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NRx Pharmaceuticals, Inc. (NRXP) – Buy

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NRx Spins Out Hope to Shareholders

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NRx announced plans to “spin-out” Hope Therapeutics, a company dedicated to bringing IV Ketamine (Suicidal Depression) to the market. The company will initially be owned by NRx and its current shareholders, who will receive their shares in the form of a dividend with an accompanying royalty coupon tied to future sales of the drug (HTX-100), subject to board approval. A New Drug Application (NDA) for NRX-100 is planned for H1 of 2024, based on more than 1,000 patients treated in well-controlled trials of ketamine in Suicidal Depression together with HOPE’s expertise in sterile products formulation. NRx also expects to convene a shareholder meeting in the coming weeks to vote on the planned structure of the spin-out of Hope Therapeutics and the stock dividend.

Investment Highlights:

About Ketamine & Generics: Ketamine has been in use for a very long time and special ketamine clinics today exist to treat depression. So, what is NRx doing that’s new? The formulation of ketamine used in anesthesia is antiquated and problematic. It requires a pH of 2.0 to maintain ketamine in solution. NRx, together with its partner Nephron Pharmaceuticals (not rated), has developed a proprietary, patentable formulation of ketamine that will be far closer to a physiologic pH (pH human body levels between 7.35 to 7.45 – in the absence of pathological states). Unlike oral drugs, where functional generic substitution is permitted, such substitution is forbidden for intravenous drugs without identical formulations. This will not prevent physicians from prescribing the old generic formulation. However, those who are not practicing within the walls of a hospital must order the old formulation from compounding pharmacies. FDA has issued two letters cautioning against this practice. Moreover, once there is a legally labelled form of IV ketamine on the market, it becomes illegal for a compounding pharmacy to dispense compounded ketamine in similar dosage and route of administration. Management anticipates 20 years of patent protection for this new formulation.

Valuation: We do not yet include IV Ketamine in our model. Our model is projected out to 2033. We apply a 30% risk cut to our projected revenues in our product model in addition to our 30% risk rate applied in our Free Cash Flow to the Firm (FCFF), discounted EPS (dEPS), and Sum-of-the-Parts (SOP) models. We do assume additional capital raises. The result is equal-weighted and averaged and rounded to the nearest whole number to derive our 12-month projected price target of \$2.0.

Risks to our thesis include: 1. Regulatory Approvals; 2. Clinical Science 3. Intellectual Capital 4. Dilution.

Price Target	\$2.00
Current Price	\$0.38
Advantage NRX-100 for Suicidal Depression	
Proper use of a potent but potentially dangerous drug	
<ul style="list-style-type: none"> A new single-dose formulation with reliable potency and shelf stability Anesthetics and sedatives will tell you that non-branded generics don't work reliably (Clinics cannot use multiple anesthesia packaging (hence the need for compounding)) A label that guides physicians to proper use for depression (not anesthesia) and that appropriately discloses risks and their mitigation A REMS (Risk Evaluation and Mitigation Strategy) program that provides for physician training 	
Improved Patient Access	
<ul style="list-style-type: none"> With an FDA label, Hope Therapeutics can market and establish trust with physicians and patients With an FDA label, insurance is likely to reimburse for ketamine treatment, providing access to people who cannot afford to pay cash 	
Compliance with the Law	
<ul style="list-style-type: none"> In the setting of an FDA label for use, compounding of ketamine is largely illegal Ketamine is a Schedule III drug whose use is overseen by both FDA and DEA Diversion/Abuse carry significant penalties Significant Protection for practitioners who prescribe ketamine under a REMS 	
Source: NRx Pharmaceuticals	
Stock Data	
52-Week Range	\$0.22 - \$1.28
Shares Outstanding (mil.)	85.2
Market Capitalization (mil.)	\$32
Enterprise Value (mil.)	\$23
Debt to Capital	0%
Book Value/Share	\$7.69
Price/Book	10.0
Average Three Months Trading Volume (K)	289
Insider Ownership	32.2%
Institutional Ownership	4.4%
Short interest (mil.)	3.4%
Dividend / Yield	\$0.00/0.0%



Valuation: Our valuation for NRx Pharmaceuticals is based on revenue projections out to 2033 and does not currently reflect IV Ketamine nor the antibiotic effects of NRX-101. We know the markets are quite large for depression, PTSD, and related disorders. Success in one area leads to other indications. Our model assumes the company does raise additional capital. We factor in additional raises. In our model, we assume a rising SG&A and R&D as the company commercializes its products and expands its pipeline, coupled with an improving cost of goods sold (COGS) initially at 20% and at scale falling to just 10%. Our valuation models: Free Cash Flow to the Firm (FCFF), discounted EPS (dEPS), and Sum-of-the-Parts (SOP), use a 30% discount rate. We select 30% for micro-capitalized growth companies, and this represents our highest risk rate. These three models' results are then equal-weighted, averaged, and rounded to the nearest whole number to provide a 12-month target price.

Exhibit 1. Free Cash Flow Model

Average \$	2
Price Target \$	2
Year	2024

DCF Valuation Using FCF (mln):

units ('000)	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E
EBIT	(39,816)	(48,076)	(27,920)	(28,199)	9,519	131,234	216,946	310,656	480,362	531,066	594,126	688,204
Tax Rate	0%	0%	0%	0%	5%	8%	10%	18%	24%	28%	30%	31%
EBIT(1-t)	(39,816)	(48,076)	(27,920)	(28,199)	9,043	120,735	195,252	254,738	365,075	382,367	415,889	474,861
CapEx												
Depreciation												
Change in NWC												
FCF	(39,816)	(48,076)	(27,920)	(28,199)	9,043	120,735	195,252	254,738	365,075	382,367	415,889	474,861
PV of FCF	(67,289)	(62,499)	(27,920)	(21,692)	5,351	54,955	68,363	68,608	75,635	60,936	50,984	44,779
Discount Rate	30%											
Long Term Growth Rate	1%											
Terminal Cash Flow	1,653,826											
Terminal Value YE2033	155,955											
NPV	473,455											
NPV-Debt	-											
Shares out (thousands)	269,006	2033E										
NPV Per Share	\$ 1.76											

Source: Dawson James estimates

Exhibit 2. Discounted EPS Model

Current Year	2024
Year of EPS	2033
Earnings Multiple	15
Discount Factor	30%
Selected Year EPS	\$ 2.16
NPV	\$ 3.06

Source: Dawson James estimates

		Discount Rate and Earnings Multiple Varies, Year is Constant					
		2033 EPS					
Earnings Multiple	3.1	5%	10%	15%	20%	25%	30%
	5		\$6.97	\$4.58	\$3.07	\$2.10	\$1.45
10		\$13.94	\$9.17	\$6.15	\$4.19	\$2.90	\$ 2.04
15		\$20.91	\$13.75	\$9.22	\$6.29	\$4.35	\$ 3.06
20		\$27.87	\$18.34	\$12.29	\$8.38	\$5.80	\$ 4.08
25		\$34.84	\$22.92	\$15.37	\$10.48	\$7.25	\$ 5.10
30		\$41.81	\$27.51	\$18.44	\$12.57	\$8.71	\$ 6.12
35		\$48.78	\$32.09	\$21.51	\$14.67	\$10.16	\$ 7.14
40		\$55.75	\$36.68	\$24.58	\$16.76	\$11.61	\$ 8.16

Exhibit 3. Sum-of-the-Parts Model

NRx Pharmaceuticals	LT Gr	Discount Rate	Yrs. to Mkt Peak	% Success	Peak Sales MMs	Term Val
NRX-101 for BPD	1%	30%	5	80%	\$800	\$2,759
NPV						\$1.77
PTSD / Pain	1%	30%	5	0%	\$800	\$2,759
NPV						\$0.00
NPV						
						80%
MM Shrs OS (2030E)						269
Total						\$1.77

Source: Dawson James estimates

Risks to our thesis include 1. Regulatory Approvals; 2. Clinical Science; 3. Intellectual Capital 4. Dilution

- **Regulatory Approvals.** The company's products require regulatory approvals, and there can be no assurances that the requirements to achieve these approvals can be met. Furthermore, even if a drug product is approved, the regulators may impose limitations on the use or marketing of such a product.
- **Clinical Science:** The company will need to demonstrate to its "sophisticated" clients (doctors and other physicians) that the product is effective, reliable, accessible, and marketable.
- **The Competitive Landscape & IP.** The company does have intellectual properties and knows how to protect the utility of its drugs; however, our patent position is highly uncertain.
- **Dilution:** The company is likely to incur losses for the foreseeable future until it is able to generate sufficient revenue from product sales. Our model assumes a rising share count. There can be no assurances that the company can successfully raise the capital required to execute its business strategy.

Exhibit 4. Income Statement

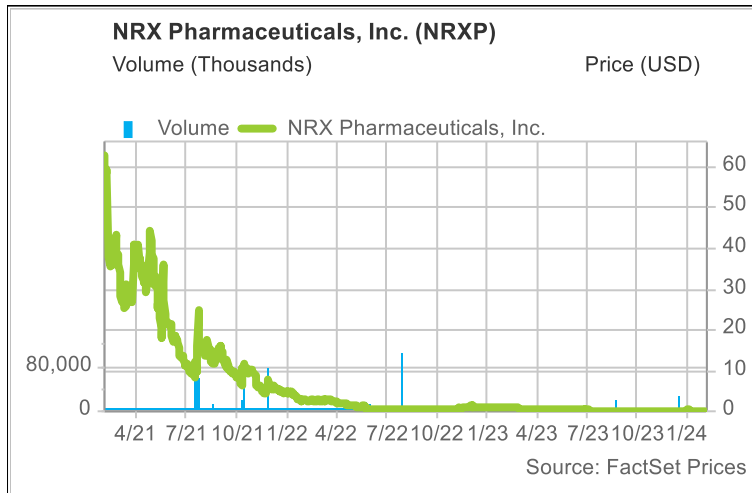
NRx Pharmaceuticals: Income Statement																
000 - YE December 31	2022A	1Q23A	2Q23A	3Q23A	4Q23E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E
Product sales	-	-	-	-	-	-	-	-	50,000	200,000	300,000	400,000	600,000	660,000	726,000	798,600
NRX-101 for BPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PTSD / Pain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Product Sales	-	-	-	-	-	-	-	-	50,000	200,000	300,000	400,000	600,000	660,000	726,000	798,600
Expenses																
COGS									12,000	40,000	54,000	60,000	90,000	99,000	101,640	79,860
COGS %	0%	0%	0%	0%	0%	0%	0%	0%	24%	20%	18%	15%	15%	15%	14%	10%
Research and Development	17,027	3,650	3,873	3,314	4,000	14,837	17,804	21,365	17,092	13,674	13,811	15,192	18,230	21,876	22,095	22,316
General and Administrative	27,370	5,785	4,065	2,494	3,000	15,344	15,497	15,652	15,809	15,967	16,127	16,288	16,451	16,615	16,782	16,949
Settlement Expense	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-
Reimbursement of expenses from Relief Therapeutics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	44,397	9,435	8,188	5,808	7,000	30,181	15,497	15,652	27,809	55,967	70,127	76,288	106,451	115,615	118,422	96,809
Loss from Operations	(44,397)	(9,435)	(8,188)	(5,808)	(7,000)	(30,181)	(15,497)	(15,652)	22,191	144,033	229,873	323,712	493,549	544,385	607,578	701,791
Other (income) Expenses																
Gain on extinguishment of debt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest income	(249)	(156)	(145)	(119)	-	-	-	-	-	-	-	-	-	-	-	-
Interest expense - Convertible note	505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in fair value of warrant liability	(255)	1,772	663	373	-	-	-	-	-	-	-	-	-	-	-	-
Change in fair value of Earnout Cash liability	(4,582)	(12)	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Total other (income) expense	(4,581)															
Net Loss	(39,816)	(11,039)	(8,717)	(6,062)	(7,000)	(30,181)	(15,497)	(15,652)	22,191	144,033	229,873	323,712	493,549	544,385	607,578	701,791
	-	(106)	128	-	-	22	-	-	1,110	11,523	22,987	58,268	118,452	152,428	182,274	217,555
Tax Rate	0%	0%	0%	0%	0%	0%	0%	0%	5%	8%	10%	18%	24%	28%	30%	31%
GAAP Net Income (loss)	(39,816)	(10,933)	(8,845)	(6,062)	(7,000)	(30,203)	(15,497)	(15,652)	21,082	132,510	206,886	265,444	375,097	391,957	425,305	484,236
GAAP-EPS	(0.61)	(0.16)	(0.12)	(0.07)	(0.05)	(0.41)	(0.10)	(0.08)	0.10	0.62	0.96	1.23	1.73	1.80	1.94	2.20
GAAP EPS (dil)	(0.61)	(0.13)	(0.09)	(0.06)	(0.05)	(0.28)	(0.09)	(0.07)	0.08	0.50	0.78	1.00	1.41	1.80	1.94	2.20
Wgtd Avg Shrs (Bas) '000	65,767	67,454	73,221	81,947	130,406	88,257	150,062	194,208	213,881	214,738	215,598	216,462	217,329	218,200	219,074	219,622
Wgtd Avg Shrs (Dil) '000	65,767	82,897	103,726	100,000	151,000	109,406	176,213	234,085	261,963	263,012	264,066	265,124	266,186	267,252	268,323	268,994

Source: Dawson James estimates, company reports

Companies mentioned in this report:

Important Disclosures:

Price Chart:



Price target and ratings changes over the past three years:

- Initiated – Buy – March 17, 2023 – Price Target \$3.0
- Update Report – March 27, 2023 – Price Target \$3.0
- Update Report – March 31, 2023 – Price Target \$3.0
- Price Target Change- April 3, 2023 Price Target goes from \$3.0 to \$9.0
- Update Report – April 5, 2023 – Price Target \$9.0
- Update Report – May 17, 2023 – Price Target \$9.0
- Update Report – June 5, 2023 – Price Target \$9.0
- Update Report – August 7, 2023 – Price Target \$9.0
- Update Report – August 15, 2023 – Price Target \$9.0
- Price Target Change – September 7, 2023 – Price Target goes from \$9.0 to \$2.0
- Update Report – October 2, 2023 – Price Target \$2.0
- Update Report – October 16, 2023 – Price Target \$2.0
- Update Report – October 26, 2023 – Price Target \$2.0
- Update Report – November 1, 2023 – Price Target \$2.0
- Update Report – November 6, 2023 – Price Target \$2.0
- Update Report – December 19, 2023 – Price Target \$2.0
- Update Report – January 16, 2024 – Price Target \$2.0
- Update Report – January 22, 2024 – Price Target \$2.0
- Update Report – February 5, 2024 – Price Target \$2.0

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Current as of 30-Jan-24

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
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Market Perform (Neutral)	14	41.18%	2	5.90%
Market Underperform (Sell)	0	0%	0	0.00%
Total	34	100%	6	17.70%

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