

August 4, 2025

NRX Pharmaceuticals Inc (NRXP, Buy, \$18 PT)

KOL Positive on an Improved Ketamine Landscape and Combination Treatments with TMS or Cognitive Therapy. Treatment Effects in MDD and PTSD May Not Be Trip-Dependent.

WHAT YOU SHOULD KNOW: We hosted a conversation with NRXP's CEO and an Academic KOL with experience treating severely depressed patients (TRD, often hospitalized) employing both ketamine and ECT. The focus of the discussion was the role of the HOPE network in improving the care of severe MDD and TRD patients via combinations of drugs (ketamine and the coming psychedelics) with TMS, cognitive therapy, and potentially newer approaches (hyperbaric oxygen mentioned). In presented background, TRD now represents up to 40% of depressed patients and this group overlaps with patients at increased risk of suicide (50,000 Americans commit suicide each year with this number growing). Ketamine has been around a long time as a sedative and over the last 25 years, its use in depression has evolved. The current landscape is highly variable with SPRAVATO being FDA-approved and tightly regulated while ketamine is used off-label in TRD, despite clear data showing that there are limits to its safe use. Our KOL thought a branded ketamine would be an advance as **FDA-approved ketamine would be reimbursed and likely covered by a REMS to improve safe administration**. NRXP is advancing a preservative-free ketamine via both ANDA and NDA pathways that management detailed and believes could be central to these efforts. Our KOL sees SPRAVATO as a useful tool in the TRD treatment arsenal and commented on an ongoing trial to determine the relative efficacy of SPRAVATO vs. ketamine (KOL is unsure if the widely held opinion that ketamine is superior will hold up). **Combinations of ketamine and other drugs were discussed** with the general idea that these combinations might be synergistic in the greater goal of driving and maintaining the periods of increased neuro-plasticity when cognitive therapy could be highly impactful. Our KOL had more experience with cognitive therapy than TMS but seemed interested with the evolving TMS equipment and the signs of synergy with ketamine. It was noted that this plasticity window induced by ketamine is thought to last 1-2 weeks and possibly longer with repeated doses of ketamine. There are many reported trials that report combining TMS and drugs like ketamine and D-cycloserine. Our conversation covered a **high-quality study from the University of Calgary where the effects seen were additive**. The recent COMP360 readout was viewed as a little muted - on the order of SPRAVATO or CAPLYTA in similar TRD patients. Our KOL called it a well-run trial with a reputable sponsor. The recent GM-2505 readout in MDD was considered more exciting, although our KOL warned of unblinding effects leading to expectations of benefit in an uncontrolled trial. Both our KOL and NRXP management were excited about the recent presentation at the ACMP meeting of the Transcend drug TSND-201 (methylone) in the treatment of Post-Traumatic Stress Disorder (PTSD). This drug has shown powerful neuroplastic effects but is not considered hallucinogenic and the data at ACMP detailed a 60% remission in PTSD patients. The **TNSD-201 result suggests that treatment effects can be independent of the "trip"** and our KOL discussed studies suggesting the dissociative effects of ketamine (possibly analogous to hallucinogenic effects) don't correlate with the treatment effects of ketamine.

Continued on P3

- **Valuation:** We value NRXP using a DCF (20.0% discount rate and a 1.5% TG rate).

Thomas Shrader, PhD, CFA
(212) 527-3551 tshrader@btig.com

Company Data	
Closing Price	\$2.69
Price Target	\$18.00
Market Cap (M)	43.29
Shares Out (M)	16.09
Avg Daily Vol-3 Months (M)	0.27

Revisions		
	Previous	Current
Rating	Buy	Buy
Price Target	\$18.00	\$18.00
FY25E EPS	0.15	0.15
FY26E EPS	0.05	0.05
FY25E NI	3.91	3.91
FY26E NI	1.85	1.85

EPS (GAAP)			
FY Dec	2024A	2025E	2026E
Q1	(0.74)	(0.34)A	(0.15)
Q2	(0.75)	(0.23)	(0.04)
Q3	(0.15)	0.16	0.06
Q4	(0.72)	0.21	0.16
FY EPS	(2.36)	0.15	0.05
FY P/E	-	17.8x	51.4x

Net Income			
FY Dec	2024A	2025E	2026E
Q1	(6.53)	(5.51)A	(4.89)
Q2	(7.90)	(4.71)	(1.34)
Q3	(1.62)	5.16	2.26
Q4	2.10	7.22	5.81
FY NI	(25.13)	3.91	1.85

Source: FactSet, BTIG Estimates and Company Documents reported as \$ currency.
FY = Fiscal Year CY = Calendar Year

Investment Thesis

We believe the value in NRXP is based on the combination of developing novel therapeutics for ASIB and the integration of these therapeutics into the HOPE Therapeutics network. The drug development component of NRXP seems relatively de-risked as both NRX-100 and NRX-101 are known molecules or their combinations and significant data already exist supporting both their efficacy and safety. On the broader integration front, The HOPE Therapeutics network is currently being assembled as NRx's treatment arm with an eye toward eventually spinning the effort out as an independent company. The hope for HOPE is first to maximize the patient experience with ketamine to include proper monitoring in order to reduce the chances of bad "highly dissociative" experiences as well as to employ a better (preservative-free) branded version of ketamine (NRX-100). In addition, HOPE will offer other state-of-the-art treatments such as modern TMS (based on the new coil technologies). The overall hope is to maximize the remission rates for ASIB patients as TMS and ketamine each deliver ~50% remission rates in quality centers and combination remission rates are expected to eclipse 80%. Upcoming catalysts include NRXP's progress in completing the FDA submission for NRX-100 and NRX-101 and resulting FDA feedback leading to FDA approvals starting around YE25.

Upcoming Catalysts

- NRX-100 (IV Ketamine) for Suicidal Depression - Completion of NDA filing - 1H 2025
- NRX-101 (NMDA and 5-HT_{2A}) - NDA submission for the potential accelerated approval by YE2025

Base Case Assumptions: \$18 Price Target

- **NRX-100** for Suicidal Depression - 50% POS, 2026 market entry, 10% peak penetration for Bipolar patients with suicidality, 7% peak penetration for persistent MDD patients with suicidality, \$4K price.
- **NRX-101** for Bipolar Depression with Akathisia - 50% POS, 2027 market entry, 25% peak penetration for Bipolar patients in treatments who experience akathisia, \$4K price.
- **Hope** therapeutics - Average yearly revenue per clinic = \$4M, 30% profit margin.

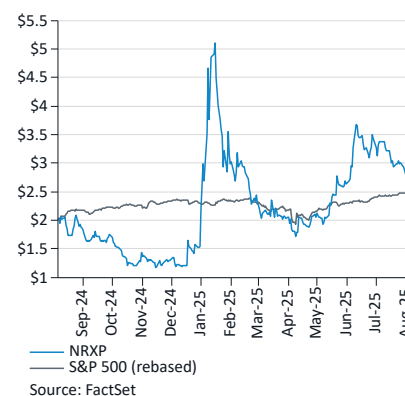
Upside Scenario

- Accelerated approval granted by the FDA for NRX-101
- Accelerated approval granted for the ketamine ANDA
- Faster rate of acquisitions of new clinics into the Hope Therapeutics network

Downside Scenario

- FDA asks for additional trials for NRX-100 and NRX-101
- Slower rate of acquisitions of new clinics into the Hope Therapeutics network

Price Performance

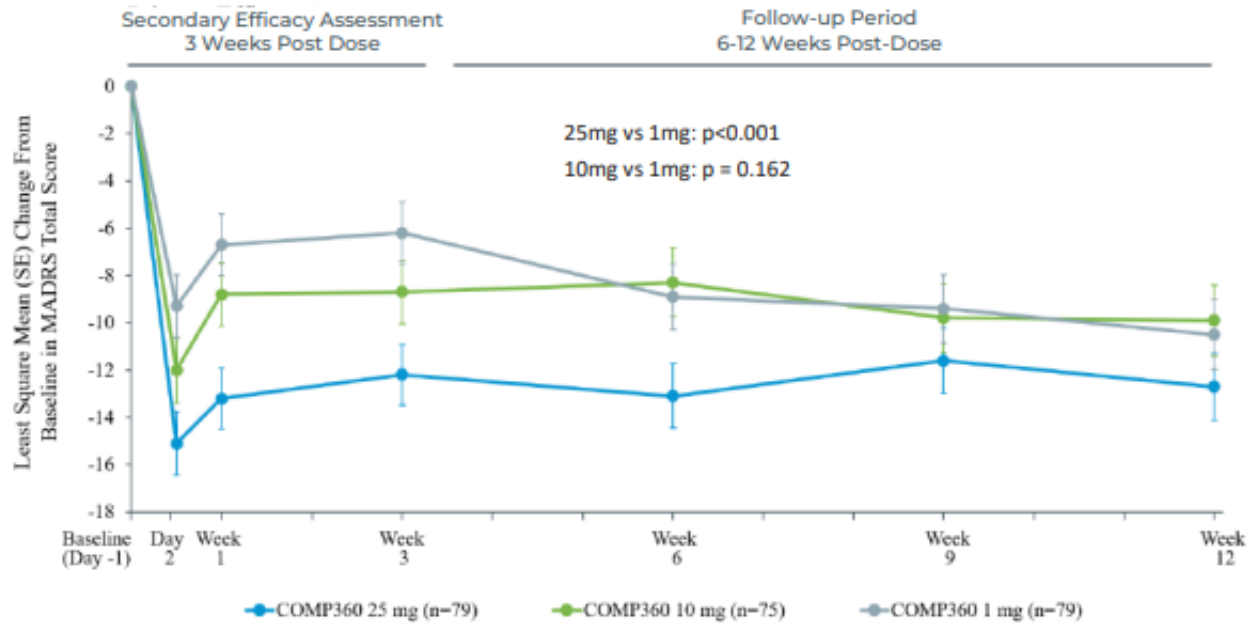


Company Description

NRx is developing NRX-100 (IV Ketamine) and NRX-101 (DCS and Lurasidone) for suicidal depression and bipolar depression with akathisia, respectively. Both compounds are backed by robust clinical data demonstrating the efficacy and safety.

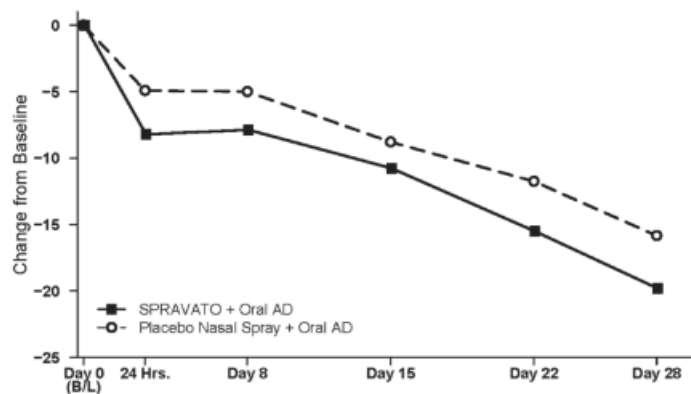
- **The Calgary TBS study.** The combination of drugs that improve neuro-plasticity (stimulate new connections) and transcranial magnetic stimulation (TMS or TBS depending on some details) is considered a promising approach to lengthen the period of plasticity when cognitive therapy is more effective and as a stand-alone approach to treat MDD.
- During our conversation, NRXP management mentioned a specific study from the university of Calgary combining TMS and D-cycloserine (JAMA Psychiatry, Jan. 2022). There are multiple other studies supporting the overall approach which is at the core of the HOPE initiative - drugs alone will not be as effective as combined treatments.
- **The Gilgamesh readout.** This trial was extremely positive as reported (Exhibit #3) with large effects in both treatment group. Our KOL warned that GM-2505 is a very active hallucinogen so significant unblinding was expected in this trial and the expectation of a treatment effect in these patients could make results hard to interpret.
- **COMP360 P3 Readout.** These data are described in our note [HERE](#). Briefly, the recent P3 trial (005) reported very topline data that showed the treatment effect in TRD patients was significant and close to the effects seen in P2b (Exhibit #1).
- **Ongoing NRX-100 NDA.** Success of the ongoing filing is likely a key piece of the NRXP story and is based on the completed CMC section from NRXP's in process NDA for ketamine. This new filing covers expanding the on-label use of ketamine for suicidality (likely with some mention of MDD) and is a bigger step in making NRXP the sole owner of ketamine in the suicidality space, but this filing and subsequent uptake seem likely to benefit from a preservative-free ketamine already being in the hands of physicians and the arms of fragile patients. This filing is based on three clinical data sets supporting the use of ketamine for suicidality in bi-polar patients. These data sets were each acquired by NRXP, and the company is in the process of assembling the data into a conventional NDA-approval package. Although not the most common approval pathway for approval of a therapeutics, the use of clinical data from others has been successful in the past and was the basis of recent approvals (2018 or later) for drugs for both Dravet's syndrome and GBM.

Exhibit 1. P3 005 topline data in line with P2 Study (shown below).



Source: CMPS Company Reports.

Exhibit 2. MADRS effects in line with SPRAVATO



Source: JNJ Company Reports


Exhibit 3. GM-2505 readout was very positive from a small study

MADRS CHANGES FROM BASELINE AND REMISSION RATES

	ARM 1	ARM 2
GM-2505 DOSING	Day 1, 1 mg Day 15, 15 mg	Day 1, 10 mg Day 15, 15 mg
BASELINE	31.9	33.4
DAY 14	n=20	n=20
- CHANGE FROM BASELINE	-12.1	-21.6
- REMISSION	25 %	70 %
DAY 29	n=20	n=17
- CHANGE FROM BASELINE	-21.1	-28.0
- REMISSION	55 %	94 %
DAY 74 FOLLOW-UP	n=20	n=17
- CHANGE FROM BASELINE	-19.7	-25.1

Source: Gilgamesh Company Reports

INCOME STATEMENT

 Thomas Shrader 212.527.3551											
NRX PHARMACEUTICALS, INC. (NRXP) Income Statement											
Period Ending \$USD ('000s)	Dec-20 2020A	Dec-21 2021A	Dec-22 2022A	Dec-23 2023A	Dec-24 2024A	Mar-25 1Q25A	Jun-25 2Q25E	Sep-25 3Q25E	Dec-25 4Q25E	Dec-25 2025E	Dec-26 2026E
Revenue											
NRX-100 for Suicidal Depression (50% risk adjusted)					-				-	-	715
NRX-101 for Bipolar Depression with Akathisia (50% risk adjusted)										-	-
HOPE Therapeutics (N/A% risk adjusted)	-	-	-	-	-			13,500	16,500	30,000	41,715
Collaboration revenue										-	-
Total Revenue	-	-	-	-	-	-	-	13,500	16,500	30,000	42,430
Operating Expenses											
COGS		-	-	-	-	-	-	3,000	3,150	6,150	14,100
R&D	10,625	20,257	17,027	13,371	6,199	804	1,054	1,304	1,554	4,716	4,952
SG&A	11,436	74,944	27,308	14,216	13,505	2,943	3,443	3,943	4,443	14,772	21,272
Other	29,326	20,595	-	250	(1,202)					-	-
Total Operating Expenses	51,387	115,796	44,335	27,837	18,502	3,847	4,497	8,247	9,147	25,638	40,324
Operating Income	(51,387)	(115,796)	(44,335)	(27,837)	(18,502)	(3,847)	(4,497)	5,253	7,353	4,362	2,106
Interest expense	(56)	(18)	-	(120)	(230)	(4)	(245)	(163)	(163)	(575)	(489)
Convertible note default penalty	-	-	-	-	(849)				-	-	-
Loss of convertible note redemptions	-	-	-	-	(1,278)	3,600				-	-
Change in fair value of convertible notes payable / warrant liabilities	(334)	22,751	(4,332)	(2,687)	(4,311)	(1,931)				-	-
Interest income		-	(249)	494	44	(4)	32	65	29	121	234
Income (Loss) Before Taxes	(51,777)	(138,529)	(39,754)	(30,150)	(25,126)	(5,512)	(4,710)	5,155	7,219	3,909	1,851
Provision for income taxes	-	-	-	-	-	-	-	-	-	-	-
Net Income (Loss)	(51,777)	(138,529)	(39,754)	(30,150)	(25,126)	(5,512)	(4,710)	5,155	7,219	3,909	1,851
Basic EPS, GAAP	(15.11)	(29.53)	(6.04)	(3.98)	(2.36)	(0.34)	(0.23)	0.20	0.24	0.17	0.05
Diluted EPS, GAAP	(15.11)	(29.53)	(6.04)	(3.98)	(2.36)	(0.34)	(0.23)	0.16	0.21	0.15	0.05
Weighted average shares outstanding, basic	3,427	4,692	6,577	7,576	10,644	16,410	20,063	25,465	29,602	22,885	35,052
Weighted average shares outstanding, diluted	3,427	4,692	6,577	7,576	10,644	16,410	20,063	33,205	33,855	25,883	35,388

Source: BTIG estimates, NRXP company reports.

BTIG Covered Companies Mentioned in this Report

NRX Pharmaceuticals Inc (NRXP, Buy, \$18 PT; Closing Price: \$2.69)

Appendix: Analyst Certification and Other Important Disclosures

Analyst Certification

I, Thomas Shrader, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

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Neutral	153	36.3%	Neutral	33	21.6%
Sell	4	1.0%	Sell	1	25.0%

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Company Valuation and Risk Disclosures

NRX Pharmaceuticals Inc (NRXP, Buy, \$18 PT)

Valuation:

- We value NRXP using a DCF (20.0% discount rate and a 1.5% TG rate).

Risks:

- NRX is an established biotech company. It faces all the standard upside and downside risks for that industry, including unexpected outcomes or safety signals from clinical readouts, regulatory uncertainty, and increasingly complex and price-sensitive commercial markets for its product candidates.

NRX Pharmaceuticals Inc Rating History as of 08/01/2025



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