



ROLUPERIDONE:

Topline results from the Phase 3 trial: A Multicenter, Randomized, Double-blind, Parallel Group, Placebo-Controlled, Monotherapy, 12-Week Study to Evaluate the Efficacy and Safety of 2 Fixed Doses of MIN-101 in Adult Patients with Negative Symptoms of Schizophrenia, Followed by 40-Week Open-Label Extension

June 5th, 2020

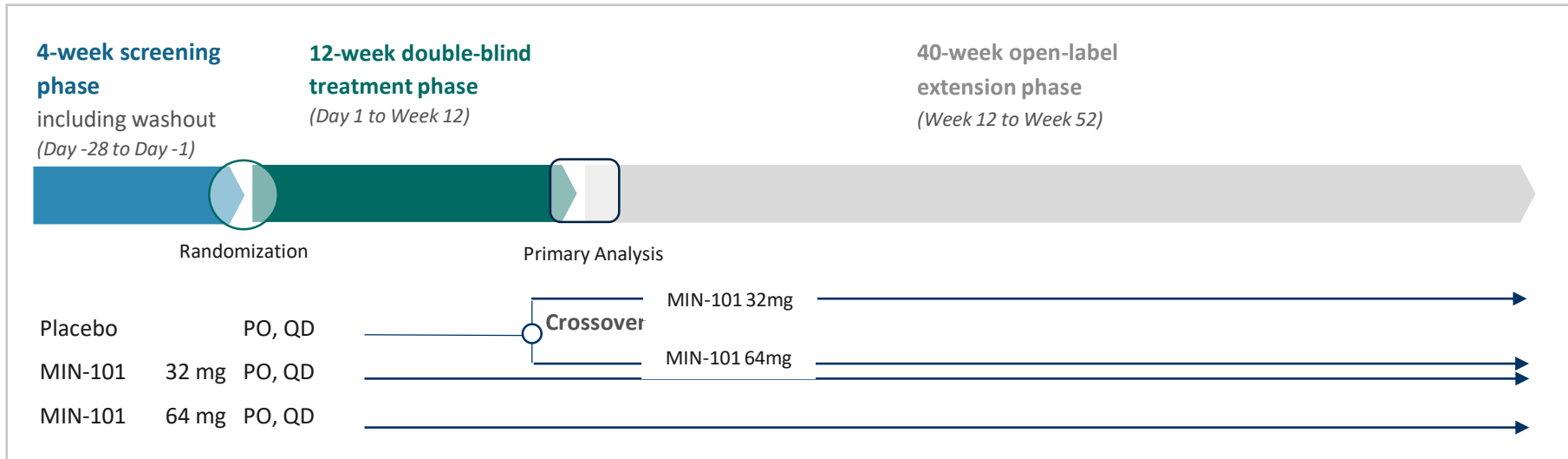
This presentation contains forward-looking statements which are subject to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts, reflect management's expectations as of the date of this press release, and involve certain risks and uncertainties. Forward-looking statements include statements herein with respect to the timing and scope of future clinical trials and results of clinical trials with roluperidone (MIN-101); the clinical and therapeutic potential of this compound; the timing and outcomes of future interactions with U.S. and foreign regulatory bodies; our ability to successfully develop and commercialize our therapeutic products; the sufficiency of our current cash position to fund our operations; and management's ability to successfully achieve its goals. These forward-looking statements are based on our current expectations and may differ materially from actual results due to a variety of factors including, without limitation, whether roluperidone will advance further in the clinical trials process and whether and when, if at all, it will receive final approval from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies and for which indications; whether any of our therapeutic products will be successfully marketed if approved; whether any of our therapeutic product discovery and development efforts will be successful; management's ability to successfully achieve its goals; our ability to raise additional capital to fund our operations on terms acceptable to us; and general economic conditions. These and other potential risks and uncertainties that could cause actual results to differ from the results predicted are more fully detailed under the caption "Risk Factors" in our filings with the Securities and Exchange Commission, including our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, filed with the Securities and Exchange Commission on May 4, 2020. Copies of reports filed with the SEC are posted on our website at www.minervaneurosciences.com. The forward-looking statements in this presentation are based on information available to us as of the date hereof, and we disclaim any obligation to update any forward-looking statements, except as required by law.

Webcast Agenda: Roluperidone phase 3 Top-Line Results (TLR)

Topic	Assigned
Introductions	William Boni, VP IR
Study Results	Remy Luthringer, PhD, Chairman & CEO
Results Discussion by KOL's	Phil Harvey, PhD Brian Kirkpatrick, MD
Concluding remarks & next steps	Remy Luthringer
Q&A	Michael Davidson, MD, CMO Phil Harvey Brian Kirkpatrick Remy Luthringer Geoff Race, CFO & CBO Rick Russell, President Jay Saoud

Study Design Schema & Key Study Elements

Phase 3: Study Design Schema and Key Study Elements



Primary Endpoint

Change from Baseline to Week 12 in the Positive and Negative Syndrome Scale (PANSS) Negative Symptoms Factor Score (NSFS; Marder score)

Key secondary Endpoint

Change from Baseline to Week 12 in the Personal and Social Performance scale total score (PSP)

Other Endpoints

Change from Baseline to Week 12 in:

- Clinical Global Impression of Severity (CGI-S)
- Clinical Global Impression of Improvement (CGI-I)
- PANSS Total Scores, sub-scores, and Marder's Factor Scores
- Cognition
- Safety & Tolerability

Number of patients

501 patients randomized 1:1:1 (167 in each arm)

Sample Size Assumptions

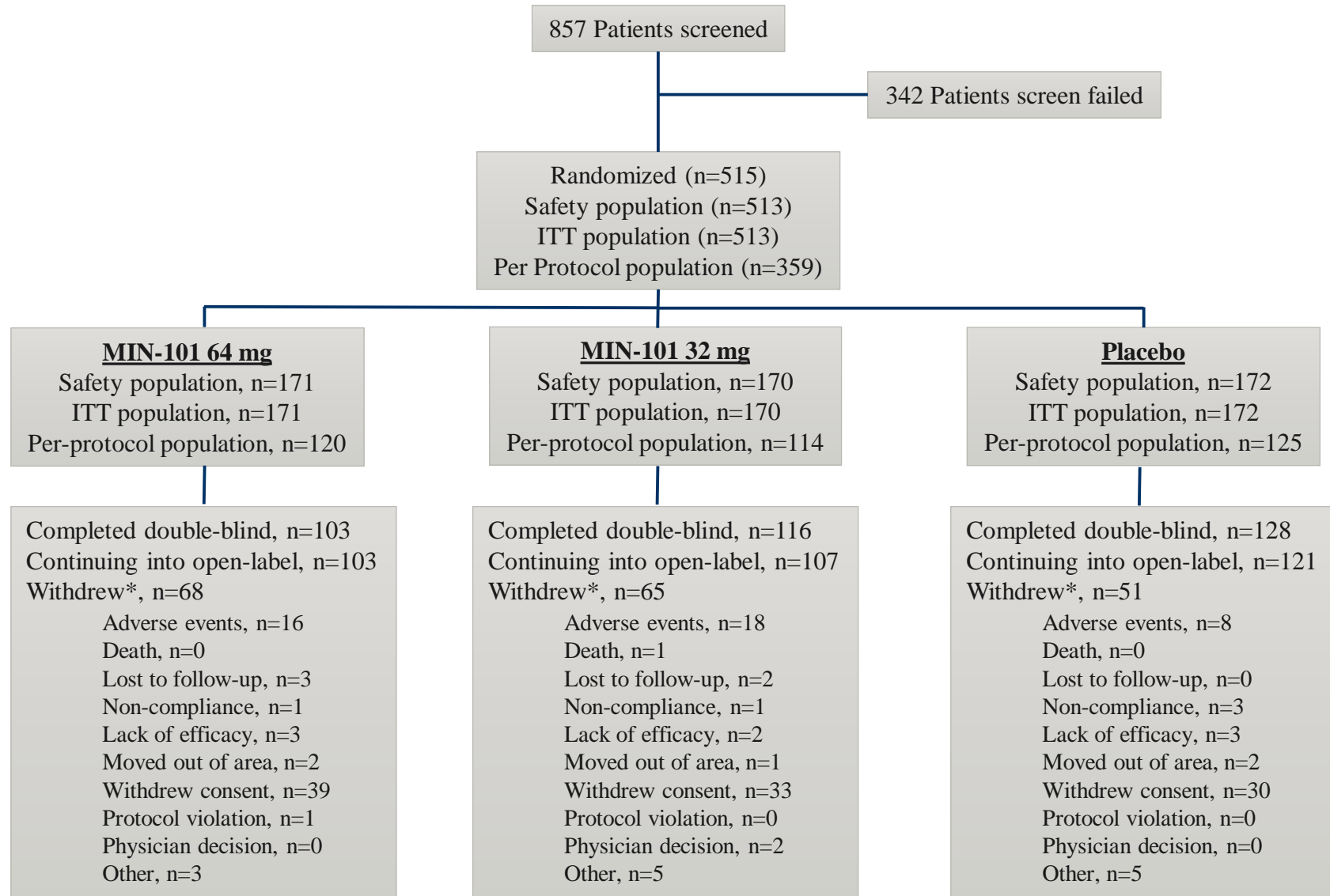
Delta versus placebo of 3 points, SD = 6.5, 90% power, and 40% drop-out rate

Phase 3 : Patient Population, Procedures & Statistical Method

- DSM-5 schizophrenia for at least 1 year
- Baseline score > 20 on the 7 items PANSS negative score
- 18 to 55 years of age
- Outpatient, symptomatically stable and manifesting negative symptoms for 6 months
- Withdrawn from depot antipsychotics for ≥ 1 month and from all psychotropics for ≥ 3 days prior to randomization
- No psychotropic medications except rescue medications given for insomnia or agitation (oral lorazepam, zolpidem, or injectable sodium amytal)
- Assessments for efficacy at Baseline and at Weeks 2, 4, 8 and 12 or upon early discontinuation
- Extensive metabolizers for P450 CYP2D6, as determined by genotyping
- Primary analysis on Intent-To-Treat (ITT) population
- Primary analysis using Mixed Model Repeated Measures (MMRM)
- Truncated Hochberg procedure used to correct for multiplicity for primary and key secondary endpoints

Disposition

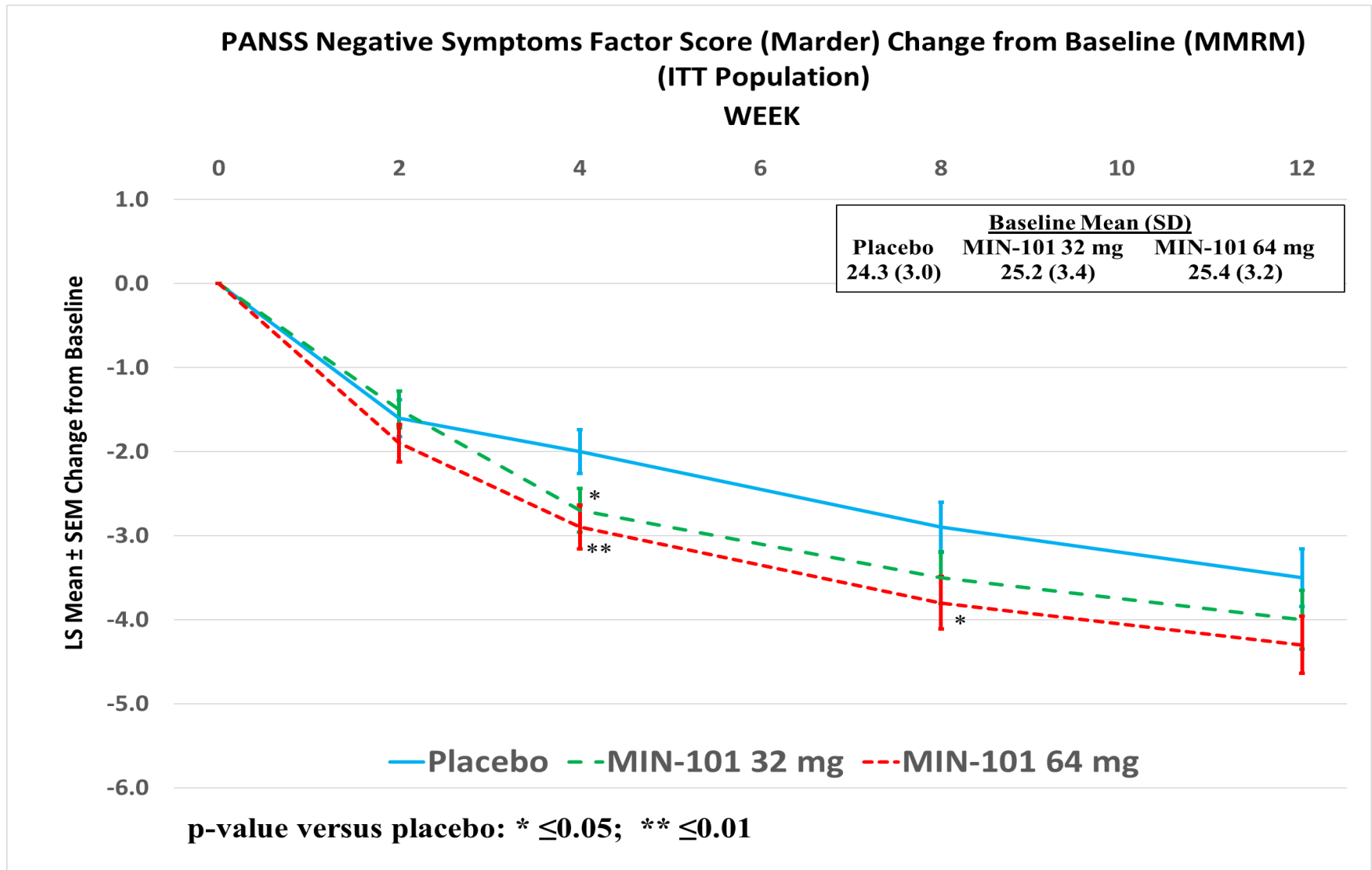
Phase 3: Disposition Flow Chart



* Including patients who withdrew after completing study procedures at Week 12

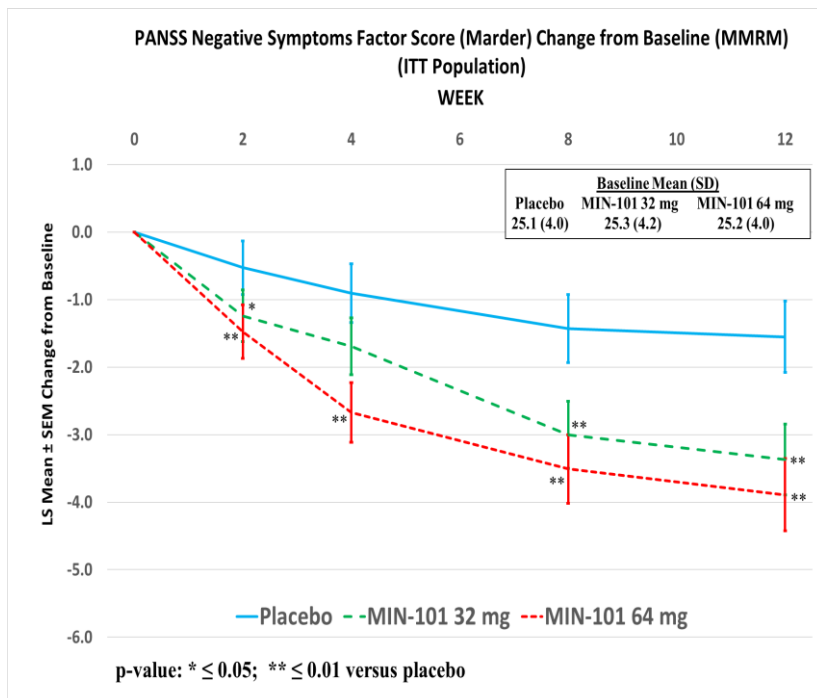
Primary Endpoint

Phase 3: Marder's Negative Symptom Factor Score – Primary Endpoint

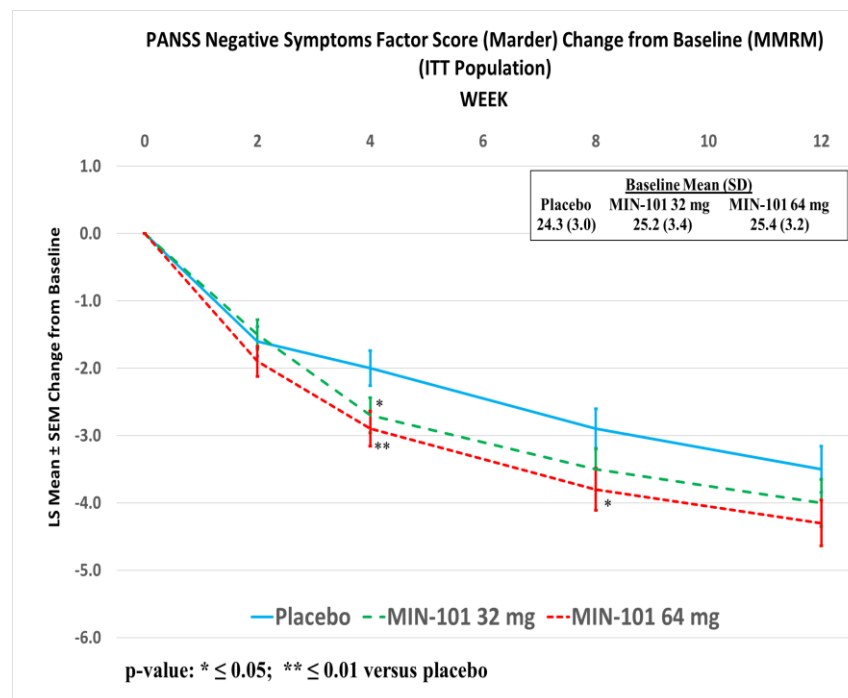


Marder's Negative Symptom Factor Score by Study - comparison of Phase 2b & Phase 3

Phase 2b NSFS

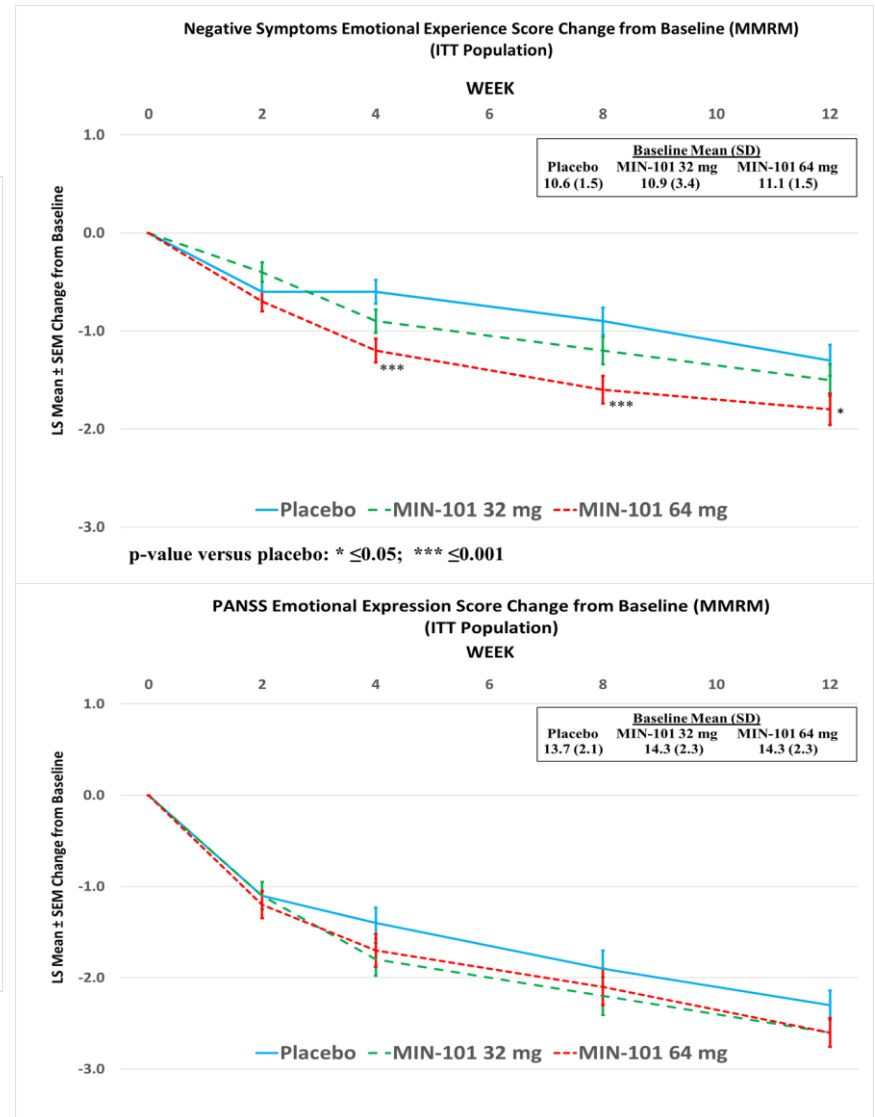
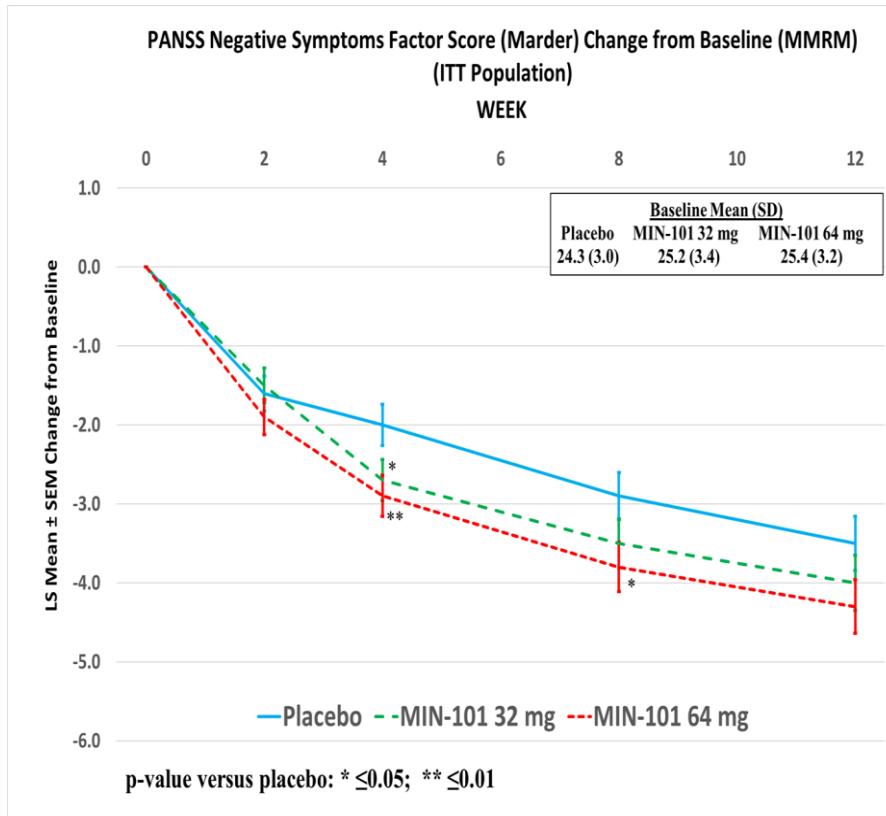


Phase 3 NSFS



Factor	Phase 2b	Phase 3
Age at Baseline (yrs)	40	41
PANSS NS Subscore	27	27
PANSS Total Score	80	79
Placebo delta in PANSS NSFS (primary)	1.6	3.5
64 mg delta in PANSS NSFS (primary)	3.9	4.3

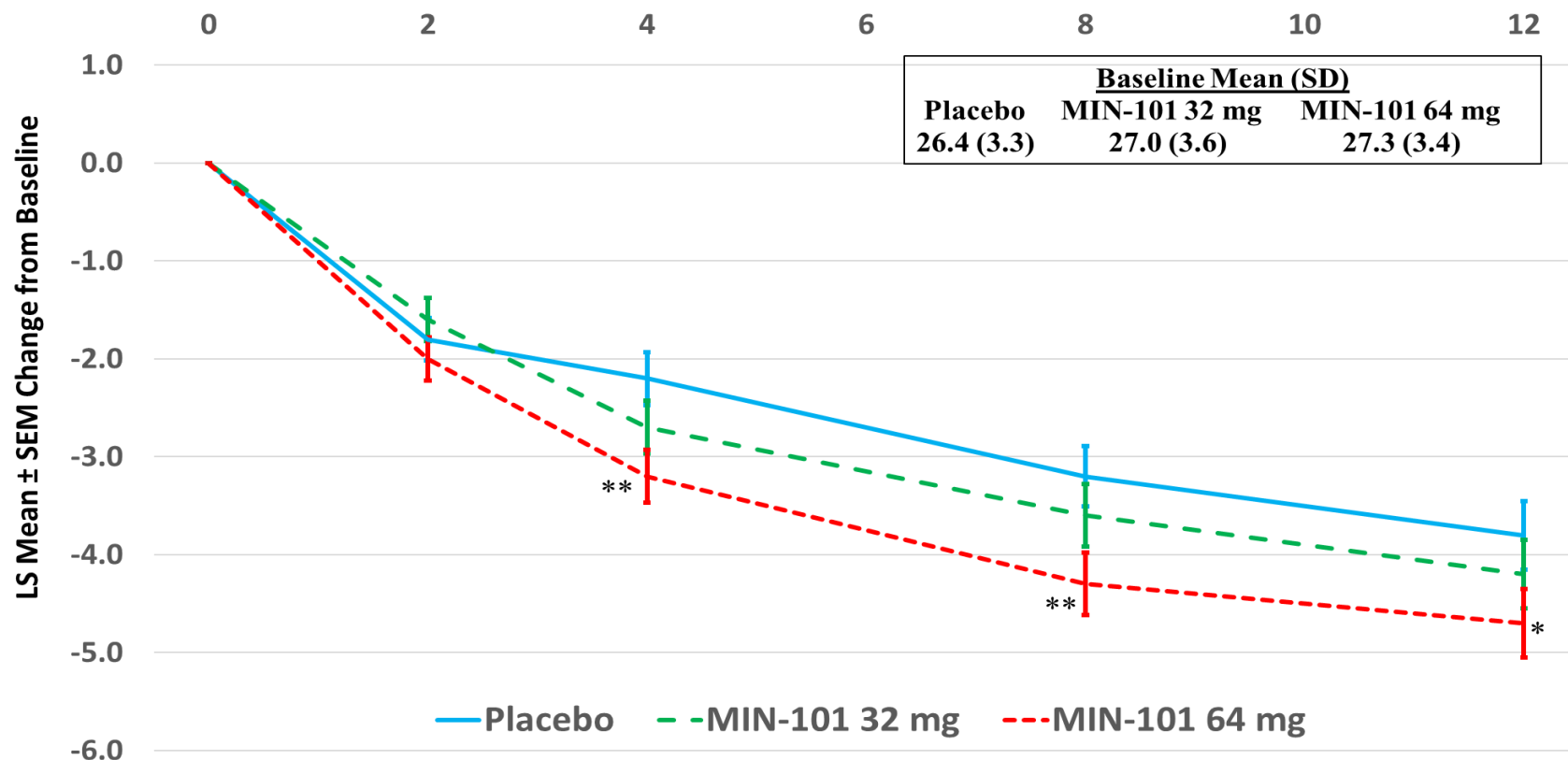
Phase 3: NSFS & Negative Symptom Dimensions¹



¹ Roluperidone demonstrated statistically significant superiority to placebo in improving emotional experience and emotional expression: *Harvey et al., 2020; Schizophrenia Research*

Phase 3: PANSS Negative Symptom Subscore – Sum of the 7 “N” items

**PANSS Negative Symptom Subscore Change from Baseline (MMRM)
(ITT Population)**
WEEK



p-value versus placebo: * ≤ 0.05 ; ** ≤ 0.01

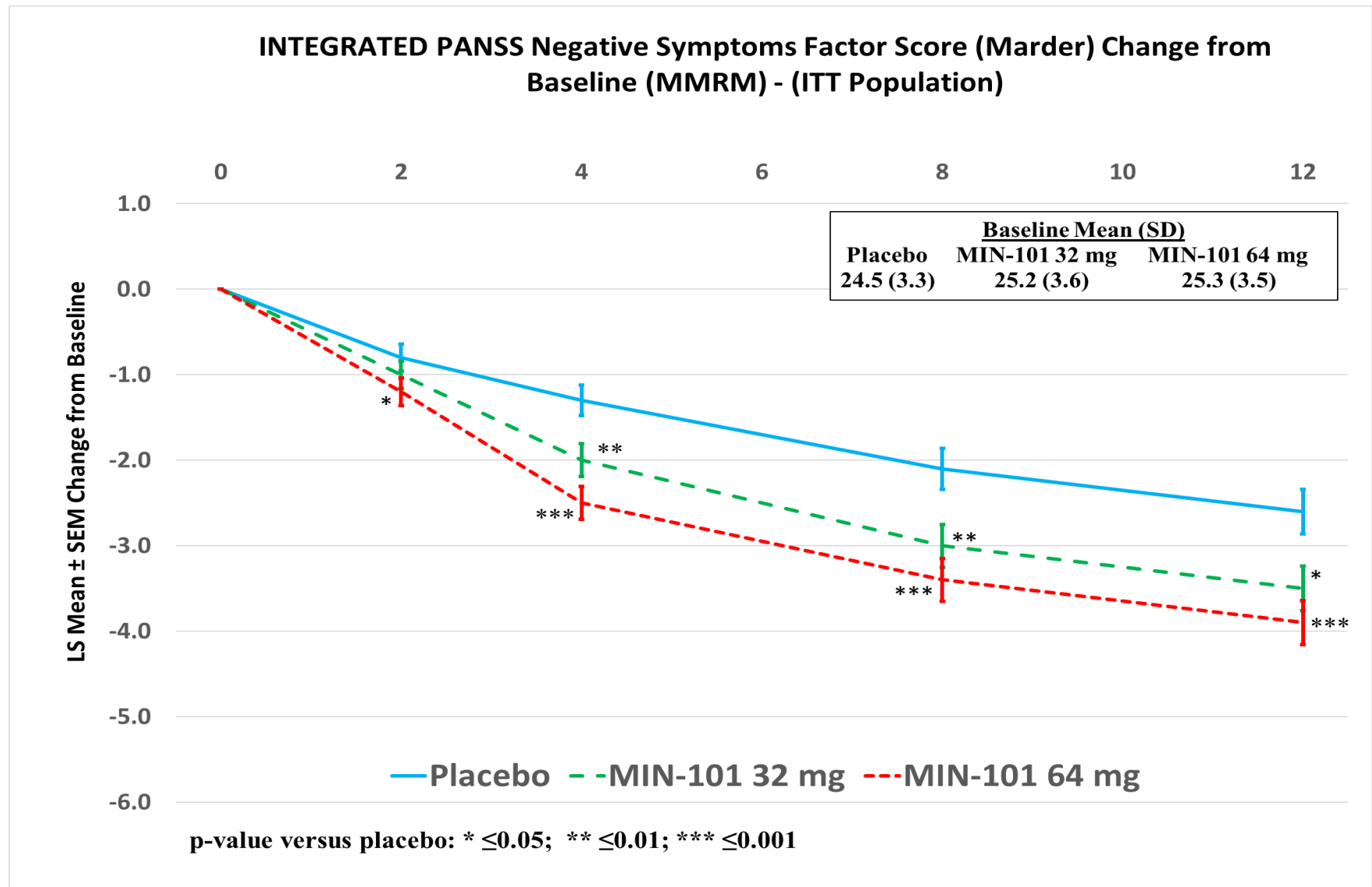
Responder Analysis:
PANSS Total
&
Marder Negative Symptoms Factor
Score (NSFS)

Phase 3: Responder Analysis of PANSS Total and Marder Negative Symptoms Factor Score (NSFS)

		Roluperidone (MIN-101)		
	Placebo (N=172)	32mg (N=170)	64mg (N=171)	Total (N=341)
NSFS at Week 12				
Number of patients with 30% response in NSFS at Week 12	17/128 (13%)	14/116 (12%)	24/122 (20%)	38/238 (16%)
Logistic Regression p-value [1]		0.807	0.160	0.538
Number of patients with 20% response in NSFS at Week 12	30/128 (23%)	32/116 (28%)	48/122 (39%)	80/238 (34%)
Logistic Regression p-value		0.418	0.006	0.044
PANSS Total at Week 12				
Number of patients with 30% response in PANSS Total at Week 12	5/128 (4%)	2/116 (2%)	7/122 (6%)	9/238 (4%)
Logistic Regression p-value [1]		0.327	0.498	0.728
Number of patients with 20% response in PANSS Total at Week 12	12/128 (9%)	20/116 (17%)	24/122 (20%)	44/238 (18%)
Logistic Regression p-value		0.061	0.021	0.021

Preliminary Primary Endpoint Integrated Analysis

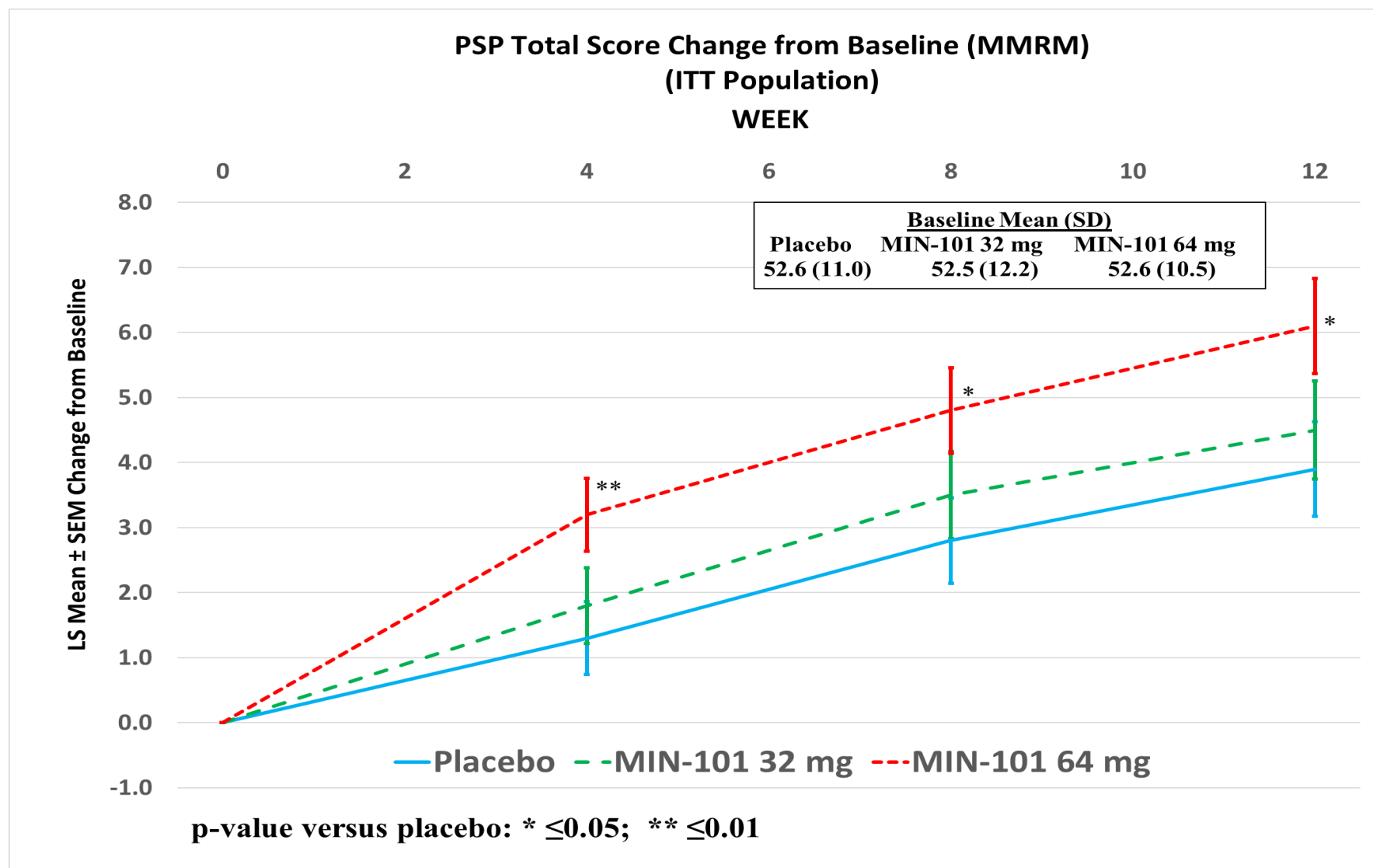
Primary Endpoint Integrated Analysis: Marder's Negative Symptom Factor Score from Phase 2b & Phase 3 Studies – Preliminary Results



ES=0.37; ES=0.26

Key Secondary Endpoint

Phase 3: Personal and Social Performance Total Score – Key Secondary Endpoint



Efficacy Summary

Phase 3: Summary of Efficacy Findings

Endpoints	Change from Baseline LS Means (Week 12)			32 mg MIN-101 versus Placebo		64 mg MIN-101 versus Placebo	
	Placebo	MIN-101		p-value	effect size	p-value	effect size
		32 mg	64 mg				
Primary							
Marder's Negative Symptom Factor Score (NSFS)	-3.5	-4.0	-4.3	0.259	0.13	0.064	0.21
Key Secondary							
Personal & Social Performance (PSP)	3.9	4.5	6.1	0.542	0.07	0.021	0.27
Secondary & Exploratory							
Clinical Global Impression of Severity	-0.3	-0.4	-0.5	0.221	0.10	0.073	0.24
PANSS Total Score	-5.5	-7.1	-7.4	0.168	0.17	0.098	0.20
PANSS Negative Subscore	-3.8	-4.2	-4.7	0.392	0.10	0.046	0.23
Marder's Positive Symptoms Factor Score	-0.9	-1.3	-1.6	0.190	0.14	0.039	0.24
NSFS Emotional Experience Score	-1.3	-1.5	-1.8	0.401	0.11	0.020	0.28
NSFS Emotional Expression Score	-2.3	-2.6	-2.6	0.352	0.17	0.349	0.17
PSP Self-Care	-0.3	-0.4	-0.3	0.261	0.15	0.819	0.04
PSP Socially Useful Activities	-0.3	-0.3	-0.4	0.865	0.02	0.047	0.18
PSP Personal and Social Relationships	-0.3	-0.4	-0.3	0.076	0.15	0.501	0.04
* Observed data							
Integrated Analysis	Change from Baseline LS Means (Week 12)			32 mg MIN-101 versus Placebo		64 mg MIN-101 versus Placebo	
	Placebo	MIN-101		p-value	effect size	p-value	effect size
		32 mg	64 mg				
Marder's Negative Symptom Factor Score (NSFS)	-2.5	-3.3	-3.6	0.014	0.26	0.001	0.37

■ Key findings:

- Patient populations in the phase 2b and phase 3 are comparable
- Improvement of negative symptoms as measured by NSFS are similar in both studies
- Both doses show early separation from placebo at week 4 (both doses) and week 8 (64mg)
- Due to higher placebo response, roluperidone at both doses separated but did not achieve a statistically significant difference at Week 12
- Higher number of responders in terms of negative symptoms and total PANSS score in the roluperidone treatment groups
- The reduction in negative symptoms scores in the 64 mg arm of roluperidone translated into an improvement of PSP total score and sub-scores reflective of functional improvement.
- Relapse rates are extremely low and confirm that a significant proportion of schizophrenic patients have stable positive symptoms for extended periods of time.
- The integrated analysis of the phase 3 and phase 2b study data shows a very strong statistically significant difference for both doses of roluperidone at week 12 (and earlier timepoints).

■ Safety and efficacy of roluperidone in phase 3 are consistent with phase 2b

RESULTS DISCUSSION BY KOL'S

Phil Harvey & Brian Kirkpatrick

CONCLUDING REMARKS & NEXT STEPS

Remy Luthringer

- Further data analyses will continue over the coming weeks:
 - Complete understanding of the data
 - Further explore placebo group and understand the difference seen between the phase 2b and 3 study
 - To continue our dialogue with our regulatory advisors and our KOL's
- Request a meeting with the FDA to present data and obtain input and plan path forward
- The results also confirm the unique mechanism of action of roluperidone targeting those pathways – 5HT_{2A}, Sigma₂, Alpha_{1A} – known to be involved in schizophrenia (1)
- Psychiatrists cite negative symptoms as the top unmet need in the treatment of schizophrenia (2)
- No product is currently approved to treat negative symptoms in the US

Q&A

Michael Davidson
Phil Harvey
Brian Kirkpatrick
Remy Luthringer
Geoff Race
Rick Russell
Jay Saoud