REVIVA PHARMACEUTICALS HOLDINGS, INC. (NASDAQ:RVPH)

Corporate Presentation, January 2024

Forward-Looking Statements

This presentation contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 and Private Securities Litigation Reform Act, as amended, including those relating to the Company's 1-year Phase 3 open-label extension (OLE) trial evaluating the long-term safety and tolerability of brilaroxazine, the Company's registrational Phase 3 RECOVER-2 trial, the Company's expectations regarding the anticipated clinical profile of its product candidates, including statements regarding anticipated efficacy or safety profile, and those relating to the Company's expectations, intentions or beliefs regarding matters including product development and clinical trial plans, clinical and regulatory timelines, planned or intended additional trials and the timing thereof, planned or intended regulatory submissions and the timing thereof, trial results, market opportunity, ability to raise sufficient funding, competitive position, possible or assumed future results of operations, business strategies, potential growth, financing, partnership, expansion and other opportunities and other statements that are predictive in nature. These forward-looking statements are based on current expectations, estimates, forecasts and projections about the industry and markets in which we operate and management's current beliefs and assumptions. These statements may be identified by the use of forward-looking expressions, including, but not limited to, "expect," "anticipate," "intend," "plan," "believe," "estimate," "potential," "predict," "project," "should," "would" and similar expressions and the negatives of those terms. These statements relate to future events or the Company's financial performance and involve known and unknown risks, uncertainties, and other factors, including the potential impact of the COVID-19 pandemic and the potential impact of sustained social distancing efforts, on the Company's operations, clinical development and clinical trial plans and timelines, which may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Such factors include those set forth in the Company's most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2022, and the Company's other filings from time to time with the Securities and Exchange Commission (the "SEC"). Prospective investors are cautioned not to place undue reliance on such forward-looking statements, which speak only as of the date of this presentation. The Company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.

The Company's SEC filings are available on the SEC's website at www.sec.gov. Given these uncertainties, you should not place undue reliance on these forward-looking statements, which apply only as of the date of this presentation and should not be relied upon as representing the Company's views as of any subsequent date. The Company explicitly disclaims any obligation to update any forward-looking statements, other than as may be required by law. If the Company does update one or more forward-looking statements, no inference should be made that the Company will make additional updates with respect to those or other forward-looking statements.

This presentation also contains estimates and other statistical data made by independent parties and by the Company relating to market size and growth and other data about the Company's industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates.

Key Business Highlights

Company Overview

Late-stage pharmaceutical company developing new therapies for central nervous system, inflammatory, and cardiometabolic diseases

Chemical genomics driven discovery approach

Strong patent portfolio

Lead Asset: Brilaroxazine

Differentiated pharmacology profile as modulator of serotonin and dopamine signaling pathways

Completed pivotal Phase 3 trial in schizophrenia, and topline OLE data anticipated in Q4 2024

Potential for clinical expansion in additional neuropsychiatric and inflammatory diseases

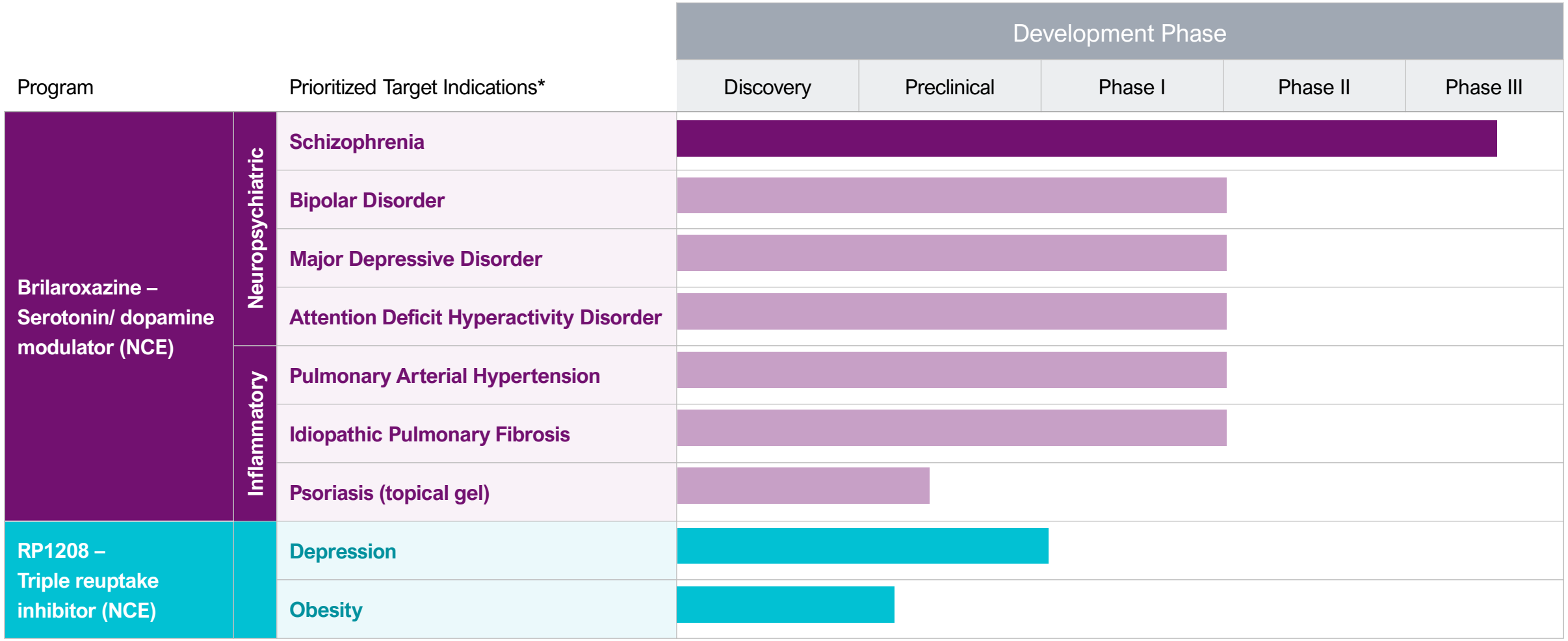
Market Opportunity

Global addressable market size for brilaroxazine:

$12.6 B for schizophrenia by 2032[1]
$6.4 B for bipolar disorder by 2030[2]
$16.8 B for MDD by 2032[3]
$32.1 B for ADHD by 2032[4]
$57.7 B for Psoriasis by 2032[5]
$10.9 B for PAH by 2030[6]
$7.5 B for IPF by 2030[7]

(1) Schizophrenia Market by Market.us May 2023. (2) Bipolar Disorder Market by Skyquest Report October 2022. (3) Major Depressive Disorder Market by Future Market Insights May 2022. (4) ADHD market by Polaris Market Research Jan 2023. (5) Psoriasis Market by Precedence Research August 2023. (6) Pulmonary Arterial Hypertension (PAH) by Markets N Research March 2023. (7) Idiopathic Pulmonary Fibrosis (IPF) by Research and Markets June2023

Extensive Clinical Development Pipeline



*Opportunity to expand into other indications including Parkinson's Psychosis and Alzheimer's (Psychosis/agitation)

Dysfunctional Serotonin or Dopamine Signaling is Implicated in the Pathobiology of Psychiatric Disorders and Inflammatory Diseases

Neuropsychiatric diseases are associated with dysfunctional serotonin and dopamine signaling and dysregulated immune responses

Neuropsychiatric Disorders

Positive Symptoms	D_2	D_3	D_4			
Negative Symptoms	D_4	5-HT_{1A}	5-HT_{2A}	5-HT_7		
Cognitive Symptoms	D_4	5-HT_{1A}	5-HT_{2A}	5-HT_7		
Depressive Symptoms	5-HT_{1A}	D_2	5-HT_{2A}	5-HT_{2B}	D_4	5-HT_7
ADHD Symptoms	D_4	5-HT_{1A}	5-HT_{2B}	5-HT_7		


Dopamine receptors


Serotonin receptors

Serotonin signaling is implicated in inflammatory diseases including PAH, IPF and psoriasis

Pulmonary Diseases (PAH and IPF)

Vasoconstriction	5-HT_{2A}	5-HT_{2B}	
Fibrosis and Inflammation	5-HT_{2A}	5-HT_{2B}	5-HT_7
Thrombosis	5-HT_{2A}		

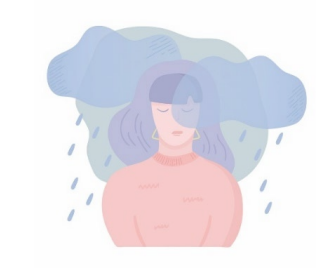
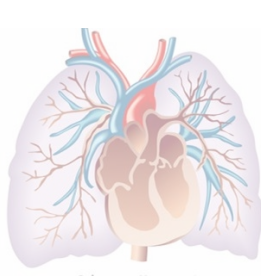
Psoriasis

Immune Dysfunction	D_2	D_4	
Inflammation and Fibrosis	5-HT_{2A}	5-HT_{2B}	5-HT_7

Bhat L. et al. Med Res Arch 2023, 1194):3834; Martel JC et al. Front Pharmacol 2020, 11:1003; Ferre S et al. Front Endocrinol 2022, 13:1014678; Oades RD. Expert Rev Neurotherapeutics 2007, 7:1357; Edinoff AN et al. Front Psych 2021, 12:789982; Lee J et al. Molecules 2021, 26:3348; Bhat L et al. Eur J Pharmacol 2018, 827:159; Bhat L et al. Med Res Arch 2023, 11(4):3837; Channer B et al. Pharmacol Rev 2023, 75:62; Wan M et al. Front Immun 2020, 11:186; Wardhana M et al. OAM J Med Sci 2019, 7(7):1138.

Potential Market Opportunity for Brilaroxazine

Addressing Significant Unmet Medical Needs: Psychiatric Conditions and Immune System Abnormalities

Neuropsychiatric Indications				Inflammatory Indications		
Schizophrenia	Bipolar Disorder	Major Depressive Disorder	ADHD	Psoriasis	Pulmonary Arterial Hypertension (PAH)	Idiopathic Pulmonary Fibrosis (IPF)
						
$12.6B *by 2032[1]*	**$6.4B** *by 2030[3]*	**$16.8B** *by 2032[3]*	**$32.1B** *by 2032[4]*	**$57.7B** *by 2032[5]*	**$10.9B** *by 2030[6]*	**$7.5B** *by 2030[7]*

(1) Schizophrenia Market by Market.us May 2023. (2) Bipolar Disorder Market by Skyquest Report October 2022. (3) Major Depressive Disorder Market by Future Market Insights May 2022. (4) ADHD market by Polaris Market Research Jan 2023. (5) Psoriasis Market by Precedence Research August 2023. (6) Pulmonary Arterial Hypertension (PAH) by Markets N Research March 2023. (7) Idiopathic Pulmonary Fibrosis (IPF) by Research and Markets June2023

Reviva PHARMACEUTICALS

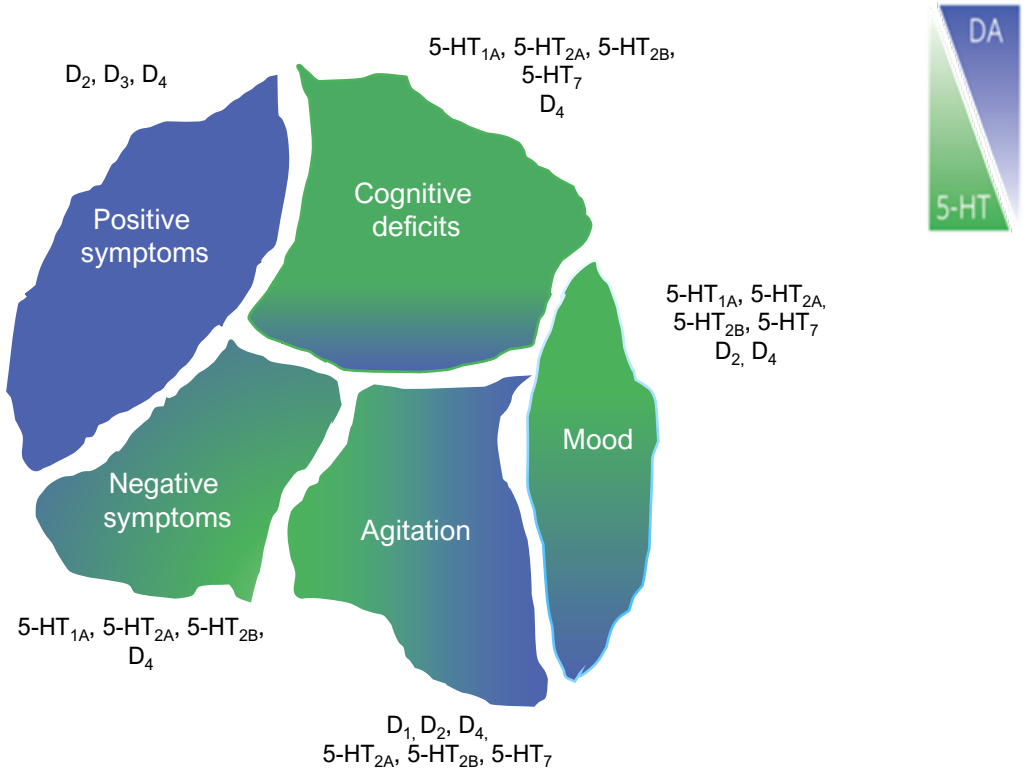
Neuropsychiatric Programs

Schizophrenia | Bipolar Disorder |
Major Depressive Disorder | ADHD

Schizophrenia: Common Psychiatric Condition With Multiple Symptom Domains

Primarily driven by dysfunctional serotonin and dopamine signaling

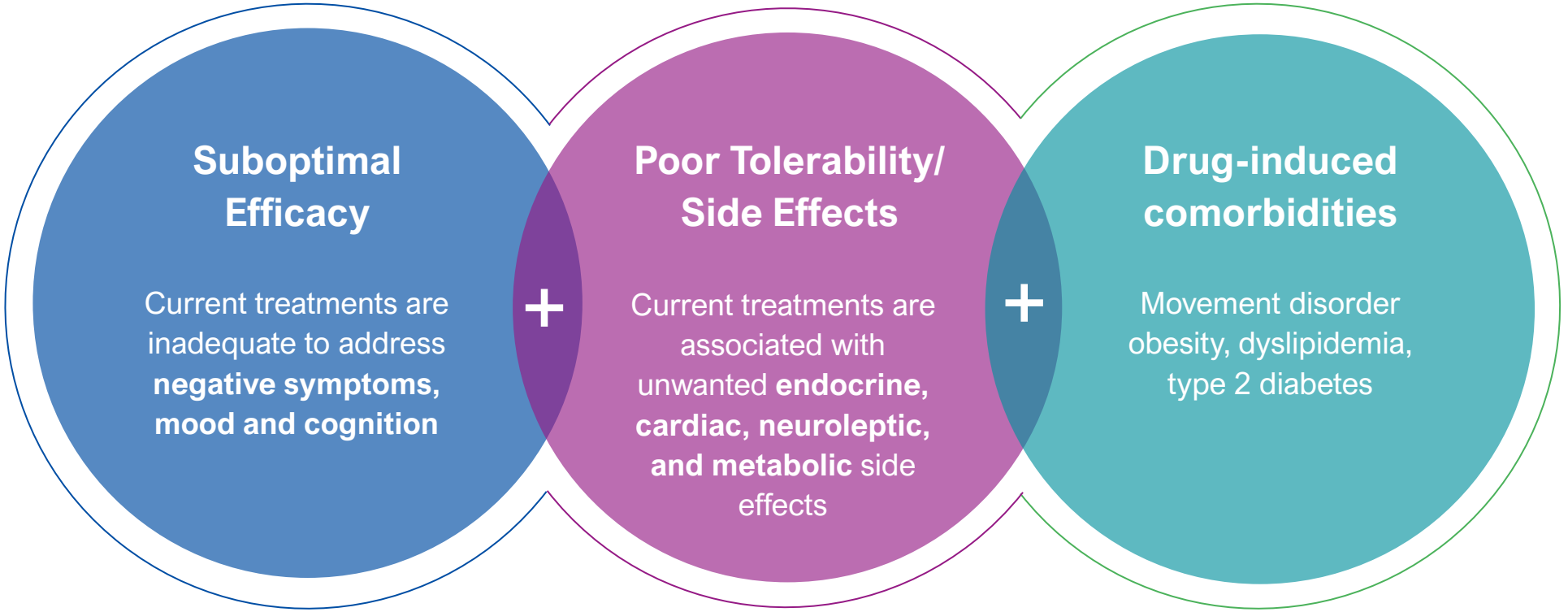
- Affects ~1.1% of the world's population
  - ~3.5 million people in the US
  - ~24 million globally
- Leading cause of disability worldwide, with onset in late-teens and early-adulthood
- Requires lifelong treatment
- Up to 30% of patients are treatment refractory
- Neuroinflammation is implicated as a major contributing factor to schizophrenia



Source: https://www.mentalhelp.net/schizophrenia/statistics/; https://www.who.int/news-room/fact-sheets/detail/mental-disorders; https://fherehab.com/schizophrenia/statistics; https://www.nimh.nih.gov/health/statistics/schizophrenia; Kane JM et al. J Clin Psychology 2019, 80(2):18com12123..

No Current Therapies Address All Needs of Patients With Schizophrenia

Suboptimal efficacy and side effects of current treatments continue to limit long-term use for this chronic condition

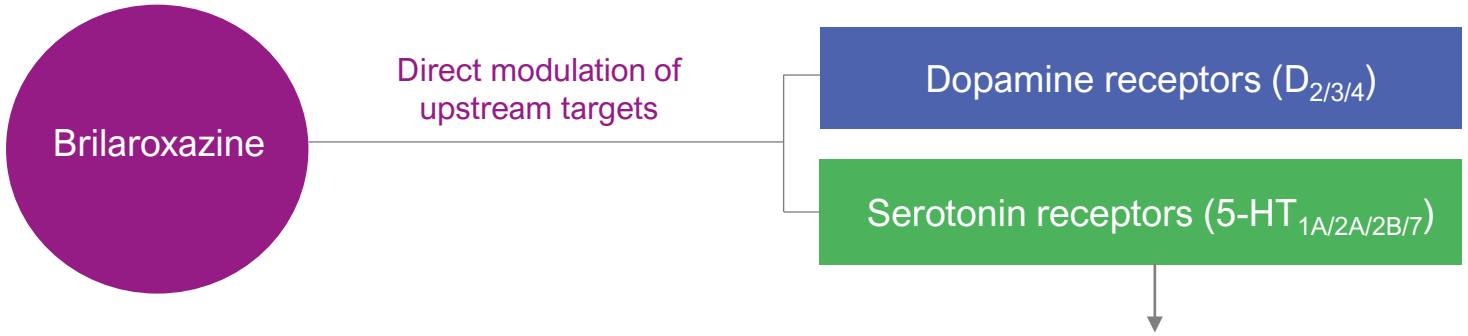


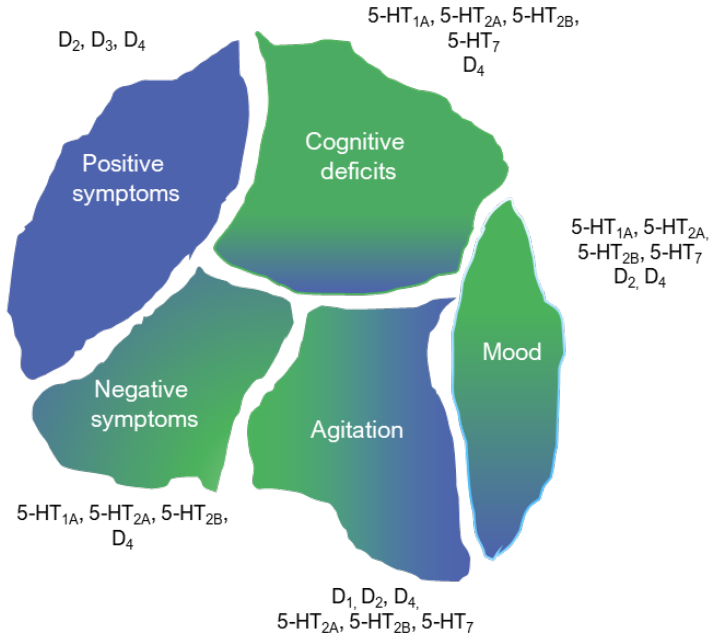
Leading to high discontinuation rates and non-compliance

Source: Torres-Gonzalez F et al, Neuropsychiatric Disease and Treatment 2014, 10:97-110; Stroup T S and Gray N, World Psychiatry 2018, 17:341-356; Levin, S.Z. et al., Schizophrenia Research 2015, 164:122-126; Ermakov EA. et al., Frontiers in neuroscience 2022, 13:880568; Reale M et al. Frontiers in Psychiatry 2021, 12:536257; Monji A et al. Japanese Society of Psychiatry and Neurology 2009, 63:257-265; Bhat L, et al. Medical Research Archives 2023, 11(4):3834

Brilaroxazine: Novel Serotonin Dopamine Signaling Modulator

Activities on critical pathways implicated in schizophrenia





Inflammatory cytokines	Nicotinic receptors	NMDA/Glycine receptors	GABA receptors
Implicated in neuroinflammation	Implicated in positive symptoms and cognition	Implicated in negative symptoms and cognition	Implicated in mood

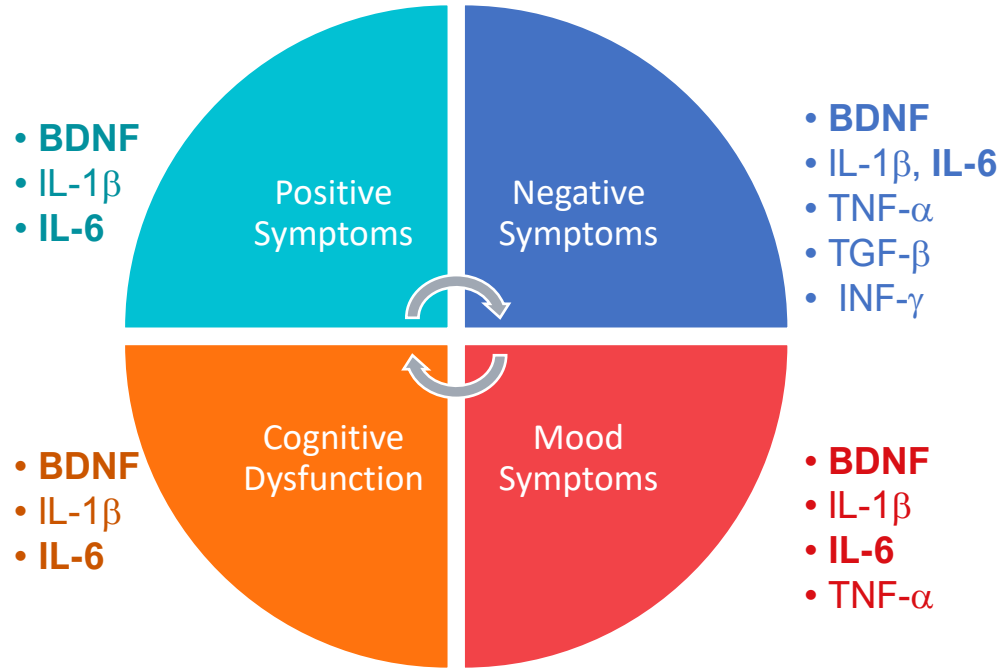
Bhat L, et al. Medical Research Archives 2023, 11(4):3834; Rajagopal et al, Behavioral Brain Research 2017, 332;180-199

Brilaroxazine Has a Differentiated Target Receptor Activity Profile

Brilaroxazine Receptor Binding Affinities for Schizophrenia Symptoms[1]		
High (Ki, nM)* *(5-HT_{2B} > D_2)*	Dopamine D_2 Dopamine D_3 Dopamine D_4	0.4 3.7 6
	Serotonin 5-HT_{1A} Serotonin 5-HT_{2A} Serotonin 5-HT_{2B} Serotonin 5-HT_7	1.5 2.5 0.19 2.7
Moderate (Ki, nM)	Nicotine $\alpha_4\beta_2$ Serotonin 5-HT_6	36.3 51
Weak or no significant activity	No significant activities at therapeutic dose for off-targets 5-HT_{2C}, $\alpha_{1,2,}$ and $M_{1\text{-}4}$ implicated in cardiometabolic, metabolic, and GI side effects	

*partial agonists for $D_{2,3,4}$ and 5-$HT_{1A/2A}$ receptors

Brilaroxazine reduced proinflammatory cytokines and chemokines implicated in major symptom domains of schizophrenia in animal models[1,2]



(1) Bhat L, et al. Medical Research Archives 2023, 11(4):3834. (2) Bhat, et al. European J Pharmacology 2017, 810:83-91 and 92-99.

Brilaroxazine Phase 3 RECOVER Trial For Schizophrenia

Randomized, 4-week, double-blind, placebo-controlled, multicenter trial in acute exacerbation of schizophrenia

Schizophrenia Acute Patients

18 - 65 years of age

DSM-5 diagnosed schizophrenia with a duration ≥ 1 yr and ≤20 yrs

Acute episode of schizophrenia of at least moderate severity by

- Baseline Total PANSS Score of 80-120
- Baseline CGI-S score ≥4

N = 411
Randomized
1:1:1

- **Brilaroxazine, 15mg Once daily, N = 140**
- **Brilaroxazine, 50mg Once daily, N = 134**
- **Placebo Once daily, N = 137**

4-week study

Primary Endpoint

Change from baseline in PANSS total score vs placebo at Week 4

Secondary Endpoints

- CGI-S
- PANSS Positive
- PANSS Negative
- PANSS Negative Marder Factor
- PANSS Social Cognition Factor
- PANSS Excitement/Agitation
- Personal & Social Performance

For details see: www.clinicaltrials.gov (search key word, RP5063); PANSS: Positive and Negative Syndrome Scale; CGI-S: Clinical global impression – severity scale

RECOVER Trial Demographics and Baseline Characteristics

Balanced randomization with diverse representation of 411 patients; USA 60%, India 34%, Bulgaria 6%

	Brilaroxazine 15 mg (n = 140)	Brilaroxazine 50 mg (n = 134)	Placebo (n = 137)
Age (years) Mean (SD)	38.3 (10.88)	39.8 (10.85)	38.4 (10.71)
Male n (%)	96 (68.6)	96 (71.6)	103 (75.2)
Race, n (%) White Black Asian Other	24 (17.1) 64 (45.7) 49 (35.0) 3 (2.1)	26 (19.4) 59 (44.0) 46 (34.3) 3 (2.2)	23 (16.8) 66 (48.2) 44 (32.1) 4 (2.9)
Baseline PANSS total score Mean (SD)	97.3 (10.15)	99.1 (9.56)	98.3 (9.48)
Baseline PANSS positive score Mean (SD)	26.20 (3.58)	26.47 (3.63)	26.53 (3.57)
Baseline PANSS negative score Mean (SD)	23.58 (4.60)	24.22 (4.60)	24.27 (4.23)
Baseline CGI score Mean (SD)	4.9 (0.62)	5.0 (0.53)	5.0 (0.56)

PANSS: Positive and Negative Syndrome Scale

Primary Endpoint: PANSS Total Score at Week 4 For Brilaroxazine vs. Placebo

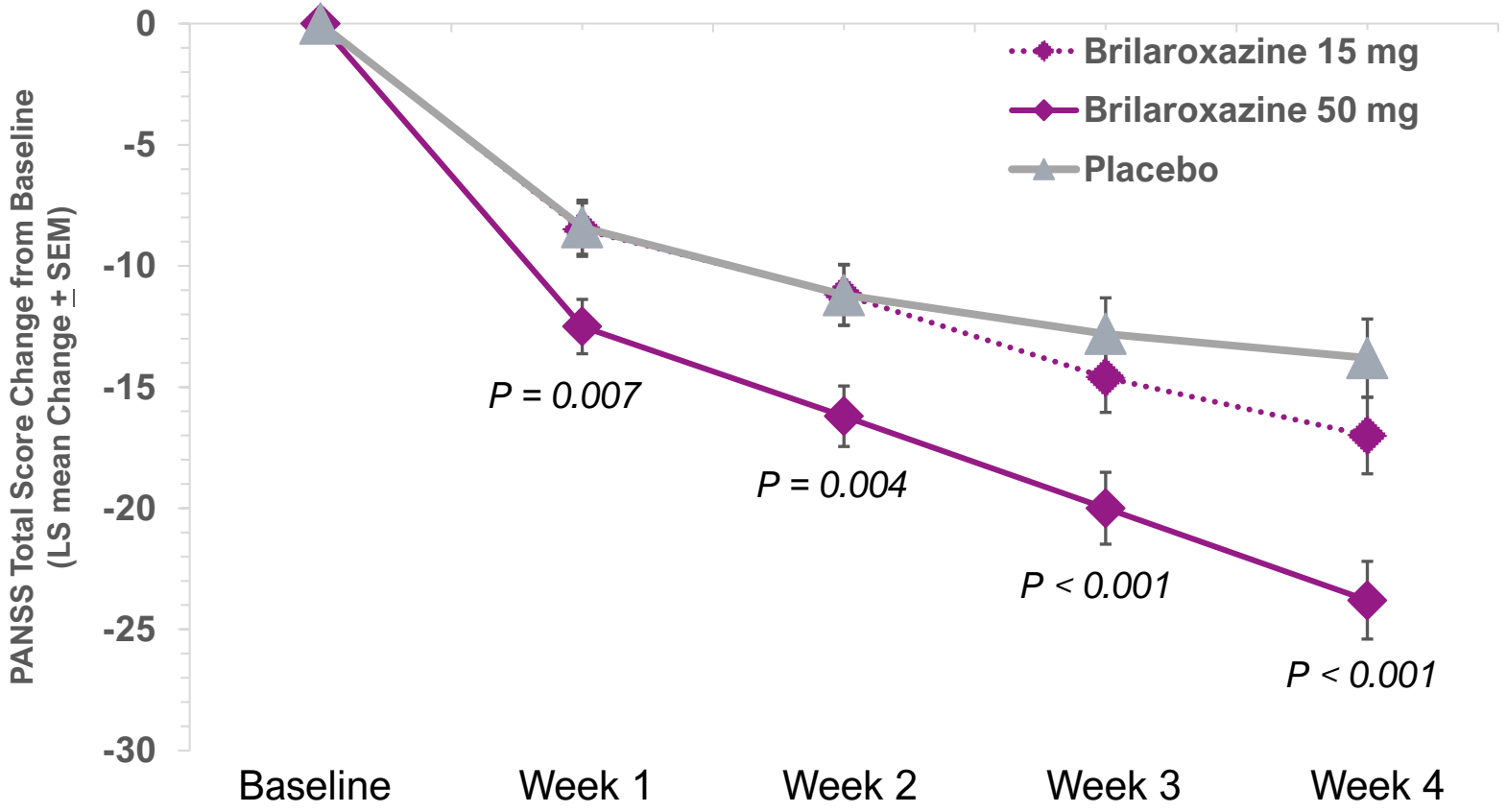
10.1-point reduction in PANSS total score vs. placebo at week 4, *p* <0.001 (-23.9 brilaroxazine 50 mg vs. -13.8 placebo)

RECOVER Phase 3 Trial

PANSS Total Score

- Successfully met PANSS Total Score primary endpoint for brilaroxazine 50 mg
- Statistically significant and clinically meaningful sustained decrease with brilaroxazine 50 mg
- Separation for brilaroxazine 50 mg from placebo within a week
- Brilaroxazine 15 mg numerically separated from placebo

Cohen's d effect size of 0.6



PANSS: Positive and Negative Syndrome Scale

Secondary Endpoint: Positive Symptoms at Week 4 For Brilaroxazine vs. Placebo

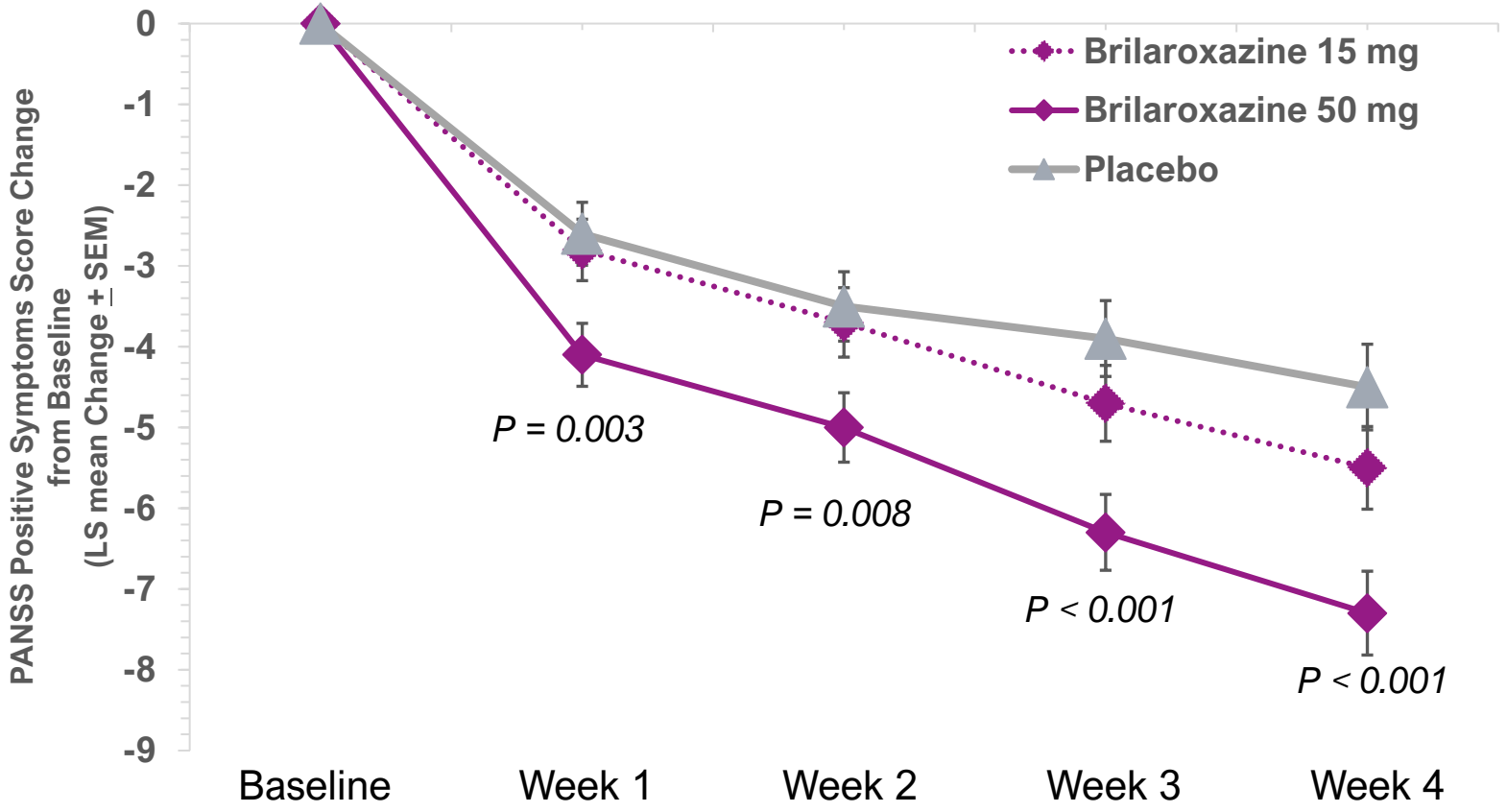
2.8-point reduction in positive symptoms vs. placebo at week 4, *p* <0.001 (-7.3 brilaroxazine 50 mg vs. -4.5 placebo)

RECOVER Phase 3 Trial

Positive Symptoms

- Successfully met the secondary endpoint positive symptoms
- Statistically significant and clinically meaningful sustained decrease with brilaroxazine 50 mg
- Separation for brilaroxazine 50 mg from placebo within a week
- Brilaroxazine 15 mg numerically separated from placebo

Cohen's d effect size of 0.5



Secondary Endpoint: Negative Symptoms at Week 4 for Brilaroxazine vs. Placebo

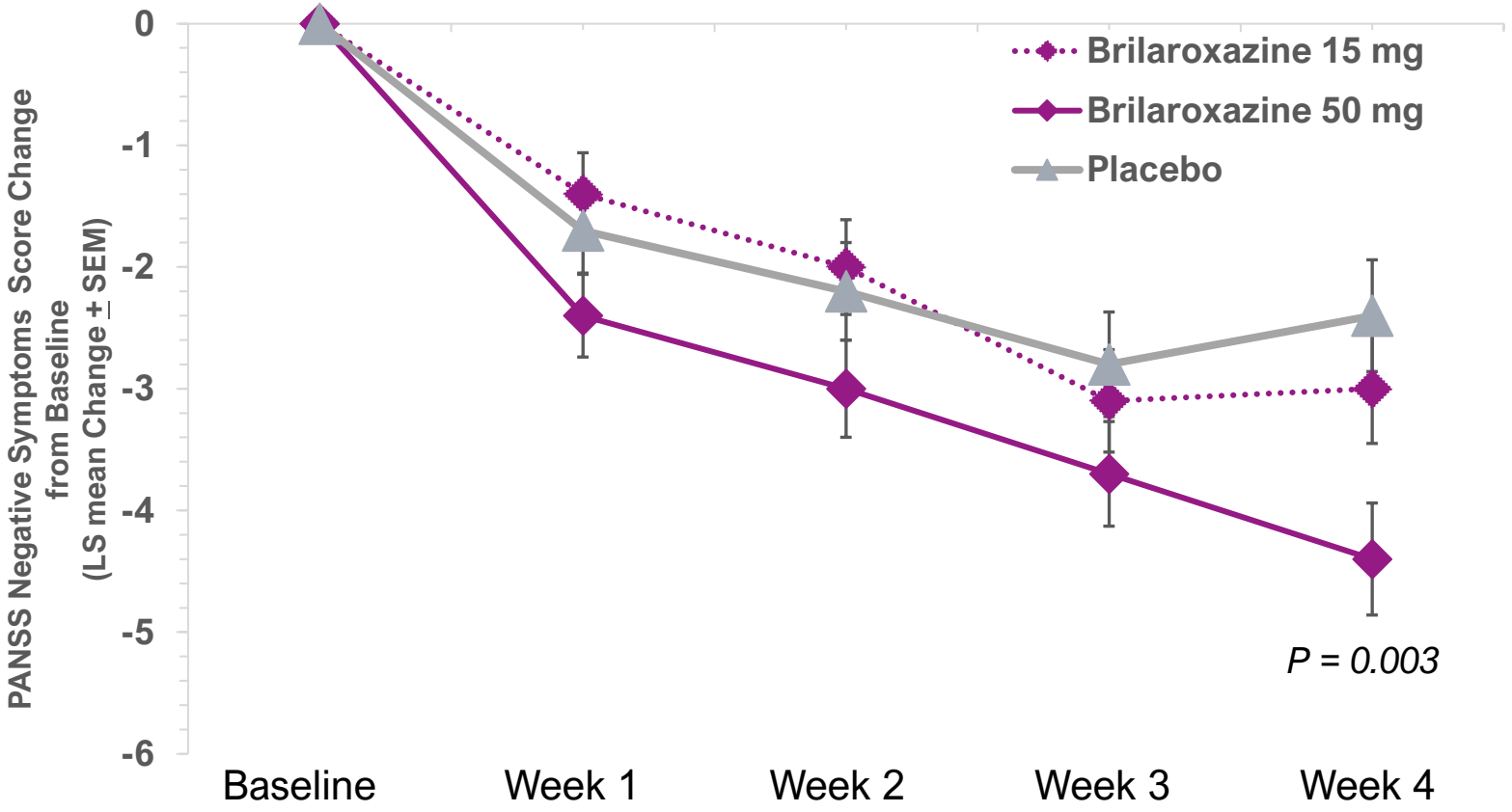
2-point reduction in negative symptoms vs. placebo at week 4, *p* = 0.003 (-4.4 brilaroxazine 50 mg vs. -2.4 placebo)

RECOVER Phase 3 Trial

Negative Symptoms

- Successfully met the secondary endpoint negative symptoms
- Statistically significant and clinically meaningful decrease with brilaroxazine 50 mg
- Separation for brilaroxazine 50 mg from placebo within a week
- Brilaroxazine 15 mg numerically separated from placebo

Cohen's d effect size of 0.4



Secondary Endpoint: Negative Symptoms PANSS Marder Factor at Week 4

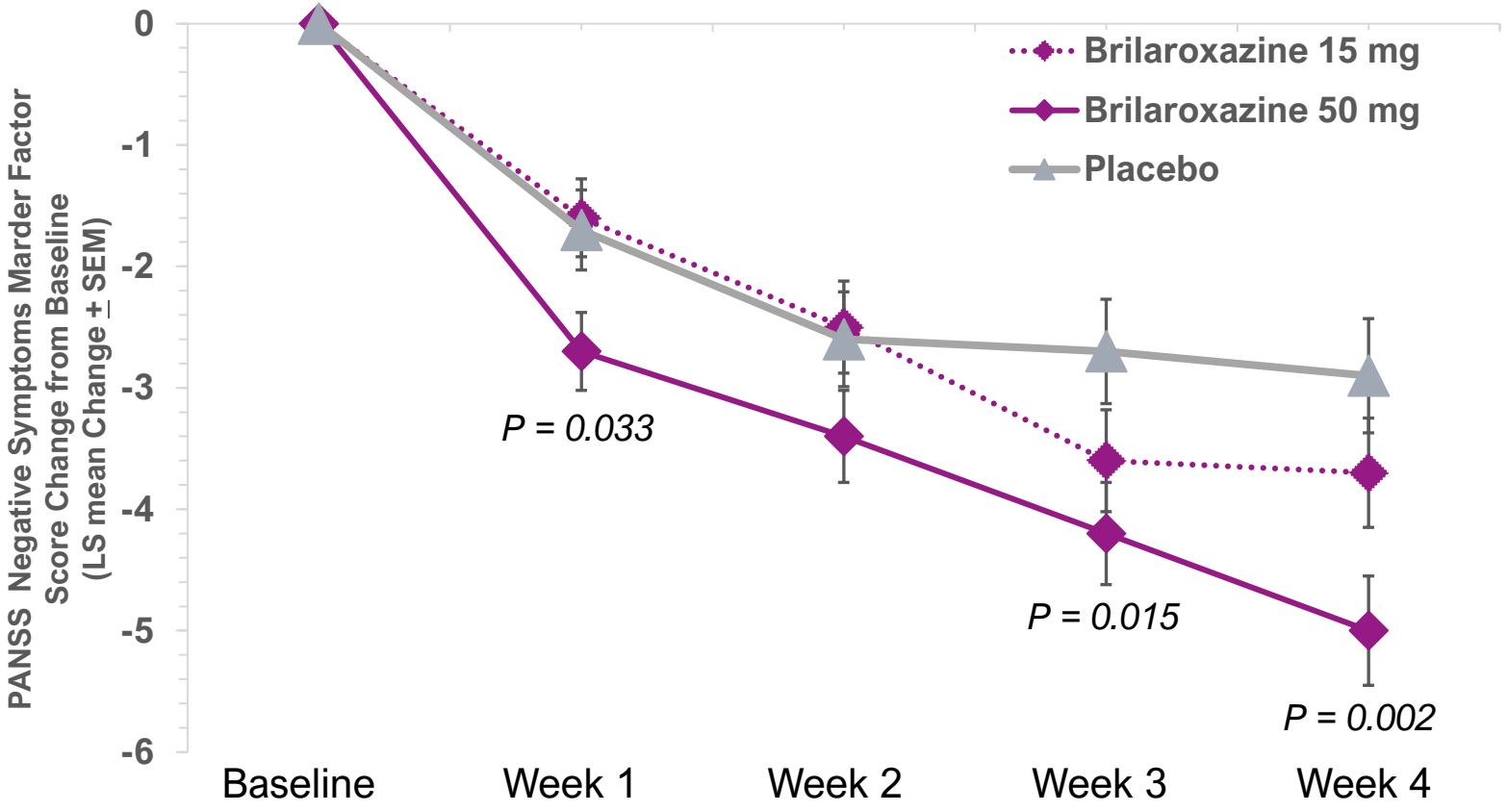
2.1-Point reduction in negative symptoms on Marder factor in brilaroxazine 50 mg vs. placebo at week 4, $p = 0.002$

RECOVER Phase 3 Trial

Negative Symptoms Marder Factor

- Successfully met the secondary endpoint negative symptoms PANSS Marder factor
- Statistically significant and clinically meaningful decrease with brilaroxazine 50 mg
- Separation for brilaroxazine 50 mg from placebo within a week
- Brilaroxazine 15 mg numerically separated from placebo

Cohen's d effect size of 0.4



PANSS: Positive and Negative Syndrome Scale

Secondary Endpoint: PANSS Social Cognition Factors at Week 4

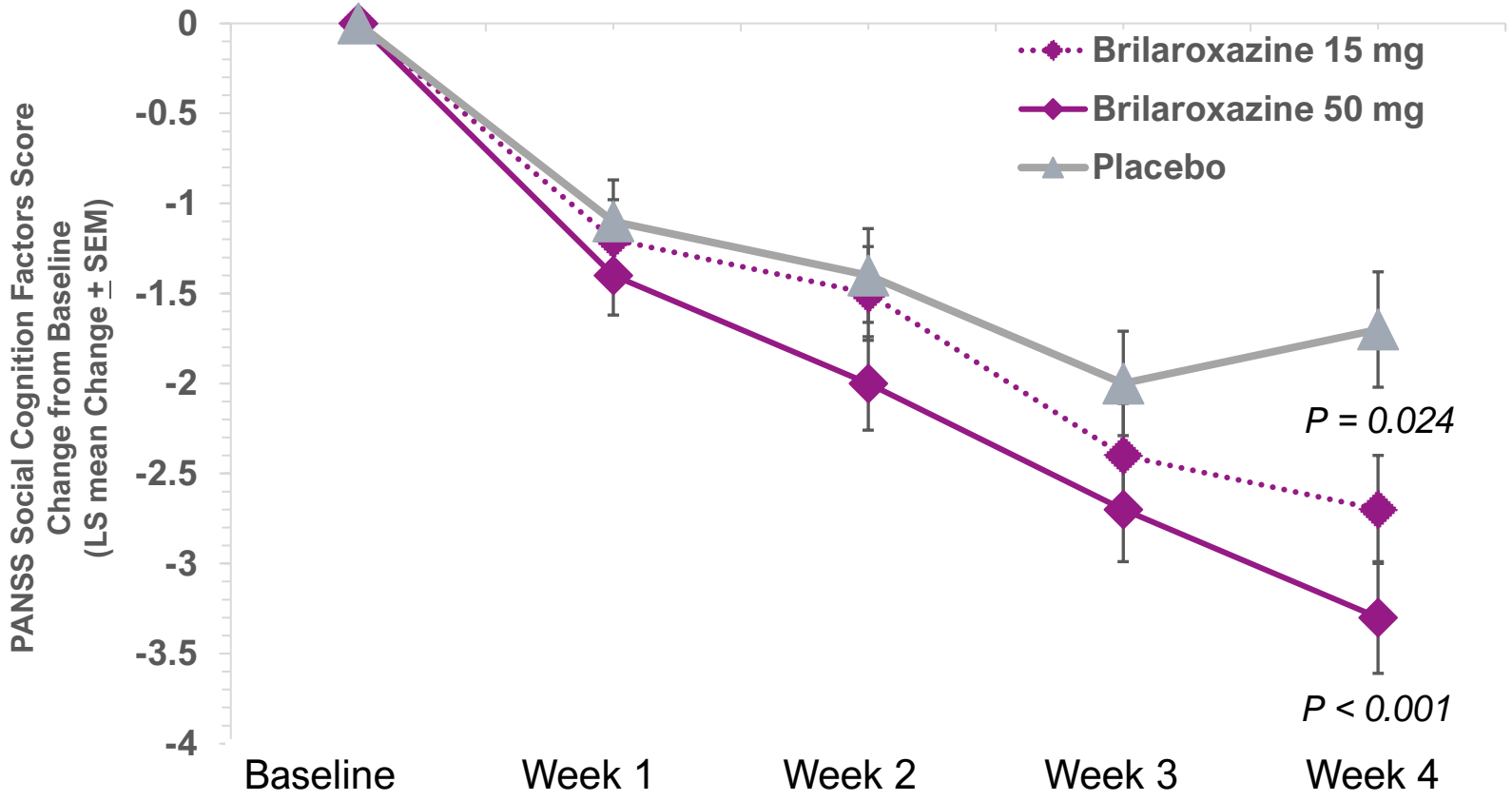
1.6-point reduction in social cognition deficits in brilaroxazine 50 mg vs. placebo at week 4, $p < 0.001$

RECOVER Phase 3 Trial

Social Cognition Deficits

- Successfully met the secondary endpoint social cognition symptoms
- Statistically significant and clinically meaningful decrease with both brilaroxazine 15 mg and 50 mg at week 4
- Separation for brilaroxazine 50 mg from placebo within a week

Cohen's d effect size of 0.5



PANSS: Positive and Negative Syndrome Scale

Secondary Endpoint: Personal And Social Performance (PSP) at Week 4

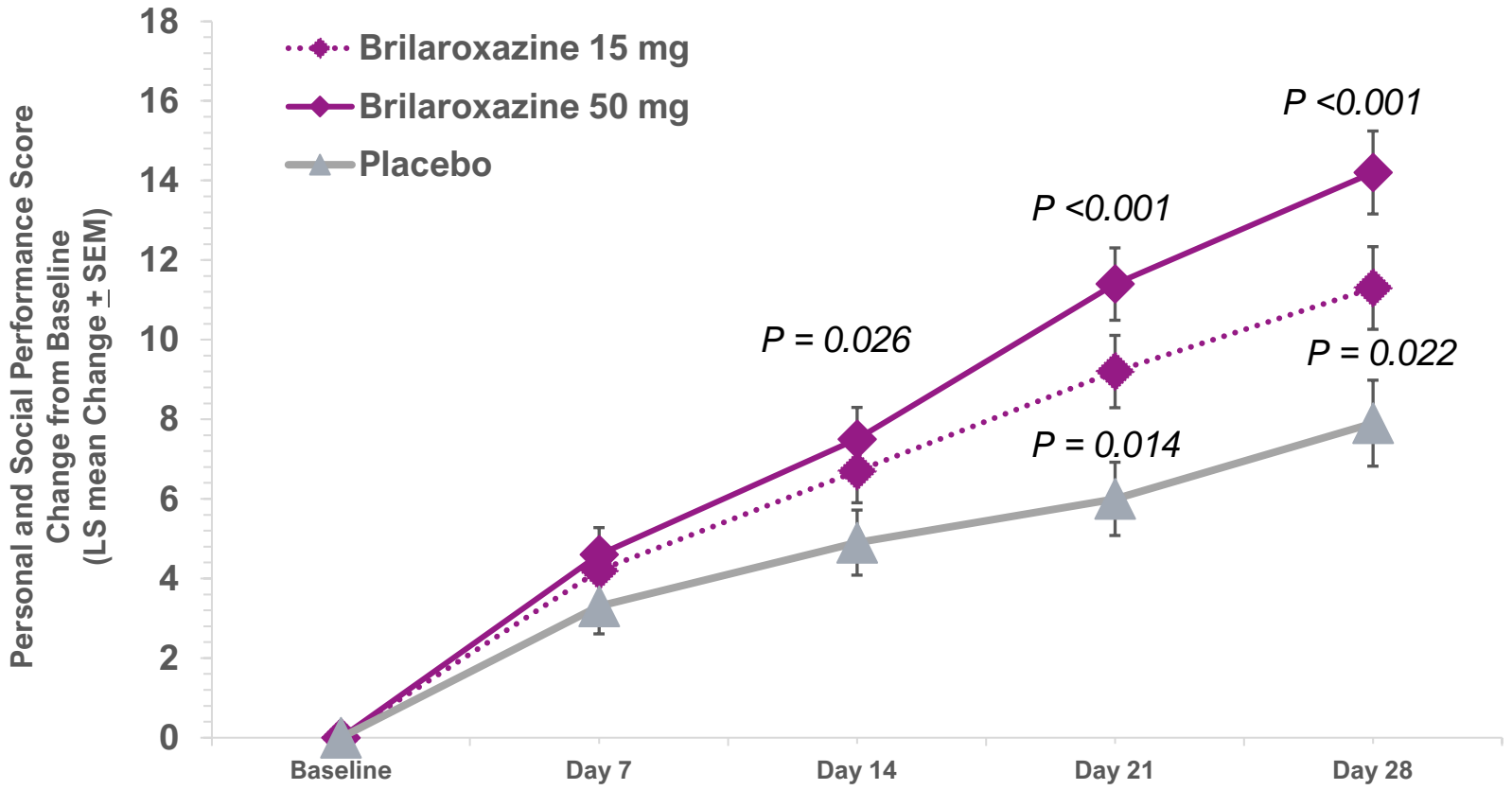
6.3-point improvement in PSP score in brilaroxazine 50 mg vs placebo at week 4, *p* <0.001

RECOVER Phase 3 Trial

Personal and Social Performance

- Successfully met the secondary endpoint personal and social performance
- Statistically significant and clinically meaningful sustained improvement with both brilaroxazine 15 mg and 50 mg

Cohen's d effect size of 0.5



Secondary Endpoint: PANSS Excitement/Agitation at Week 4

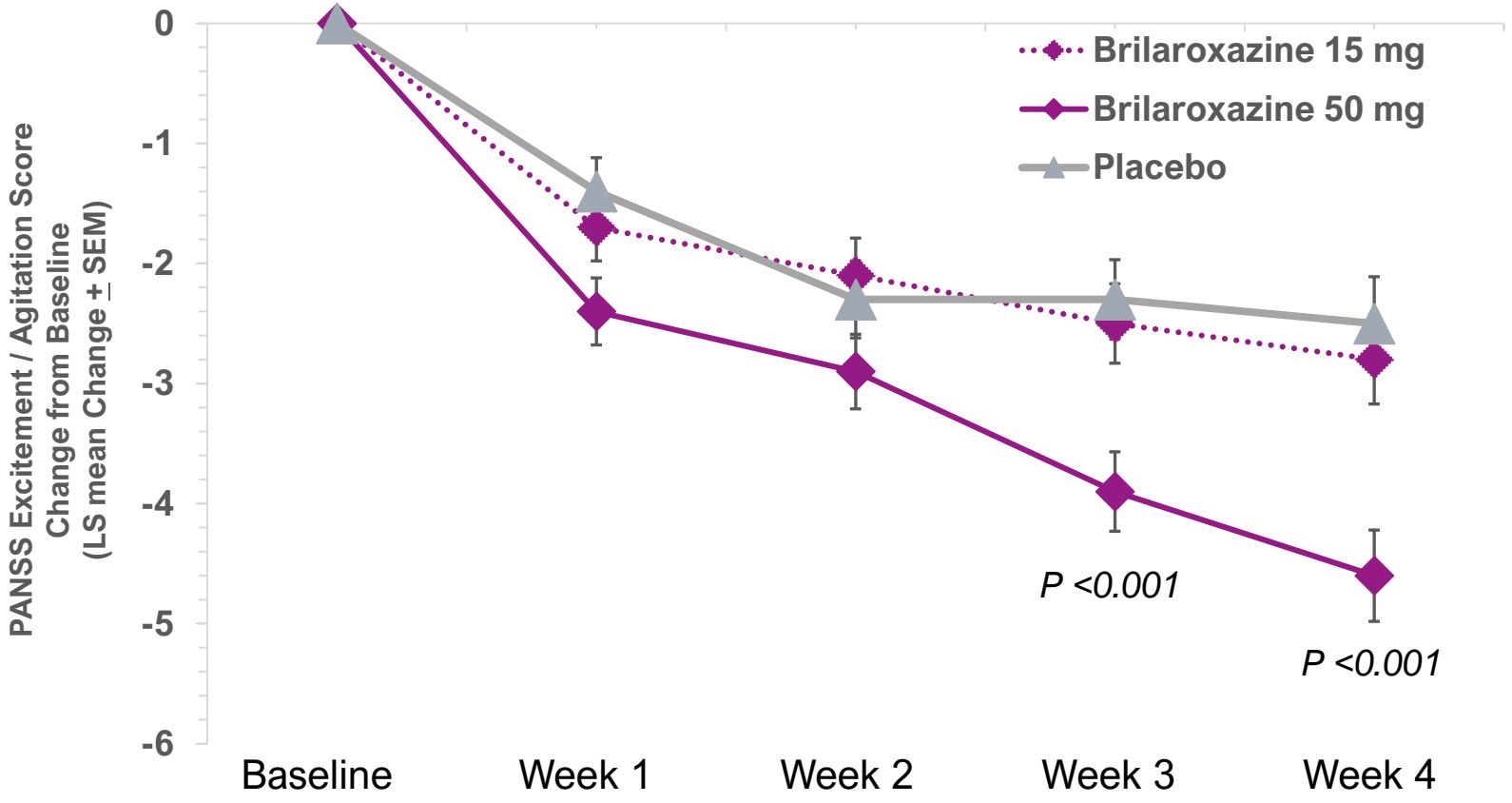
2.1-point reduction in excitement/agitation symptoms in brilaroxazine 50 mg vs. placebo at week 4, $p < 0.001$

RECOVER Phase 3 Trial

Excitement / Agitation Symptoms

- Successfully met the secondary endpoint excitement/agitation symptom
- Statistically significant and clinically meaningful sustained decrease with brilaroxazine 50 mg

Cohen's d effect size of 0.5



PANSS: Positive and Negative Syndrome Scale

Secondary Endpoint: CGI-S at Week 4 For Brilaroxazine vs. Placebo

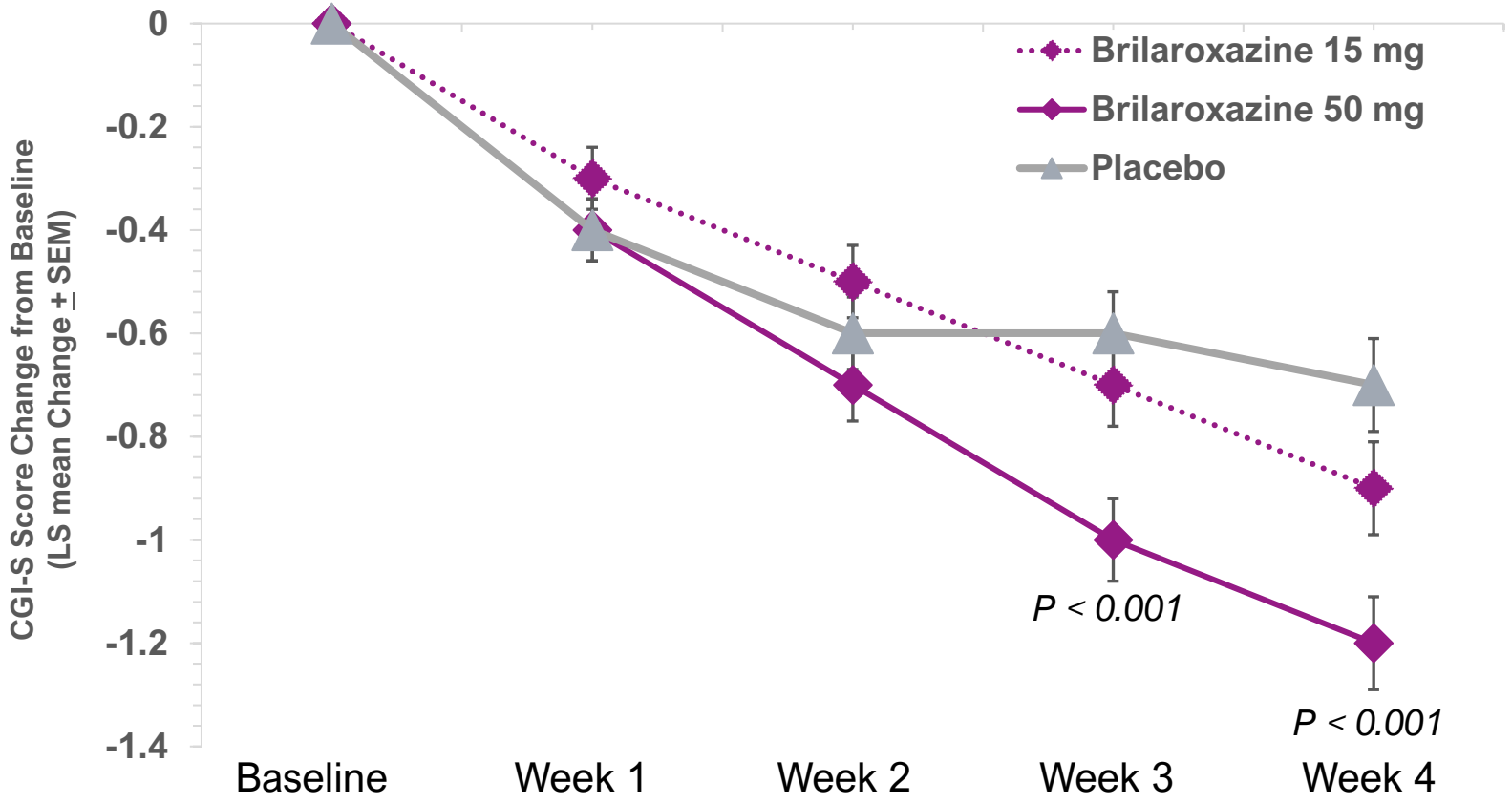
≥1-point reduction in CGI-S score in brilaroxazine 50 mg vs. placebo at week 4, $p < 0.001$

RECOVER Phase 3 Trial

CGI-S Score ≥ 1-Point Reduction

- Successfully met the secondary endpoint CGI-Severity score
- Statistically significant and clinically meaningful sustained decrease with brilaroxazine 50 mg
- Brilaroxazine 15 mg numerically separated from placebo at weeks 3 and 4

Cohen's d effect size of 0.5



CGI-S: Clinical global impression – severity score

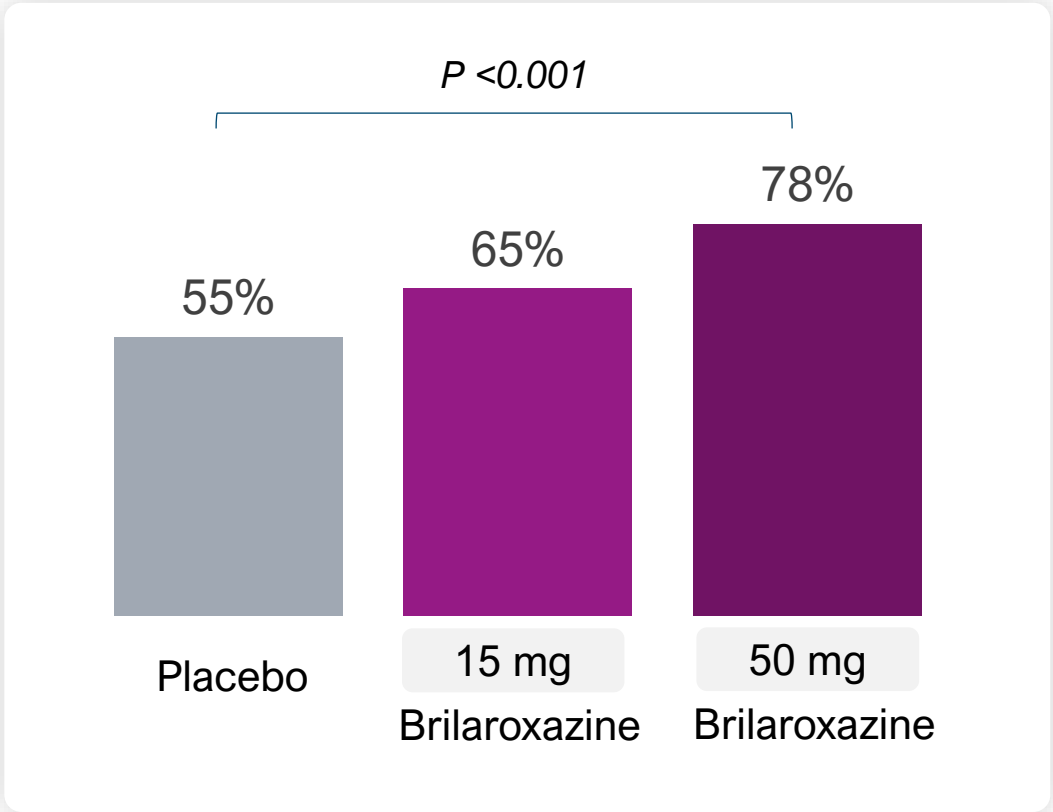
Secondary Endpoint: CGI-S at Week 4 For Brilaroxazine vs. Placebo

Proportion of subjects with ≥1 point(s) improvement on the CGI-Severity scale from baseline

RECOVER Phase 3 Trial

CGI–S score ≥1-point improvement

- Study successfully met secondary endpoint CGI-Severity score
- 78% of subjects on brilaroxazine 50 mg achieved a statistically significant ≥ 1-point improvement in CGI-Severity scale from baseline vs. placebo
- 65% of subjects on brilaroxazine 15 mg achieved ≥ 1-point improvement in CGI-Severity scale from baseline vs. placebo

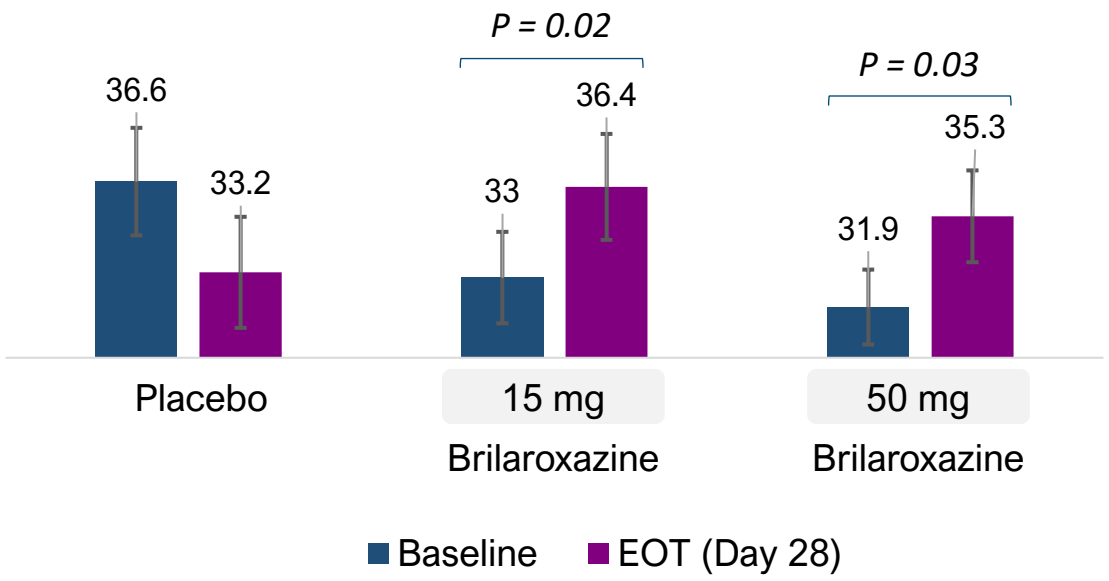


CGI-S: Clinical global impression – severity scale

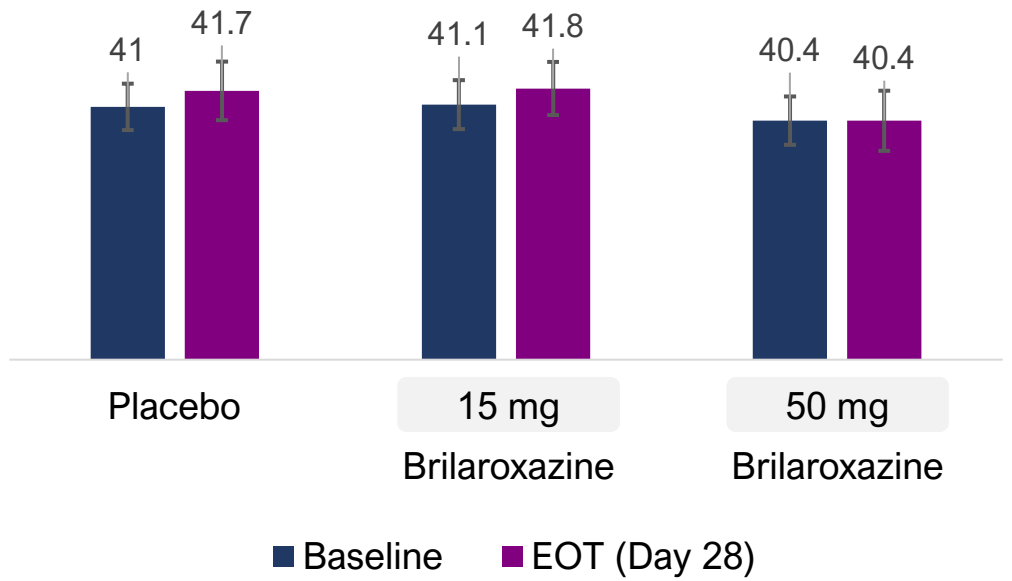
Sexual Functioning: CSFQ Score Changes in Phase 3 Trial at Week 4

Significant improvement in sexual functioning with brilaroxazine vs. placebo (females)

Significant Improvement in Sexual Functioning (Females)



Changes in Sexual Functioning (Males)



- CSFQ scores ≤41 for females and ≤47 for males indicate sexual dysfunction
- Prevalence of sexual dysfunction in women 60% and men 55% men with schizophrenia
- Sexual dysfunction linked to negative symptoms, social cognition and social functioning
- Sexual dysfunction impacts quality of life, treatment adherence, and may develop depression and suicidality

CSFQ: Change in Sexual Functioning Questionnaire. Korchia T eta l. JAMA Psychiatry 2023, 80(11): 1110; Fanta T et al BMC 2018, 18:158; de Boer MK et al. Schizophrenia Bulletin 2015, 41(3):674.

Statistically Significant and Clinically Meaningful Improvements Across all Major Symptom Domains with Brilaroxazine 50 Mg vs. Placebo at Week 4

RECOVER Phase 3 Trial

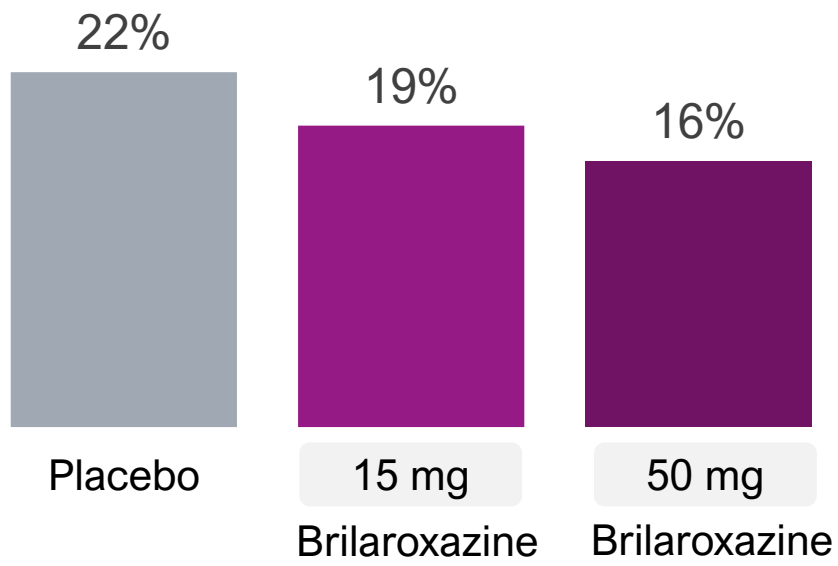
	Brilaroxazine 50 mg vs. Placebo at week 4 Point Reduction / Improvement	***Cohen's d Effect Size***	***P Value***
PANSS Total Score	10.1	*0.6*	*< 0.001* ✓
Positive Symptoms	2.8	*0.5*	*< 0.001* ✓
Negative Symptoms	2.0	*0.4*	*0.003* ✓
Negative Symptoms Marder Factor	2.1	*0.4*	*0.002* ✓
PANSS Social Cognition	1.6	*0.5*	*< 0.001* ✓
PANSS Excitement/Agitation	2.1	*0.5*	*< 0.001* ✓
Personal and Social Performance	6.3	*0.5*	*< 0.001* ✓
CGI-S score	≥1	*0.5*	*< 0.001* ✓

PANSS: Positive and Negative Syndrome Scale; CGI-S: Clinical global impression – severity scale

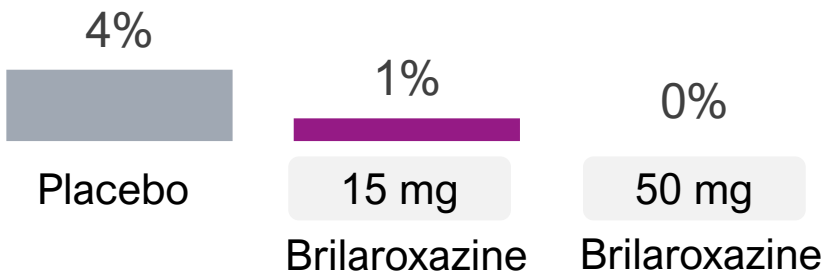
RECOVER Trial Discontinuation Rates: Brilaroxazine vs. Placebo

19% (N=78) total discontinuation rate in the study

Discontinuation Rate



Discontinuation Due to Side Effects



RECOVER Trial Topline Tolerability Results: Brilaroxazine vs Placebo

Well-tolerated safety profile

Brilaroxazine was generally well tolerated

- Overall TEAEs rates 34.5% in brilaroxazine 15 mg, 35.5% in 50 mg, and 30% in placebo
- No serious adverse events (SAEs) related to the study drug brilaroxazine
- No incidence of suicidal ideation
- No significant change in bodyweight, blood glucose levels, lipids levels, or hormones (prolactin, thyroid) compared to placebo
- Common brilaroxazine TEAEs were headache (<6%) and somnolence (≤7.5%) generally transient in nature

Brilaroxazine adverse events of special interest (AESI) were mild to moderate in severity

- Metabolic Side Effects:
  - Weight gain 3 (2.1%) in 15 mg and 8 (5.9%) in 50 mg brilaroxazine and 4 (2.9%) in placebo
  - Elevated LDL level none in brilaroxazine and 4 (2.9%) in placebo
  - Low HDL level 1 (0.7%) in 15 mg, 2 (1.4%) in 50 mg brilaroxazine and 2 (1.4%) in placebo
- Neuroleptic Side Effects:
  - Akathisia 1 (0.7%) and EPS 1 (0.7%) in 50 mg brilaroxazine and none in 15 mg and placebo
- Endocrine Side effects:
  - Decrease in prolactin and no change in thyroid levels compared placebo

TEAE: Treatment-emergent adverse events; LDL: Low-density lipoprotein

Lower Drug-Drug Interactions (DDIs) with Brilaroxazine vs. Standards of Care

DDIs and polypharmacy alter plasma drug concentrations, and can impact efficacy and side effect profiles of a drug[11]

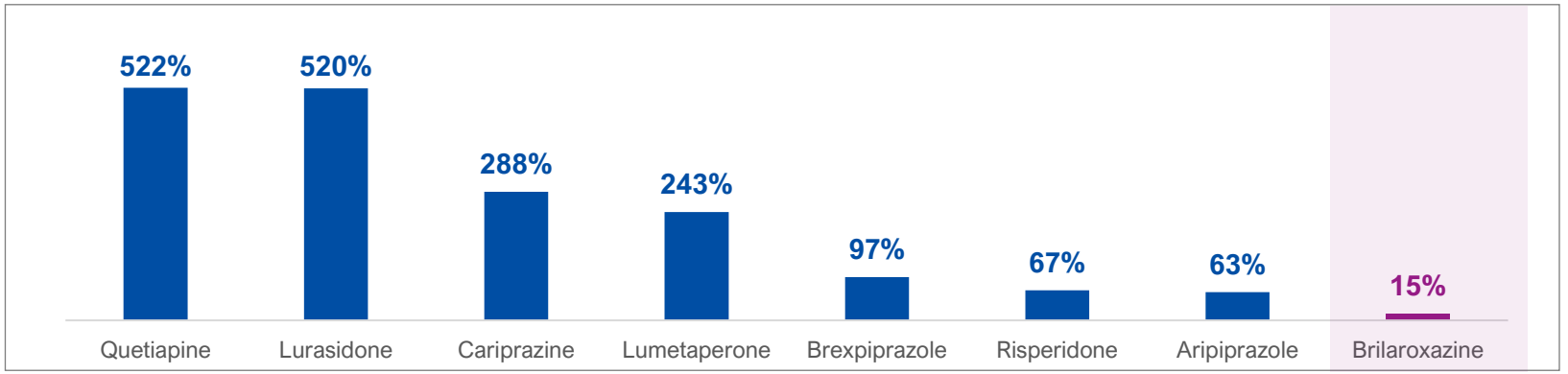
~50% of prescribed drugs and over 25% of approved antipsychotics are known to cause drug interactions in the presence of a strong CYP3A4 inhibitor drug

Change in drug concentration with a CYP3A4 Inhibitor

Antipsychotic	Fold increase vs brilaroxazine
Brilaroxazine	--
Aripiprazole	4.2x
Risperidone	4.5x
Brexpiprazole	6.5x
Lumetaperone	16.2x
Cariprazine	19.2x
Lurasidone	34.7x
Quetiapine	34.8x

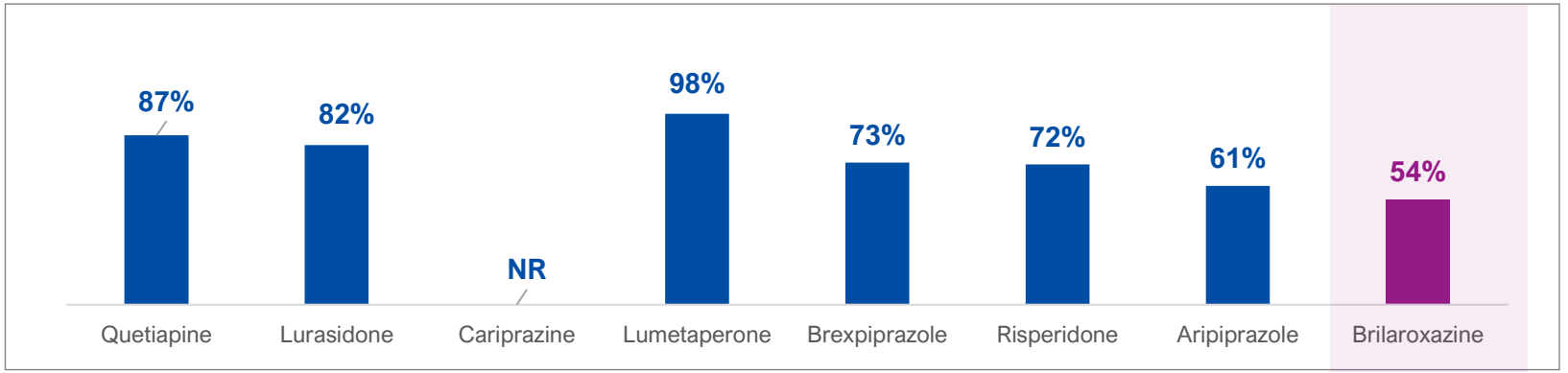
*Olanzapine[9] not evaluated; metabolized by CYP1A2[10]

% Increase in drug concentration (AUC) with a **CYP3A4 Inhibitor**



Lower is better

% Decrease in drug concentration (AUC) with a **CYP3A4 Inducer**



(1) Bhat L et al, ASPET 2023 (poster #376); (2) Aripiprazole (Abilify) NDA document, 2001; (3) Mahatthanatrakul et al, J Clin Pharm Thera 2007, 32(2):161-167 ; (4) Brexpiprazole (Rexulti) NDA document, 2014; (5) Lumetaperone (Caplyta) NDA document, 2018; (6) Cariprazine (Vraylar) NDA document 2014; (7) Pharmaceuticals 2020; (8) Quetiapine (Seroquel); Grim et al., Brit J Clin Pharm 2005, 61(1):58-69; (9) Olanzapine NDA document; (10) Vilckova et al., Onco Lett 2023, 25:85; (11) Bole B et al, Medicina 2023, 59:284. NR: not reported

Ongoing Clinical Program Sets The Stage Regulatory Path Forward

Regulatory discussions with FDA on planned New Drug Application (NDA) submission

PHASE 2 REFRESH NCT01490086 ✓	PHASE 3 RECOVER NCT05184335 ✓	PHASE 3 OLE NCT05184335	PHASE 3 RECOVER-2 TBD
N = 234 **Acute schizophrenia or schizoaffective disorder**	**N = 412** **Acute schizophrenia**	**N = 100 completers** **Stable schizophrenia**	**N = 450** **Acute schizophrenia**
Efficacy and safety of brilaroxazine vs placebo	Efficacy and safety of brilaroxazine vs placebo	Long-term safety and tolerability of brilaroxazine	Efficacy and safety of brilaroxazine vs placebo
3:3:2 Randomized, 4-week, double-blind, placebo-controlled, multicenter	1:1:1 Randomized, 4-week, double-blind, placebo-controlled, multicenter	Open label, one group. 1-year outpatient extension of RECOVER	1:1:1 Randomized, 6-week, double-blind, placebo-controlled, multicenter
Once daily brilaroxazine 15, 30, 50 mg	Once daily brilaroxazine 15, 50 mg	Once daily brilaroxazine 15, 30, 50 mg flexible dose	Once daily brilaroxazine 30, 50 mg with primary & secondary endpoints same as RECOVER
FDA indicated potential for ‘Superior Safety’ label claim	Completed with topline results announced in October 2023	Topline data expected Q4 2024	Completion expected Q2 2025

OLE: Open Label Extension

Brilaroxazine: Consistent Findings in 50 mg Dose in Phase 2 and Phase 3 Studies

Robust efficacy on primary endpoint and key secondary endpoints and low discontinuation rate, lower than placebo

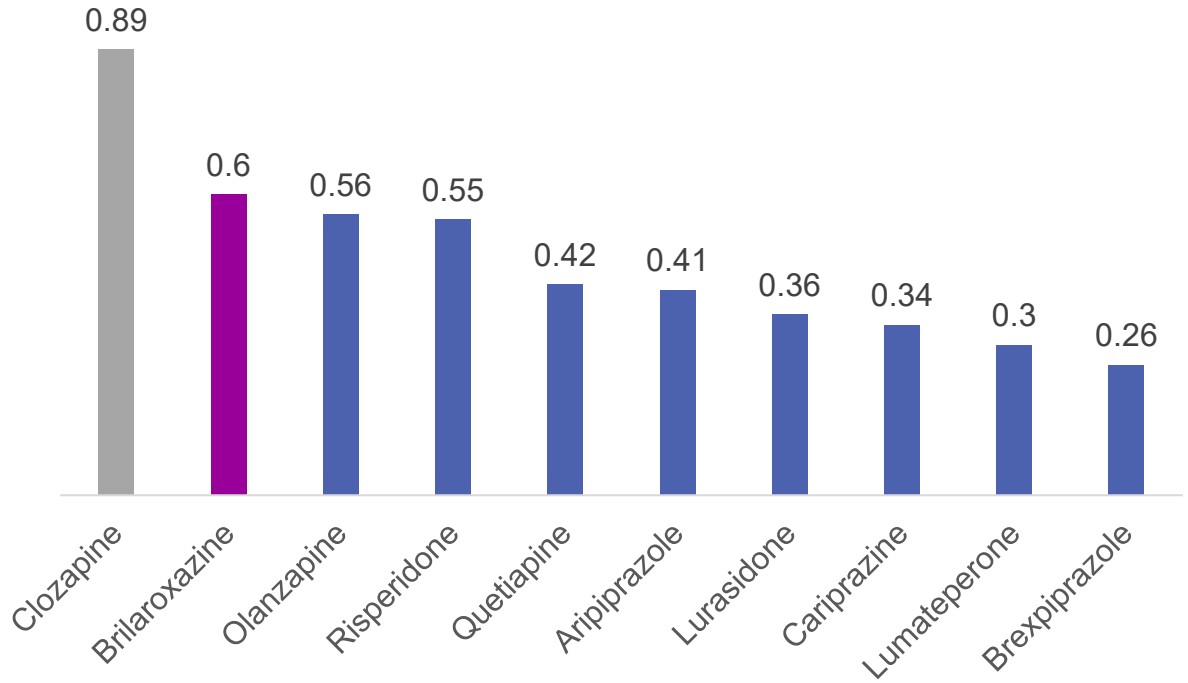
Key Metrics	PHASE 3 RECOVER (N=411 | 4-wk) NCT05184335	PHASE 2 REFRESH (N=234 | 4-wk) NCT01490086
Primary Endpoint (Brilaroxazine 50 mg vs Placebo)		
PANSS Total Score	-10.1 P<0.001 (Effect Size, 0.6)	-10.7 P<0.01
Secondary Endpoint (Brilaroxazine 50 mg vs Placebo)		
PANSS Positive Score	-2.8 P<0.001 (Effect Size, 0.5)	-3.04 P=0.03
PANSS Negative Score	-2.1 P<0.003 (Effect Size, 0.4)	-2.04 P=0.04
CGI-S Score	-0.5 P<0.001 (Effect Size, 0.5) Improvement ≥ 1, 78%	-0.5 P=0.02 Improvement ≥ 1, 72%
Discontinuation Rate (Brilaroxazine 50 mg vs Placebo)		
Related to any reasons	16% (50mg) vs 22% (placebo)	12% (50mg) vs 28% (placebo)
Related to TEAEs in 50mg	0	1.7% (1-subject)

(1) Reviva press release on Phase 3 RECOVER trial results on October 30, 2023 (https://revivapharma.com/press-releases/).
(2) Bhat, et al. J Neurol Neuromed 2018, 3(5): 39-50. (3) Cantillon, M. et al. Schizophrenia Research 2017, 189: 126-133

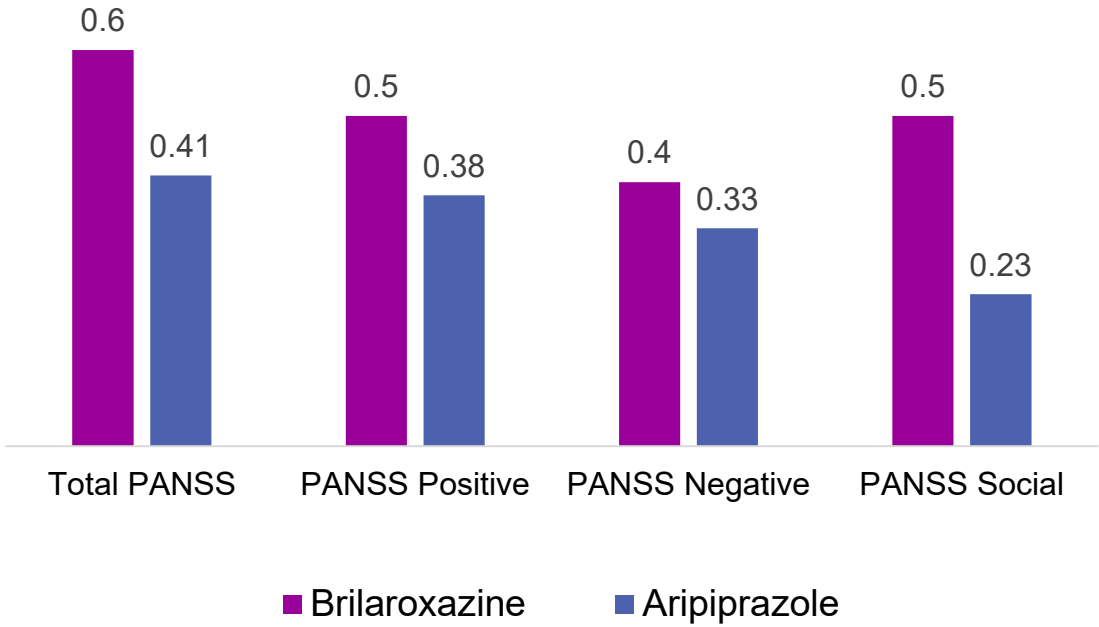
Comparison of Treatment Effect Size from Phase 3 Studies

Primary endpoints and major secondary efficacy endpoints

Brilaroxazine[1] vs Marketed Antipsychotics[2,3]



Brilaroxazine[1] vs Aripiprazole[2]



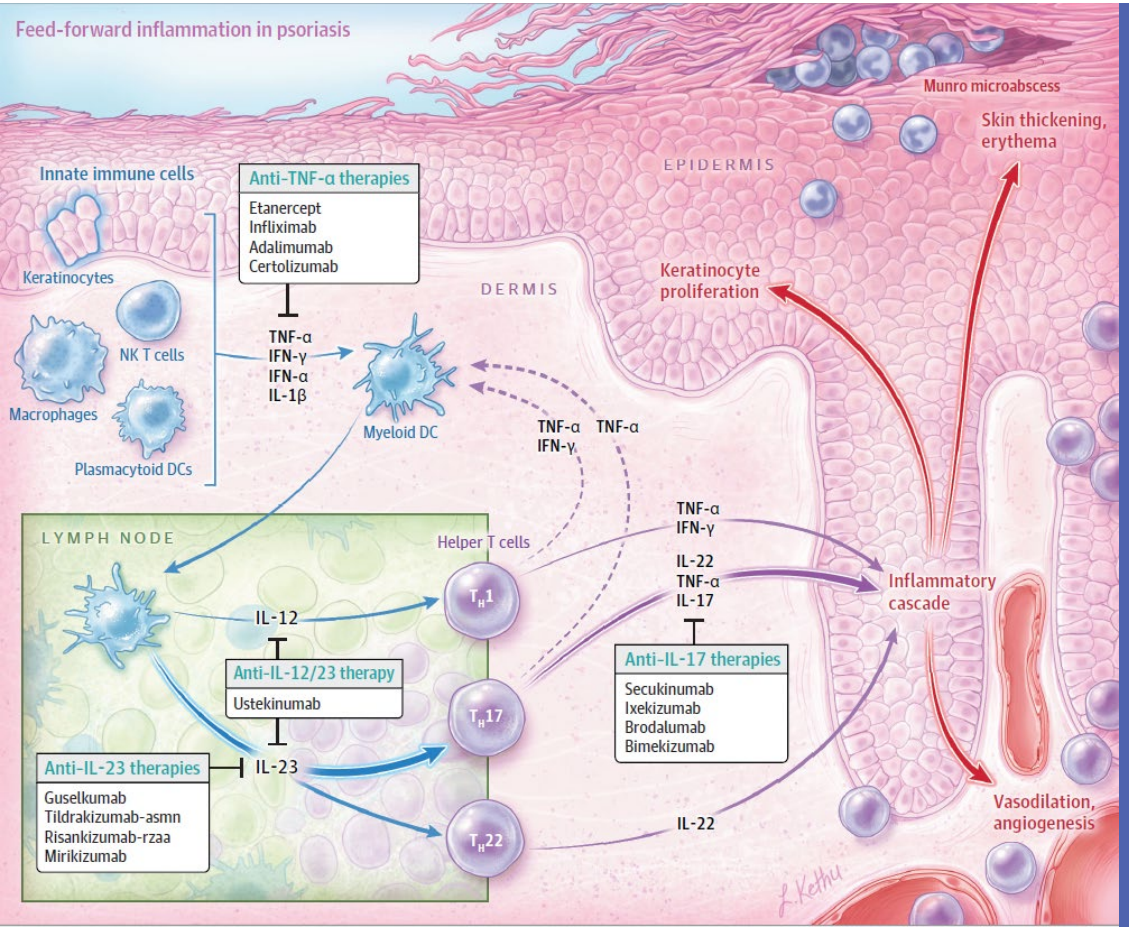
Source: (1) Brilaroxazine phase 3 topline results announced by Reviva; (2) Huhn M et al. Lancet 2019, 394:939-951; (3) Correll CU et al. JAMA Psychiatry 2020, 77(4):349-358

Inflammatory / Immune Disease Programs

Psoriasis | Pulmonary Arterial Hypertension (PAH) | Idiopathic Pulmonary Fibrosis (IPF)

Brilaroxazine has Potential to Treat Psoriasis

Inflammatory skin disease driven by dysfunctional serotonin-dopamine signaling



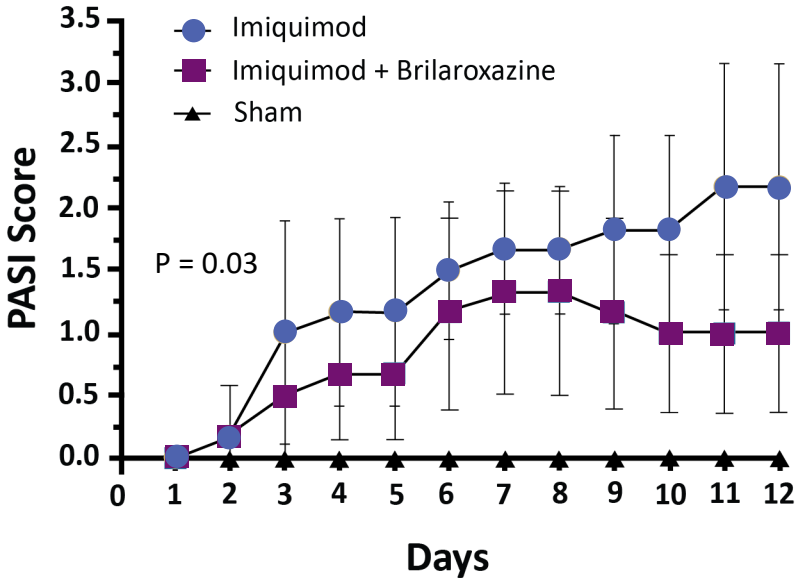
- Approx 3% of the US population and an estimated 125 million people worldwide suffer from psoriasis
- An estimated one-third of neuropsychiatric and neurodegenerative disease patients suffer from psoriasis
- Currently there is no cure for psoriasis
  - Topical corticosteroids therapies remain the cornerstone for treating mild psoriasis
  - Biologics that inhibit cytokines TNF-α, p40IL-12/13, IL-17, and p19Il-23, and oral PDE-4 inhibitor for moderate to severe plaque psoriasis

Armstrong AW. Pathobiology, clinical presentation, and Treatment of psoriasis, JAMA 2020, 323(19):1945-1960; Bhat L, et al. ISID 2023, Poster #LB1745; www.revivapharma.com/ISID-2023-Poster

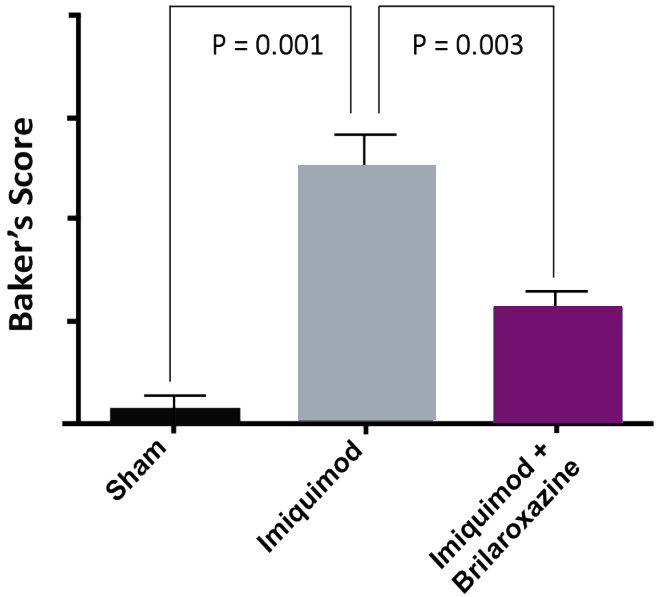
Brilaroxazine Demonstrated Encouraging Preclinical Efficacy

In an imiquimod induced mouse model of psoriasis

Psoriasis Area Severity Index (PASI)



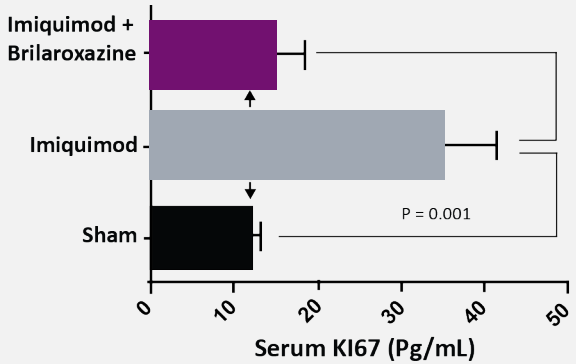
Psoriasis Severity by Baker Score

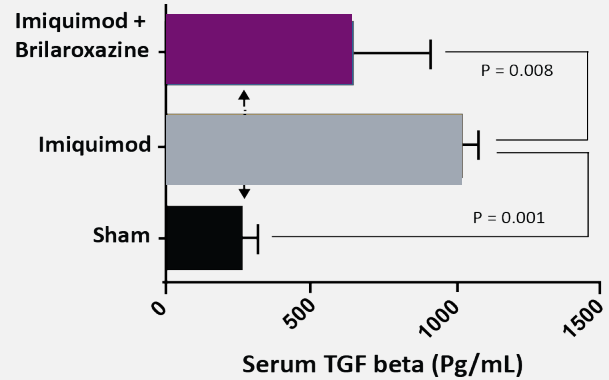


Brilaroxazine topical liposomal gel significantly decreased

- Psoriasis area severity index (P= 0.03)
- Clinical severity of psoriasis, Baker score (p=0.003)
- Proinflammatory and proliferation cytokine, KI67 (P=0.001)
- Profibrotic chemokine, TGF-β (P=0.001)

Decrease in anti-inflammatory and proliferation cytokine (KI67) and profibrotic chemokine (TGF-β)



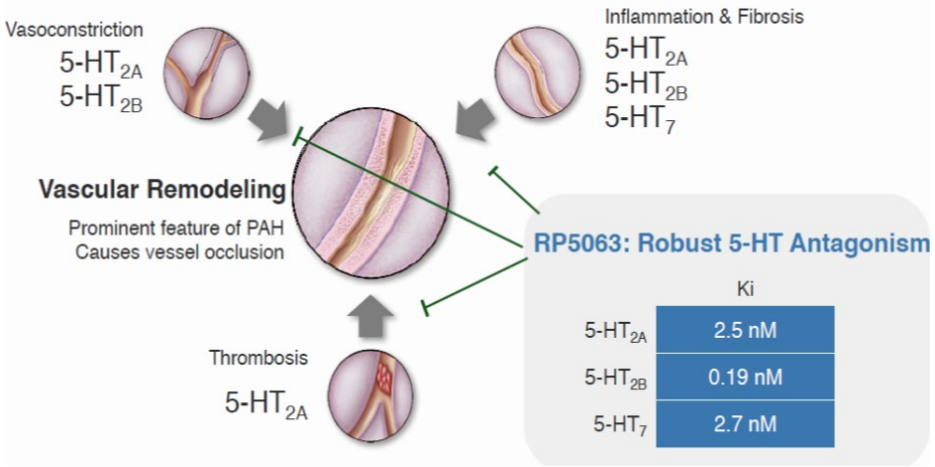


Bhat L, et al. ISID 2023, Poster #LB1745 (https://revivapharma.com/wp-content/uploads/2023/05/RS-Reviva-ISID-2023-Poster.pdf)

Brilaroxazine: Potential to Delay PAH and IPF Disease Progression

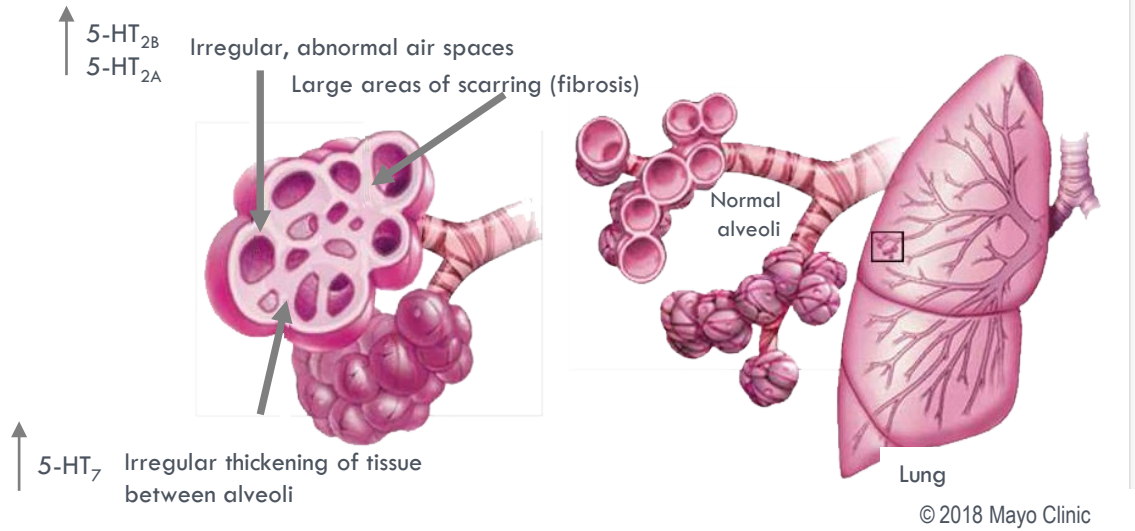
PAH and IPF are Orphan Diseases that involve dysfunctional serotonin signaling

Lung Vascular Remodeling in PAH



- PAH and IPF are rare, chronic, and debilitating conditions
- No therapies significantly delay disease progression
- Patients experience elevated plasma serotonin (5-HT) levels, increased expression of 5-$HT_{2A/2B/7}$ receptors & inflammatory cytokines in lungs

Lung Alveoli Remodeling in IPF



- Lung vascular/alveoli remodeling occurs due to inflammation, fibrosis, and pulmonary hypertension
- Brilaroxazine has robust antagonism against serotonin receptors involved in vasoconstriction, fibrosis, blood clots, and inflammation

Bhat L, et al. Medical Research Archives 2023, 11(4):3837; Bhat et al., Eur J Pharmacol 2018, 827:159-166; Lofdahl et al, Am J Pathobiology 2018, 188(5): 1113-1119; Tawfik and Makary, European J Pharmacology 2017, 814: 114-123; Pulmonary fibrosis image adapted from https://tinyurl.com/y9r6ld48

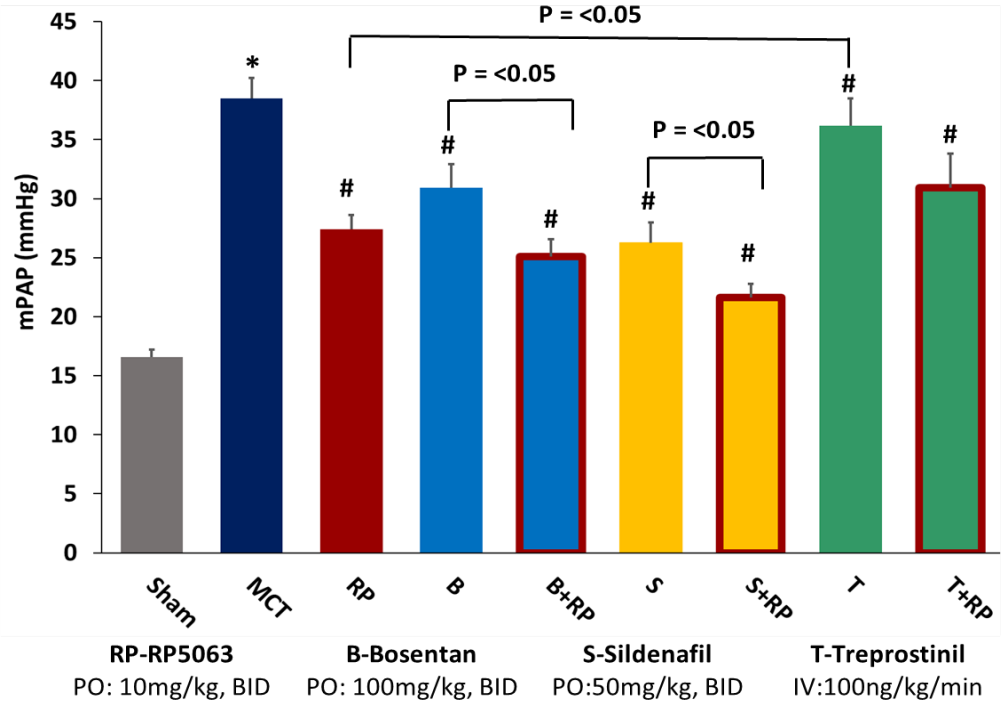
Brilaroxazine: Encouraging Results in PAH Translational Rodent Models

Potential for Improved Treatment Effect Compared to Standard of Care

Brilaroxazine alone and co-administered with standard of care for PAH

- Mitigated PAH in MCT and Sugen-Hypoxia rodent models
- Decreased respiratory resistance and restored blood oxygen saturation
- Decreased vascular remodeling and fibrosis in the small vessels
- Mitigated inflammation & reduced small vessel thickness
- Significantly reduced inflammatory cytokines TNFα, IL-β, IL-6, and chemokine LTB4

Brilaroxazine mitigates pulmonary hypertension and lung fibrosis/collagen



Bhat and Salvail, J Rare Dis Res Treat 2017, 2(5): 5-12. Bhat, et al. European J Pharmacology 2017, 810:83-91 and 92-99.
Bhat, et al. European J Pharmacology 2018, 827: 159-166.

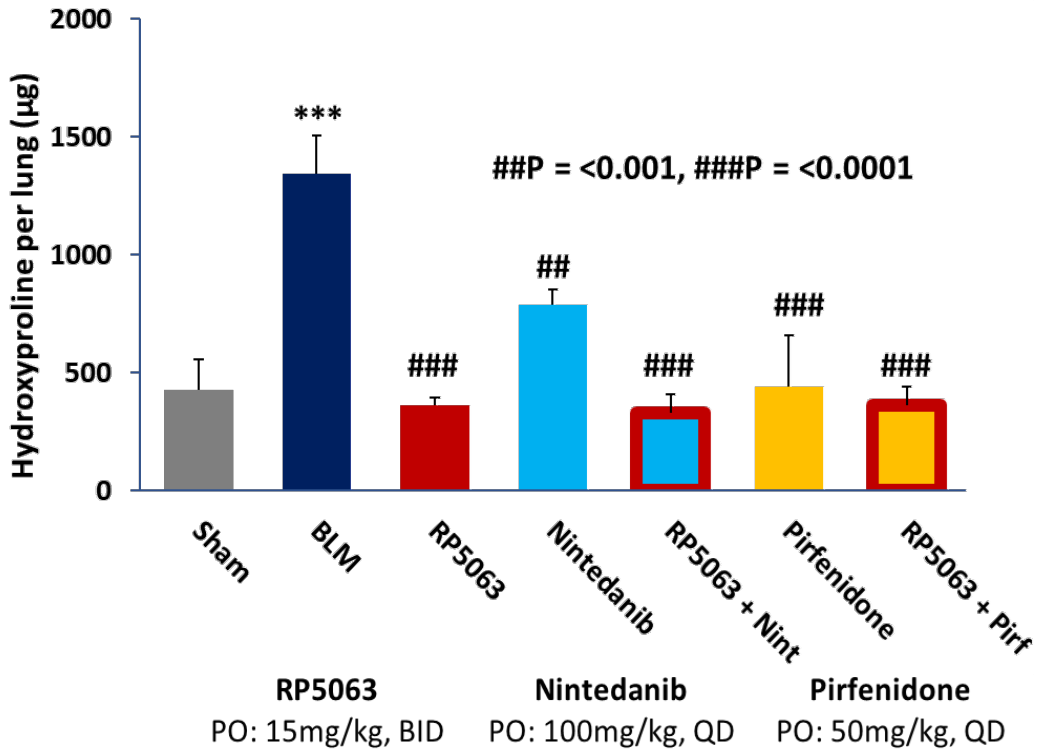
Brilaroxazine: Encouraging Results in Bleomycin-Induced IPF Rodent Model

Potential for Improved Treatment Effect Compared to Standard of Care

Brilaroxazine both alone and co-administered with standard of care for IPF

- Mitigated lung fibrosis and collagen deposits
- Decreased respiratory resistance & improved blood oxygen saturation
- Restored body weight and cardiac output
- Reduced the IPF biomarkers BALF cell counts, hydroxyproline, and blood lactate levels
- Decreased cytokines RANTES, IFNγ, MCP1, IL-6, and IL-17
- Improved survival rates

Brilaroxazine mitigates lung fibrosis / collagen (Decrease in Hydroxyproline)



Bhat L, et al. Medical Research Archives 2023, 11(4):3837

Brilaroxazine: Ready for Phase 2 Trials in PAH and IPF

FDA granted Orphan Drug Designation

Brilaroxazine Phase 2 trials in PAH and IPF

- Preclinical evidence supports the use of Brilaroxazine in PAH and IPF
- Generally well-tolerated in clinical studies for schizophrenia in >250 patients
- Completed long-term regulatory toxicology studies
- Manufactured API and drug products (clinical trial materials)
- Oral once daily dosing, potential to develop once daily inhaler for enhanced effect and convenience

Key regulatory milestones achieved

- FDA reviewed preclinical pharmacology, toxicology, CMC, and clinical Phase 1 safety data for initiating a Phase 2 study
- FDA reviewed and provided guidance on Phase 2/3 clinical development plan and a potential “Disease Modifying Agent” label claim
- FDA granted Orphan Drug Designation for the treatment of PAH and IPF

Reviva Pharmaceuticals Holdings, Inc.

General Inquiries

info@Revivapharma.com

Business Inquiries

busdev.rp@Revivapharma.com

Investor Relations Contact

IR@Revivapharma.com

Global Operations

U.S. Headquarters

Cupertino, CA, USA

International Offices

Bangalore, India

Reviva PHARMACEUTICALS