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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**FORM 8-K**

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

**Date of Report (Date of earliest event reported): March 22, 2018**

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**Minerva Neurosciences, Inc.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction  
of incorporation)

**001-36517**  
(Commission  
File Number)

**26-0784194**  
(I.R.S. Employer  
Identification No.)

**1601 Trapelo Road**  
**Suite 286**  
**Waltham, MA**  
(Address of principal executive offices)

**02451**  
(Zip Code)

**(Registrant's telephone number, including area code): (617) 600-7373**

(Former name or former address, if changed since last report)

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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))

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.

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**Item 8.01 Other Events.**

Minerva Neurosciences, Inc. (the "Company") is filing the corporate presentation slides attached as Exhibit 99.1 to this Current Report on Form 8-K, which the Company may use from time to time in conversations with third parties. The presentation will also be available in the investor relations section of the Company's website.

**Item 9.01 Financial Statements and Exhibits**

(d) Exhibits

| <u>Exhibit<br/>No.</u> | <u>Description</u>                                       |
|------------------------|--|
| 99.1                   | <a href="#">Corporate Presentation dated March 2018.</a> |

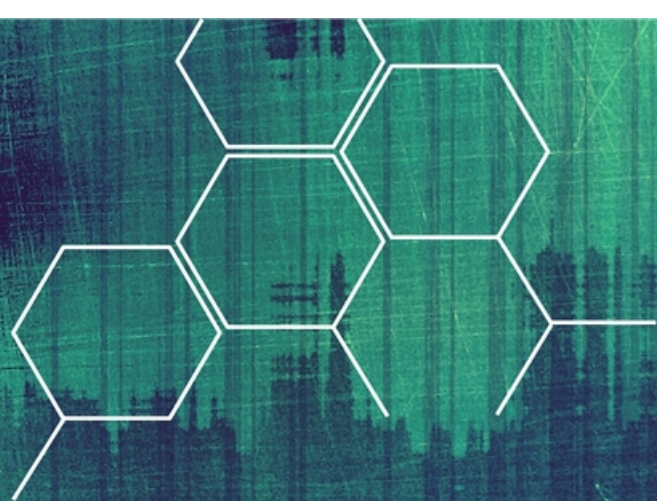
**SIGNATURE**

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 hereunto duly authorized.

**MINERVA NEUROSCIENCES, INC.**

By: /s/ Geoffrey Race  
Name: Geoffrey Race  
Title: Executive Vice President, Chief Financial Officer and Chief Business Officer

Date: March 22, 2018



**MINERVA**  
NEUROSCIENCES, INC.

## **2018: MILESTONES ON THE HORIZON**

**March 2018**

## Forward-Looking Statement Safe-Harbor

This presentation contains forward-looking statements about Minerva Neurosciences 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 presentation, and involve certain risks and uncertainties. Forward-looking statements include, but are not limited to: the benefits, efficacy and safety of our new formulations; the potential of the diagnosis and treatment of negative symptoms of schizophrenia and other diseases; whether studies performed on analogs or backups of our compounds are a good predictor of the clinical efficacy of our compounds; statements with respect to the timing and results of future clinical milestones with roluperidone (MIN-101), seltorexant (MIN-202) and MIN-117, including the Phase 3 trial of roluperidone, the Phase 2b trials of seltorexant and the planned Phase 2b trial of MIN-117; statements regarding our ability to successfully develop and commercialize our therapeutic products; our expectations regarding approval for our products by the U.S. Food and Drug Administration or equivalent foreign regulatory agencies; estimates regarding the market potential for our products; and future performance. All of such statements are subject to certain risks and uncertainties, many of which are difficult to predict and generally beyond the control of the Company, that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking statements. 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 any of our therapeutic products will advance further in the clinical trials process and whether and when, if at all, they will receive final approval from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies and for which indications; whether the results of future clinical trials of roluperidone, seltorexant, MIN-117 and MIN-301, if any, will be consistent with the results of past clinical trials; whether roluperidone, seltorexant, MIN-117 and MIN-301 will be successfully marketed if approved; whether our therapeutic product discovery and development efforts will be successful; our ability to achieve the results contemplated by our co-development agreements; the strength and enforceability of our intellectual property rights; competition from pharmaceutical and biotechnology companies; the development of and our ability to take advantage of the market for our therapeutic products; 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-K for the year ended December 31, 2017, filed with the Securities and Exchange Commission on March 12, 2018. Copies of reports filed with the SEC are posted on our website at [www.minervaneurosciences.com](http://www.minervaneurosciences.com). Our audience is cautioned not to place undue reliance on these forward-looking statements that speak only as of the date hereof, and we disclaim any obligation to update any forward-looking statements, except as required by law.

## Focus: to address the debilitating unmet needs of millions of patients afflicted by neuropsychiatric illnesses

### Differentiated assets

- Targeting clearly recognized unmet needs
- Innovative mechanisms of action

### Advanced clinical development

- Lead product in pivotal Phase 3 trial
- Three Phase 2b studies ongoing, one planned to begin in 2018

### Commercially attractive CNS markets

- Negative symptoms in schizophrenia & beyond
- Major depressive and anxiety disorders
- Insomnia with and without comorbid psychiatric symptoms
- Parkinson's disease & other neurodegenerative disorders

### Funded beyond multiple significant data read-outs in 2019

- \$133.2 million cash balance at 12/31/17



## Innovative pipeline of four compounds and multiple indications in the CNS space

| Program                         | Primary Indications   | MoA   | Pre-clinical | Phase 1 | Phase 2   | Phase 3                                 |
|---------------------------------|---|---|--------------|---------|---|---|
| <b>Roluperidone<br/>MIN-101</b> | Negative symptoms in Schizophrenia                                      | <ul style="list-style-type: none"> <li>• 5-HT<sub>2A</sub> antagonist</li> <li>• Sigma<sub>2</sub> antagonist</li> </ul>  |              |         |   | Phase 3 initiated Dec 2017 (MIN-101C07) |
| <b>Seltorexant<br/>MIN-202</b>  | Primary Insomnia<br><br>Major Depressive Disorder as adjunctive therapy | <ul style="list-style-type: none"> <li>• Selective Orexin2 antagonist</li> </ul>  |              |         | Phase 2b initiated Dec 2017 (ISM2005)<br>Phase 2b initiated Sep 2017 (MDD2001)<br>Phase 2b initiated Dec 2017 (MDD2002) |   |
| <b>MIN-117</b>                  | Major Depressive Disorder as monotherapy                                | <ul style="list-style-type: none"> <li>• 5-HT<sub>1A</sub></li> <li>• 5HT transporter</li> <li>• Alpha-1a, b</li> <li>• Dopamine transporter</li> <li>• 5-HT<sub>2A</sub> antagonist</li> </ul> |              |         | Phase 2b planned H1 2018 (MIN-117C03)   |   |
| <b>MIN-301</b>                  | Parkinson's Disease   | <ul style="list-style-type: none"> <li>• Neuregulin 1β1 activating ErbB4</li> </ul>   | Pre-clinical |         |   |   |



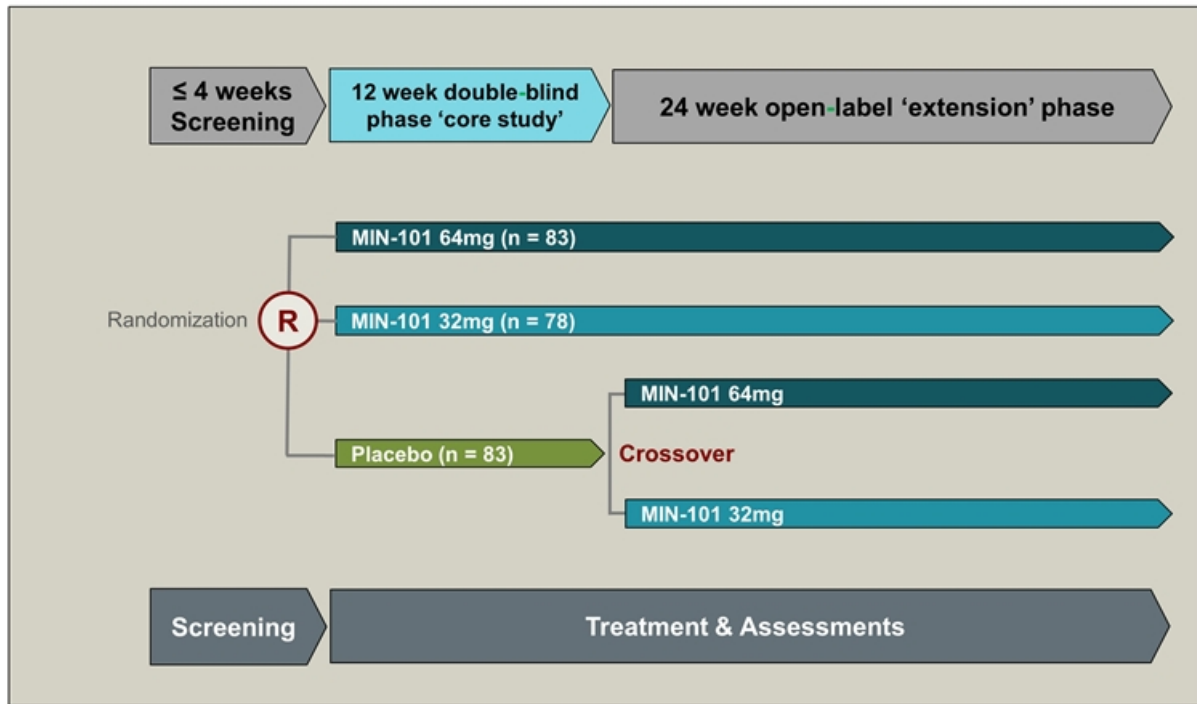
# Roluperidone (MIN-101)

A new paradigm for the treatment of  
schizophrenia

**Phase 3 initiated December 2017**



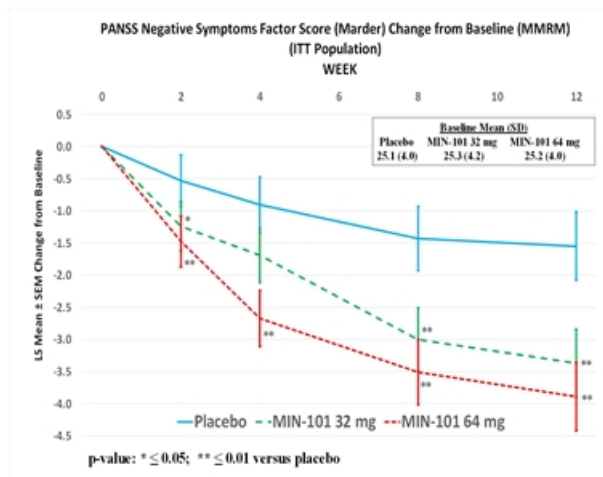
# MIN-101: Phase 2b study design: monotherapy, double-blind, placebo-controlled in schizophrenic patients with confirmed negative symptoms



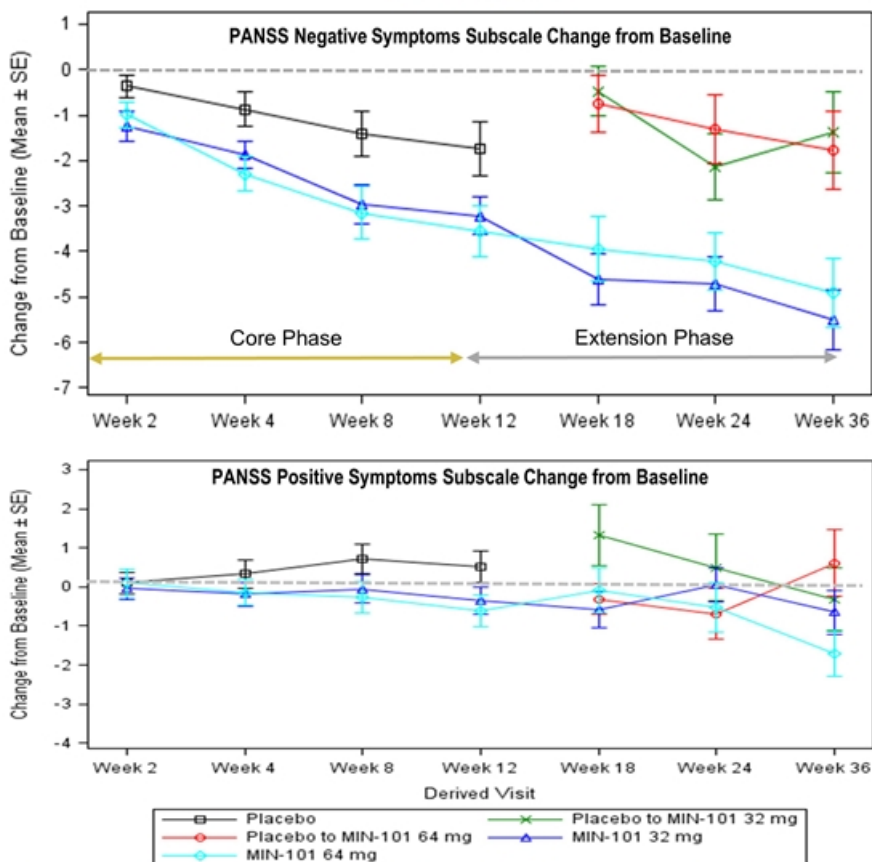
Specific effects on negative symptoms can only be determined in a placebo-controlled study

# Phase 2b study showed specific improvements in negative symptoms over 12 weeks and 36 weeks in both doses and stable positive symptoms

Statistically significant improvements in the primary endpoint



## Extension



## Efficacy and Safety of MIN-101: A 12-Week Randomized, Double-Blind, Placebo-Controlled Trial of a New Drug in Development for the Treatment of Negative Symptoms in Schizophrenia

Michael Davidson, M.D., Jay Saoud, Ph.D., Corinne Staner, M.D., Nadine Noel, Ph.D., Elisabeth Luthringer, R.N., Sandra Werner, Ph.D., Joseph Reilly, M.S., Jean-Yves Schaffhauser, Pharm.D., Jonathan Rabinowitz, Ph.D., Mark Weiser, M.D., Remy Luthringer, Ph.D.

**Objective:** The authors assessed the efficacy, safety, and tolerability of MIN-101, a compound with affinities for sigma-2 and 5-HT<sub>2A</sub> receptors and no direct dopamine affinities, in comparison with placebo in treating negative symptoms in stabilized patients with schizophrenia.

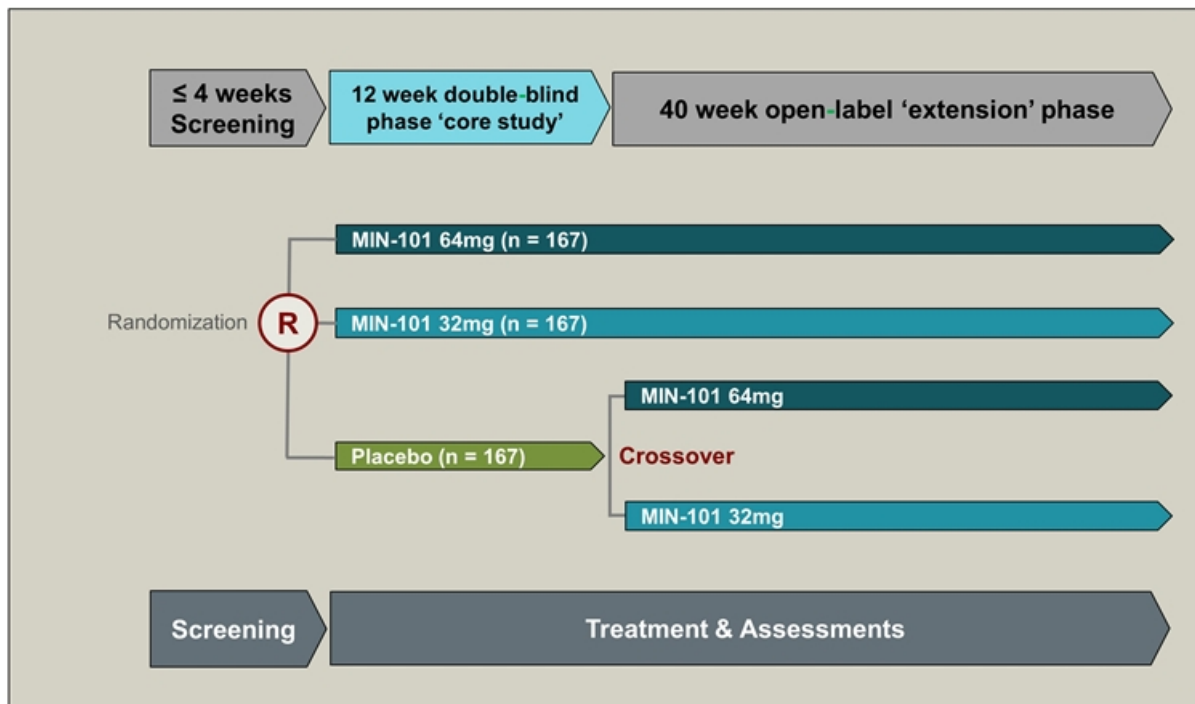
**Method:** The trial enrolled 244 patients who had been symptomatically stable for at least 3 months and had scores of at least 20 on the negative subscale of the Positive and Negative Syndrome Scale (PANSS). After at least 5 days' withdrawal from all antipsychotic medication, patients were randomly assigned to receive placebo or 32 mg/day or 64 mg/day of MIN-101 for 12 weeks. The primary outcome measure was the PANSS negative factor score (pentagonal structure model). Secondary outcome measures were PANSS total score and scores on the Clinical Global Impressions Scale (CGI), the Brief Negative Symptom Scale, the Brief Assessment of Cognition in Schizophrenia, and the Calgary Depression Scale for Schizophrenia.

**Results:** A statistically significant difference in PANSS negative factor score was observed, with lower scores for the MIN-101 32 mg/day and 64 mg/day groups compared with the placebo group (effect sizes,  $d=0.45$  and  $d=0.57$ , respectively). Supporting these findings were similar effects on several of the secondary outcome measures, such as the PANSS negative symptom, total, and activation factor scores, the CGI severity item, and the Brief Negative Symptom Scale. There were no statistically significant differences in PANSS positive scale score between the MIN-101 and placebo groups. No clinically significant changes were observed in vital signs, routine laboratory values, weight, metabolic indices, and Abnormal Involuntary Movement Scale score.

**Conclusions:** MIN-101 demonstrated statistically significant efficacy in reducing negative symptoms and good tolerability in stable schizophrenia patients.

*Am J Psychiatry* 2017; 00:1-8; doi: 10.1176/appi.ajp.2017.17010122

## MIN-101 Phase 3 study design: monotherapy, double-blind, placebo-controlled in schizophrenic patients with negative symptoms



Phase 3 compared to Phase 2b: same patient population; same double-blind duration; same doses; PANSS negative score primary endpoint; CGI & PSP secondary endpoints; 40 weeks extension allows 1 year safety coverage

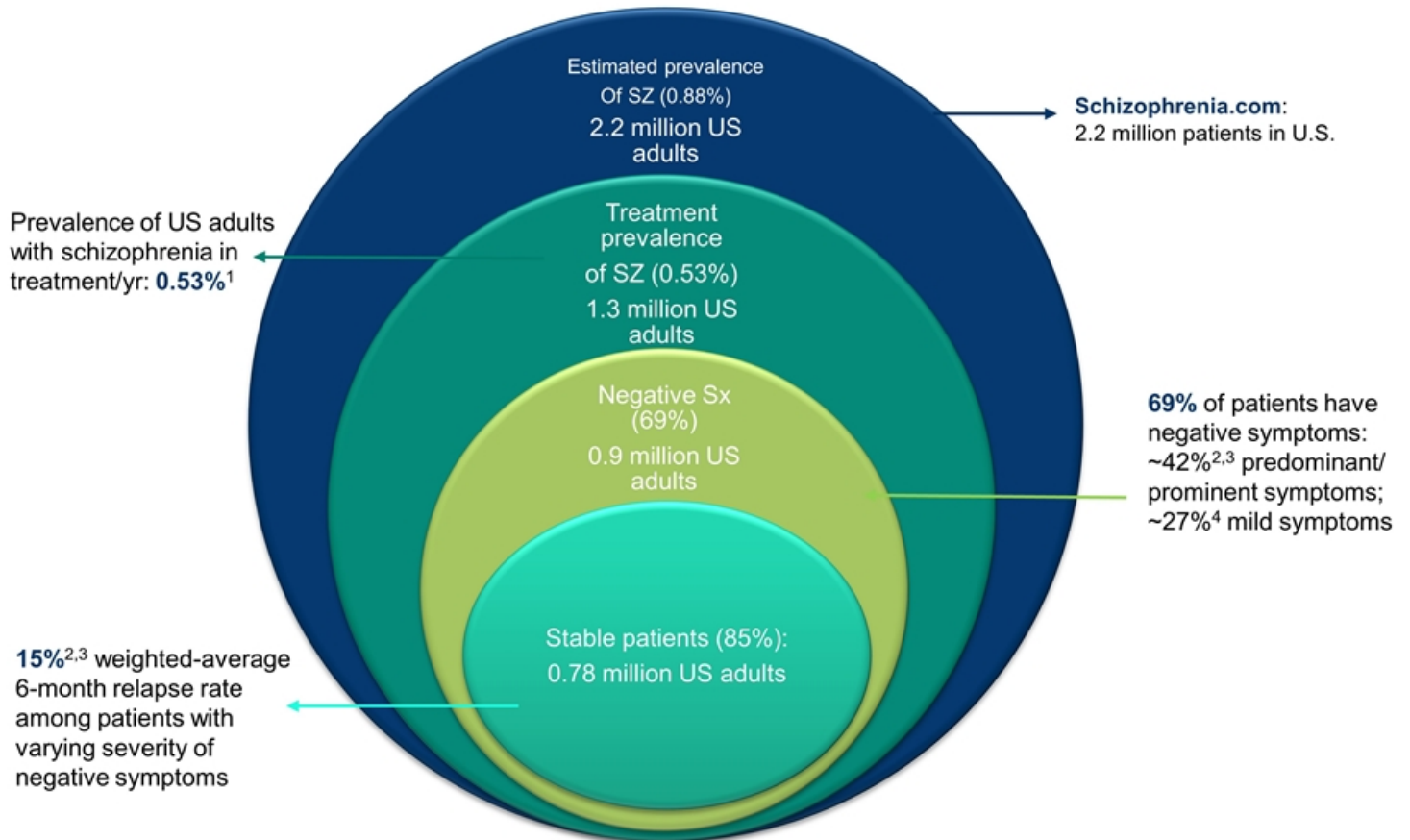
## Phase 3 efficacy study: confirmatory study design guided by insights from Phase 2b and dialogue with FDA

- **Primary endpoint:** PANSS Negative Symptoms Factor Score (NSFS) according to Marder after 12 weeks administration
- Secondary endpoints: Clinical Global Impression of Severity (CGI-S) and Personal and Social Performance scale (PSP)
- 40 weeks (9 months) open-label extension
- 501 patients randomized 1:1:1 to 32mg & 64mg doses of MIN-101 vs placebo
  - Symptomatically stable patients for several months with moderate to severe negative symptoms (>20 PANSS NSFS) and stable positive symptoms
- If patients are on antipsychotic medication, switch to MIN-101 without long wash-out periods so as to mimic clinical practice
- Study carried out in US (approx 30% of patients) and Europe

## **Market Landscape: Schizophrenia (US)**

### **Burden of disease and market potential**

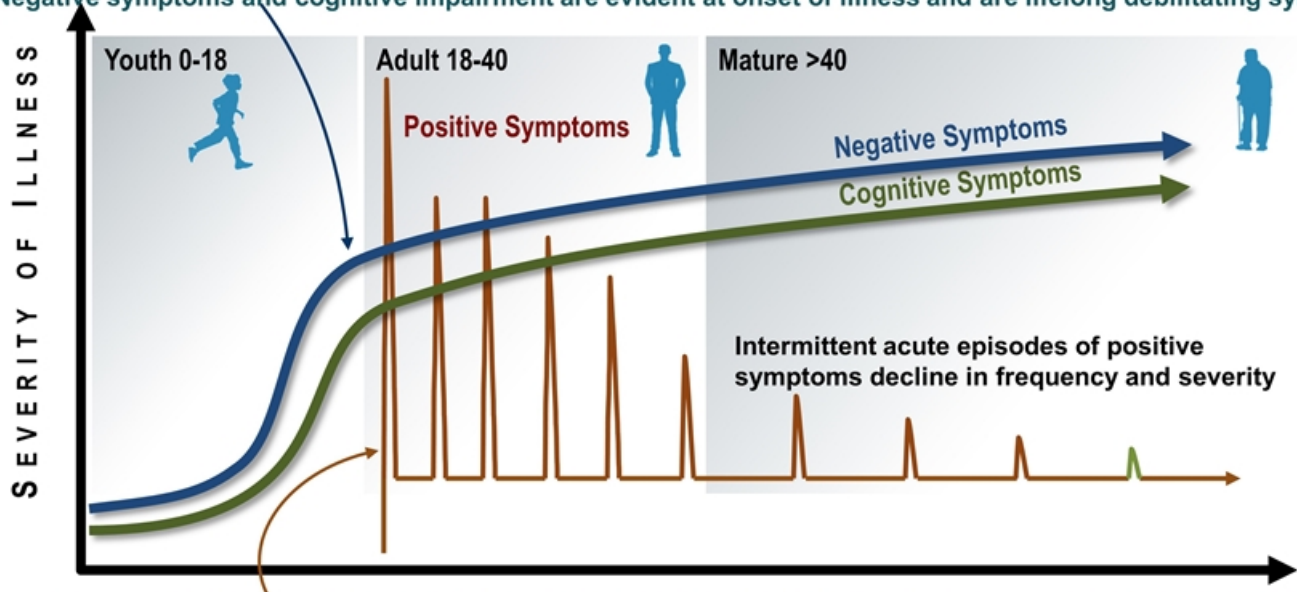
# 59% of adult patients with schizophrenia who are treated have negative symptoms and are clinically stable



1. Wu et al., Psychol Medicine 2006; 2. Millier et al., J Market Acc Health Policy, 2017; 3. Haro et al., Schizo Research 2015; 4. Nordstrom et al., J Social Psychiatry 2017

## Positive symptoms fluctuate over time while negative and cognitive symptoms persist and cause lifelong disability

Negative symptoms and cognitive impairment are evident at onset of illness and are lifelong debilitating symptoms



All antipsychotics directly target dopamine (DA) receptors and have only shown efficacy against positive symptoms; none are indicated for negative symptoms or cognitive impairment

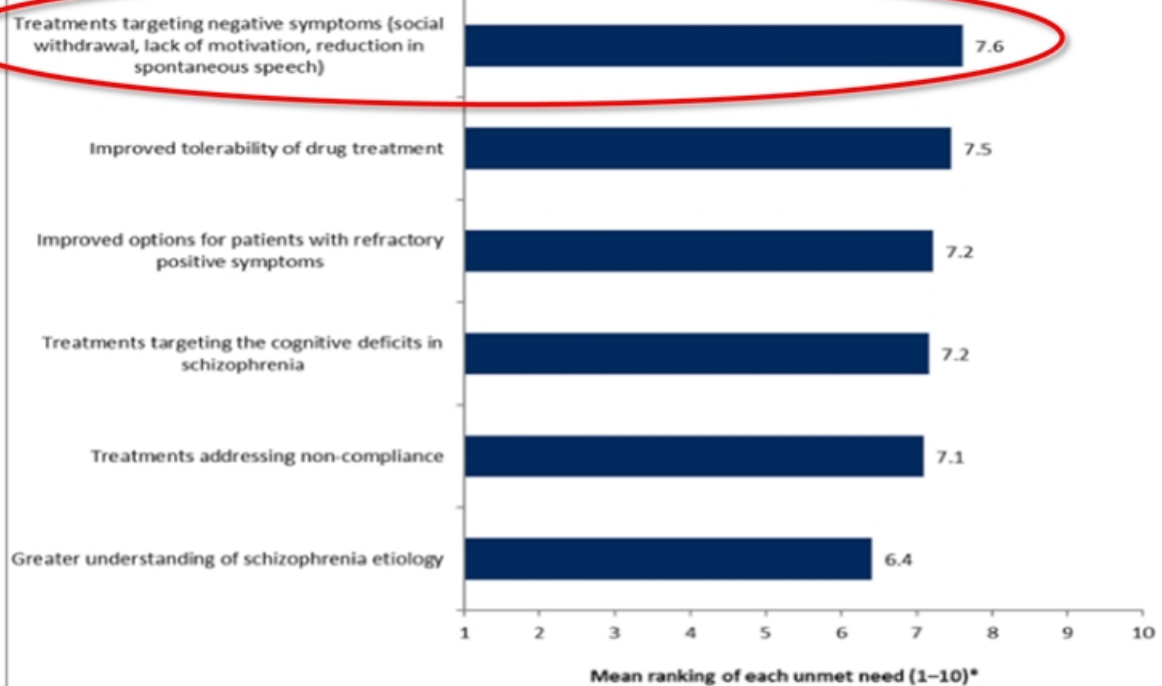
- Both cognitive deficits and negative symptoms usually exist before 18 y
- Some experts note that not all positive symptoms are episodic; for some patients, positive symptoms may decline more gradually, and some patients can achieve full remission

Source of chart and captions: Minerva Corporate Presentation. Slide 7. January 2018. Source of bullets: KOL Exploratories. January 9-10, 2018. Cello Health Advantage Inc.



## Recent survey of psychiatrist ranks negative symptoms as #1 unmet medical need for patients with schizophrenia

Figure 1: Key unmet needs for schizophrenia, 2017



Source: Datamonitor Healthcare's proprietary schizophrenia survey, September 2017

DATAMONITOR  
Healthcare






## Competitive landscape

# MIN-101 is unique in the late-stage schizophrenia pipeline: a monotherapy targeting negative symptoms in maintenance phase

|             |  | Phase 3 studies: Acute   | Phase 3 studies: Maintenance & Sub-population studies  |   |
|-------------|--|--|--|---|
| Indications |  |  | Negative Symptoms, Treatment-resistance, Residual positive symptoms, and Niche populations   | Long-Acting Injectables or Patch  |
|             |  | <p><b>Alkermes</b><br/><b>ALKS 3831</b><br/>(Mu-opioid antagonist + olanzapine)</p> <p><b>Intra-Cellular Therapies</b><br/><b>ITI-007 (lumateperone)</b><br/>(5-HT<sub>2A</sub> antagonist, D<sub>2</sub>/D<sub>1</sub> modulator, SSRI)</p> | <p><b>MINERVA NEUROSCIENCES</b><br/><b>MIN-101</b><br/>(5-HT<sub>2A</sub> &amp; σ<sub>2</sub>R antagonist)<br/><b>-Negative symptoms, monotherapy</b></p> <p><b>Lundbeck</b><br/><b>Lu AF35700</b><br/>(D<sub>1</sub>, 5-HT<sub>2A</sub> &amp; 5-HT<sub>6</sub> antagonist)<br/>-Treatment-resistant, monotherapy study vs. risperidone and olanzapine</p> <p><b>ACADIA Pharmaceuticals</b><br/><b>ACP-103 (pimavanserin)</b><br/>(5-HT<sub>2A</sub> inverse agonist)<br/>-Residual positive symptoms, adjunctive use</p> <p><b>SyneuRx</b><br/><b>NaBen (sodium benzoate)</b><br/>(D-amino acid oxidase inhibitor)<br/><u>Three late-stage indications:</u><br/>-Residual positive symptoms, adjunctive use<br/>-Adolescents, monotherapy<br/>-Clozapine refractory, adjunctive use</p> | <p><b>INDIVIOR</b><br/><b>RBP-7000</b><br/>(once-monthly, SR risperidone)</p> <p><b>Bristol-Myers Squibb</b><br/><b>Risperidone implant</b><br/>(6 monthly, nonbiodegradable risperidone drug-eluting stent)</p> <p><b>NOVEN PHARMACEUTICALS, INC.</b><br/><b>HP 3070</b><br/>(transdermal patch of asenapine)</p> <p><b>ATA PROVA</b><br/><b>Risperidone ISM</b><br/>(once-monthly IM risperidone)</p> |

Source: Jan 2018; Cambridge Healthcare Research (CHR) Limited, [www.camhcr.com](http://www.camhcr.com); ClinicalTrials.gov

# MIN-101 is positioned to launch without competitors in negative symptoms as it is the only compound in Phase 3 and sole study in monotherapy

| Clinical Trials in Negative Symptoms in Schizophrenia in ClinicalTrials.Gov |  |   |
|---|--|---|
|   | Phase 3 in Negative Symptoms   | Phase 2 in Negative Symptoms  |
| Companies & Compounds   |  <p><b>MIN-101 (monotherapy)</b><br/>5-HT<sub>2A</sub> &amp; σ<sub>2</sub> receptors antagonist</p> <p><u>Phase 3 study:</u></p> <ul style="list-style-type: none"> <li>Study results anticipated by <b>June 2019</b></li> </ul> <p><u>Primary endpoint:</u></p> <ul style="list-style-type: none"> <li>Negative Symptoms Factor Score (NSFS) of the Positive and Negative Symptoms Scale (PANSS)</li> </ul> <p><u>Secondary endpoints:</u></p> <ul style="list-style-type: none"> <li>Personal and Social Performance (PSP) scale, measure of functioning</li> <li>Clinical Global Impression - Severity (CGI-S), clinician rated overall severity of schizophrenia</li> </ul> |  <p><b>AVP-786 (adjunctive use)</b><br/>Fixed dose quinidine + dextromethorphan (weak NMDA antagonist + σ<sub>1</sub> R agonist), Ph2 completed <b>Aug 2017, awaiting results</b></p>  <p><b>LY500307 (adjunctive use)</b><br/>Selective estrogen receptor β agonist, Ph2a anticipated to complete in <b>June 2018</b></p>  <p><b>ACP-103 (adjunctive use)</b><br/>5-HT<sub>2A</sub> inverse agonist, Ph2 anticipated to complete in <b>June 2019</b></p>  <p><b>TAK-831 (adjunctive use)</b><br/>DAAO inhibitor, Ph2 anticipated to complete <b>April 2020</b></p> |

Exploratory Phase 4 academic driven studies on ClinicalTrials.Gov (Feb 13, 2018):

- Vortioxetine adjunctive use, Ph4 n=88, study to complete by 03/20, sponsor: Zucker Hillside Hospital
- Memantine adjunctive use, Ph4 n=120, study to complete by 12/17, sponsor: National Taiwan University Hospital
- N-acetylcysteine adjunctive, Ph4 n=40, study to complete by 12/17, sponsor: UCLA

Source: Clinical Trials.gov accessed Feb 13, 2018.



# Seltorexant

MIN-202 / JNJ42847922

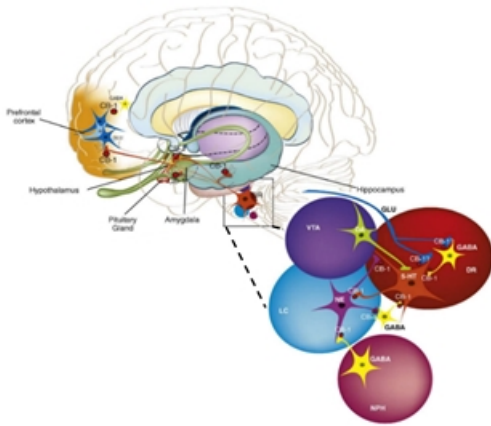
**A drug to treat insomnia & major depressive disorder by restoring physiological sleep**

A co-development/co-commercialization program with:



PHARMACEUTICAL COMPANIES  
OF *Johnson & Johnson*

# Orexin system: neurobiology targets circuits that mediate sleep and mood symptoms

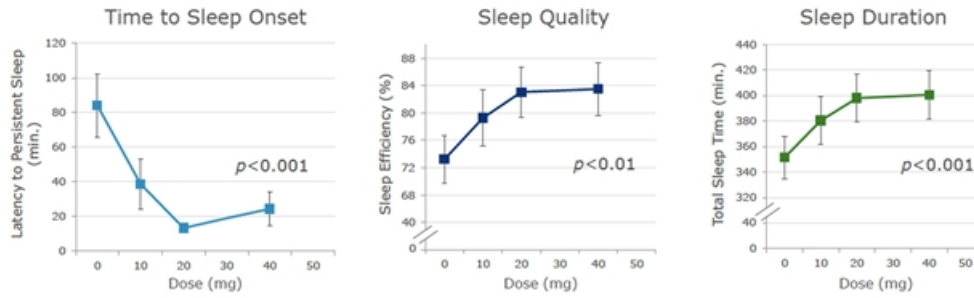


| Depressive Symptom          | Orexinergic Domain       |
|-----------------------------|--------------------------|
| Depression/Irritability     | → Emotion/Arousal        |
| Low Self View/Guilt         | → Emotion                |
| Loss of Interest & Pleasure | → Reward/Motivation      |
| Suicide/Death Ideation      | → Reward/Motivation      |
| Sleep Disturbance           | → Sleep-Wake             |
| Agitation, Restlessness     | → Arousal/Energy Balance |

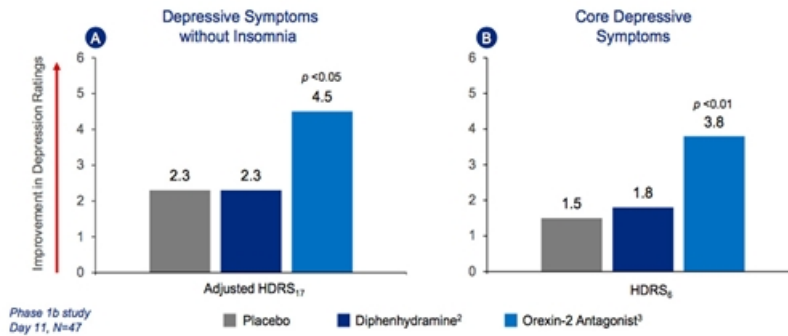
**Name**                      **MoA**                      **PK/PD profile**

|             |                               |  |
|-------------|-------------------------------|--|
| Seltorexant | Selective Orexin-2 Antagonist | <ul style="list-style-type: none"> <li>Highly selective for Orexin-2 (relative to Orexin-1)</li> <li>Short Tmax (30 minutes) - produces rapid onset of effect</li> <li>Short half-life (2 hours) - minimizes daytime "hangover"</li> </ul> |
|-------------|-------------------------------|--|

# Seltorexant study in MDD with comorbid insomnia shows improvements of insomnia and depressive symptoms



Reference: Internal data, study 42847922ED1002, disclosed by Minerva Neurosciences, Q1 2015.



1. ACNP, 2016, ClinicalTrials.gov NCT02478058  
2. Diphenhydramine (Benadryl), included as a nocebo  
3. JNU-7922

HDRS<sub>17</sub> = 17-item Hamilton Depression Rating Scale  
Adjusted HDRS<sub>17</sub> = HDRS with the 3 items related to sleep subtracted  
HDRS<sub>6</sub> = 6-item subscale encompassing the core symptoms of depression



## Seltorexant Phase 2b program: two trials in MDD and one in Insomnia ongoing

### First MDD trial initiated Sep 2017 (clinicaltrials.gov: NCT03227224)

- Double-blind, randomized, parallel-group, placebo-controlled adaptive-dose finding study
- 4-week screening, 6-week double-blind treatment and 2-week follow-up
- ~ 280 patients planned to be enrolled at >85 clinical sites in the U.S., Europe, Russia and Japan
  - safety & tolerability and dose response and efficacy in up to 3 doses of seltorexant

### Second MDD trial initiated Dec 2017 (clinicaltrials.gov: NCT03321526)

- Double-blind, randomized, flexible-dose parallel-group study
- 4-week screening, 6-month double-blind treatment and 2-week follow-up
- ~ 100 patients planned to be enrolled at ~34 clinical sites in the U.S.
  - assess the efficacy of flexibly dosed seltorexant compared to flexibly dosed quetiapine as adjunctive therapy to baseline antidepressant therapy (either an SSRI or SNRI) in delaying time to all-cause discontinuation of study drug over a 6-month treatment period

### Insomnia trial initiated Dec 2017 (clinicaltrials.gov: NCT03375203)

- Double-blind, randomized, parallel-group, active- and placebo-controlled dose finding study
- Up to 61-day duration, including screening and follow-up
- ~ 360 patients planned to be enrolled at clinical sites in the U.S., Europe and Japan
  - assess the dose-response of three doses of seltorexant compared to placebo on sleep onset as measured by latency to persistent sleep (LPS) using polysomnography (PSG)
  - assess the dose-response of these doses compared to placebo on wake after sleep onset (WASO) over the first six hours using PSG
  - compare the effects of seltorexant on sleep and cognition to those effects of zolpidem

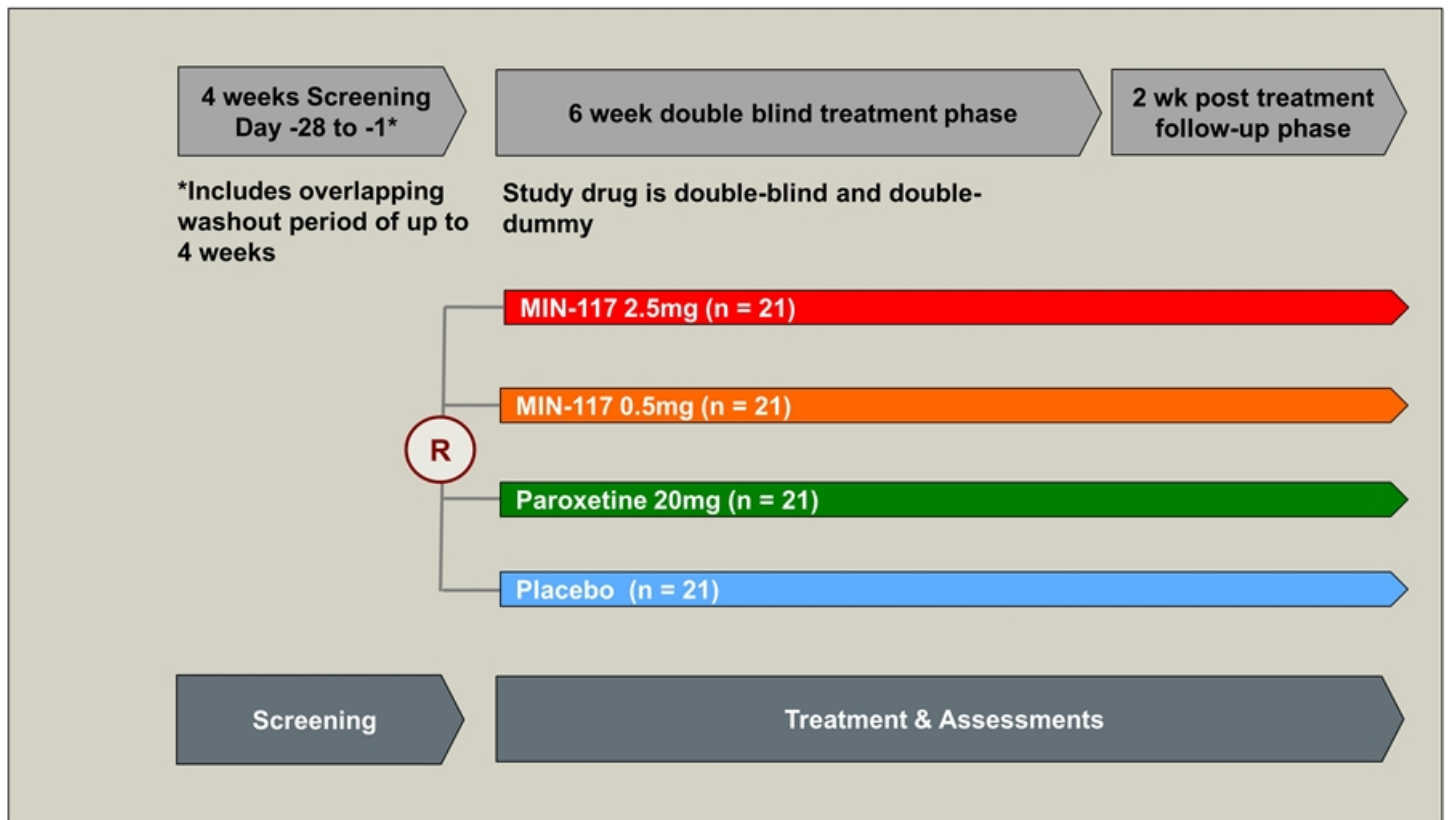




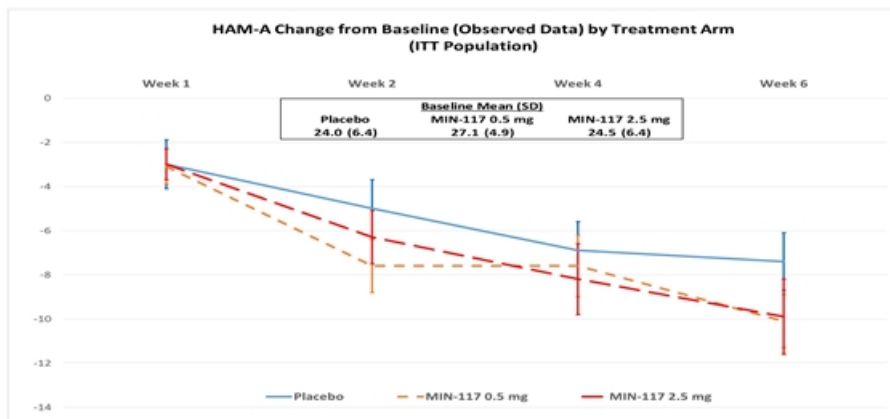
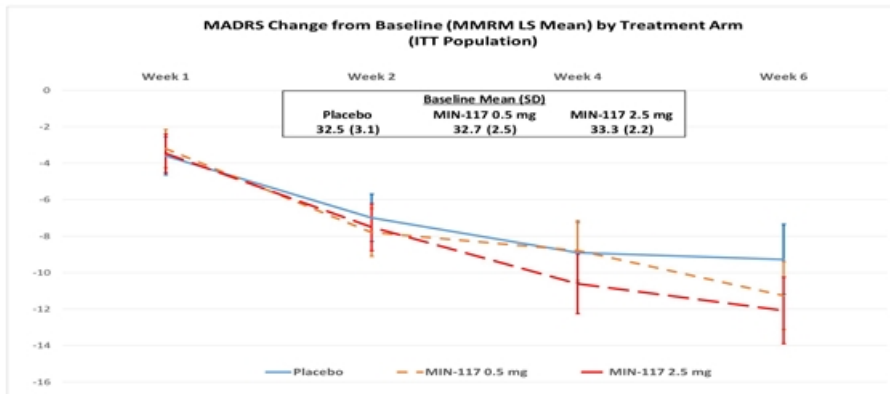
# MIN-117

Addressing the unmet medical needs of patients with Major Depressive Disorder and anxiety symptoms

## Phase 2a study designed to explore unmet needs in patients with MDD



## The Phase 2a results show effect on primary endpoint in depression as well as noted effect on anxiety



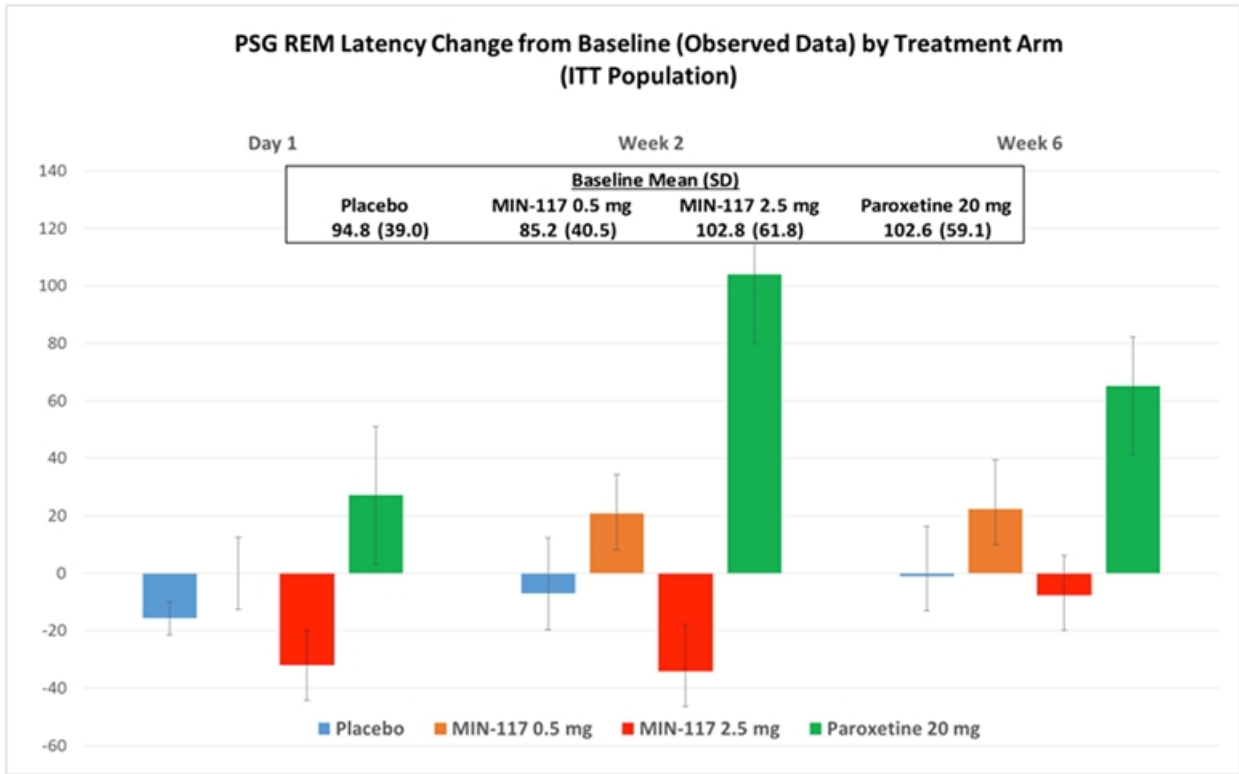
Exploratory study for dose finding, safety and efficacy – not statistically powered:

Results:

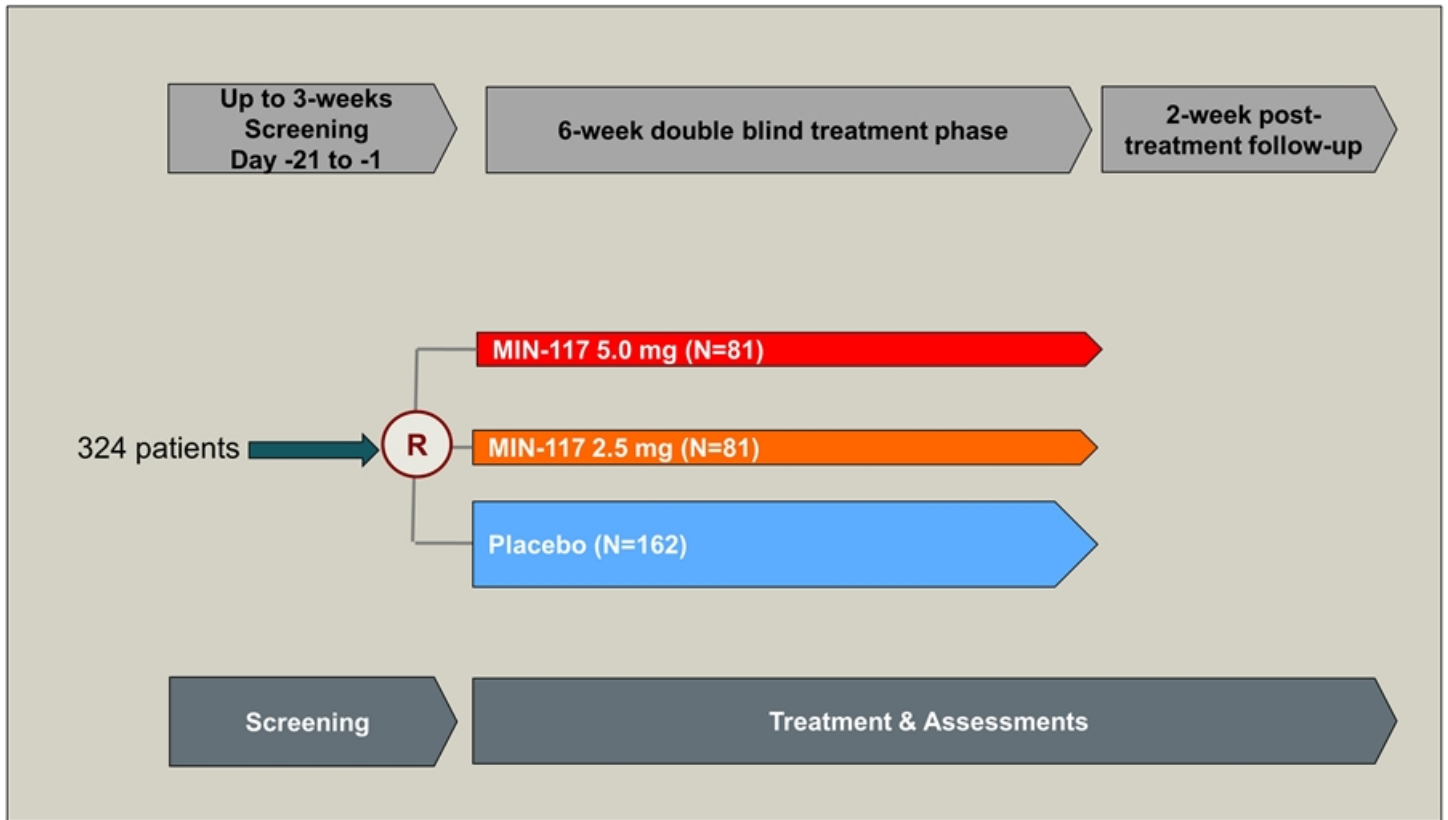
- ✓ Efficacy on depressive symptoms
- ✓ Onset evident as early as 2 weeks
- ✓ Efficacy on anxiety symptoms
- ✓ Both doses of MIN-117 are well tolerated, no sexual s/e, cognitive benefits

Assay sensitivity confirmed by positive separation of Paroxetine from placebo

# Sleep polysomnography shows intact REM latency resulting in preservation of sleep architecture and continuity of sleep, an important product differentiator



## Planned Phase 2b study designed to evaluate MIN-117 in patients with moderate to severe MDD



## Planned MIN-117 Phase 2b study objectives

### Primary:

To evaluate the efficacy of 5.0 mg or 2.5 mg of MIN-117 compared with placebo in reducing the symptoms of MDD as measured by the change from baseline in Montgomery-Asberg Rating Depression Scale (MADRS) score over 6 weeks of treatment

### Secondary:

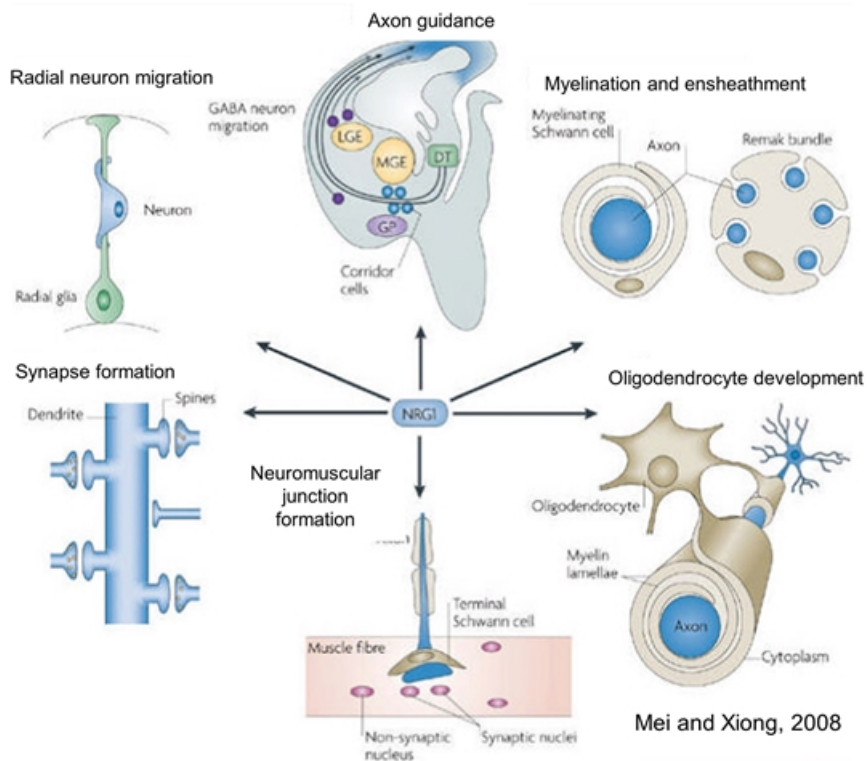
- To evaluate the efficacy of 5.0 mg or 2.5 mg of MIN-117 compared with placebo in reducing symptoms of anxiety measured by:
  - Hamilton Anxiety Scale (HAM-A)
  - Severity of illness and improvement using the Clinical Global Impression of Severity Scale (CGI-S) and the Clinical Global Impression of Improvement Scale (CGI-I)
- To evaluate the safety of MIN-117 over 6 weeks of treatment



# MIN-301

A protein drug with disease modifying potential for the treatment of unmet medical needs in Parkinson's Disease and other major CNS indications

**Neuregulin-1 (NGR-1) has multiple roles in neuronal development offering potential for neuronal repair in several CNS indications; initial clinical focus will be Parkinson's disease**



NRG-1 controls key neuronal development pathways



## Financial position

- ~\$133.2 million cash balance (cash, cash equivalents and marketable securities) at December 31, 2017
- Shares outstanding at March 9, 2018: ~38.7 M (~45.1 M fully diluted)