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NRx Pharmaceuticals, Inc. (NRXP) – Buy

December 19, 2023

NRXP Signs Agreement – Access to Data – Shows Efficacy & Safety of IV Ketamine for the Treatment of Suicidal Depression

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NRx Pharmaceuticals announced that it has signed a License Data and Technical Information agreement with Columbia University for rights to data from a randomized, active-controlled trial of 80 patients hospitalized for Acute Suicidality in Depression. This represents NRx's second well-controlled trial demonstrating the efficacy of IV Ketamine in this indication.

Investment Highlights (press release – adapted):

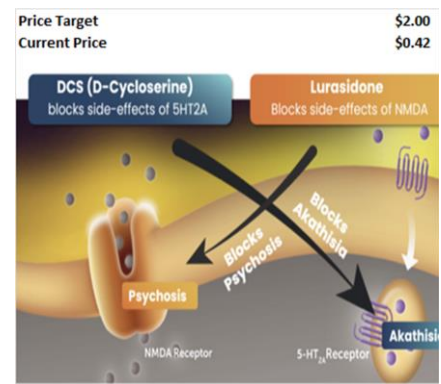
The Data: In the trial Michael Grunebaum and colleagues demonstrated a rapid and statistically significant reduction in Suicidal Ideation (SSI) at day 1 ($p=0.0003$) and in depression ($P=0.0234$), as measured by the Profile of Mood States (POMS) among patients randomized to IV Ketamine compared to those randomized to midazolam. This trial was published in the American Journal of Psychiatry. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5880701/>

These data mirror the results recently reported by a French consortium of hospitals who tested ketamine vs. placebo in acutely suicidal patients. NRx established a similar data licensing agreement in September, 2023 (NRx Ketamine Data Sharing, France). The study was published in the British Medical Journal (BMJ 2022; 376). <https://doi.org/10.1136/bmj-2021-067194>

The company and its regulatory counsel believe these two well-controlled trials meet the regulatory standard for a New Drug Application (NDA) filing in early 2024. This filing will include manufacturing and stability data from the company's partnership with Nephron Pharmaceuticals (West Columbia, SC).

Valuation: We project our model 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. We also assume the company repurchases stock in its outyears, (or we may even see a license deal that brings in non-dilutive capital and reduces our assumed development expenses. 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 \$0.42

Source: NRx Pharmaceuticals

Stock Data		
52-Week Range	\$0.22	- \$1.41
Shares Outstanding (mil.)	85.2	
Market Capitalization (mil.)	\$36	
Enterprise Value (mil.)	\$27	
Debt to Capital	0%	
Book Value/Share	\$7.69	
Price/Book	10.0	
Average Three Months Trading Volume (K)	1,097	
Insider Ownership	32.2%	
Institutional Ownership	4.2%	
Short interest (mil.)	1.7%	
Dividend / Yield	\$0.00/0.0%	



Valuation: Our valuation for NRx Pharmaceuticals is based on revenue projections out to 2033. 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 remove the prior assumption that with success, the company can repurchase stock (in the out-years). We have previously assumed a license deal (which occurred in June 2023) and this should bring in non-dilutive capital but we also factor in additional raises near term. As a result, we are returning to our original assumptions, and as such our target valuation falls back to \$2.0 (which was based on a fully diluted share count in 2033). 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. The result of these three models is then equal-weighted and 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	\$ 1.02
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 MM's	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 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

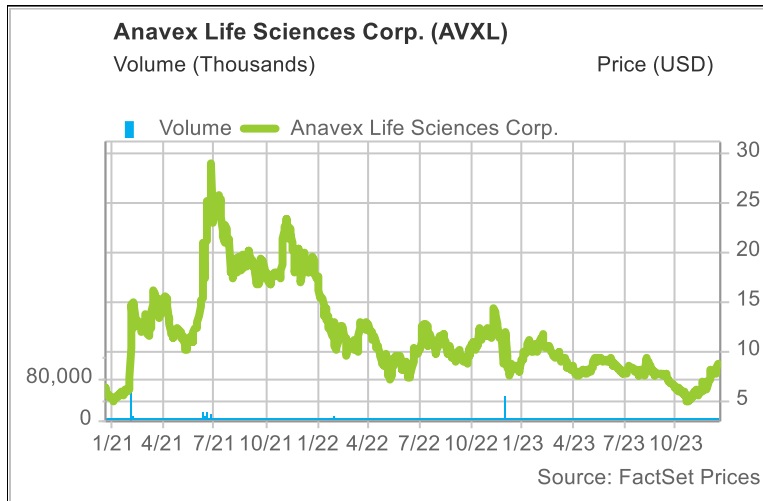
NRx Pharmaceuticals: Income Statement																
000 : YE December 31	2022A	1Q23A	2Q23A	3Q23E	4Q23E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E
Product sales	-	-	-	-	-	-	-	-	50,000	200,000	300,000	400,000	600,000	660,000	726,000	798,600
NRX-101 for BPD	-	-	-	-	-	-	-	-	50,000	200,000	300,000	400,000	600,000	660,000	726,000	798,600
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	5,108	7,801	20,432	24,519	29,423	23,538	18,830	19,019	20,921	25,105	30,126	30,427	30,731
General and Administrative	27,370	5,785	4,065	6,911	10,883	27,644	27,920	28,199	28,481	28,766	29,054	29,344	29,638	29,934	30,234	30,536
Settlement Expense	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-
Reimbursement of expenses from Relief Therapeutics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	44,397	9,435	8,188	12,019	18,684	48,076	27,920	28,199	40,481	68,766	83,054	89,344	119,638	128,934	131,874	110,396
Loss from Operations	(44,397)	(9,435)	(8,188)	(12,019)	(18,684)	(48,076)	(27,920)	(28,199)	9,519	131,234	216,946	310,656	480,362	531,066	594,126	688,204
Other (income) Expenses																
Gain on extinguishment of debt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest income	(249)	(156)	(145)	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest expense - Convertible note	505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in fair value of warrant liability	(255)	1,772	663	-	-	-	-	-	-	-	-	-	-	-	-	-
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)	(12,019)	(18,684)	(48,076)	(27,920)	(28,199)	9,519	131,234	216,946	310,656	480,362	531,066	594,126	688,204
	-	(106)	128	-	-	22	-	-	476	10,499	21,695	55,918	115,287	148,698	178,238	213,343
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)	(12,019)	(18,684)	(48,098)	(27,920)	(28,199)	9,043	120,735	195,252	254,738	365,075	382,367	415,889	474,861
GAAP-EPS	(0.61)	(0.16)	(0.12)	(0.11)	(0.14)	(0.54)	(0.19)	(0.15)	0.04	0.56	0.91	1.18	1.68	1.75	1.90	2.16
GAAP EPS (dil)	(0.61)	(0.13)	(0.09)	(0.10)	(0.12)	(0.42)	(0.16)	(0.12)	0.03	0.46	0.74	0.96	1.37	1.75	1.90	2.16
Wgtd Avg Shrs (Bas) '000	65,767	67,454	73,221	109,313	130,406	95,099	150,062	194,209	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	124,763	151,011	115,599	176,225	234,097	261,975	263,024	264,078	265,136	266,198	267,264	268,335	269,006

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

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Current as of 14-Dec-23

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	21	61.76%	4	11.80%
Market Perform (Neutral)	13	38.24%	2	5.90%
Market Underperform (Sell)	0	0%	0	0.00%
Total	34	100%	6	17.70%

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