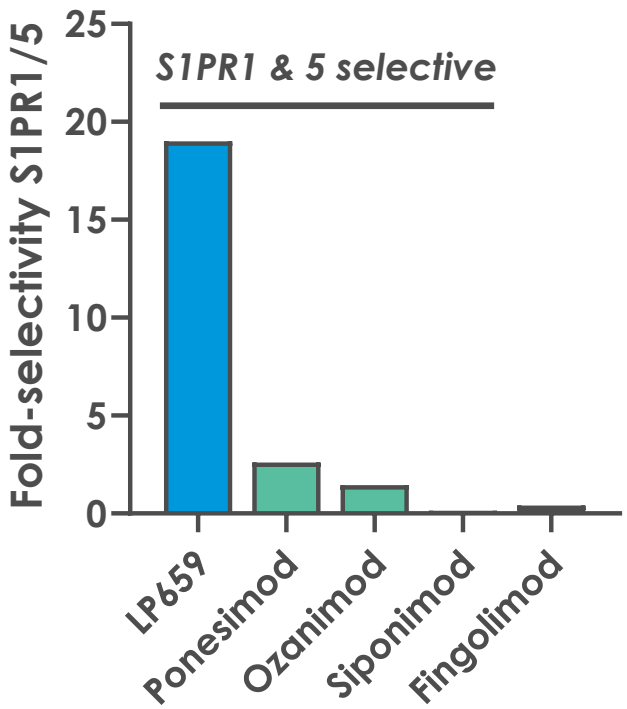
Sources: Chun, Drugs 2021 (81:207–231) https://doi.org/10.1007/s40265-020-01431-8; Appel, www.co-neurology.com Wolters Kluwer Health, Inc. 2021(Volume 34, Number 5)
Created with BioRender.com

LP659 Designed to be a Potentially Next Generation Centrally-Acting S1PR1 Agonist with Greater Selectivity and Internalization-Biased Signaling

Most potent at S1PR1 internalization



Greatest selectivity towards S1PR1 over S1PR5

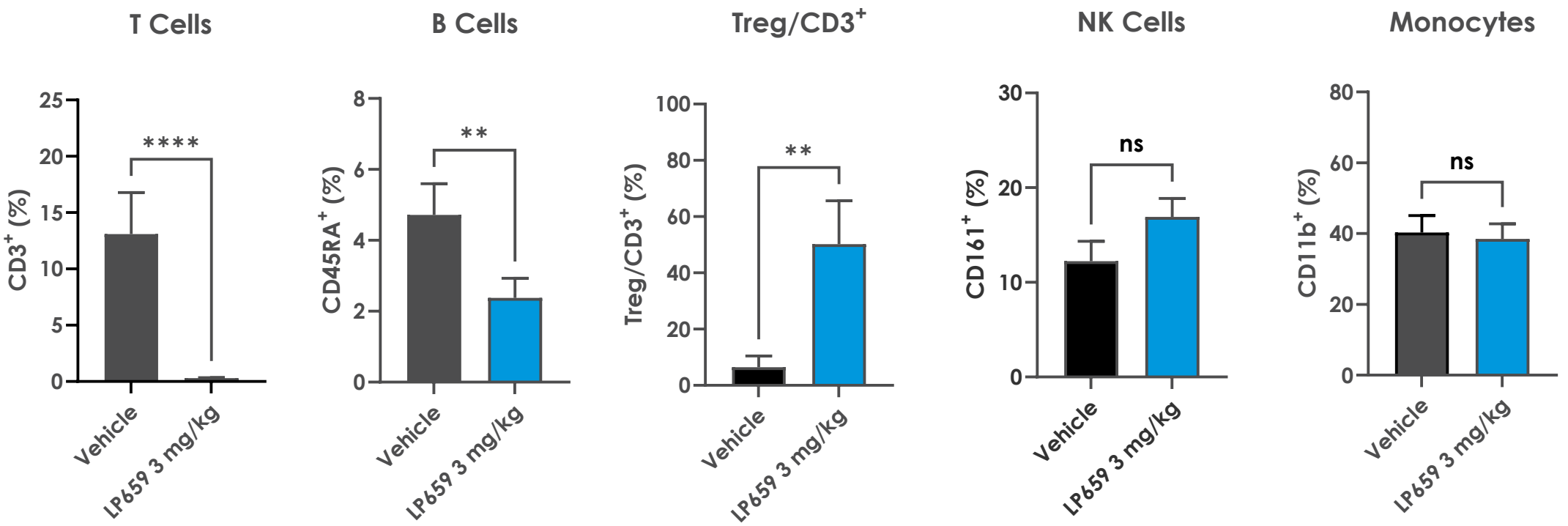


LP659 selectivity may limit off-target effects associated with currently approved S1P receptor modulators

Internal data on file

Modulation of Immune Tolerance Drives Efficacy by LP659

- LP659 potency in vivo parallels T and B cell lowering potential
- Proportion of Tregs over total $CD3^+$ cells is significantly increased by LP659
- No significant effects on NK and monocyte frequencies



LP659 Ameliorated Disease Phenotypes in Multiple Preclinical Models

Disease / MoA	Autoimmune, CNS involvement	Autoimmune, CNS involvement	Autoimmune, PNS involvement	Autoimmune, PNS involvement	Neuro Degenerative
Model	Induced	Induced	Induced	Induced	Genetic
Species	Rat	Mouse	Rat	Rat	Human iPSC
Dosing	Prophylactic	Prophylactic	Prophylactic	Therapeutic	Therapeutic
Activity	+	+	+	+	+
Results	Dose-dependent amelioration of disease severity with parallel reduction of circulating T lymphocytes	Dose-dependent amelioration of disease severity with reduction of T and B cell infiltration, inflammatory markers, and loss of myelin in the spinal cord	Dose-dependent halting of disease progression with reduction of inflammatory cell infiltration and loss of myelin in the sciatic nerve	Blunting of disease severity with corresponding reduction of inflammatory cell infiltration in the sciatic nerve	Dose-dependent rescue of hyperexcitability in control neurons co-cultured with diseased astrocytes

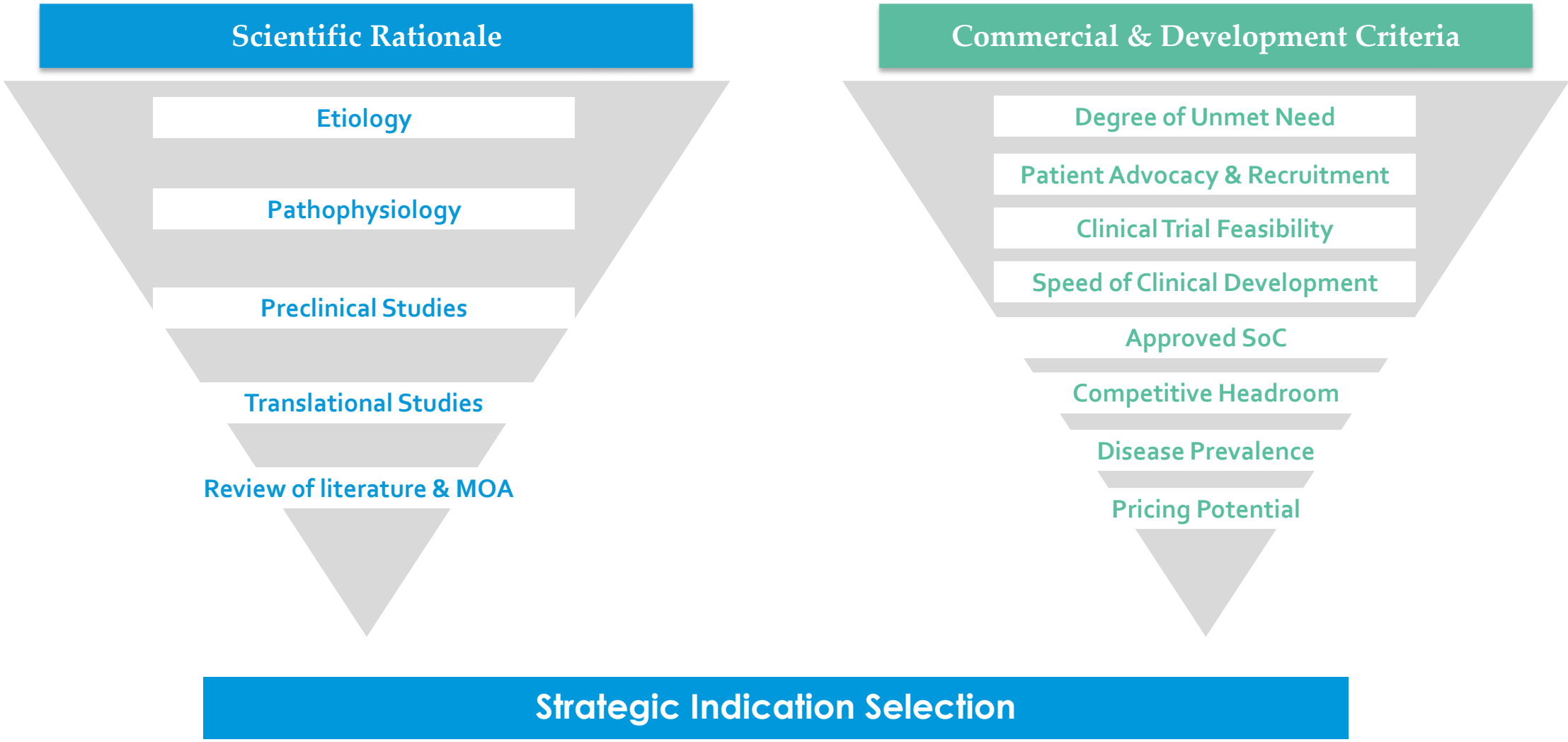
LP659: Phase 1 Single-Ascending Dose (SAD) Study Objectives

First-In-Human, Randomized, Double Blind, Placebo Controlled, SAD Study to Assess the Safety, Tolerability, Pharmacokinetics & Pharmacodynamics of LP659 in up to 48 Adult Healthy Volunteers

Key Study Objectives:

- Assess the safety and tolerability of single ascending doses of LP659
- Determine the PK profile of LP659, and its metabolite(s), in single ascending doses
- Determine PD profile of single ascending doses of LP659

Longboard Indication Assessment Process



Financial Summary & Upcoming Milestones

Cash, Cash Equivalents & Investments

~$272.4 million

As of January 31, 2024

Private Placement

$59.9 million

Completed in March 2024

Shares Outstanding

38.9 million

As of March 28, 2024

Full-Year 2023 Operating Expenses

$56.8 million

- R&D - $43.8 million
- G&A - $13.0 million

As of December 31, 2023

	Key Milestones	Anticipated Timing
Bexicaserin (LP352)	PACIFIC Ph 1b/2a Topline Data in DEE Study	✓ Q1 2024
	PACIFIC Data at medical meetings	Q2 2024
	PACIFIC Open-Label Extension Data	H2 2024
	Global Ph 3 Program Initiation	YE 2024
LP659	Ph 1 Initiation	✓ Q4 2023
	Topline SAD Data	Q2 2024

Multiple clinical and preclinical studies in process to further support the development of bexicaserin & LP659

Thank you

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