

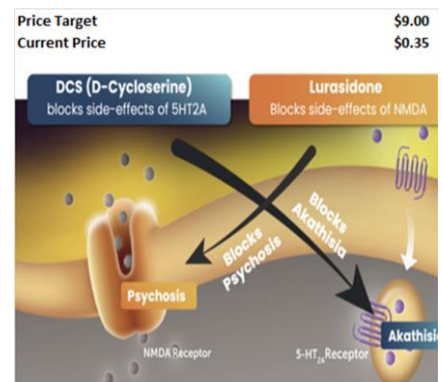
NRx Pharmaceuticals, Inc. (NRXP) – Buy

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NRx Licenses IP for NRX-101 for Chronic Pain

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NRx Pharma announces it has signed a License agreement for US Patent 8,653,120 that claims the use of D-cycloserine for the treatment of chronic pain in exchange for a commitment to pay milestones and royalties as development milestones are reached in the field of chronic pain. NRx also signed an agreement with Vania Apkarian, Professor of Physiology, Anesthesia, Surgery, and Neuroscience Institute, Northwestern University Feinberg School of Medicine to join the NRx Pharmaceuticals Scientific Advisory board (SAB).



Source: NRx Pharmaceuticals

Price Target		\$9.00
Current Price		\$0.35
Stock Data		
52-Week Range	\$0.35 -	\$1.54
Shares Outstanding (mil.)	70.3	
Market Capitalization (mil.)	\$25	
Enterprise Value (mil.)	\$8	
Debt to Capital	0%	
Book Value/Share	\$7.69	
Price/Book	10.0	
Average Three Months Trading Volume (K)	83	
Insider Ownership	39.9%	
Institutional Ownership	4.4%	
Short interest (mil.)	1.7%	
Dividend / Yield	\$0.00/0.0%	



Investment Highlights (Press Release): NRX-101 Indication – Chronic Pain

- In June 2023, the Company announced a prioritization of chronic pain as the next focus on NRX-101's development.
- DCS has been shown to modulate the Pain Pathway at each point in the chain: pain transmission at dorsal horn of the spinal cord, pain perception in the thalamus ("paleo brain"), and pain memory and processing between the paleo brain and the cortex.
- In experimental mouse models and clinical studies, NMDA antagonists have demonstrated attenuation of pain and shown potential in reducing opioid craving. Additionally, DCS has demonstrated no potential for addiction, unlike ketamine, NMDA antagonists and opioids.
- Chronic pain is estimated to be a \$60 billion industry today with the potential to grow to a \$120 billion industry by 2033.
- D-cycloserine was evaluated in a pilot study at Northwestern University, which showed efficacy at the higher dose levels in the study (Schnitzer, 2016). DCS is currently being examined in a confirmatory trial (n>200) in lower back pain at Northwestern University. Data are expected shortly.
- Research conducted by NRx Pharmaceuticals demonstrated a 25 µg/ml dose at which d-cycloserine becomes an NMDA antagonist. The 400mg dose presented in the confirmatory trial at Northwestern University is at the lower end of the threshold and suggests that the ability to increase the d-cycloserine dose beyond 400mg, where lurasidone is used to prevent CNS side effects.

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 \$9.0.

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

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. However, we also assume that with success, the company can repurchase stock (in the out-years) and create an efficient capital structure, and we may see an early license deal that brings in non-dilutive capital and or reduces expenses. This change is what principally drives our valuation target from \$3.0 (which was based on a fully diluted share count in 2033) to \$9.0. 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	\$	9
Price Target	\$	7
Year		2023

DCF Valuation Using FCF (mil):

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	211,234	380,946	565,656	837,362	1,030,866	1,150,374	1,328,536
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	194,335	342,852	463,838	636,395	742,223	805,262	916,690
CapEx												
Depreciation												
Change in NWC												
FCF	(39,816)	(48,076)	(27,920)	(28,199)	9,043	194,335	342,852	463,838	636,395	742,223	805,262	916,690
PV of FCF	(51,761)	(48,076)	(21,477)	(16,686)	4,116	68,042	92,340	96,096	101,420	90,989	75,936	66,495
Discount Rate												
Long Term Growth Rate												
Terminal Cash Flow												
Terminal Value YE2033												
NPV												
NPV-Debt												
Shares out (thousands)												
NPV Per Share												

Source: Dawson James estimates

Exhibit 2. Discounted EPS Model

Current Year	2023
Year of EPS	2033
Earnings Multiple	15
Discount Factor	30%
Selected Year EPS	\$ 9.15
NPV	\$ 9.96

Source: Dawson James estimates

		Discount Rate and Earnings Multiple Varies, Year is Constant					
		2033 EPS					
Earnings Multiple	10.0	5%	10%	15%	20%	25%	30%
	5		\$28.10	\$17.64	\$11.31	\$7.39	\$4.91
10		\$56.19	\$35.29	\$22.62	\$14.78	\$9.83	\$ 6.64
15		\$84.29	\$52.93	\$33.94	\$22.17	\$14.74	\$ 9.96
20		\$112.38	\$70.58	\$45.25	\$29.56	\$19.66	\$ 13.28
25		\$140.48	\$88.22	\$56.56	\$36.96	\$24.57	\$ 16.60
30		\$168.57	\$105.87	\$67.87	\$44.35	\$29.48	\$ 19.92
35		\$196.67	\$123.51	\$79.19	\$51.74	\$34.40	\$ 23.24
40		\$224.76	\$141.15	\$90.50	\$59.13	\$39.31	\$ 26.56

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						\$4.75
NRX-101 for PTSD	1%	30%	5	80%	\$800	\$2,759
NPV						\$4.75
NPV						
						80%
MM Shrs OS (2030E)						100
Total						\$9.50

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

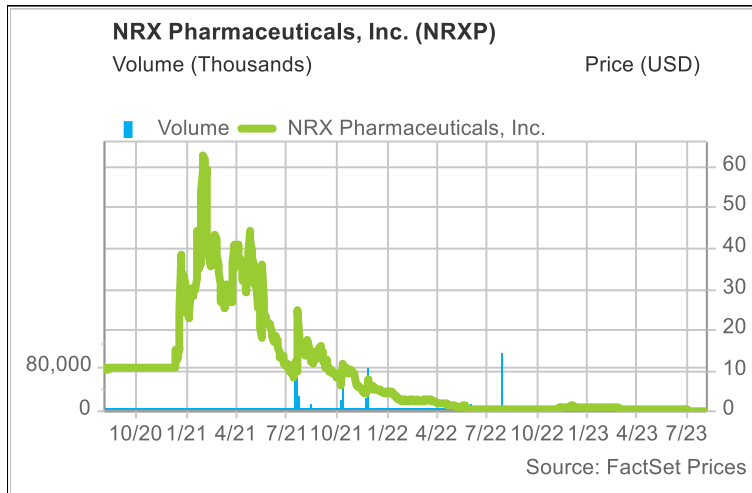
NRx Pharmaceuticals: Income Statement																
000 - YE December 31	2022A	1Q23A	2Q23E	3Q23E	4Q23E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E
Product sales	-	-	-	-	-	-	-	-	50,000	200,000	300,000	400,000	600,000	660,000	726,000	798,600
NRX-101 for BPD	-	-	-	-	-	-	-	-	-	100,000	200,000	300,000	420,000	588,000	646,800	711,480
NRX-101 for PTSD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Product Sales	-	-	-	-	-	-	-	-	50,000	300,000	500,000	700,000	1,020,000	1,248,000	1,372,800	1,510,080
Expenses																
COGS	-	-	-	-	-	-	-	-	12,000	60,000	90,000	105,000	153,000	187,200	192,192	151,008
COGS %	0%	0%	0%	0%	0%	0%	0%	0%	24%	20%	18%	15%	15%	15%	14%	10%
Research and Development	17,027	3,650	5,108	5,108	6,566	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	6,911	6,911	8,037	27,644	27,920	28,199	28,481	28,766	29,054	29,344	29,638	29,934	30,234	30,536
Settlement Expense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reimbursement of expenses from Relief Therapeutics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	44,397	9,435	12,019	12,019	14,603	48,076	27,920	28,199	40,481	88,766	119,054	134,344	182,638	217,134	222,426	181,544
Loss from Operations	(44,397)	(9,435)	(12,019)	(12,019)	(14,603)	(48,076)	(27,920)	(28,199)	9,519	211,234	380,946	565,656	837,362	1,030,866	1,150,374	1,328,536
Other (income) Expenses																
Gain on extinguishment of debt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest income	(249)	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest expense - Convertible note	505	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in fair value of warrant liability	(255)	1,772	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in fair value of Earnout Cash liability	(4,582)	(12)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total other (income) expense	(4,581)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Loss	(39,816)	(11,039)	(12,019)	(12,019)	(14,603)	(48,076)	(27,920)	(28,199)	9,519	211,234	380,946	565,656	837,362	1,030,866	1,150,374	1,328,536
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)	(12,019)	(12,019)	(14,603)	(47,970)	(27,920)	(28,199)	9,043	194,335	342,852	463,838	636,395	742,223	805,262	916,690
GAAP-EPS	(0.61)	(0.16)	(0.13)	(0.11)	(0.11)	(0.51)	(0.19)	(0.15)	0.04	0.90	1.59	2.14	2.92	3.40	3.67	9.15
GAAP EPS (dil)	(0.61)	(0.13)	(0.12)	(0.10)	(0.10)	(0.41)	(0.16)	(0.12)	0.03	0.74	1.30	1.75	2.39	3.40	3.67	9.15
Wgtd Avg Shrs (Bas) '000	65,767	67,454	93,676	109,613	130,709	100,363	150,372	194,532	214,210	215,068	215,930	216,795	217,663	218,535	219,411	100,150
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	100,150

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

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Current as of 3-Aug-23

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
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Market Perform (Neutral)	11	31%	3	8.60%
Market Underperform (Sell)	0	0%	0	0.00%
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